

CITY OF ALAMEDA

SPECIFICATIONS AND PLANS

FOR

FIRE STATION NO. 2

PAVEMENT IMPROVEMENTS

No. P.W. 05-20-25

SEALED PROPOSALS ARE DUE AT **2:00 PM June 9, 2020**

LOCATION: **PUBLIC WORKS DEPARTMENT
CITY HALL WEST
950 W. MALL SQUARE, ROOM 110
ALAMEDA, CA 94501**

NO MANDATORY PREBID MEETING

CITY OF ALAMEDA
950 WEST MALL SQUARE #110
ALAMEDA, CA 94501
Project Manager: Abdulla Ahmed
(510) 747-7937
Email: aahmed@alamedaca.gov

CITY ENGINEER'S APPROVAL

THE PROJECT SPECIFICATIONS CONTAINED HEREIN, FOR FIRE STATION NO. 2 CONCRETE IMPROVEMENTS HAVE BEEN APPROVED BY THE CITY ENGINEER IN ACCORDANCE WITH CITY OF ALAMEDA ORDINANCE NO. 3154 AND CALIFORNIA GOVERNMENT CODE 830.6.



Scott Wikstrom, P.E.
C56266 City Engineer
City of Alameda, CAS

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Attachment: Geotechnical Investigation Report dated August 24, 2018 and April 15, 2020 as stated in General Note 4 (Sheet 1) of the Construction Plans

GENERAL REQUIREMENTS

SECTION I. PROPOSAL AND CONTRACT REQUIREMENTS

A. GENERAL INFORMATION. The City of Alameda will receive sealed bid at the time and place specified in the advertisement calling for bids for:

FIRE STATION NO. 2 PAVEMENT IMPROVEMENTS

(Located at 635 Pacific Ave. Alameda, CA 94501)

No. P.W. 05-20-25

Electronic specifications and bidder's forms for bidding this project can only be obtained at the City of Alameda website, <https://www.alamedaca.gov/BUSINESS/Bid-on-City-Contracts>, or by calling (510) 747-7900. There is no cost for the specifications. **It is the responsibility of each prospective bidder to check the website periodically for updates, such as Addenda.**

Please direct all your questions to Abdulla Ahmed at aahmed@alamedaca.gov or at (510)747-7939.

The Project Manual (and any Addenda) is also available online at <https://www.alamedaca.gov/BUSINESS/Bid-on-City-Contracts>.

B. EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS AND SITE OF WORK. The bidder is required to examine carefully the site and the proposal, plans, specifications and contract forms for the work contemplated, and it will be assumed that the bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality and quantities of work to be performed and materials to be furnished, and as to the requirements of the specifications, the special provisions and the contract.

C. DESIGNATIONS. As used herein "City" shall mean the City of Alameda; "Council" or "City Council" shall mean the Council of the City; "City Manager" shall mean the City Manager of the City; "Engineer" or "City Engineer" shall mean the City Engineer or City Engineer's designee of the City; "Director" shall mean the Public Works Director of the City; and "Contractor" shall mean the bidder who is awarded the contract for the work.

D. PROPOSAL FORM. All bids must be made upon blank forms which are included in these specifications (Exhibit A). **All bids must include all items in Exhibit A. All bidders must have completed at least three projects of similar nature and dollar value equivalent to or exceeding this project. Furnish details of those projects on the Reference Form included in Exhibit A.**

All bids must give the prices proposed. Bids must be signed by the Bidder. If the proposal is signed by an individual, that individual's name and business address must be shown. If made by a firm or partnership, the name and the post office address of each member of the firm or partnership must be shown. If made by a corporation, the proposal must show the name of the state under the laws of which the corporation was chartered and the names, titles, and business addresses of the president, secretary and treasurer.

E. PRESENTING AND MARKING OF BIDS. Bids must be presented to the Public Works Department, 950 W. Mall Square, Room 110, Alameda, California, under sealed cover, plainly marked on the outside,

(NAME OF BIDDER)
FIRE STATION NO. 2 CONCRETE IMPROVEMENTS
IN ALAMEDA COUNTY
ALAMEDA, CALIFORNIA

Bids must be received by the Public Works Department by **2:00 p.m.** on the date set forth in the following paragraph.

Bids will be opened in the Public Works Department, 950 W. Mall Square, Room 110, Alameda, California, **at 2:01 p.m. on Tuesday, June 9, 2020.**

F. BIDDER'S GUARANTY. All bids shall be accompanied by one of the following forms of bidder's guaranty: cash, a cashier's check, a certified check, or a bidder's bond executed by an admitted surety insurer, made payable to the City of Alameda. The security shall be in an amount equal to at least ten percent (10%) of the amount bid. A bid shall not be considered unless one of the forms of bidder's security is enclosed with it. If, in lieu of depositing cash, a cashier's check, or a certified check, the bidder submits a bidder's bond, the said bond shall, in form, be satisfactory to the City Attorney of the City of Alameda. A Bid Bond form is provided in Exhibit A.

Said bidder's guaranty which is submitted according to the above paragraph shall, in the event of the failure, for any reason, of the successful bidder or bidders to execute the contract as awarded, be deemed to be liquidated damages to be retained in full by the City of Alameda, but shall not be construed as a penalty for failure to execute said contract. The full amount of the said bidder's guaranty shall also be retained in full by the City of Alameda as consideration payable to the City of Alameda for engineering, accounting and clerical services in formulating specifications for such bid or bids, for advertising costs to the City of Alameda in connection with such bid or bids, and further, as consideration for the award of such contract to such bidder or bidders.

Any bid bond submitted under this Section shall incorporate therein by reference, or otherwise, all of the provisions of Section I, Item F, of these specifications.

G. RETURN OF BIDDER'S GUARANTIES. Within ten (10) days after the award of the contract, the Public Works staff will return the proposal guaranties accompanying the bids which are not to be considered in making the award. All other proposal guaranties will be held until the contract has been finally executed, after which they will be returned to the respective bidders whose bids they accompanied.

H. TAXES. Bids must include all state and federal taxes applicable to the transaction.

I. SUBCONTRACTORS. All contractors shall comply with the State Subletting and Subcontracting Fair Practices Act, located in Sections 4100 through 4112 of the California Public Contract Code. A copy of said Act is available in the office of the City Engineer. Said Act is hereby made a part of the specifications on the above-mentioned job and all contractors submitting bids shall accompany the bid with information regarding subcontractors as therein provided. All Subcontractors shall have a current City of Alameda business license.

J. REJECTION OR RETURN OF BIDS. Bids may be rejected if they show any alterations of form, additions not called for, conditional or alternative bids, incomplete bids, erasures or irregularities of any kind. The right is reserved to reject any and all bids. The City reserves the right to return bids unopened.

K. BID PROTEST. Any bid protest must be submitted in writing to the Public Works Director, City of Alameda Public Works Department, City Hall West, 950 West Mall Square, Room 110, Alameda, CA 94501 before 5:00 p.m. of the 10th business day following bid opening.

1. The initial protest document shall contain a complete statement of the basis for the protest.
2. The protest shall refer to the specific portion of the document which forms the basis for the protest.
3. The protest shall include the name, address, and telephone number of the person representing the protesting party.
4. The party filing the protest shall concurrently transmit a copy of the initial protest document and any attached documentation to all other parties with a direct financial interest which may be adversely affected by the outcome of the protest. Such parties shall include all other Bidders or proposers who appear to have a reasonable prospect of receiving an award depending upon the outcome of the protest.
5. The Public Works Director will issue a decision on the protest. If the Public Works Director determines that a protest is frivolous, the party originating the protest may be determined to be irresponsible and that party may be determined to be ineligible for future contract awards.
6. The procedure and time limits set forth in this paragraph are mandatory and are the Bidder's sole and exclusive remedy in the event of Bid protest and failure to comply with these procedures shall constitute a waiver of any right to further pursue the bid protest, including filing a Government Code Claim or legal proceedings.

L. AWARD OF CONTRACT. The award of contract, if it be awarded, will be to the responsible bidder who submits the lowest and best bid and whose proposal complies with all requirements described herein. The award, if made, will be made within ninety (90) days after the opening of the bids. All bids will be compared on the basis of the Engineer's estimate of quantities of work to be done. In the event of a delay, the City reserves the right to hold the Bidder to its bid for 90 days from the date the contract is awarded.

Bid protests, contracts, bonds, insurance, and other documents identified in these specifications and these special provisions are to be delivered to the following City address: City of Alameda, City Hall West, Public Works Department, 950 West Mall Square, Room 110, Alameda, CA 94501.

M. EXECUTION OF CONTRACT. The contract, in form and content satisfactory to the City, will be awarded at a regular City Council meeting (first and third Tuesdays of each month, except August). At least five (5) business days prior to the anticipated award date, the Contractor will be notified of apparent award status and requested to provide the documents necessary to complete the contract process. Required documentation shall include two (2) copies of the contract executed by the Contractor, proof of insurance and Payment and Performance bonds. The Contractor will be given five (5) business days from the date the City Council awards the contract to obtain the relevant bonds and insurance along with any other documents required for submission.

No proposal shall be considered binding upon the City until the execution of the contract. Failure to execute a contract and file acceptable bonds and insurance as provided herein within the time frame outlined above shall be just cause for the annulment of the award and the forfeiture of the bidder's guaranty.

N. CONTRACT BONDS. The Contractor shall furnish two good and sufficient bonds. One of the bonds shall be executed in a sum equal to at least one hundred percent (100%) of the contract price, which shall be furnished as required by the Terms of Section 3247 to 3252 of the Civil Code of the State of California (see Exhibit B). The other bond shall guaranty faithful performance of the said contract by the Contractor and shall be executed in a sum equal to at least one hundred percent (100%) of the contract price (see Exhibit B). Bonds shall be furnished by a surety company satisfactory to the City of Alameda.

Whenever any surety or sureties on any such bonds, or any bonds required by law for the protection of the claims of laborers and materials, become insufficient or the City Engineer has cause to believe that such surety or sureties have become insufficient, a demand in writing may be made of the Contractor for further bond or bonds or additional surety not exceeding that originally required, as is considered necessary, taking into account the extent of the work remaining to be done. Thereafter no payment shall be made upon such contract to the Contractor, or any assignee of the Contractor, until such further bond or bonds or additional surety has been furnished. Faithful performance bonds, whether by individual or corporate surety, shall in addition to other terms and conditions, contain the conditions that (1) death of the named principal shall not operate as a release of the obligation hereunder of the surety, and (2) extensions of time, if any, granted by the City to Contractor for performance of the work covered by said bond shall extend for a like time the period of limitations during which surety shall remain bound by the said undertaking.

SECTION II. LEGAL RELATIONS AND RESPONSIBILITIES

A. LAWS TO BE OBSERVED. The Contractor shall keep himself fully informed of all existing and future state and federal laws and all municipal ordinances and regulations of the City of Alameda which in any manner affect those engaged or employed in the work, or the materials used in the work, or which in any way affect the conduct of the work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same.

B. RESERVED

C. DEPARTMENT OF INDUSTRIAL RELATIONS COMPLIANCE AND PREVAILING WAGE REQUIREMENTS ON PUBLIC WORKS PROJECTS.

1. Effective January 1, 2015, no Contractor or Subcontractor may be listed on a bid proposal for a public works project (submitted after March 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code Section 1725.5 (with the limited exceptions from this requirement for bid purposed only under Labor code Section 1771.1(a)). Register at <https://efiling.dir.ca.gov/PWCR>

2. 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.

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

4. The Prime Contractor is required to post job site notices prescribed by regulations. See 8 Calif. Code Regulation §16451(d).

5. Effective April 1, 2015, All Contractors and Subcontractors must furnish electronic certified payroll records directly to the Labor Commissioner at: <https://apps.dir.ca.gov/ecpr/das/altlogin>

D. PREVAILING WAGES:

1. The Contractor is aware of the requirements of California Labor Code sections 1720 et seq. and 1770 et seq., as well as California Code of Regulations, Title 8, section 16000 et seq. ("Prevailing Wage Laws"), which require the payment of prevailing wage rates and the performance of other requirements on certain "public works" projects. Since this Project involves a "public work" project, as defined by the Prevailing Wage Laws, Contractor shall fully comply with such Prevailing Wage Laws. Contractor's failure to comply with the Prevailing Wage Law may constitute a default under the contract for performance of the work which would entitle the City to rescind the contract or exercise other remedies as provided by law or the contract.

2. The Contractor shall obtain a copy of the prevailing rates of per diem wages at the commencement of this contract from the website of the Division of Labor Statistics and Research of the Department of Industrial Relations located at <http://www.dir.ca.gov/dlsr/>. In the alternative,

the Contractor may view a copy of the prevailing rates of per diem wages at the City's Public Works Department, Building 1, 950 W. Mall Square, Room 110, Alameda. The Contractor shall make copies of the prevailing rates of per diem wages for each craft, classification or type of worker needed to perform work on the Project available to interested parties upon request, and shall post copies at the Contractor's principal place of business and at the Project site. The Contractor shall defend, indemnify, and hold the City, its elected officials, officers, employees, volunteers, and agents free and harmless from any claims, liabilities, costs, penalties or interest arising out of any failure or allege failure to comply with the Prevailing Wage Laws and/or the City's Labor Compliance Program (hereinafter referred to as "LCP"), if any.

3. If this project is funded in whole or in part with Federal monies and subject to the provisions of the Davis-Bacon Act, the successful bidder shall pay not less than the wage rates determined by the Secretary of Labor. The Federal wage rates shall apply unless the State wage rates are higher. The Federal Wage Rates applicable to the contract are those current within ten (10) days of the bid due date.

4. The Contractor and all subcontractors shall pay and shall cause to be paid each worker engaged in work on the Project not less than the general prevailing rate of *per diem* wages determined by the Director, regardless of any contractual relationship which may be alleged to exist between the Contractor or any Subcontractor and such workers.

5. The Contractor and all subcontractors shall pay and shall cause to be paid to each worker needed to execute the work on the Project travel and subsistence payments, as such travel and subsistence payments are defined in the applicable collective bargaining Contracts filed with the Department of Industrial Relations in accordance with Labor Code § 1773.8.

6. If during the period any bid for work on this Project remains open, the Director of Industrial Relations determines that there has been a change in any prevailing rate of *per diem* wages in the locality in which this public work is to be performed, such change shall not alter the wage rates in the Notice calling for Bids or the contract subsequently awarded.

7. Pursuant to Labor Code §1775, the Contractor shall as a penalty to the City, forfeit Fifty Dollars (\$50.00) for each calendar day, or portion thereof, for each worker paid less than the prevailing rate of *per diem* wages, determined by the Director, for such craft or classification in which such worker is employed for any public work done under the Contract by the Contractor or by any Subcontractor under it. The amount of the penalty shall be determined by the Labor Commission. In addition, the difference between such prevailing rate of *per diem* wage and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing rate of *per diem* wage shall be paid to each work by the Contractor.

8. Any worker employed to perform work on the Project, which work is not covered by any craft or classification listed in the general prevailing rate of *per diem* wages determined by the Director, shall be paid not less than the minimum rate of wages specified therein for the craft or classification which most nearly corresponds to the work on the Project to be performed by them, and such minimum wage rate shall be retroactive to time of initial employment of such person in such craft or classification.

9. For those crafts or job classifications requiring special prevailing wage determinations, please contact the Division of Labor Statistics and Research, Prevailing Wage Unit, P.O. Box 420603, San Francisco, CA 94142-0603, (415) 703-4774 or check out the web site at <http://www.dir.ca.gov>.

E. HOURS OF LABOR.

1. As provided in Article 3 (commencing at §1810), Chapter 1, Part 7, Division 2 of the Labor Code, eight (8) hours of labor shall constitute a legal day's work. The time of service of any worker employed at any time by the Contractor or by any Subcontractor on any subcontract under this Contract, upon the work or upon any part of the work contemplated by this Contract, is limited and restricted to eight (8) hours during any one calendar day and forty (40) hours during any one calendar week, except as hereinafter provided. Notwithstanding the provision hereinabove set forth, work performed by employees of Contractor in excess of eight (8) hours per day and forty (40) hours during any one week shall be permitted upon this public work provided that the employees' compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half (1-1/2) times the basic rate of pay.

2. The Contractor shall pay to the City a penalty of Twenty-five Dollars (\$25.00) for each worker employed in the execution of this Contract by the Contractor, or by any Subcontractor, for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any calendar day and forty (40) hours in any one (1) calendar week, in violation of the provisions of Article 3 (commencing at §1810), Chapter 1, Part 7, Division 2 of the Labor Code, unless compensation for the workers so employed by Contractor is not less than one and one-half (1-1/2) times the basic rate of pay for all hours worked in excess of eight (8) hours per day.

3. Holiday and overtime work, when permitted by law, shall be paid for at a rate of at least one and one-half (1½) times the above specified rate of *per diem* wages, unless otherwise specified. Holidays shall be defined in the Collective Bargaining Contract applicable to each particular craft, classification, or type of worker employed.

F. CERTIFIED PAYROLL.

1. Contractor's attention is directed to California Labor Code Section 1776, which requires Contractor and any subcontractors to keep an accurate payroll record and which imposes inspection requirements and penalties for non-compliance. Contractor is responsible for the submission of copies of payrolls by all subcontractors. Each payroll submitted shall be accompanied by a "Statement of Compliance", signed by the Contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract, and shall certify the following:

- a. That the payroll for each payroll period contains the name, social security number, and address of each employee, his or her correct classification, including applicable area and group code, hourly rates of wages paid, daily and weekly number of hours worked, deductions made and actual wages paid, and that such information is correct and complete;
- b. That such laborer or mechanic (including each helper, apprentice and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions; and
- c. That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

2. If the Contractor or a subcontractor does not work during the payroll period, a Statement of Non-Working Days must be submitted for each day not worked.

3. In the event of noncompliance with the requirements of such section after 10 Days written notice specifying in what respects compliance is required, the CONTRACTOR shall forfeit as a penalty to the CITY, \$25.00 for each calendar Day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, such penalties shall be withheld from progress payments then due.

G. APPRENTICES.

1. Attention is directed to the provisions in sections 1777.5 and 1777.6 of the Labor Code concerning the employment of apprentices by the Contractor or any subcontractor under him on contracts greater than \$30,000 or 20 working days. The Contractor and any subcontractor under him shall comply with the requirements of Sections 1777.5 and 1777.6 in the employment of apprentices.

2. Section 1777.5 requires the Contractor or subcontractor employing workers in any apprenticeable occupation to apply to the joint apprenticeship committee nearest the site of the public works project, and which administers the apprenticeship program in that trade, for a certificate of approval, if they have not previously applied and are covered by the local apprenticeship standards.

3. The Contractor is required to make contributions to funds established for the administration of apprenticeship programs if: (1) the Contractor employs registered apprentices or journeymen in any apprenticeable trade on such contracts and if other contractors on the public works site are making such contributions; or (2) if the Contractor is not a signatory to an apprenticeship fund and if the funds administrator is unable to accept Contractor' required contribution. The Contractor or subcontractor shall pay a like amount to the California Apprenticeship Council.

4. Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex-officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

H. LABOR DISCRIMINATION. No discrimination shall be made in the employment of persons upon public works because of the race, color, sex, religion, age, national origin, sexual orientation, or physical disability of such persons and every Contractor for public works violating this section is subject to all the penalties imposed for a violation of the provisions of the Labor Code, and, in particular, Section 1735.

I. REGISTRATION OF CONTRACTORS. Before submitting bids, contractors shall be licensed in accordance with the provisions of Chapter 9, Division 3, of the Business and Professional Code of the State of California. All Contractors must have an "A" license or a "C" license that allows them to complete the work specified herein, in a professional manner consistent with these specifications.

J. PERMITS AND LICENSES. The Contractor shall procure all permits and licenses, including City of Alameda business licenses, pay all charges and fees, and give all notices necessary and incidental to the due and lawful prosecution of the work. However, the contractor will be reimbursed for construction permit fees. The estimated cost shown as an allowance in the

bid proposal is only for bidding purposes. Payment shall be made for the actual cost of the permit. The cost for a City of Alameda business license is not reimbursable. Each Subcontractor shall have a current City of Alameda business license.

The following permit(s) and/or license(s) are required for this project:

1. **A City of Alameda Business License**

A City of Alameda business license can be obtained at the following address

City of Alameda
Finance Department,
2263 Santa Clara Avenue, Room 220
Alameda, CA 94501

<https://www.alamedaca.gov/BUSINESS/Business-Licensing-Permits>

K. PATENTS. The Contractor shall assume all costs arising from the use of patented materials, equipment, devices or processes used on or incorporated in the work, and agrees to indemnify and hold harmless the City of Alameda, its officers, employees and agents from all suits at law or actions of any nature, damages, royalties and costs on account of the use of any patented materials, equipment, devices or processes.

L. RESPONSIBILITY FOR DAMAGES. The City of Alameda, its officers, employees and agents shall not be answerable or accountable in any manner for any loss or damage to the work or any part thereof, nor to any material or equipment used in performing the work, nor for injury or damage to any person or persons, either workers or the public, nor for damage to adjoining property from any cause whatsoever during the progress of the work nor at any time before final acceptance.

M. CONTRACTOR'S RESPONSIBILITY FOR THE WORK. Except as provided above, until formal acceptance of the work by the City, the Contractor shall have the charge and care thereof and shall bear the risk of injury or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof, except such injuries or damages occasioned by acts of the Federal Government or the public enemy. The Contractor will not be responsible for the cost of repairing or restoring damage to the work, which damage is determined to have been proximately caused by an act of God, in excess of 5% of the contracted amount.

N. SAFETY PROVISIONS. The Contractor shall conform to the rules and regulations pertaining to safety established by the California Division of Occupational Safety and Health of the Industrial Relations Department (CAL-OSHA).

O. NO PERSONAL LIABILITY. Neither the City Council, City Manager, the City Engineer, nor any other City officer, authorized assistant or agent shall be personally responsible for any liability arising under this contract.

P. RESPONSIBILITY OF CITY. The City of Alameda shall not be held responsible for the care or protection of any material or parts of the work prior to final acceptance, except as expressly provided in these specifications.

Q. PUBLIC CONVENIENCE AND SAFETY. The Contractor shall so conduct operations as to cause the least possible obstruction and inconvenience to public traffic. The Contractor shall furnish, erect and maintain such fences, barriers, lights and signs as are necessary or as required by the Engineer to give adequate warning to the public at all times that the work is in progress and of any dangerous conditions to be encountered as a result of the work or of the presence of the Contractor's equipment or machinery.

The use of Flex-o-Lite Model No. 501, or approved equal, will be permitted only in specifically approved locations and only to the extent of 50 percent of the total amount of necessary lighting. Other models of lesser candle power may be permitted in some approved locations at a lesser percentage.

If the work involves the construction of a street or highway, the following additional provisions shall apply:

All traffic shall be permitted to pass through the work, unless other existing streets are stipulated as detours in the special provisions. Residents and businesses along the affected street or highway shall be provided passage as far as practicable; convenient access to driveways, houses and public buildings along the street or highway shall be maintained and temporary crossings shall be provided and maintained in good condition. No more than one cross or intersecting street or highway shall be closed at any time without the approval of the Engineer.

Contractor shall submit to the Engineer at the pre-construction meeting a Traffic Control Plan for any work that will impact vehicular traffic and pedestrian traffic in the area. The Contractor must have an approved plan prior to commencing of work. All Traffic Control Plans must be in conformance with Caltrans regulations and guidelines.

The Contractor shall furnish, install and maintain such facilities as barricades, traffic signs, and flagmen, as may be necessary to advise the public of construction hazards and to control traffic.

The Traffic Control Plan shall cover, at minimum, all phases of work scheduled to occur in the first twenty (20) working days that will impact vehicular, pedestrian and bicycle traffic in the area. The Traffic Control Plan shall allow residents on the streets impacted ample "on street" parking within one (1) block of their homes. The Contractor shall have an approved Traffic Control Plan prior to commencing of work in the field. Contractor shall submit subsequent additions to the Traffic Control Plan in a timely manner to allow for the Engineer's review and shall be in conformance with Caltrans regulations and guidelines.

At least 72 hours prior to beginning work on a section of street, curb or sidewalk that will affect use of the parking lane, the Contractor shall notify, by approved "No Parking - Tow Away" signs on barricades, all affected property owners, residents, businesses and agencies adjacent to

that section of street. The "No-Parking" signs shall state the days, dates, and hours of parking lane closure, and shall be placed along the street on each side at no more than 50 feet spacing. The Contractor shall notify the Engineer at least one (1) working day in advance of the intent to post No-Parking signs, so that the timely posting can be verified by the Inspector. The Contractor is permitted to list up to one (1) working day before and one (1) working day after the scheduled days of work, as shown in the latest approved schedule on signs, in order to bracket the approved scheduled date of work. The Contractor shall remove the "No Parking" signs as soon as the parking lane is re-opened to parking.

If the Contractor is unable to meet the scheduled and noticed time for the work, the Contractor shall immediately notify the Engineer and remove the posted "No-Parking" signs. The Contractor shall submit a new scheduling request in writing to the Engineer. Upon written approval of the Engineer, the Contractor shall post signs at least 72 hours prior to beginning work per the revised schedule.

R. NOTICES TO CONTRACTOR. Any notice required to be given to the Contractor by the City of Alameda or by the City Engineer or by any officer of said City may be given to said Contractor at the address shown in the Contractor's proposal. Such notice may be given by mailing a copy of said notice to the Contractor to such address by United States certified mail. Evidence of such mailing shall be deemed the equivalent of personal services of said notice.

S. UTILITIES. The location of railroad tracks, utility facilities and other structures shall be the responsibility of the Contractor. The Contractor shall contact the owners of those tracks, facilities and structures for any information that may be required. The Contractor shall contact USA NORTH 811 forty-eight (48) hours prior to commencement of work; and provide the city with the USA ticket number.

Where existing sewers and storm drains cross or interfere in any way with construction under this contract, they shall be left in place and the Contractor shall work around them, or where feasible and practical, the Contractor may, with the permission of the City Engineer, remove and replace them at his/her own expense. Precautions shall be exercised to provide bearing under existing sewer lines so encountered to preclude settlement during or after the term of the contract. In the event that some of these sewers are abandoned, they may, with the permission of the City Engineer, be removed and not replaced. The Contractor shall provide submittals for the Engineer's review and approval for supporting utilities.

The owners of pipes, wires, conduits, vaults and other utilities (other than sewers) located in the City streets which could conflict with the proposed work will be notified by the City Engineer to remove or adjust the same, without cost to the Contractor, to such extent as will allow the prosecution of the work described herein according to the necessities thereof and in accordance with these specifications. Wherever and whenever the Contractor anticipates working in an area from which utilities must be removed at the expense of others, he/she shall notify the City Engineer sufficiently in advance (a minimum of ten (10) working days) to permit the owners thereof to rearrange or abandon such utilities, and he/she shall cooperate with the owners thereof in the performance of the work under this contract.

The work will be so prosecuted that a minimum of damage will result to utility services. In the event that utility services are damaged or interrupted, the Contractor shall immediately, at his/her own expense, restore such services in a manner satisfactory to the City Engineer. In the event that an interruption of utility services is sustained for a period of longer than one-half hour, it shall be the responsibility of the Contractor to notify the occupants of the premises to which said services are connected, so that no damage will accrue on or to said premises.

The Contractor shall perform all work in such manner as to prevent damage to utilities lying outside of or below a required excavation of trench area.

T. SOUND CONTROL REQUIREMENTS. Sound control shall conform to Section 4-10 of the Alameda Municipal Code, which prohibits weekday construction activities between 7:00 pm and 7:00 am.

U. CONSTRUCTION SITE CONTROLS. Within five (5) business days of the date the work is to commence pursuant to the NTP the Contractor shall submit an Erosion/Stormwater Pollution Prevention Plan (SWPPP) to the City Engineer for review. The SWPPP shall include appropriate erosion and sediment control measures to effectively prevent the entry of soil, dirt, debris and other pollutants to storm water runoff, the storm drain system, lagoons and the bay/estuary during construction. No work in the field under this Contract may begin until the City Engineer has approved the Contractor's SWPPP.

Erosion and sediment control plans/sheets shall indicate the specifications and maintenance schedules for the installation and upkeep of the erosion control mechanisms. Specifications shall be provided for the erosion control practices, perimeter protection(s), any silt fencing and fiber rolls to be used, storm drain inlet protections, stabilized construction entrance(s) and exits, site and excavation dewatering activities, vehicle tire wash area(s), vehicle and equipment servicing area(s), and the materials handling and storage area(s). These specifications should meet the same level of erosion and sediment control effectiveness established by practices identified in the San Francisco Bay Regional Water Quality Control Board's Erosion and Sediment Control Field Manual (510-622-2465), the Association of Bay Area Government's Manual of Standards for Erosion and Sediment Control (510-464-7900) and/or the California Stormwater Quality Association's Stormwater Best Management Practice Handbook – Construction (2003) (www.cabmphandbooks.com). Contact City Public Works Department Clean Water Program Specialist **Jim Barse (510-747-7930)** for additional assistance in obtaining copies of these reference documents.

The Contractor is responsible for ensuring that all of his/her workers and subcontractors are aware of and implement the specific stormwater quality control measures under the approved SWPPP. The Contractor(s) shall avoid creating excess dust when breaking asphalt/concrete and during excavation and grading. If water is to be used as a measure for dust control, use as little as possible. All wash water shall be kept out of streets, gutters and storm drains. Controls shall be implemented before construction begins and maintained until the end of construction at which time they shall be removed.

Failure to comply with the following approved construction Best Management Practices (“BMPs”) shall result in the issuance of correction notices, citations and/or a project stop order:

1. Gather all construction debris on a regular basis and place it in a dumpster or other container which is emptied or removed on a weekly basis. When appropriate, use tarps on the ground to collect fallen debris or splatters that could contribute to stormwater pollution. After breaking old pavement, remove all pieces to avoid contact with rainfall or runoff.
2. Remove on-site piles from the site on a regular basis. Only temporary storage is allowed. All temporary soil or other stockpiles on site shall be securely covered with a tarp, plastic sheeting or similar material.
3. Remove all dirt/mud, gravel, rubbish, refuse and green waste from the sidewalk, street pavement, and storm drain system adjoining the project site daily and prior to rain. Clean up leaks, drips and spills immediately. Avoid unnecessary driving on unpaved areas during wet weather.
4. Install and maintain stabilized construction entrances to minimize the tracking of dirt, mud, dust and debris onto the public right-of-way.
5. Broom-sweep the sidewalk and public street pavement adjoining the project site daily and prior to rain. Caked-on mud or dirt shall be scraped from these areas before sweeping. At the completion of work the street shall be washed and the wash water collected and disposed offsite.
6. Install filter materials (such as block and gravel bags, sandbags, filter fabric) at the storm drain inlets surrounding the project site. Such inlet protections shall be installed before: the start of the rainy season (October 1st), site de-watering activities, saw-cutting activities, or any other activity that may result in the discharge of material to the storm drain. Filter materials shall be maintained and/or replaced as necessary to minimize short-cutting and to remove sediment deposits and buildup. Accumulated sediment/debris shall be disposed of properly.
7. Vacuum saw-cutting slurry and remove from site. Do not allow saw-cut slurry to enter the storm water conveyance system.
8. Create a contained and covered area on the site for the storage of cement bags, paints, flammables, oils, fertilizers, pesticides, or any other materials used on the project site that have the potential for being discharged to the storm drain system by wind, exposure to rainfall or in the event of a material spill.
9. Never clean machinery, tools, brushes, etc. or rinse containers into a street, gutter, storm drain or stream. See the *Building Maintenance and Remodeling* BMP flyer and ACCWP BMP brochures for more information. Contact the Public Works Department at 747-7930 for assistance with obtaining these documents.
10. Ensure that concrete/gunite supply trucks or concrete/plaster finishing operations do not discharge wash water into street gutters or drains. Concrete trucks shall have a self-contained washout system or discharge to a dedicated, secure site washout in order to avoid the possibility of debris on city streets or discharge of wash water to the storm water conveyance system.
11. Minimize removal of natural vegetation or ground cover from the site in order to minimize the potential for erosion and sedimentation problems. Re-plant the area, and stabilize all cut and fill slopes as soon as possible after grading is completed. At a minimum, 4,000 pounds/acre of straw with tackifier should be placed on all exposed soils including those within active work areas and flat lots. **No site grading shall occur between October 1 and May 31 unless approved erosion and sedimentation control measures are in place.**

12. Provide erosion “prevention” and perimeter protection measures (soil stabilization) such as fiber rolls, silt fence, and/or sediment traps or basins. Ensure control measures are adequately maintained and in operable condition. Sediment controls, including inlet protection, are necessary but should be a secondary defense behind good erosion control and site perimeter measures.

13. Design site de-watering operations to prevent the discharge of any sediment, debris or other pollutants to the municipal storm water conveyance system.

14. Maintain and if necessary, repair, all erosion prevention and sediment control measures throughout the contract term. Replacement supplies should be kept on site. Site inspections shall be conducted before and after each storm event, and every 24 hours for extended storm events, to identify areas that contribute to erosion and sediment problems or any other pollutant discharges. If additional measures are needed, inform the City Engineer immediately and document all inspection findings and actions taken.

15. Conduct visual observations before, during, and after storm events. Any breach, malfunction, leakage, or spill observed that could result in the discharge of pollutants to surface waters that might not be visually detectable in stormwater shall trigger the collection of a sample of discharge. The following procedures shall be followed during sampling:

Sampling Procedures:

- For all construction activity, identify a sampling and analysis strategy and sampling schedule for potential discharges discovered through visual monitoring.
- Any breach, malfunction, leakage, or spill observed during visual monitoring which could result in the discharge of pollutants to surface waters that would not be visually detectable in stormwater shall trigger the collection of a sample of discharge.
- Samples shall be collected at all discharge locations which drain the areas identified by the visual observations and which can be safely accessed.
- Personnel trained in water quality sampling procedures shall collect stormwater samples.
- An uncontaminated sample shall be collected for comparison with the discharge sample.
- Sampling shall be conducted during the first two hours of discharge from rain events that occur during daylight hours and which generate runoff.
- The uncontaminated sample shall be compared to the samples of discharge using field analysis or through laboratory analysis. Analyses may include, but are not limited to indicator parameters such as: pH, specific conductance, dissolved oxygen, conductivity, salinity, and TDS
- All field and/or analytical data shall be kept in the SWPPP document, which is to remain at the construction site at all times.

16. Contact the City of Alameda Public Works Department at 510-747-7930 in the event of any slope failure, sediment pond overflow, or any other malfunction resulting in sediment-laden runoff. The City shall, in turn, report such incidents to the Regional Water Quality Control Board.

17. Clearly mark with the words, “No Dumping! Drains to Bay” or the equivalent, using methods approved by the City of Alameda, onto the on-site storm drain inlets. All on-site storm drains must be inspected and, if necessary, cleaned, at least once a year immediately prior to the rainy season. Additional cleaning may be required by the City of Alameda.

18. Require all concrete trucks used in the performance of the work to have a self-contained washout system, rather than do washout on the site. The idea is to avoid:
- a. An undesirable pile of concrete on the jobsite, and
 - b. The possibility of debris on city streets.

The objective of these Standard Conditions is to ensure that the City's municipal storm water Permit, the National Pollutant Discharge Elimination System (NPDES) Permit provisions and additional Regional Water Quality Control Board requirements are adequately enforced.

These recommendations are intended to be used in conjunction with the State's Best Management Practices Municipal and Construction Handbooks, local program guidance materials from municipalities, Section 7.1.01, of the Standard Specifications and any other appropriate documents on storm water quality controls for construction. If you need assistance in checking these documents, contact Clean Water Program Specialist at 510-747-7930.

Failure to comply with the above program will result in issuance of noncompliance notices, citations, project stop orders or fines. The fine for noncompliance of the above program is two hundred and fifty dollars (\$250.00) per occurrence per day. The State under the Federal Clean Water Act can also impose a fine on the Contractor.

V. RECYCLING OF CONSTRUCTION AND DEMOLITION DEBRIS REQUIRED. The Contractor shall prepare and submit to alameda.wastetracking.com a Waste Management Plan to recycle at least 65% of construction and/or demolition debris to an approved materials recycling location that has proven and verified recycling rates. Source separation of inerts (concrete, rock, brick, asphalt, etc.) is encouraged where possible. The 65% recycling rate shall be determined by total weight of materials.

The Contractor shall also submit to alameda.wastetracking.com a Summary Report, containing proof of actual recycling results of construction and/or demolition debris hauled from the project (ex. processing facility tonnage receipts verifying at least 65% recycling rate). Proof of an approved Waste Management Plan must be provided to the City Engineer before construction starts and proof of an approved Summary Report must be provided before project acceptance. The Contractor shall submit a request, along with proof in writing, to the City Engineer of the Contractor's inability to comply with this requirement.

W. RESERVED.

X. CLEAN AIR ACT OF 1970, ET SEQ. AND FEDERAL WATER POLLUTION CONTROL ACT AS AMENDED BY THE CLEAN WATER ACT OF 1977. The Contractor agrees to comply with federal clean air and water standards during the performance of this contract and specifically agrees to the following:

- The term "facility" means any building, plant, installation, structure, mine, vessel or other floating craft, location or site of operations owned, leased, or supervised by the Contractor and the subcontractors for the construction, supply and service contracts entered into by the Contractor;

- Any facility to be utilized in the accomplishment of this contract is not listed on the Environmental Protection Agency's List of Violating Facilities pursuant to 40 CFR, Part 15.20;
- In the event a facility utilized in the accomplishment of this contract becomes listed on the EPA list, this contract may be canceled, terminated, or suspended in whole or in part;
- It will comply with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Water Pollution Control Act relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in Section 114 and Section 308, respectively, and all regulations and guidelines issued thereunder;
- It will promptly notify the Government of the receipt of any notice from the Director, Office of Federal Activities, Environmental Protection Agency, indicating that any facility utilized or to be utilized in the accomplishment of this contract is under consideration for listing on the EPA List of Violating Facilities;
- It will include the provisions of Paragraph a. through g. in every subcontract or purchase order entered into for the purpose of accomplishing this contract, unless otherwise exempted pursuant to the EPA regulations implementing the Air or Water Acts above (40 CFR, Part 15.5), so that such provisions will be binding on each subcontractor or vendor;

In the event that the Contractor or the subcontractor for the construction, supply and service contracts entered into for the purpose of accomplishing this contract were exempted from complying with the above requirements under the provisions of 40 CFR, Part 15.5 (a), the exemption shall be nullified should the facility give rise to a criminal conviction (see 40 CFR 15.20) during the accomplishment of this contract. Furthermore, with the nullification of the exemption, the above requirements shall be effective. The Contractor shall notify the Government, as soon as the Contractor's or the subcontractors' facility is listed for having given rise to a criminal conviction noted in 40 CFR, Part 15.20.

Y. SUBMITTALS AND REQUEST FOR INFORMATION (RFI'S). The Contractor shall submit an RFI within five (5) business days of an event or question of fact arising under the Contract. The Engineer in charge of the project shall have ten (10) business days to respond to an RFI or any Submittal required to be made under the Contract.

Z. COMPLIANCE WITH THE CITY'S INTEGRATED PEST MANAGEMENT POLICY: The Contractor shall follow the requirements of the City's Integrated Pest Management (IPM) Policy to ensure the City is in compliance with its Municipal Regional Stormwater NPDES Permit, Order No. R2-2009-0074, issued by the California Regional Water Quality Control Board. Contractor shall follow the City's IPM Policy and utilize generally accepted IPM Best Management Practices (BMPs) to the maximum extent practicable for the control or management of pests in and around City buildings and facilities, parks and golf courses, urban landscape areas, rights-of-way, and other City properties.

Contractor will ensure that applicators will use the most current IPM technologies available to ensure the long-term prevention or suppression of pest problems and to minimize negative impacts on the environment, non-target organisms, and human health. Contractor will consider the options or alternatives listed below in the following order, before recommending the use of or applying any pesticide on City property:

1. No controls (e.g., tolerating the pest infestation, use of resistant plant varieties or allowing normal life cycle of weeds)
2. Physical or mechanical controls (e.g., hand labor, mowing, exclusion)
3. Cultural controls (e.g., mulching, disking, alternative vegetation), good housekeeping (e.g. cleaning desk area)
4. Biological controls (e.g., natural enemies or predators)
5. Reduced-risk chemical controls (e.g., soaps or oils)
6. Other chemical controls

Contractor shall ensure that only appropriate licensed applicators who are authorized and trained in pesticide application and who shall implement the City department's IPM standard operating procedures may apply pesticides to or within City property.

Restricted Chemicals

The term pesticide applies to herbicides, insecticides, fungicides, rodenticides and other substances used to control pests. Antimicrobial agents are not included in this definition of pesticides.

Contractor shall avoid the use of pesticides that threaten water quality, human health and the environment. Thus, the Contractor shall not use or promote the use of the following chemicals:

1. Acute Toxicity Category I chemicals as identified by the Environmental Protection Agency (EPA),
2. Organophosphate pesticides (e.g., those containing Diazinon, chlorpyrifos or malathion)
3. Pyrethroids (bifenthrin, cyfluthrin, beta-cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, lambda-cyhalothrin, permethrin, and tralomethrin),
4. Carbamates (e.g., carbaryl),
5. Fipronil,
6. Copper-based pesticides unless:
 - a) Their use is judicious,
 - b) Other approaches and techniques have been considered, and;
 - c) Threat of impact to water-quality is prevented.

General Pesticide Usage Practices

Contractor shall ensure implementation of the following practices:

1. All pesticide applications shall be performed according to the manufacturer's instructions as detailed on the product label, and in accordance with all applicable state and local laws and regulations set forth to protect the environment, the public, and the applicator; and properly dispose of unused pesticides and their containers.

2. Pesticides that are not approved for aquatic use will not be applied to areas immediately adjacent to water bodies where through drift, drainage, or erosion, there is a reasonable possibility of a pesticide being transported into surface water.
3. Applicators will always avoid applications of pesticides that directly contact water, unless the pesticide is registered under Federal and California law for aquatic use.
4. Obtain coverage under the Statewide General NPDES Permit prior to discharging pollutants from the use of aquatic pesticides directly to the waters of the United States, or onto aquatic plants growing in waters of the United States (as required by the State Water Quality Resources Control Board).

Posting of Warning Notices Prior to Pesticide Application

1. If a pesticide with a “Warning” or “Danger” label indicator must be applied, the Contractor shall post sufficient copies of warning notices (Notice of Scheduled Chemical Application for Pest Management) and MSDS to effectively alert the public (i.e., at all entrances to a building) no less than 48 hours in advance of the pesticide application. The warning notice must be completely filled out, including name of the pesticide (both chemical and brand name), time and date of application, and with a fully legible re-entry time.

Annual Pesticide Use Summary Report

Contractor shall track pesticide use on City properties and provide an annual pesticide use summary report of pesticide application on City properties. The annual pesticide use summary report shall be submitted to the City’s Public Works Department Clean Water Program staff by a date to be determined in the scope of work and shall include the following information:

1. Product name and manufacturer
2. Active ingredient
3. The total quantity of each pesticide used during the prior fiscal year (from July 1 to June 30)
4. Target pest(s) for pesticide application(s).
5. Reasons for increases in use of pesticides that threaten water quality, specifically organophosphorous pesticides, pyrethroids, carbamates, fipronil, and copper-based pesticides.

Best Management Practices (BMPs)

To protect water quality, the Contractor shall implement the BMPs and control measures described below:

1. Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of pesticides and training of pest control advisors and applicators.
2. Use the most effective, least toxic pesticides that will do the job, provided there is a choice. The agency will take into consideration the LD50, overall risk to the applicator, and impact to the environment (chronic and acute effects).

3. Apply pesticides at the appropriate time to maximize their effectiveness and minimize the likelihood of discharging pesticides in stormwater runoff. Avoid application of pesticides if rain is expected (this does not apply to the use of pre-emergent herbicide applications when required by the label for optimal results.)
4. Employ techniques to minimize off-target application (i.e. spray drift) of pesticides, including consideration of alternative application techniques. For example, when spraying is required, increase drop size, lower application pressure, use surfactants and adjuvants, use wick application, etc.
5. Apply pesticides only when wind speeds are low.
6. Mix and apply only as much material as is necessary for treatment. Calibrate application equipment prior to and during use to ensure desired application rate.
7. Do not mix or load pesticides in application equipment adjacent to a storm drain inlet, culvert, or watercourse.
8. Properly inspect applicator equipment to prevent accidental pesticide leaks, spills and hazards to applicators and the environment.
9. Meet local fire department and Alameda County Agricultural Commissioner storage requirements for pesticide products. Provide secondary containment for liquids if required.
10. Prepare spill kits, store the kits near pesticides, and train employees to use them.
11. Store pesticides and other chemicals indoors in a locked and posted storage unit, as per California Code of Regulations.
12. Store pesticides in labeled containers, as per California Code of Regulations.
13. Rinse empty pesticide/herbicide containers, and empty in the spray, as per California Code of Regulations.
14. Dispose of triple-rinsed empty pesticide containers according to recommendations of the Alameda County Agricultural Commissioner and the manufacturer.
15. Try to find a qualified user for any unwanted pesticides, or return to the manufacturer if unopened. If disposal is required, contact Alameda County's Household Hazard Waste Collection Program at (510) 670-6460 between 8:30 AM and 5:00 PM., Monday through Friday, to make appropriate disposal arrangements, or to recycle the material.
16. If changing pesticides or cleaning spray tanks, use tank rinse water as the product, over a targeted area within the application site.
17. Irrigate slowly to prevent runoff, and do not over-water.

AA. ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIRES CONTRACTORS TO BECOME CERTIFIED LEAD RENOVATORS. All contractors who perform renovation, repair, or painting projects that may disturb lead paint to be Lead RRP Certified. The Certified Lead Renovator Training Course is now available at www.cleanedison.com. The EPA's new requirement will affect most contractors conducting common renovation and repair work activities since demolition, deconstruction, sanding, and cutting can generate hazardous lead dust and chips by disturbing lead-based paint. This lead contamination has been proven harmful to both adults and children. To protect against these risks, the EPA is now requiring that all contractors be enrolled in the Lead RRP-Certification by September 30, 2010 in order to perform renovation, repair and painting projects in homes, rental facilities, child-occupied facilities, and schools built before 1978. For any contractor performing this work without the Lead RRP Certification, the EPA may seek penalties of up to \$37,500 per violation, per day.

SECTION III. SCOPE OF WORK

A. WORK TO BE DONE. The work consists of furnishing all labor, tools, equipment, materials, construction, coordination, etc., except as herein specified, and doing all work as shown on the project plans, and specified in the project specifications (manual), exhibits, and attachments.

The scope of work includes, but is not limited to, performing the following work, and as specified in the project specifications (manual), construction plans, exhibits and attachments:

- Demolition, removal, and hauling existing concrete slab and asphalt pavement from the back and sides and front of the Fire Station, installation of drain pipes and inlets, and sump pump installation, and construction of new structural concrete and pavement installation.
- Due to the Fire Station limited on-site space, the entire work shall be performed in three separate and coordinated phases. Phasing of the construction work are essential to accommodate the Fire Station fire fighters vehicles, engines, ambulances, rescue boats, and apparatus. The cost of the phasing of the entire work shall be included and accounted for, by the contractor, in his/her bid proposal.

Location: The project site is within the premises of Fire Station 2 located at **635 Pacific Avenue, Alameda, CA 94501**

The Notice to Proceed (NTP) for this project is tentatively scheduled to be issued in August 2020.

The Initial Project Submittal Package shall address the entire project, and shall include the Traffic Control Plan (first 20 working days at minimum), SWPPP, Waste Management Plan, and the full project schedule. Contractor shall not commence work in the field until Engineer has approved the Initial Project Submittal Package.

B. ALTERATIONS. The City of Alameda reserves the right to increase or decrease the quantity of any item or portion of work, or to omit portions of the work as may be deemed necessary or expedient by the Engineer; also to make such alterations or deviations, increases or decreases, additions or omissions in the plans and specifications, as may be determined during the progress of the work to be necessary and advisable.

C. EXTRA AND FORCE ACCOUNT WORK. New and unforeseen work will be classed as extra work when such work cannot be covered by any of the various items or combination of items for which there is a bid price.

The Contractor shall do no extra work except upon written order from the Engineer. Extra work as herein before defined under Section 5-1.02, Extra Work, when ordered and accepted, shall be paid for under a written work order in accordance with the terms therein provided. Payment for extra work will be made as agreed upon in writing pursuant to an extra work order signed by both parties, or by force account.

Work performed on force account shall be paid on a time and materials basis plus ten percent (10%). For work done by a subcontractor, an additional five percent (5%) markup is allowed to reimburse the contractor for additional administration cost and no other additional payment will be made; provided, however, that the City reserves the right to furnish such materials required as it deems expedient, and the Contractor shall have no claim for profit on the cost of such materials. Payment for work performed on force account pursuant to this subsection shall include full compensation to the Contractor for contributions made to the State as required by the provisions of the Unemployment Reserve Act, Chapter 352, Statutes of 1935, as amended; for taxes paid to the Federal Government as required by the Social Securities Act, approved August 14, 1935, as amended; for premiums paid on any other insurance of any nature which the Contractor may be required to carry or which he may elect to carry, and for additional premiums paid on faithful performance and labor and materials bonds required by reason of increase in the amount of work to be performed over and above that called for in the original contract. The price paid for labor shall include any compensation insurance paid by the Contractor.

All force account work shall be recorded and tracked daily upon Time and Material Tentative Extra Work Order report sheets furnished by the Contractor to the Engineer and signed by both parties, which daily reports shall thereafter be considered the true record of force account work done. Verification of time and materials shall be made on a daily basis by the Inspector or by his/her designee.

D. REMOVAL OF OBSTRUCTIONS. The Contractor shall remove and dispose of all structures, debris, or other obstruction of any character to the construction of the project if and as required by the Engineer.

E. CLEAN UP. Contractor shall leave the work site in an acceptable clean manner at the end of each work day. Upon completion and before making application for acceptance of the work, the Contractor shall clean the street or road, borrow pits, and all ground occupied by the Contractor in connection with the work, of all rubbish, excess materials, temporary structures, and equipment; and all parts of the work shall be left in a neat and presentable condition.

SECTION IV. CONTROL

A. AUTHORITY OF THE ENGINEER. The Engineer shall decide all questions which may arise as to the quality or acceptability of materials furnished and work performed; the manner of performance and rate of progress of the work; the interpretation of the plans and specifications; the acceptable fulfillment of the contract on the part of Contractor; and all questions as to claims and compensation.

The Engineer's decision shall be final and he/she shall have executive authority to enforce and make effective such decisions and orders that the Contractor fails to carry out promptly.

B. PLANS. All authorized alterations affecting the requirements and information given on the approved plans shall be in writing. No changes shall be made to any plans or drawings after the same have been approved by the Engineer, except by direction of the Engineer.

Working drawings of plans for any structure not included in the plans furnished by the Engineer shall be approved by the Engineer before any work involving these plans shall be performed, unless approval is waived in writing by the Engineer.

Notwithstanding the foregoing, the Contractor agrees that approval by the Engineer of the Contractor's working plans does not relieve the Contractor of any responsibility for the accuracy of the dimensions and details thereof, and that the Contractor shall be responsible for agreement and conformity of his/her working plans with the approved plans and specifications.

The Contractor shall provide as-built drawings at the completion of the work. As-built drawings shall be prepared by a licensed engineer or surveyor and approved by the City Engineer.

As-built drawings must be in digital format. Any difficulty in providing the digital as-built drawings must be documented and presented to the City Engineer, who may permit manual as-built drawings on 24"x30" vellum. Release of retention is subject to the approval of the as-built drawings by the Engineer.

Full compensation for furnishing all working drawings and digital **as-built drawings** shall be considered as included in the prices paid for the various contract items of work, and no additional allowance will be made therefor.

C. CONFORMITY WITH PLANS AND ALLOWABLE DEVIATION. Finish surfaces in all cases shall conform with the lines, grades, cross sections, and dimensions shown on the approved plans. Deviations from the approved plans, as may be required by the exigencies of construction will be determined in all cases by the Engineer and authorized in writing.

D. COORDINATION OF PLANS, SPECIFICATIONS, AND SPECIAL PROVISIONS. These specifications, the plans, special provisions and all supplementary documents are essential parts of the contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be cooperative, to describe, and to provide for a complete work. The following documents govern the project in the following order of precedence:

- Change Order and written Orders
- Addenda
- Contract
- Bid Proposal and Schedule of Values
- Permits from other agencies
- Special Provisions
- Technical Provisions
- Project Plans
- City Approved Shop Drawings
- General Requirements
- City of Alameda Standard Plans
- State Standard Specifications
- State Standard Plans
- Alameda County Standard Plans

E. INTERPRETATION OF PLANS AND SPECIFICATIONS AND ADDENDA THERETO. Should it appear that the work to be done, or any matter relative thereto, is not sufficiently detailed or explained in these specifications, plans, and the special provisions, the Contractor shall apply to the Engineer for such further explanation as may be necessary to carry out the work. Upon such application by the Contractor or prospective bidder, or in the event that it appears expedient to the Engineer to further explain, clarify, or amend these specifications, special provisions and plans, the Engineer shall issue addenda thereto and such addenda shall constitute a part hereof, and shall be binding on the Contractor. It is up to the Contractor to check before the bid date that Contractor has all paperwork to complete the bid.

Addenda will be uploaded to the City's webpage, <https://www.alamedaca.gov/BUSINESS/Bid-on-City-Contracts> and located within the specific project. Builders Exchanges and firms on the City's active list of contractors will be notified via email of the Addenda and provided with a link to the City's webpage. If the addendum is issued after a pre-bid meeting is held, the addendum will also be forwarded by email, to all attendees who have furnished contact information. All prospective bidders are responsible for checking the City's website and/or inquiring at the Public Works Department (510-747-7930) within four (4) working days prior to the bid opening, to determine if any addenda have been issued. Do not rely upon third party providers of the original plans and specs to issue all addenda. Contractor shall acknowledge receipt of all addenda on the Bid and those Bids that do not have acknowledgment of all addenda will be considered non-responsive.

In the event of any discrepancy between any drawing and the figures written thereon, the figures shall be taken as correct.

F. SUPERINTENDENCE. The Contractor is solely responsible for the Work done by his subcontractors or other employees, and all orders or instructions from the Engineer shall be through the Contractor.

At all times during the progress of the Work, the Contractor shall have a competent, authorized superintendent present at the construction site who has complete authority to represent and to act for the Contractor. The Contractor shall not change the superintendent except with consent of the City Engineer, unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in his employ. The superintendent shall represent the Contractor in his absence and all directions given to him shall be binding as if given to the Contractor.

Whenever the Contractor or the superintendent is not present on any particular part of the Work where the Engineer may wish to give direction, the Engineer may order the Work to stop, or not pay for the work done during that time.

The Contractor shall coordinate the Work of his subcontractors. The Contractor is responsible for the specific scheduling of the Work of his Subcontractors at the proper time to avoid delay or injury to either work or materials.

G. CONSTRUCTION STAKING & LAYOUT. Construction staking and layout shall be at the contractor's expense and performed by the contractor's surveyor or engineer qualified to do surveying work.

The Contractor shall preserve all stakes and points set for lines, grades, or measurements of the work in their proper places until authorized to remove them by the Engineer. All expenses incurred in replacing stakes that have been removed without proper authority shall be paid by the Contractor.

AND/OR

G. LINES AND GRADES. All distances and measurements are given and will be made in a horizontal plane. Grades are given from the top of stakes or nails, unless otherwise noted on the plans.

Three consecutive points shown on the same rate of slope must be used in common, in order to detect any variation from a straight grade, and in case any discrepancy exists, it must be reported to the Engineer. If such discrepancy is not reported to the Engineer, the Contractor shall be responsible for any error in the finished work.

The Contractor shall preserve all stakes and points set for lines, grades, or measurements of the work in their proper places until authorized to remove them by the Engineer. All expenses incurred in replacing stakes that have been removed without proper authority shall be paid by the Contractor.

H. INSPECTION. The Engineer shall at all times have access to the work during construction and shall be furnished with every reasonable facility for ascertaining full knowledge respecting the progress, workmanship, and character of materials used and employed in the work.

The Contractor shall give at least 48 hours notice in writing when he will require inspection on subgrade, formwork, concrete paving, etc. Inspection will routinely be carried out at pre-scheduled time established at the pre-construction meeting. Inspection will only be carried out for substantial quantities of work ready for inspection.

The Contractor shall contact the City's representative by 11:00 a.m. the day prior to any special inspections so the City can schedule the inspections. If the contractor does not perform work that requires the special inspection as previously communicated to City's representative then the contractor will be responsible for all costs associated with special inspection regardless of the fact that the special inspector did not perform any services.

Whenever the Contractor varies the period during which work is carried on each day, he shall give due notice to the Engineer, so that proper inspection may be provided. Any work done in the absence of the Engineer is subject to rejection.

The inspection of the work shall not relieve the Contractor of any of his/her obligations to fulfill the contract as prescribed. Defective work shall be made good and unsuitable materials may be rejected, notwithstanding the fact that such defective work and unsuitable materials have been previously overlooked by the Engineer and accepted or estimated for payment.

Inspection hours for construction shall be from **8 AM through 5 PM**, Monday through Friday, excluding City Holidays, and shall constitute "normal inspection hours." The Public Works Department Inspectors work on Friday's and can be reached at **510-747-7900**. Unless prior written authorization has been received from the Engineer, the Contractor shall not perform any work outside of these hours except for general clean up, demobilization, and placement of no- parking signs. The Contractor shall pay the salary and benefits, including overtime, of the City employee(s) for inspection of any work performed outside of the normal inspection hours. Projects financed in whole or in part with state funds shall be subject to inspection at all times by the Director of Public Works of the State of California, or his agents.

I. **REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK.** All work which is defective in its construction or deficient in any of the requirements of these specifications shall be remedied, or removed and replaced by the Contractor in an acceptable manner and no compensation will be allowed for such correction.

Any work done beyond the lines and grades shown on the plans or established by the Engineer, or any extra work done without written authority, shall be considered as unauthorized and will not be paid for.

Upon failure on the part of the Contractor to comply forthwith with any order of the Engineer made under the provisions of this article, the Engineer shall have the authority to cause defective work to be remedied, or removed and replaced, and unauthorized work to be removed, and to deduct the cost thereof from any monies due or to become due the Contractor.

The fact that the work and materials have been inspected from time to time, and payments on account have been made, does not relieve the Contractor from the responsibility of replacing and making good any defective work or materials that may be discovered within one year from the date of the completion of the work by the Contractor and its acceptance by the City.

J. FINAL INSPECTION. Whenever the work provided and contemplated by the contract shall have been satisfactorily completed, the Engineer will make the final inspection.

K. FINAL GUARANTEE. It is understood that the Contractor is skilled in the trade or calling necessary to perform the work set forth within the plans and specifications, and that the City of Alameda, not being skilled in such matters, relies upon the Contractor to do and perform all work, acts, and things necessary to carry out the contract in the most skilled and desirable manner, and the Contractor guarantees the workmanship and materials to be the best of their kind. The acceptance of any part or of the whole of the work by the City does not operate to release the Contractor or the Contractor's surety from said guarantee.

The Contractor shall be held responsible for and must make good any defects through faulty, improper or inferior workmanship or materials arising from or discovered in any part of the contract work within one year of the completion and acceptance of the same. The bond for faithful performance, furnished by the Contractor, shall cover such defects and protect the City of Alameda against any and all such defects.

Nothing in this section supersedes contractor obligations for repair and replacement of work pursuant to the Public Contract Code.

SECTION V. CONTROL OF MATERIAL

A. SAMPLES AND TESTS. At the option of the Engineer, the source of supply of each of the materials shall be approved by the Engineer before delivery is started and before such material is used in the work. Representative preliminary samples of the character and quality prescribed shall be submitted by the Contractor or producer of all materials to be used in the work for testing or examination as desired by the Engineer.

All tests of materials furnished by the Contractor shall be made in accordance with commonly recognized standards of national organizations and such special methods and tests as are prescribed in these specifications.

The Contractor shall furnish such samples of materials as are requested by the Engineer without charge. No material shall be used until it has been approved by the Engineer. Samples will be secured and tested whenever necessary to determine the quality of material.

B. DEFECTIVE MATERIALS. All materials not conforming to the requirements of these specifications shall be considered as defective, and all such materials, whether in place or not, shall be rejected. They shall be removed immediately from the site of the work unless otherwise permitted by the Engineer.

Upon failure on the part of the Contractor to comply with any order of the Engineer made under the provisions of this article, the Engineer shall have the authority to remove and replace defective material and to deduct the cost of removal and replacement from any monies due or to become due the Contractor.

SECTION VI. PROSECUTION AND PROGRESS

A. PROGRESS OF THE WORK AND TIME FOR COMPLETION. The Contractor shall submit the Initial Project Submittal Package to the City Engineer for review. The Initial Project Submittal Package shall address the entire project, and shall include the Traffic Control Plan (first 20 working days at minimum), SWPPP, Waste Management Plan, and the full project schedule. Contractor shall not commence work in the field until Engineer has approved the Initial Project Submittal Package.

The Contractor shall not commence construction on any section of the work until such time that he/she shall have on the ground, or can furnish definite assurance to the Engineer that there will be available when required, all the materials necessary to complete the section of the work upon which construction is to begin.

The Contractor shall submit a three-week look-ahead work schedule every Monday and upon the issuance of any change order that alters the contract's schedule. Engineer shall have ten working days to respond to the updated work schedule, and Contractor shall abide by most recently approved schedule until a new one has been approved in writing by the Engineer.

The Contractor shall submit additions to the Traffic Control Plan ten (10) working days in advance of any work that was not covered by the Traffic Control Plan submitted in the Initial Project Submittal Package.

B. SUBLETTING AND ASSIGNMENT. The Contractor shall give his/her personal attention to the fulfillment of the contract and shall keep the work under his/her control.

Subcontractors will not be recognized as such, and all persons engaged in the work of construction will be considered as employees of the Contractor, and their work shall be subject to the provisions of the contract and specifications.

Where a portion of the work sublet by the Contractor is not being prosecuted in a manner satisfactory to the Public Works Director, the subcontractor shall be removed immediately on the requisition of the Engineer and shall not again be employed on the work.

This contract may be assigned only on written consent of the City Council.

C. CHARACTER OF WORKER. If any subcontractor or person employed by the Contractor shall fail or refuse to carry out the directions of the Engineer or shall appear to the Engineer to be incompetent or to act in a disorderly manner, said worker shall be discharged immediately on the requisition of the Engineer and such person shall not again be employed on the work.

D. TEMPORARY SUSPENSION OF WORK. The Engineer shall have the authority to suspend the work wholly or in part for such period as he/she may deem necessary, due to unsuitable weather, or to such other conditions as are considered unfavorable for the suitable prosecution of the work, or for such time as he/she may deem necessary, due to the failure on the part of the Contractor to carry out orders given or to perform any of the provisions of the work. The Contractor shall immediately obey such orders of the Engineer and shall not resume suspended work until ordered in writing by the Engineer.

E. TIME OF COMPLETION AND LIQUIDATED DAMAGES. It is agreed by the parties to the contract that in case all the work called for under the contract is not completed before or upon the expiration of the contract's term as set forth in these specifications, damage will be sustained by the City of Alameda, and that it is and will be impracticable to determine the actual damage which the City will sustain in the event of and by reason of such delay; and it is therefore agreed that the Contractor will pay to the City of Alameda the sum of \$3,500 per day for each and every day's delay beyond the time prescribed to complete the work; and the Contractor agrees to pay such liquidated damages as herein provided, and in case the same are not paid, agrees that the City of Alameda may deduct the amount thereof from any money due or that may become due the Contractor under the contract.

It is further agreed that in case the work called for under the contract is not finished and completed in all parts and requirements within the time specified, the City Council shall have the right to extend the time for completion or not, as may seem best to serve the interest of the City; and if it decides to extend the time limit for the completion of the contract, it shall further have the right to charge the Contractor, his heirs, assigns, or sureties, and to deduct from the final payment for the work, all or any part, as it may deem proper, of the actual cost of engineering, inspection, superintendence, and other overhead expenses which are directly chargeable to the contract, and which accrue during the period of such extensions, except that the cost of final surveys and preparation of final estimate shall not be included in such charges.

The Contractor shall not be assessed with liquidated damages nor the cost of engineering and inspection during any delay in the completion of the work caused by acts of God or of the public enemy, acts of the City, fire, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather or delays of subcontractors due to such causes; provided that the Contractor shall within ten (10) days from the beginning of such delay notify the Engineer in writing of the causes of delay. The Engineer shall ascertain the facts and the extent of the delay and his findings of the facts thereon shall be final and conclusive.

F. SUSPENSION OF CONTRACT. If, at any time, in the opinion of the City Council, the Contractor has failed to supply an adequate working force, or material of proper quality, or has failed in any other respect to prosecute the work with the diligence and force specified and intended in and by the terms of the contract, notice thereof in writing will be served upon him; and shall he neglect or refuse to provide means for a satisfactory compliance with the contract, as directed by the Engineer, within the time specified in such notice, the City Council in any such case shall have the power to suspend the operation of the contract. Upon receiving notice of such suspension, the Contractor shall discontinue said work, or such parts of it as the City Council may designate. Upon such suspension, the Contractor's control shall terminate, and thereupon the City Council or its duly authorized representative may take possession of all or any part of the Contractor's materials, tools, equipment and appliances upon the premises, and use the same for the purpose of completing said contract, and hire such force and buy or rent such additional machinery, tools, appliances, and equipment, and buy such additional materials and supplies at the Contractor's expense as may be necessary for the proper conduct of the work and for the completion thereof; or may employ other parties to substitute other machinery or materials, and purchase the materials contracted for, in such manner as the City Council may deem proper; or the City Council may annul and cancel the contract and relet the work or any part thereof. Any excess of cost arising therefrom over and

above the contract price will be charged against the Contractor and his sureties, who will be liable therefor. In the event of such suspension, all monies due the Contractor or retained under the terms of this contract shall be forfeited to the City; but such forfeiture shall not release the Contractor or his sureties from liability for failure to fulfill the contract. The Contractor and his sureties will be credited with the amount of money so forfeited toward any excess of cost over and above the contract price, arising from the suspension of the operations of the contract and the completion of the work by the City as above provided; the Contractor will be so credited with any surplus remaining after all just claims for such completion have been paid.

In the determination of the question whether there has been any such noncompliance with the contract as to warrant the suspension or annulment thereof, the decision of the City Council shall be binding on all parties to the contract.

G. RIGHT-OF-WAY. The right-of-way sufficient for the work to be constructed will be provided by the City. The Contractor shall make his own arrangements, and pay all expenses for additional area required by him outside of the limits of right-of-way, unless otherwise provided in the special provisions. Contractor's staging area must be approved by the Engineer.

SECTION VII. GENERAL MEASUREMENTS AND PAYMENT

A. MEASUREMENTS AND PAYMENT. Payment for work done under the contract shall be made on the basis of the sums as calculated from the finally measured quantities of work done and the agreed unit and lump sum prices. Payment shall be full compensation for furnishing all labor, materials, tools and equipment and doing all the work necessary to construct the items for which payment is being made, complete in place as shown on the plans and described in the specifications.

B. EXTRA AND FORCE ACCOUNT WORK. Extra work as hereinbefore defined (Section III, Paragraph C) when ordered and accepted, shall be paid for under a written work order in accordance with the terms therein provided. Payment for extra work will be made as agreed upon in writing pursuant to an extra work order signed by both parties, or by force account.

Work performed on force account shall be paid on a time and materials basis plus ten percent (10%). For work done by a subcontractor, an additional five percent (5%) markup is allowed to reimburse the contractor for additional administration cost and no other additional payment will be made; provided, however, that the City reserves the right to furnish such materials required as it deems expedient, and the Contractor shall have no claim for profit on the cost of such materials. Such payment shall include full compensation to the Contractor for contributions made to the State as required by the provisions of the Unemployment Reserve Act, Chapter 352, Statutes of 1935, as amended; for taxes paid to the Federal Government as required by the Social Securities Act, approved August 14, 1935, as amended; for premiums paid on any other insurance of any nature which the Contractor may be required to carry or which he may elect to carry, and for additional premiums paid on faithful performance and labor and materials bonds required by reason of increase in the amount of work to be performed over and above that called for in the original contract. The price paid for labor shall include any compensation insurance paid by the Contractor.

C. PROGRESS PAYMENTS. The City shall, once each month, cause an estimate in writing to be made by the City Engineer of the total amount of work done and the acceptable materials furnished and delivered by the Contractor on the ground and not used at the time of such estimate, and the value thereof. The City of Alameda shall retain five percent (5%) of such estimated value of the work done and fifty percent (50%) of the value of the materials so estimated to have been furnished and delivered and unused, as aforesaid, as part security for the fulfillment of the contract by the Contractor, and shall monthly pay to the Contractor, while carrying on the work, the balance not retained, as aforesaid, after deducting therefrom all previous payments and all sums to be kept or retained under the provisions of the contract. No such estimate or payment shall be required to be made, when, in the judgment of the City Engineer, the work is not proceeding in accordance with the provisions of the contract, or when in his judgment, the total value of the work done since the last estimate amounts to less than Three Hundred Dollars (\$300.00). No such estimate or payment shall be construed to be an acceptance of any defective work or improper materials.

Partial Payments

Progress payments shall be in accordance with Section 9-1.06 of the State Standard Specifications “Partial Payments”, as currently amended, and these special provisions. The City, once in each month, shall cause an estimate in writing to be made by the Engineer. The estimate shall include the total amount of work done and acceptable materials furnished, provided the acceptable materials are listed as eligible for partial payment as materials in the special provisions and are furnished and delivered by the Contractor on the ground and not used or are furnished and stored for use on the Contract, if the storage is within the City and the Contractor furnishes evidence satisfactory to the Engineer that the materials are stored subject to or under the control of the City, to the time of the estimate, and the value thereof. The estimate shall also include any amounts payable for mobilization.

The amount of any material to be considered in making an estimate will in no case exceed the amount thereof which has been reported by the Contractor to the Engineer. Only materials to be incorporated in the work will be considered. The estimated value of the material established by the Engineer will in no case exceed the Contract price for the item of work for which the material is furnished.

Contractor warrants that upon signature of pay estimate, all work has been performed in strict compliance with the Contract Documents, and all work for which progress payments have been previously issued and payment has been received from City, shall be free and clear of all third-party claims, stop notices, security interests, and encumbrances.

Payment of all, or any part, of an estimate in writing may be withheld on account of any of the following:

1. Defective work not remedied;
2. Third-party claims against Contractor or City arising from the acts or omissions of Contractor or subcontractors;
3. Stop Notices;
4. Failure of Contractor to make timely payments due to subcontractors for material or labor;
5. Damage to the City or others for which Contractor is responsible;
6. Failure of Contractor to maintain, update, and submit record documents;
7. Failure of Contractor to submit schedules or their updates as required by the Contract Documents;
8. Performance of the work by Contractor without properly processed shop drawings;
9. Liquidated damages assessed;
10. Any other failure of Contractor to perform its obligations under the Contract Documents.

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

Securities eligible for substitution under this section shall include those listed in Section 22300 of the Public Contract Code of the State of California or bank or savings and loan certificates of deposit.

Contractor shall be the beneficial owner of any securities substituted for monies withheld and shall receive any interest thereon.

Any escrow agreement entered into pursuant to this section shall contain, as a minimum, the following provisions:

1. The amount of securities to be deposited.
2. The terms and conditions of conversion to cash in case of the default of the Contractor.
3. The termination of the escrow upon completion of the contract.

D. NOTICE OF COMPLETION. Whenever the work provided and contemplated by the contract shall have been satisfactorily completed, the Engineer will make the final inspection.

When such final inspection shows that the work has been completed in conformance with the plans, specifications and special provisions, the Engineer will recommend the formal acceptance of the work by the City Council; and upon such acceptance, Notice of Completion will be recorded. The said work shall not be deemed completed until the same is accepted by the City.

E. PAYMENT OF THE RETENTION. The City Engineer shall, after the completion of the contract, total all amounts retained under the provisions of the contract. Final payment of retention shall be in conformance with Public Contract Code Section 7107.

It is mutually agreed between the parties to the contract that no certificate given or payments made under the contract, except the final certificate of final payment, shall be conclusive evidence of the performance of the contract, either wholly or in part, against any claim of the Contractor; and no payment shall be construed to be an acceptance of any defective work or improper materials.

The Contractor further agrees that the payment of the final amount due under the contract, and the adjustment and payment for any work done in accordance with any alterations of the same, shall release the City of Alameda, its officers, employees and agents from any and all claims or liability on account of work performed under the contract or any alteration thereof.

SPECIAL PROVISIONS

SECTION VIII. REFERENCED SPECIFICATIONS

A. General. The Work shall comply in all aspects with the latest edition of the City Standard Plans of the City of Alameda, and the 2018 edition of Standard Specifications issued by the State of California, Department of Transportation, except for specifications for asphalt concrete/hot mix asphalt. The Standard Specifications issued by the State of California, Department of Transportation will hereinafter be referred to as "Standard Specifications", "State Standard Specifications" or "Caltrans Standard Specifications". Section 39 "Asphalt Concrete" of the 2015 State Standard Specifications shall be replaced with Section 39 "Hot Mix Asphalt" of the 2010 State Standard Specifications.

B. STATE STANDARD SPECIFICATIONS ADOPTION. The work embraced herein shall be done in accordance with the appropriate provisions of construction detail of the specifications entitled "State of California, Department of Transportation, Standard Specifications", latest revision, insofar as the same apply, which specifications are hereinafter referred to as the Standard Specifications, and in accordance with the following Special Provisions.

Whenever in the State Standard Specifications the following terms are used, they shall be understood to mean and refer to the following:

Department of Public Works or Department of Transportation	To the Engineering Division
Director of Public Works	To the Public Works Director
Engineer	To the City Engineer, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.
Laboratory	To the designated Laboratory authorized by the City of Alameda to test materials and Work involved in the contract.
State	To the City of Alameda

Other terms appearing in the State Standard Specifications, and these specifications, shall have the intent and meaning specified in Section I, Definition of Terms, of the Standard Specifications.

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

SECTION IX. QUANTITIES MEASUREMENT AND PAYMENT

The quantities in bid schedule are estimate of the quantities of work to be done and materials to be furnished, and the City of Alameda does not expressly or by implication agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the work or to omit portions of the work that may be deemed necessary or expedient to the Engineer.

Quantities shall be determined by the Contractor from plans and specifications, and /or pre-construction meeting and walk - through. Any discrepancy or conflict shall be reported to the Project Manager. Contractor shall be held responsible for any discrepancies or conflicts not reported to the Project Manager seventy-two (72) hours prior to the bid opening.

The basis of award of contract shall be by the City of Alameda for the lowest and best bid that will best serve the City's need. The contract shall be awarded with the entire project based bid, not including add alternates, depending on available funding.

The City reserves the right to reject any, any portion, or all bids.

1. Mobilization

a. Method of Measurement

“Mobilization” will be measured as a lump sum.

b. Payment

The contract unit price paid per lump sum (LS) for the bid item entitled “Mobilization” shall include full compensation for mobilization as described in the “Mobilization” Technical Requirement section of this project manual and no additional compensation will be allowed therefore. Full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing the work involved in the procurement, setup and maintenance of the staging area shall be considered as included as part of "Mobilization".

Partial payments will be made under California Public Contract Code Section 10264.

2. Traffic and Pedestrian Control

a. Method of Measurement

“Traffic and Pedestrian Control” will be measured as a lump sum.

b. Payment

Work associated with traffic and pedestrian control shall include all costs for labor, materials, equipment and incidentals necessary to provide construction area signs, temporary traffic control including, but not limited to, lane closures and rerouting and other measures to control and maintain traffic during daily operations. Flaggers are a requirement of traffic control. Full compensation for traffic control systems include all costs to maintain traffic by placing and removing temporary signs, striping, flaggers, cones, barricades, etc., as specified in the Standard Specifications of the State of California, as described in the "Traffic and Pedestrian Control" technical requirement section of this project manual, and as directed by the Engineer, and no additional compensation will be allowed thereof.

Full compensation for placing temporary traffic markings in asphalt pavement repair areas shall be considered as included in the contract square foot (SF) price for "2" Asphalt Pavement Repair", and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing the work involved in placing and maintaining all temporary markers, as directed by the Engineer and described in this project manual and no separate payment will be made therefore.

3. Clearing, Grubbing and Removals

a. Method of Measurement

"Clearing, Grubbing and Removals" will be measured as a lump sum.

b. Payment

Full compensation for clearing, grubbing, removal, temporary pavement marking, removal of white traffic stripe and pavement markings, removal of object markers, channelizers and delineators, hauling and disposal of unspecified items or items that are not paid for in a specific bid item shall be included in the contract Lump Sum (LS) price paid for the bid item entitled "Clearing, Grubbing and Removals" and no additional compensation will be made thereof. This work includes removal and disposal of raised pavement markers, object markers, channelizers, delineators and white thermoplastic striping and legends, as described in the "Demolition" technical requirement section of this project manual, and as directed by the Engineer, and no additional payment will be made thereof.

4. 2" Asphalt Pavement Repair

a. Method of Measurement

"2" Asphalt Pavement Repair" will be measured by the square foot (SF). The area to be paid for will be calculated on the basis of the dimensions laid out in the field by the Engineer.

b. Payment

The contract price paid per square foot (SF) for "2" Asphalt Pavement Repair" shall include full compensation for furnishing all labor, materials, tools, equipment, compaction, traffic control, design submittals, "As-Built" plans submittals, excavation, removal, disposal of all collected materials, installation of 6" Class II Aggregate base, tack coating vertical edges of excavated surfaces with approved asphaltic emulsion before placing new HMA paving placement, and removal of temporary pavement transitions as required for the stage construction of this work, and incidentals and for doing all the work involved in pavement failure repair complete in place, as described in the "Asphalt Paving" and "Pavement Base Course" technical requirement sections of this project manual, and as directed by the Engineer, and no additional payment will be made thereof.

Full compensation for notification to residents shall be considered as included in the contract unit prices paid for "2" Asphalt Pavement Repair", and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing the work involved in placement and maintenance of "No Parking" signs, as described in the "Signs and Notices" special provision section of this project manual, and as directed by the Engineer, and no separate payment will be made therefore. No additional payment will be made in the instance work is delayed and re-notifications and/or re-posting of "No Parking" signs is required.

No allowance or contract unit bid price adjustment will be made in the event that the quantity in the Bid Schedule varies greater or less than 25% of does not equal the measurements taken in the field. The City reserves the right to remove the bid item from the contract.

5. Tack Coat Asphalt Pavement Repair Surface

a. Method of Measurement

“Tack Coat Asphalt Pavement Repair Surface” will be measured by the square foot (SF). The area to be paid for will be calculated on the basis of the dimensions laid out in the field by the Engineer.

b. Payment

The contract price paid per square foot (SF) for “Tack Coat Asphalt Pavement Repair Surface” shall include full compensation for furnishing all labor, materials, tools, equipment, compaction, traffic control, design submittals, “As-Built” plans submittals, disposal of all collected materials, placement, sanding the area after tack coat application and construction of this work, and incidentals and for doing all the work involved in tack coating pavement failure repair areas complete in place, as described in the “Asphalt Paving” technical requirement section of this project manual, and as directed by the Engineer, and no additional payment will be made thereof.

No allowance or contract unit bid price adjustment will be made in the event that the quantity in the Bid Schedule varies greater or less than 25% of does not equal the measurements taken in the field. The City reserves the right to remove the bid item from the contract.

6. Cape Seal (2 Layer System)

a. Method of Measurement

“Cape Seal (2 Layer System)” will be measured by the square yard (SY) of a two layer surface treatment system. Measurement will be performed in the field by the Contractor upon completion and checked by the Engineer.

b. Payment

The contract prices paid per square yard (SY) for both layers of seal coating associated with the bid item "Cape Seal (2 Layer System)" shall include full compensation for furnishing all labor, equipment, materials, tools, testing for mix design submittals, “As-Built” plans submittals, notification to occupants, protection of driveways and utility covers, preparation of test strip(s), and incidentals and for doing all the work involved in the furnishing and placing a slurry mix over the rubber asphalt chip seal complete in place, including staging the work, cleaning the surface, sweeping, rolling, installing and protecting the chip seal and slurry seal until it has set, all as shown on the plans, as described in the "Slurry Seal and Chip Seal (Cape Seal)" technical requirement section of the project manual, and as directed by the Engineer, and no additional compensation will be allowed therefore.

Full compensation for notification to residents shall be considered as included in the contract unit prices paid for "Cape Seal" and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing the work involved in creating, printing, copying and distribution of advance notification door hangers and/or flyers and the placement and maintenance of "No Parking" signs, as described in the "Cape Seal" technical requirement section of the project manual, as directed by the Engineer, and no additional compensation will be allowed therefore.

No additional payment will be made in the instance work is delayed and re-notifications and/or re-posting of "No Parking" signs is required.

7. 24" Cast-in-Place Catch Basin

a. Method of Measurement

"24" Cast-in-Place Catch Basin" will be measured per each inlet installed.

b. Payment

Payment for storm drain structures (such as manholes, and inlets) shall be made at the price bid for each structure and shall be full payment for each structure complete in place, including excavating, backfilling, constructing inverts, form work and all necessary work for cast-in-place construction, furnishing frames and covers and/or grates, installing frames and covers and/or grates, furnishing and installing inlet trash capture, reinforcement, restoring the street surface and all other work, excluding temporary resurfacing, necessary to complete the work.

8. 12" Storm Drain Pipe (RCP Class V)

a. Method of Measurement

"12" Storm Drain Pipe (RCP Class V)" will be measured per linear foot of pipe installed.

b. Payment

The price per linear foot for pipe and conduit in place shall be considered full compensation for the pipe or conduit material, all wyes, tees, bends, and special details not paid by separate item shown on the plans; the closing or removing of abandoned conduit structures; the sawcutting of bituminous pavement, concrete pavement, curbs, gutters, sidewalks, and driveways; the excavations of the trench; trench shoring, the removal of interfering portions of existing sewers, storm drains, and improvements; the disposal of the excavated material; the removal and disposal of contaminated material not paid by separate item; the control and discharge of ground and surface waters not paid by separate item; the control and bypass of the existing pipe sewer and/or conduit flows, the preparation of subgrade; placing and joining pipe, supplying and placement of bedding material; supplying and placement of imported backfill material or special backfill material; removing and replacing storm drain pipes including all necessary work to adjust the inlets to make the storm drain pipes flow properly; permanent and temporary resurfacing; removal and replacement of pavement markings, traffic striping, and pavement markers not paid by separate bid item; replacement of curbs, gutters, sidewalks, traffic island/median and driveways; landscape restoration; removal of debris and materials; pipeline cleaning; leakage testing; CCTV acceptance inspection of the completed pipeline; and all work necessary to install the pipe or conduit, complete in place.

9. 4" White Paint Striping (2 Coats)

a. Method of Measurement

"4" White Paint Striping" will be measured per linear foot of striping installed.

b. Payment

The contract unit price paid per linear foot (LF) for the bid item "White 4" Paint Striping" shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in applying 2 coats of traffic stripes, pavement markers, complete in place, including any necessary cat tracks, dribble lines, alignment for stripes, layout work and temporary traffic stripes and pavement markers, as shown on the plans, as specified in the Technical Specifications section "Pavement Markings," and as directed by the Engineer and no additional compensation will be made thereof. Payment for white and blue 4" painted stripe shall be paid as part of this bid item.

10. Install Blue and White Paint Accessibility Marking (9 SF White and 12 SF Blue)

a. Method of Measurement

"Install Blue and White Paint Accessibility Marking (9 SF White and 12 SF Blue)" will be measured individually as each (EA) installed. Measurement will be performed in the field by the Contractor upon completion and checked by the Engineer.

b. Payment

The contract unit price paid for each (EA) for the bid item "Blue and White Paint Accessibility Marking (9 SF White and 12 SF Blue)" shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in applying thermoplastic traffic stripes, pavement markers, complete in place, including any necessary cat tracks, dribble lines, alignment for stripes, layout work and temporary traffic stripes and pavement markers, as shown on the plans, as specified in the Technical Specifications section "Pavement Markings," and as directed by the Engineer, and no additional compensation will be made thereof.

11. Pavement Markings (White Paint)

a. Method of Measurement

"Pavement Markings (White Paint)" will be measured per square foot of for the actual area covered.

b. Payment

The contract unit price paid per square foot (SF) for the bid item "Pavement Markings (White Paint)" shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in applying 2 coats of traffic stripes, pavement markers, complete in place, including any necessary cat tracks, dribble lines, alignment for stripes, layout work and temporary traffic stripes and pavement markers, as shown on the plans, as specified in the Technical Specifications section "Pavement Markings," and as directed by the Engineer and no additional compensation will be made thereof.

12. White 12" Thermoplastic Striping

a. Method of Measurement

“White 12" Thermoplastic Stripe” will be measured per linear foot (LF) along the line of the traffic stripe, without deductions for gaps in broken traffic stripes. Measurement will be performed in the field by the Contractor upon completion and checked by the Engineer.

b. Payment

The contract unit price paid per linear foot (LF) for the bid item " White 12" Thermoplastic Stripe” shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in applying thermoplastic traffic stripes, pavement markers, complete in place, including any necessary cat tracks, dribble lines, alignment for stripes, layout work and temporary traffic stripes and pavement markers, as shown on the plans, as specified in the Technical Specifications section "Pavement Markings" and as directed by the Engineer and no additional compensation will be made thereof.

13. White Thermoplastic Caltrans “STOP” Legend (22 SF) Pavement Marking

a. Method of Measurement

“White Thermoplastic Caltrans “STOP” Legend (22 SF) Pavement Marking” will be measured individually as each (EA) installed. Measurement will be performed in the field by the Contractor upon completion and checked by the Engineer.

b. Payment

The contract unit price paid for each (EA) for the bid item "White Thermoplastic Caltrans "STOP" Legend (22 SF) Pavement Marking” shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in applying thermoplastic traffic stripes, pavement markers, complete in place, including any necessary cat tracks, dribble lines, alignment for stripes, layout work and temporary traffic stripes and pavement markers, as shown on the plans, as specified in the Technical Specifications section "Pavement Markings," and as directed by the Engineer and no additional compensation will be made thereof.

14. White Thermoplastic Caltrans Type 1 10' Arrow (14 SF) Pavement Marking

a. Method of Measurement

“White Thermoplastic Caltrans Type 1 10' Arrow (14 SF) Pavement Marking” will be measured individually as each (EA) installed. Measurement will be performed in the field by the Contractor upon completion and checked by the Engineer.

b. Payment

The contract unit price paid for each (EA) for the bid item “White Thermoplastic Caltrans Type I 10' Arrow (14 SF) Pavement Marking” shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in applying thermoplastic traffic stripes, pavement markers, complete in place, including any necessary cat tracks, dribble lines, alignment for stripes, layout work and temporary traffic stripes and pavement markers, as shown on the plans, as specified in the Technical Specifications section "Pavement Markings," and as directed by the Engineer, and no additional compensation will be made thereof.

15. ADA Parking Sign with Post

a. Method of Measurement

“ADA Parking Sign with Post” will be measured individually as each (EA) sign with post installed. Measurement will be performed in the field by the Contractor upon completion and checked by the Engineer.

b. Payment

The contract unit price paid for each (EA) for the bid item " ADA Parking Sign with Post" shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in installing a sign on one post complete in place, including sign, assembly hardware, maintaining height requirements, post, post foundation, post sleeve, excavation, backfilling, compaction, potholing, as specified in technical specification "Traffic Signs", as shown on the plans, and as directed by the Engineer, and no additional compensation will be made thereof.

16. Traffic Sign with Post

a. Method of Measurement

“Traffic with Post” will be measured individually as each (EA) sign with post installed. Measurement will be performed in the field by the Contractor upon completion and checked by the Engineer.

b. Payment

The contract unit price paid for each (EA) for the bid item "Traffic Sign with Post" shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in installing a sign on one post complete in place, including sign, assembly hardware, maintaining height requirements, post, post foundation, post sleeve, excavation, backfilling, compaction, potholing, as specified in technical specification "Traffic Signs", as shown on the plans, and as directed by the Engineer, and no additional compensation will be made thereof.

17. Parking Bumper

a. Method of Measurement

“Parking Bumper” will be measured individually as each (EA) parking bumper installed. Measurement will be performed in the field by the Contractor upon completion and checked by the Engineer

b. Payment

The contract unit price paid for each (EA) for the bid item “Parking Bumper” shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in installing a wheel stop complete in place including precast wheel stop, drilling, reinforcing bar, as specified in technical specification "Parking

Bumpers", as shown on the plans, and as directed by the Engineer, and no additional compensation will be made thereof.

18. OTHER ITEMS OF WORK

The cost of any item of Work called for in the Plans or Specifications, but not specifically listed under or as a specific bid item, shall be considered as included in other items of Work and no additional payment will be made.

SECTION X. CONTRACT TIME AND PERMITTED WORKING HOURS

(See also General Requirements Section III.)

A. DAYS. From the beginning of the Work, the Contractor shall not exceed thirty working days to complete all of the Work. The charging of working days is suspended when the Work is complete and the Engineer schedules a final inspection. After the final inspection by the Engineer and the preparation of a deficiency list (“punch list”), five working days will be allowed for the correction of deficiencies, in addition to the Contract days specified.

No Work is allowed on City holidays or as described below.

B. HOLIDAYS. No Work is allowed on City holidays and as described below:

New Year’s Day	January 1
Martin Luther King, Jr.	Third Monday in January
Presidents Day	Third Monday in February
Memorial Day	Last Monday in May
Independence Day	July 4
Labor Day	First Monday in September
Veteran’s Day	November 11
Thanksgiving Day	Last Thursday in November
Day after Thanksgiving Day	Day after last Thursday in November
Christmas Day	December 25

When a City Holiday falls on a Saturday, the preceding Friday shall be the designated City holiday. When a City Holiday falls on a Sunday, the following Monday shall be the designated legal holiday.

No contract work shall occur after 12:00 noon on the following days:
Day before the Thanksgiving Holiday
Christmas Eve
New Year’s Eve

Work by the contractor on the morning of the three above days will not be counted as a working day. Contractor shall notify the Engineer at least 2 weeks prior to planned work on the morning of the above half days.

C. HOURS. Working hours and days shall be as follows: 7:00 A.M. to 6:00 P.M. Monday through Friday, excluding City Holidays, and shall constitute “normal working hours.” Any work in the field performed outside of these hours, including but not limited to construction, clean up, placement of traffic control devices, and mobilization/demobilization, shall be subject to removal and the Contractor fined \$5,000 per incident, unless such work has been previously authorized by the Engineer in writing.

D. Lane Closure Hours: Lane closures are permitted only between the hours of 9:00 AM to 4:00 PM Monday through Friday.

SECTION XI. PROJECT MEETINGS

A. GENERAL. In order to effectively manage the construction process, the City requires that certain meetings be held during the course of the Work at which time all members of the construction team are expected to attend.

A pre-construction meeting will be held as soon as the City has obtained the Contractor's executed bonds and certificate of insurance. At that time, representatives of the City, the Contractor, and the Engineer will discuss in detail certain procedural aspects of the Work, including:

1. Administrative procedures for transmittals, approvals, Change Orders and similar items;
2. Review of the method of application for payment, progress payments, retention, and final payment; and
3. Review of the Contractor's construction schedule, list of proposed subcontractors, and the schedule of values.

Not less than once every week during the course of Work, the Contractor's superintendent, the Engineer's Project manager, and representatives from the City shall meet to discuss the progress of the Work in general. At that time, any adjustment to the progress schedule will be transmitted to the City, together with an explanation of the time saved or lost.

In addition to the meetings described above, the City reserves the right to call meetings spontaneously when it believes necessary in order to effectively manage Work on the Project, to prevent misunderstandings, or to disseminate information.

B. REQUIRED REPORTS. Contractor shall submit the following reports to the City Engineer at the pre-construction meeting:

- Construction Schedule
- Traffic Control Plan
- Pothole Plan and Schedule

The Contractor shall not proceed with construction until these reports have been approved by the City Engineer and the Contractor has received such approval in writing (included in your Notice to Proceed letter). The potholing plan and schedule must be approved by the City Engineer at least two (2) weeks before construction may proceed.

SECTION XII. SIGNS AND NOTICES

A. GENERAL. Contractor shall post and maintain all notices, signs, and other safeguards required by law or ordinance. No other signs or advertisements shall be installed on the premises except as authorized by the Engineer.

B. NO PARKING SIGNS. All no parking signs shall be provided by the City of Alameda.

C. PUBLIC NOTIFICATION

1. General. The Contractor shall be required to notify and cooperate with the public, local businesses, transit companies, local law enforcement agencies, local fire districts, local utilities providers, refuse collectors, schools, and any other persons or agencies which may be affected by this project at least two (2) weeks prior to construction. Other notifications may be required during project construction as outlined below.

Contractor to coordinate any roadway closures with Alameda County Industries, and Alameda Fire Department.

Notifications shall be provided by the Contractor relating to, but not limited to, the following items:

- General information
- Traffic delays and alternate routes
- Street Closures
- Tree removals and/or trimming
- Driveway closures
- Water service interruptions
- Temporary relocation of bus stops
- Adjustment of utilities
- Waste pick-up

2. Notifications to Businesses and Residents. The Contractor shall provide and place door hangers, or flyers, on the doors of all occupants on all streets affected by the work. Streets receiving notices shall include any streets whose access will be affected by the work. This notice shall be reviewed and approved by the Engineer at least two weeks before proposed start of work. Sample notices and door hangers are included in the attachments. All door hangers shall be delivered one (1) week in advance of work on the street and shall show the specific day, date, time of the work to be done (e.g. Monday 6/20, 7:00 a.m. to 5:00 p.m.) and description of the work to be performed. When a street is not completed on the date listed on the notification to residents, the contractor shall re-schedule and re-notify all residents on affected streets one week in advance of re-scheduled work. The notice shall be revised with appropriate day, date and time of the work to be done.

Contractor shall coordinate with business and residents in providing access during and after working hours.

Failure to comply with the notification requirement will result in a Stop Work order.

The Contractor will submit a notification schedule to the Engineer at least a week prior to distribution of notifications to residents. The notification schedule will include scheduled date of notification and the streets receiving notification. The Contractor must notify the Engineer if there are any changes or delays to the notification schedule.

The Contractor shall maintain an updated and chronological record at the job site of all written notifications along with a list of recipients. Such records shall be made available upon request of the Engineer.

No work shall take place prior to the required notification, re-notification, or coordination work with affected parties.

D. PUBLIC SERVICE NOTIFICATION. The Contractor shall provide one (1) week advance notice of the rubber chip seal and slurry seal work (including activity schedules) to the Police Department (City of Alameda), to garbage collection services (Alameda County Industries), to emergency agencies including the fire department and ambulance services, to the U.S. Postal Service offices, County Connection bus service and others as deemed necessary by the Engineer. Emergency access in the project area shall be maintained at all times. A copy of such notice shall be submitted to the Engineer.

E. TEMPORARY SIGNS. The Contractor shall provide and place construction scheduling signs on the affected street five (5) working days prior to commencing work.

Temporary "Street Closed" signs will be placed immediately after chip seal and slurry placement. Signs will remain in place until the roadway is suitable for vehicular access.

F. NO PARKING SIGNS. "No Parking" signs shall be placed on affected streets 48 hours prior to commencement of work. For any work scheduled on a Monday, No Parking signs must be placed by the end of the day the prior Thursday. Contractor must use City provided "No Parking" signs. No parking signs must show the day, date and times of restricted parking, e.g. Monday, 6/20, 7:00 a.m. – 5:00 p.m. Due to the nature of the chip seal and slurry work and inconvenience to residents, a range of dates may not be shown on No Parking signs.

No Parking signs must be placed for asphalt pavement repairs, chip seal and slurry work operations. Signs shall be secured on barricades and placed at intervals no greater than 250'. The Contractor shall remove signs and barricades at the end of each day they expire. Contractor shall maintain all No Parking signs throughout the duration of work.

G. OTHER NOTIFICATIONS. At least five (5) working days in advance of street closures, all emergency services, public transportation services, post office, garbage collection services, County and local district school bus drivers shall be notified by the contractor in writing of the locations, time and date of closure. Contractor will provide the Engineer copies of the written notification. In case of schedule changes, the emergency services, etc. shall be notified by telephone at least two days in advance of the street closure.

SECTION XIII PROJECT CLOSEOUT – SCOPE

A. SUBSTANTIAL COMPLETION. When the Contractor considers the Work substantially complete, he shall submit to the Engineer a written notice that the Work (or designated portion of it) is substantially complete, together with a list of minor work to be completed or corrected. Within a reasonable time after receipt of this notice, the Engineer will make an inspection to determine the actual status of completion.

If the Engineer determines that the Work is in fact not substantially complete, he will promptly notify the Contractor in writing, giving the reasons. The Contractor shall remedy the deficiencies in the Work, and send a second written notice of substantial completion to the Engineer.

The Contractor will be allowed no longer than 30 calendar days from the date of substantial completion to request that the Engineer make his final inspection.

B. COMPLETION. When the Contractor considers the Work complete, he shall submit a letter to the Engineer stating that the Contract Documents have been reviewed, and that the Work has been inspected for compliance with the Contract Documents.

Contractor's submission implies that:

- the Contractor has, to the best of his knowledge, completed the Work in accordance with the Contractor Documents, including "punch list" items;
- equipment and systems have been tested in the presence of the City's representatives and are operational; and
- the Work is completed and ready for final inspection, and/or for certificate of occupancy by the Building Department.

The Engineer will make an inspection to verify the status of completion with reasonable promptness after receipt of the Contractor's letter.

If the Engineer considers that the Work is incomplete or defective, he will promptly notify the Contractor in writing, listing the incomplete or defective work. The Contractor shall then take immediate steps to remedy the stated deficiencies, and send a second written notice indicating that the Work is complete. The City will re-inspect the Work. When the Project is determined to be acceptable under the Contract Documents, the Contractor may proceed with closeout submittals.

The Contractor may be held liable for the cost of additional inspections if the Engineer is forced to make more than two field inspections to determine whether the Project is complete.

C. CLOSEOUT SUBMITTALS. Contractor's closeout submittals include:

- Project record documents;
- Warranties and bonds;
- Evidence of payment, release of liens and final wage certificates; and
- Certificate of insurance for products and completed operations.

- Final Waste Management Report

Final payment and/or release of the retainer will be withheld until all closeout submittals have been received and approved by the City.

SECTION XIV. CONCURRENT ACTIVITIES

The City reserves the right to perform Work related to the Project with his own or contract forces, and to award separate contracts in connection with other portions of the Project or other Work on the site under these or similar conditions of the Contract. If the Contractor claims that delay or additional cost is involved because of such action by the City, he shall make such claim as provided elsewhere in the Contract Documents.

SECTION XV. DUST CONTROL

A. GENERAL. To prevent surface and air movement of dust from disturbed soil surfaces that may cause off-site damage, health hazards, and traffic safety problems.

B. CONDITIONS WHERE PRACTICE APPLIES. On construction roads, access points, and other disturbed areas subject to surface dust movement and dust blowing where off-site damage may occur if dust is not controlled.

C. DESIGN CRITERIA. Construction operations should be scheduled to minimize the amount of area disturbed at one time. Buffer areas of vegetation should be left where practical. Temporary or permanent stabilization measures shall be installed. No specific design criteria is given; see construction specifications below for common methods of dust control. Water quality must be considered when materials are selected for dust control.

D. CONSTRUCTION SPECIFICATION.

1. Non Driving Areas

These areas use products and materials applied or placed on soil surfaces to prevent airborne migration of soil particles.

Vegetative Cover – For disturbed areas not subject to traffic, vegetation provides the most practical method of dust control.

Mulch (including gravel mulch) – Mulch offers a fast effective means of controlling dust. This can also include rolled erosion control blankets.

Spray Adhesives - These are products generally composed of polymers in a liquid or solid form that are mixed with water to form an emulsion that is sprayed on the soil surface with typical hydro seeding equipment. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations for the specific soils on the site. In no case should the application of these adhesives be made on wet soils or if there is a probability of precipitation within 48 hours of its proposed use.

2. Driving Area

These areas utilize water, polymer emulsions, and barriers to prevent dust movement from the traffic surface into the air.

Sprinkling – The site may be sprayed with water until the surface is wet. This is especially effective on haul roads and access routes.

Polymer Additives – These polymers are mixed with water and applied to the driving surface by a water truck with gravity feed drip bar, spray bar or automated distributor truck. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations. The prepared surface shall be moist and no application of the polymer will be made if there is a probability of precipitation within 48 hours of its proposed use.

Barriers – Woven geotextiles can be placed on the driving surface to effectively reduce dust throw and particle migration on haul roads. Stone can also be used for construction roads for effective dust control.

Windbreak – A silt fence or similar barrier can control air currents at intervals equal to ten times the barrier height. Preserve existing wind barrier vegetation as much as practical.

E. MAINTENANCE. Maintain dust control measures through dry weather periods until all disturbed areas are stabilized.

SECTION XVI. TEMPORARY FACILITIES

A. SCOPE. The General Contractor shall be responsible to provide all temporary job site facilities and services as required for use including, but not limited to, the articles listed below. The Contractor shall superintend and coordinate temporary facilities normally furnished and maintained as part of Contractor's work. Remove all temporary facilities upon completion of project.

B. SANITARY FACILITIES. Provide and maintain sanitary facilities for employees and subcontractor's employees that comply with the regulations of the local and State Departments of Health.

C. UTILITIES.

1. Water

Provide temporary water services including connections and maintenance. Pay all costs of temporary and permanent drinking and other water services during construction period.

2. Electricity

Make arrangements for electrical power for use during the construction period until substantial completion, and pay all costs. Make and maintain all connections; furnish wiring, conduit, lamps and related equipment necessary to complete the work.

SECTION XVII. ASSIGNMENT

The City and the Contractor each binds himself, his partners, successors, assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party in respect to all covenants, agreements and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to him hereunder, without the previous written consent of the City. A consolidation or merger of Contractor or a change in ownership of twenty-five percent (25%) or more of Contractor's capital stock shall constitute an assignment by Contractor requiring the written consent of City.

SECTION XVIII. UTILITIES

A. GENERAL. Nothing in these specifications must be deemed to require the City to indicate the presence of existing service laterals or appurtenances when the presence of such utilities on the project site can be inferred from the presence of other visible facilities, such as buildings, meter and junction boxes, on or adjacent to the Site. Where underground mains distribution conduits such as water, gas, sewer, electric power, telephone, or cable television are shown on the plans, the contractor shall assume that every property parcel will be served by a service connection for each type of utility. The contractor shall adhere to all rules, regulations, and laws outlined in the Underground Service Alert (USA) North manual.

B. LOCATION. Unless specified otherwise as previously potholed, elevations shown on the plans for existing utilities are based on a search of record information available during design only and are solely for your convenience. The City does not guarantee the accuracy of the elevations or locations.

The City does not warrant the accuracy or completeness of the location and type of existing utilities and substructures shown on the plans. The Contractor is responsible to accurately locate, by potholing or other suitable methods, all existing utilities such as service connections and substructures as shown on the plans and marked out by Underground Service Alert (USA), to prevent damage to such facilities and to identify any conflicts with the proposed work.

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

You must notify the Engineer, in writing, of any conflicts between existing utilities and the proposed work in advance of the work to provide adequate time, and space for any changes to the work needed to avoid conflicts. You must perform utility location far enough in advance of the Work to provide the written notification.

Your written notification must include; date of utility location, method of utility location, type, size, and material of utility, horizontal location (to the nearest Station), depth for existing pavement or ground surface to top and bottom of utility, suspected ownership of utility, and the date on which any conflict with the utility will impact the project.

Contractor shall coordinate with utility owners on horizontal, vertical, and depth of cover of all utilities. The Contractor shall notify the city immediately if:

1' vertical or horizontal separation as measured from outside pipe wall to outside pipe wall between underground facilities cannot be maintained.

3' or more cover over top of underground facilities cannot be maintained.

C. PROTECTION. The Contractor shall not interrupt the service function or disturb the support of any utility without the authority from the utility owner. Valves, switches, vaults, and meters shall be maintained readily accessible for emergency shutoff. The Contractor shall immediately notify the Engineer and the utility owner if any utility is disturbed or damaged.

D. RELOCATION. When the construction requires that you alter, relocate, or reconstruct a utility, temporary or permanent relocation or alteration of indicated utilities will be your responsibility for which the Contractor must make all arrangements.

SECTION XIX. PROJECT RECORD DOCUMENTS

Project records documents are the Engineer's construction documents for the project that have been modified by the Engineer to show the actual conditions of in-place construction installed by the Contractor as accurately as possible. They include:

Drawings marked where required to show changes in dimension or configuration between the original design and final construction;

Specifications marked to indicate changes of materials, products, or methods of installation;

Modifications to drawings or specifications issued during the course of construction (including addenda, change orders, or clarifications issued by the Design Professional or his consultants); Approved shop drawings and product data; and

Field test records and reports.

Prepare record documents as the work progresses. Do not conceal in-place construction until field verifications are made for record purposes.

Locate internal utilities and concealed in the construction, referenced to visible and accessible features of the structure. Note field changes of dimension and detail, and changes made by change order. Sketch details not on the original drawings.

For Specifications and Addenda, legibly mark each section to record the manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed. Note changes made by Change Order.

Submit not less than two sets of marked up plans to the City at the end of the Work, before final payment is made.

SECTION XX. LIMITATION OF DESIGN PROFESSIONAL'S RESPONSIBILITY

The Architect/Engineer will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the work, and he will not be responsible for the Contractor's failure to carry out the work in accordance with the contract documents. The Architect/Engineer will not be responsible for or have control or charge over the acts or omissions of the Contractor, subcontractors, or any of their agents or employees, or any other persons performing any of the work.

SECTION XXI. SUBMITTALS

A. Material Submittals. The Contractor shall provide three sets of all material submittals to the Engineer for his review. The Engineer will review all materials submittals and either approves or returns for revisions within five (5) working days, unless he notifies the Contractor of concerns that require additional time to resolve. If the Contractor wishes additional copies of approved submittals, he shall submit these additional copies at the time of submittal for the Engineer to stamp approved.

B. Shop Drawings. Shop and erection drawing submittals, where required, shall be furnished in type and number as specified in each material specification section of the project specifications.

For its own informational purposes, submit to the Owner one copy of each set of shop drawings after they have been approved and/or reviewed by both the Contractor and the Engineer. Additional approval by the Owner is not required, unless specifically requested.

SECTION XXII. ABNORMAL WEATHER CONDITIONS

A. Description. A rain, windstorm, high water or other natural phenomenon, which might reasonably have been anticipated from historical records of the general locality, shall not be construed as abnormal. It is hereby agreed that all disruptive weather events with an average interval of ten (10) years or more between their occurrence and the occurrence of a similar event of equal or greater magnitude cannot be reasonably anticipated. For the purposes of this contract, weather information and historical data for an area in question shall be assumed to be the same as that measured at the nearest or most applicable record station of the Environmental Data Service of the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.

Information on measuring stations of the National Oceanic and Atmospheric Administration (NOAA) can be found in the "Climatological Data" published by NOAA. This publication may be found in public libraries or contact:

National Climatic Data Center Telephone: (828) 271-4800
Federal Building Website: www.ncdc.noaa.gov
151 Patton Avenue
Asheville, NC 28801-5001

B. Delays Due to Abnormal Weather. Weather days will be recorded by the Contractor and forwarded to the Engineer within five (5) days of occurrence.

Weather day delays are calculated by subtracting the 10-year average disruptive weather, as described above, from the actual encountered/report days. Contractor's schedule should include normal weather days.

There shall be no increase in the contract sum or remuneration of any kind by Owner to Contractor for extensions due to abnormal weather day delays.

BID DOCUMENTS

Exhibit A

BIDDER'S PROPOSAL

Instructions to Bidders

Bidder's Proposal Form

Proposed Subcontractor Form

Security for Compensation Certificate

Project Reference Form

Bidder's Bond

IMPORTANT INSTRUCTIONS

1. Any erasure or interlineation may invalidate bid.
2. If corporation is bidder, affix seal of corporation.
3. If bidder is:
 - (a) An individual doing business under his own name, sign his own name only.
 - (b) An individual using a firm name, sign: Example, "John Doe, an individual doing business as Blank Company."
 - (c) A co-partnership, sign: Example, "Blank Company, by John Doe, President" (or other title).
4. If a firm or co-partnership, give the names of all individual co-partners composing the firm. If a corporation, state legal name of corporation; also name of president, secretary and treasurer thereof.
5. If a bid is sent by mail, write the word "Proposal" plainly on the envelope.

BIDDER'S PROPOSAL

Bid Schedule for Fire Station No. 2 Pavement Replacement, 635 Pacific Avenue, Alameda, CA

Proposal to the City Council of the City of Alameda:

The undersigned declares that he has carefully examined the location of the proposed work and the Plans and Specifications referred to herein, and hereby proposes to furnish all labor, materials, machinery, tools and equipment required to perform the work, and to do all the said work, in accordance with said Plans, Specifications and Special Provisions for the unit prices set forth in the following bid schedule:

Bid Item	Description	Quantity	Unit of Measure	Unit Price	Total Price
1	Mobilization	1	LS		
2	Traffic and Pedestrian Controls, Erosion Controls in Phasing.	1	LS		
3	Demolition - Removal of Pavement, Sidewalk and Excavation to Subgrade (Area 5A, 5B and 5C)	7,120	SF		
4	Demolition – Removal of Pavement, Sidewalk and Excavation to Subgrade (Area 6)	3,200	SF		
5	Demolition – Removal of Underground Piping, Utilities and Disconnect	1	LS		
6	Site Clearing, Grubbing and Removals	1	LS		
7	Removal and Salvage for Reinstallation of Gates and Motors	1	LS		
8	6" and 8" Storm Drain Pipe (PVC)	220	LF		
9	Area Drains/Catch Basins	8	EA		
10	Trench Drain including Cast-in-Place Concrete & Steel @ Curb Drain	1	LS		
11	Trench Plates @ Existing Trench Drain @ Curb Cuts	1	LS		

BIDDER: _____

EXHIBIT A

Proposal for Fire Station No. 2 Pavement Replacement

Bid Item	Description	Quantity	Unit of Measure	Unit Price	Total Price
12	3" AC Paving Over 7" Class 2 Aggregate, Compact Subgrade (Area 5B)	4200	SF		
13	6" Reinforced Concrete Pavement over 8" Class 2 Aggregate Base and Compact Subgrade, Scored (Area 5A)	2000	SF		
14	6" Reinforced Concrete Pavement over 8" Class 2 Aggregate Base and Compact Subgrade, Scored (Area 5C)	920	SF		
15	10" Reinforced Concrete Pavement over 8" Class 2 Aggregate Base and Compact Subgrade, Scored (Area 5C)	3,200	SF		
16	Reinstall Gates and Fencing, Reset motors.	1	LS		
17	Sump Pit (Pre-cast) & Pump, Hose and Sleeves	1	LS		
18	Electrical for Sump Pump to Service Panel.	1	LS		
19	Misc. Pavement Markings (White Paint) for Parking	1	LS		
20	Cut Downspouts and Misc. Improvements	1	LS		
21	Landscaping (re-sod)	1,100	SF		
22	Misc. Items not included above but to be included in project.	1	LS		
TOTAL BID					\$

BIDDER: _____

EXHIBIT A

Fire Station No. 2 Pavement Improvements

The undersigned agrees to execute the contract required in said Specifications, to the satisfaction of the Council of the City of Alameda, with the necessary bonds, if any be required, within ten days, not including Sundays or legal holidays, after receiving notice that the contract has been awarded and is ready for signature; and further agrees that, in case of his default in any of the foregoing provisions, the proceeds of any check which may accompany his bid in lieu of a bid bond shall become the property of the City of Alameda as agreed and liquidated damages.

Firm Name (Please Print) _____

Signature of Person on Behalf of Firm _____

Business Address _____

Dated: _____

Contact Number _____

Name	Title	Address
(Of Officers or Partners)		

Incorporated under the laws of the State of _____

Contractor's License No. _____ Expiration Date: _____

Department of Industrial Relations (DIR) No.: _____

The signature above certifies that the foregoing information given on this document is true and correct under penalty of perjury. (Section 7028.15 California Business and Professionals Code.)

BIDDER: _____

Fire Station No. 2 Pavement Improvements

PROPOSED SUBCONTRACTOR FORM

The Bidder shall list the name, address, license number and Department of Industrial Relations number of each subcontractor to whom the Bidder proposes to subcontract portions of the work, as required by the provisions in Section 2-1.01, "General," and Section 2-1.10, "Subcontractor List," of the Standard Specifications. **If no subcontractors are proposed in the performance of this contract, write "None" in the first cell.**

COMPANY NAME	CA LICENSE NO.	BUSINESS ADDRESS	DESCRIPTION OF WORK	DIR NO.

(This form may be duplicated if necessary to list additional subcontractors)

BIDDER: _____

EXHIBIT A

Fire Station N. 2 Concrete Improvements

SECURITY FOR COMPENSATION CERTIFICATE

(Required by Paragraph 1861, California Labor Code)

To: _____

I am aware of the provisions of Section 3700 of the Labor Code of the State of California which requires 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 I will comply with such provisions before commencing the performance of the work of this contract.

(Signature of Bidder)

Business Address

Proposal for Fire Station No. 2 Concrete Improvements

PROJECT REFERENCE FORM

The Bidder must have completed at least three projects of similar nature and dollar value equivalent to or exceeding this project. Details of those projects must be provided below.

1. Project Name: _____
Owner: _____

Construction Cost: \$ _____

Construction Time: _____ Calendar Days
Owner's Representative: _____

Owner's Telephone No.: _____

Date of Substantial Completion: _____

2. Project Name: _____
Owner: _____

Construction Cost: \$ _____

Construction Time: _____ Calendar Days
Owner's Representative: _____

Owner's Telephone No.: _____

Date of Substantial Completion: _____

3. Project Name: _____
Owner: _____

Construction Cost: \$ _____

Construction Time: _____ Calendar Days
Owner's Representative: _____

Owner's Telephone No.: _____

Date of Substantial Completion: _____

BIDDER’S BOND

We,

as Principal, and as Surety are bound unto the _____, hereafter referred to as “obligee”, in the penal sum of ten percent (10%) of the total amount of the bid of the Principal submitted to the Obligee for the work described below, for the payment of which sum we bind ourselves, jointly, and severally, **THE CONDITION OF THIS OBLIGATION IS SUCH, THAT:**

WHEREAS, the Principal is submitted to the Obligee, for

(Copy here the exact description of work, including locations as it appears on the proposal)

for which bids are to be opened per Section 1 Proposal and Contract Requirements, Paragraph E, Presenting and Marking of Bid.

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

In the event suit is brought upon this bond by the Obligee and judgement is recovered, the Surety shall pay all cost incurred by the Obligee in such suite, including a reasonable attorney’s fee to be fixed by the court.

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

Dated: _____, 2020.

Principal

Surety

By:

CERTIFICATE OF ACKNOWLEDGMENT

State of California
County of Alameda

On this _____ day of _____ in the year 2020 before me
_____, a Notary Public, personally appeared _____
Attorney-in-fact

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 _____ (Seal)
Notary Public

Exhibit B

SAMPLE CONTRACT AGREEMENT & ADDITIONAL INSURED CERTIFICATE

Sample of Contract Agreement

Sample Insurance Endorsements

Sample Performance Bond Form

Sample Payment Bond Form

CONTRACTOR AGREEMENT

THIS AGREEMENT (“**Agreement**”) is entered into this ____ day of _____ 2020, by and between the CITY OF ALAMEDA, a municipal corporation (the "**City**"), and COMPANY, a (California corporation, partnership, sole proprietor, individual) whose address is Address, (“**Contractor**”), in reference to the following:

RECITALS:

- A. The City of Alameda is a municipal corporation duly organized and validly existing under the laws of the State of California with the power to carry on its business as it is now being conducted under the statutes of the State of California and the Charter of the City.
- B. The City is in need of the following services: Fire Station No. 2 Pavement Markings. City staff issued Specifications and Plans on Wednesday, May 13, 2020, after a submittal period of twenty nine days received NUMBER of timely submitted bids, and the bids were opened on Tuesday, June 9, 2020. Staff reviewed the bids and selected the lowest responsive and responsible bidder.
- C. Contractor possesses the skill, experience, ability, background, certification and knowledge to provide the services described in this Agreement on the terms and conditions described herein.
- D. City and Contractor desire to enter into an agreement for Fire Station No. 2 Pavement Markings, upon the terms and conditions herein.

NOW, THEREFORE, it is mutually agreed by and between the undersigned parties as follows:

1. TERM:

The Contractor shall have ____ consecutive working days from the date the work is to commence pursuant to the Notice to Proceed to diligently prosecute the work to completion.

2. SERVICES TO BE PERFORMED:

Contractor agrees, at its own cost and expense, to furnish all labor, tools, equipment, materials, except as otherwise specified, and to do all work strictly in accordance with Specifications, Special Provisions and Plans, which Specifications, Special Provisions and Plans are hereby referred to and expressly made a part hereof with the same force and effect as if the same were fully incorporated herein. The Contractor acknowledges that the work plan included in Exhibit “A” is tentative and does not commit the City to request Contractor to perform all tasks included therein.

3. COMPENSATION TO CONTRACTOR:

Contractor shall be compensated for services performed pursuant to this Agreement in the amount and manner set forth in Contractor's bid, which is attached hereto as Exhibit "A" and incorporated herein by this reference. Payment will be made in the same manner that claims of a like character are paid by the City, with checks drawn on the treasury of said City from Fund ____ or CIP _____.

Payment will be made by the City in the following manner: On the first day of each month, Contractor shall submit a written estimate of the total amount of work done the previous month. However, the City reserves the right to adjust budget within and between tasks. Pricing and accounting of charges are to be according to the bid packet pricing, unless mutually agreed to in writing.

Payment shall be made for 95% of the value of the work completed as determined by the City. The City shall retain 5% of the value of the work as partial security for the completion of the work by Contractor. Retained amounts shall be paid to Contractor within sixty days of acceptance by the City of the project. Payment shall not be construed as acceptance of defective work. No interest will be paid to Contractor on retained funds.

Total compensation for work is \$_____, with a _____ percent contingency in the amount of \$_____ for a total not to exceed of \$_____. Use of contingency shall be for items of work outside the original scope and requires prior written authorization by the City.

Prompt Payment Of Withheld Funds To Subcontractors: The City shall hold retainage from the prime contractor and shall make prompt and regular incremental acceptances of portions, as determined by the City of the contract work and pay retainage to the prime contractor based on these acceptances. The prime contractor or subcontractor shall return all monies withheld in retention from all subcontractors within 30 days after receiving payment for work satisfactorily completed and accepted including incremental acceptances of portions of the contract work by the City. Any delay or postponement of payment may take place only for good cause and with the City's prior written approval. Any violation of these provisions shall subject the violating prime contractor to the penalties, sanctions, and other remedies specified in Section 7108.5 of the California Business Professions Code. This requirement shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise, available to the prime contractor or subcontractor in the event of a dispute involving late payment, or nonpayment by the contractor, or deficient subcontractor's performance, or noncompliance by a subcontractor, including but not limited to remedies under California Public Contract Code Section 9204. This clause applies to both DBE and non-DBE subcontractors.

4. TIME IS OF THE ESSENCE:

Contractor and the City agree that time is of the essence regarding the performance of this Agreement.

It is agreed by the parties to the Agreement that in case all the work called for under the Agreement is not completed before or upon the expiration of the time limit as set forth in paragraph 1 above, damage will be sustained by the City, and that it is and will be impracticable to determine the actual damage which the City will sustain in the event of and by reason of such delay. It is therefore agreed that the Contractor will pay to the City the sum of _____ DOLLARS (\$_____) per day for each and every day's delay beyond the time prescribed to complete the work; and the Contractor agrees to pay such liquidated damages as herein provided, and in case the same are not paid, agrees that the City may deduct the amount thereof from any money due or that may become due the Contractor under the Agreement.

It is further agreed that in case the work called for under the Agreement is not finished and completed in all parts and requirements within the time specified, the City shall have the right to extend the time for completion or not, as may seem best to serve the interest of the City; and if the City decides to extend the time limit for the completion of the Agreement, it shall further have the right to charge the Contractor, his or her heirs, assigns, or sureties, and to deduct from the final payment for the work, all or any part, as it may deem proper, of the actual costs and overhead expenses which are directly chargeable to the Agreement, and which accrue during the period of such extensions.

The Contractor shall not be assessed with liquidated damages during any delay in the completion of the work caused by an act of God or of the public enemy, acts of the City, fire, flood, epidemic, quarantine restriction, strikes, freight embargoes, and unusually severe weather or delays of subcontractors due to such causes; provided that the Contractor shall, within one (1) day from the beginning of such delay, notify the City in writing of the causes of delay. The City shall ascertain the facts in good faith and the extent of the delay, and its findings of the facts thereon shall be final and conclusive.

5. STANDARD OF CARE:

Contractor agrees to perform all services hereunder in a manner commensurate with the prevailing standards of like professionals in the San Francisco Bay Area and agrees that all services shall be performed by qualified and experienced personnel who are not employed by the City nor have any contractual relationship with City.

6. INDEPENDENT PARTIES:

Contractor hereby declares that it is engaged as an independent business and it agrees to perform its services as an independent contractor. The manner and means of conducting the work are under the control of Contractor, except to the extent they are limited by statute, rule or regulation and the express terms of this Agreement. No civil service status or other right of employment will be acquired by virtue of Contractor's services. None of the benefits provided by City to its employees, including but not limited to unemployment insurance, workers' compensation plans, vacation and sick leave are available from City to Contractor, its employees or agents. Deductions shall not be made for any state or federal taxes, FICA payments, PERS payments, or other purposes normally associated with an employer-employee relationship from any fees due Contractor. Payments of the above items, if required, are the responsibility of Contractor.

7. IMMIGRATION REFORM AND CONTROL ACT (IRCA):

Contractor assumes any and all responsibility for verifying the identity and employment authorization of all of its employees performing work hereunder, pursuant to all applicable IRCA or other federal, or state rules and regulations. Contractor shall indemnify, defend, and hold City harmless from and against any loss, damage, liability, costs or expenses arising from any noncompliance of this provision by Contractor.

8. NON-DISCRIMINATION:

Consistent with City's policy that harassment and discrimination are unacceptable employer/employee conduct, Contractor agrees that harassment or discrimination directed toward a job applicant, a City employee, or a citizen by Contractor or Contractor's employee on the basis of

race, religious creed, color, national origin, ancestry, handicap, disability, marital status, pregnancy, sex, age, or sexual orientation will not be tolerated. Contractor agrees that any and all violations of this provision shall constitute a material breach of this Agreement.

9. HOLD HARMLESS:

Contractor shall indemnify, defend, and hold harmless the City, its City Council, boards, commissions, officials, employees, and volunteers ("Indemnitees") from and against any and all loss, damages, liability, claims, suits, costs and expenses whatsoever, including reasonable attorneys' fees ("Claims"), arising from or in any manner connected to Contractor's negligent act or omission, whether alleged or actual, regarding performance of services or work conducted or performed pursuant to this Agreement. If Claims are filed against Indemnitees which allege negligence on behalf of the Contractor, Contractor shall have no right of reimbursement against Indemnitees for the costs of defense even if negligence is not found on the part of Contractor. However, Contractor shall not be obligated to indemnify Indemnitees from Claims arising from the sole negligence or willful misconduct of Indemnitees.

10. INSURANCE:

On or before the commencement of the terms of this Agreement, Contractor shall furnish the City's Risk Manager with certificates showing the type, amount, class of operations covered, effective dates and dates of expiration of insurance coverage in compliance with paragraphs 10A, B, C and D. Such certificates, which do not limit Contractor's indemnification, shall also contain substantially the following statement: "Should any of the above insurance covered by this certificate be canceled or coverage reduced before the expiration date thereof, the insurer affording coverage shall provide fourteen (14) days' advance written notice to the City of Alameda, "Attention: Risk Manager."

It is agreed that Contractor shall maintain in force at all times during the performance of this Agreement all appropriate coverage of insurance required by this Agreement with an insurance company that is acceptable to the City Risk Manager and licensed to do insurance business in the State of California. Endorsements naming the City, its City Council, boards, commissions, officials, employees, and volunteers as additional insured shall be submitted with the insurance certificates.

A. COVERAGE:

Contractor shall maintain the following insurance coverage:

- (1) Workers' Compensation:
Statutory coverage as required by the State of California.
- (2) Liability:
Commercial general liability coverage in the following minimum limits:

Bodily Injury:	\$1,000,000 each occurrence
	\$2,000,000 aggregate - all other
Property Damage:	\$1,000,000 each occurrence
	\$2,000,000 aggregate

If submitted, combined single limit policy with aggregate limits in the amounts of \$2,000,000 will be considered equivalent to the required minimum limits shown above.

(3) Automotive:

Comprehensive automobile liability coverage (any auto) in the following minimum limits:

Bodily injury:	\$1,000,000 each occurrence
Property Damage:	\$1,000,000 each occurrence

or

Combined Single Limit:	\$2,000,000 each occurrence
------------------------	-----------------------------

(4) Pollution Prevention:

Legal liability required for hazardous materials excavation in the amount of \$2,000,000 each occurrence.

(5) Builders Risk: \$2,000,000.

B. SUBROGATION WAIVER:

Contractor agrees that in the event of loss due to any of the perils for which it has agreed to provide comprehensive general and automotive liability insurance, Contractor shall look solely to its insurance for recovery. Contractor hereby grants to the City, on behalf of any insurer providing comprehensive general and automotive liability insurance to either Contractor or City with respect to the services of Contractor herein, a waiver of any right to subrogation which any such insurer of said Contractor may acquire against City by virtue of the payment of any loss under such insurance.

C. FAILURE TO SECURE:

If Contractor at any time during the term hereof should fail to secure or maintain the foregoing insurance, the City shall be permitted to obtain such insurance in the Contractor's name or as an agent of the Contractor and shall be compensated by the Contractor for the costs of the insurance premiums at the maximum rate permitted by law and computed from the date written notice is received that the premiums have not been paid.

D. ADDITIONAL INSURED:

City, its City Council, boards, commissions, officials, employees, and volunteers shall be named as an additional insured under all insurance coverages, except worker's compensation insurance. The naming of an additional insured shall not affect any recovery to which such additional insured would be entitled under this policy if not named as such additional insured. An additional insured named herein shall not be held liable for any premium, deductible portion of any loss, or expense of any nature on this policy or any extension thereof. Any other insurance held by an additional insured shall not be required to contribute anything toward any loss or expense covered by the insurance provided by this policy.

E. SUFFICIENCY OF INSURANCE:

Contractor shall furnish the following bonds from a bonding company acceptable to the City Risk Manager. Faithful Performance Bond and Labor and Material Bond are only required for work over \$25,000. Therefore, those estimates that are under \$25,000 will not need to budget for the bond premiums and those estimates over \$25,000 will need to be sure to budget for the bond premiums.

The insurance limits required by City are not represented as being sufficient to protect Contractor. Contractor is advised to consult Contractor's insurance broker to determine adequate coverage for Contractor.

11. BONDS:

Contractor shall furnish the following bonds from a bonding company acceptable to the City Risk Manager:

A. Faithful Performance:

A bond in the amount of 100% of the total contract price guaranteeing the faithful performance of this contract, and

B. Labor and Materials:

A bond for labor and materials in the amount of 100% of the total contract price.

12. PROHIBITION AGAINST TRANSFERS:

Contractor shall not assign, sublease, hypothecate, or transfer this Agreement, or any interest therein, directly or indirectly, by operation of law or otherwise, without prior written consent of the City Manager. Any attempt to do so without said consent shall be null and void, and any assignee, sublessee, hypothecate or transferee shall acquire no right or interest by reason of such attempted assignment, hypothecation or transfer. However, Contractor's claims for money from the City under this Agreement may be assigned to a bank, trust company or other financial institution without prior written consent. Written notice of such assignment shall be promptly furnished to the City by Contractor.

The sale, assignment, transfer or other disposition of any of the issued and outstanding capital stock of Contractor, or of the interest of any general partner or joint venturer or syndicate member or cotenant, if Contractor is a partnership or joint venture or syndicate or cotenancy, which shall result in changing the control of Contractor, shall be construed as an assignment of this Agreement. Control means fifty percent (50%) or more of the voting power of the corporation.

13. SUBCONTRACTOR APPROVAL:

Unless prior written consent from the City is obtained, only those people and subcontractors whose names are listed in Contractor's bid shall be used in the performance of this Agreement.

Requests for additional subcontracting shall be submitted in writing, describing the scope of work to be subcontracted and the name of the proposed subcontractor. Such request shall set forth the total price or hourly rates used in preparing estimated costs for the subcontractor's services.

Approval of the subcontractor may, at the option of the City, be issued in the form of a Work Order.

In the event that Contractor employs subcontractors, such subcontractors shall be required to furnish proof of workers' compensation insurance and shall also be required to carry general and automobile liability insurance in reasonable conformity to the insurance carried by Contractor. In addition, any work or services subcontracted hereunder shall be subject to each provision of this Agreement.

14. PERMITS AND LICENSES:

Contractor, at its sole expense, shall obtain and maintain during the term of this Agreement, all appropriate permits, certificates and licenses, including a City Business License that may be required in connection with the performance of services hereunder.

15. REPORTS:

Each and every report, draft, work product, map, record and other document reproduced, prepared or caused to be prepared by Contractor pursuant to or in connection with this Agreement shall be the exclusive property of the City.

No report, information nor other data given to or prepared or assembled by Contractor pursuant to this Agreement shall be made available to any individual or organization by Contractor without prior approval by the City.

Contractor shall, at such time and in such form as the City may require, furnish reports concerning the status of services required under this Agreement.

16. RECORDS:

Contractor shall maintain complete and accurate records with respect to sales, costs, expenses, receipts and other such information required by the City that relate to the performance of services under this Agreement.

Contractor shall maintain adequate records of services provided in sufficient detail to permit an evaluation of services. All such records shall be maintained in accordance with generally accepted accounting principles and shall be clearly identified and readily accessible. Contractor shall provide free access to such books and records to the representatives of the City or its designees at all proper times, and gives the City the right to examine and audit same, and to make transcripts therefrom as necessary, and to allow inspection of all work, data, documents, proceedings and activities related to this Agreement. Such records, together with supporting documents, shall be kept separate from other documents and records and shall be maintained for a period of three (3) years after receipt of final payment.

If supplemental examination or audit of the records is necessary due to concerns raised by the City's preliminary examination or audit of records, and the City's supplemental examination or audit of the records discloses a failure to adhere to appropriate internal financial controls, or other breach of contract or failure to act in good faith, then Contractor shall reimburse the City for all reasonable costs and expenses associated with the supplemental examination or audit.

17. NOTICES:

All notices, demands, requests or approvals to be given under this Agreement shall be given in writing and conclusively shall be deemed served when delivered personally or on the second business day after the deposit thereof in the United States Mail, postage prepaid, registered or certified, addressed as hereinafter provided.

All notices, demands, requests, or approvals from Contractor to the City shall be addressed to the City at:

City of Alameda
[Department]
[Address]
Alameda, CA 94501
ATTENTION: [Title]
Ph: (510) [xxx-xxxx] / Fax: (510) [xxx-xxxx]
Email:

All notices, demands, requests, or approvals from the City to Contractor shall be addressed to Contractor at:

[Contractor Name]
[Department]
[Address]
Alameda, CA 94501
ATTENTION; [Title]
Ph: (510) xxx-xxxx / Fax: (510) xxx-xxxx
Email:

18. SAFETY:

The Contractor will be solely and completely responsible for conditions of all vehicles owned or operated by Contractor, including the safety of all persons and property during performance of the services and tasks under this Agreement. This requirement will apply continuously and not be limited to normal working hours. In addition, Contractor will comply with all safety provisions in conformance with U.S. Department of Labor Occupational Safety and Health Act, any equivalent state law, and all other applicable federal, state, county and local laws, ordinances, codes, and any regulations that may be detailed in other parts of the Agreement. Where any of these are in conflict, the more stringent requirements will be followed. The Contractor's failure to thoroughly familiarize itself with the aforementioned safety provisions will not relieve it from compliance with the obligations and penalties set forth herein.

The Contractor will immediately notify the City's Risk Manager within 24 hours of any incident of death, serious personal injury or substantial property damage that occurs in connection with the performance of this Agreement. The Contractor will promptly submit to the City a written report of all incidents that occur in connection with this Agreement. This report must include the following information: (i) name and address of injured or deceased person(s); (ii) name and address of Contractor's employee(s) involved in the incident; (iii) name and address of Contractor's liability insurance carrier; (iv) a detailed description of the incident; and (v) a police report.

19. LAWS TO BE OBSERVED:

Contractor shall comply with all applicable laws, state, federal, and all ordinances, rules and regulations enacted or issued by City. In addition, the Contractor shall keep himself fully informed of all existing and future state and federal laws and all municipal ordinances and regulations of the City of Alameda which in any manner affect those engaged or employed in the work, or the materials used in the work, or which in any way affect the conduct of the work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same.

20. DEPARTMENT OF INDUSTRIAL RELATIONS COMPLIANCE AND PREVAILING WAGE REQUIREMENTS ON PUBLIC WORKS PROJECTS:

Effective January 1, 2015, no Contractor or Subcontractor may be listed on a bid proposal for a public works project (submitted after March 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code Section 1725.5 (with the limited exceptions from this requirement for bid purposed only under Labor code Section 1771.1(a)). Register at <https://efiling.dir.ca.gov/PWCR>

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.

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

The Prime Contractor is required to post job site notices prescribed by regulations. See 8 Calif. Code Regulation §16451(d).

Effective April 1, 2015, All Contractors and Subcontractors must furnish electronic certified payroll records directly to the Labor Commissioner at: <https://apps.dir.ca.gov/ecpr/das/altlogin>

21. HOURS OF LABOR:

As provided in Article 3 (commencing at § 1810), Chapter 1, Part 7, Division 2 of the Labor Code, eight (8) hours of labor shall constitute a legal day's work. The time of service of any worker employed at any time by the Contractor or by any Subcontractor on any subcontract under this Contract, upon the work or upon any part of the work contemplated by this Contract, is limited and restricted to eight (8) hours during any one calendar day and forty (40) hours during any one calendar week, except as hereinafter provided. Notwithstanding the provision hereinabove set forth, work performed by employees of Contractor in excess of eight (8) hours per day and forty (40) hours during any one week shall be permitted upon this public work provided that the employees' compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half (1-1/2) times the basic rate of pay.

The Contractor shall pay to the City a penalty of Twenty-five Dollars (\$25.00) for each worker employed in the execution of this Contract by the Contractor, or by any Subcontractor, for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any calendar day and forty (40) hours in any one (1) calendar week, in violation of the

provisions of Article 3 (commencing at § 1810), Chapter 1, Part 7, Division 2 of the Labor Code, unless compensation for the workers so employed by Contractor is not less than one and one-half (1-1/2) times the basic rate of pay for all hours worked in excess of eight (8) hours per day.

Holiday and overtime work, when permitted by law, shall be paid for at a rate of at least one and one-half (1½) times the above specified rate of *per diem* wages, unless otherwise specified. Holidays shall be defined in the Collective Bargaining Contract applicable to each particular craft, classification, or type of worker employed.

22. APPRENTICES:

Attention is directed to the provisions in sections 1777.5 and 1777.6 of the Labor Code concerning the employment of apprentices by the Contractor or any subcontractor under him on contracts greater than \$30,000 or 20 working days. The Contractor and any subcontractor under him shall comply with the requirements of Sections 1777.5 and 1777.6 in the employment of apprentices.

Section 1777.5 requires the Contractor or subcontractor employing workers in any apprenticeable occupation to apply to the joint apprenticeship committee nearest the site of the public works project, and which administers the apprenticeship program in that trade, for a certificate of approval, if they have not previously applied and are covered by the local apprenticeship standards.

The Contractor is required to make contributions to funds established for the administration of apprenticeship programs if: (1) the Contractor employs registered apprentices or journeymen in any apprenticeable trade on such contracts and if other contractors on the public works site are making such contributions; or (2) if the Contractor is not a signatory to an apprenticeship fund and if the funds administrator is unable to accept Contractor's required contribution. The Contractor or subcontractor shall pay a like amount to the California Apprenticeship Council.

Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex-officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

23. LABOR DISCRIMINATION:

No discrimination shall be made in the employment of persons upon public works because of the race, color, sex, religion, age, national origin, sexual orientation, or physical disability of such persons and every Contractor for public works violating this section is subject to all the penalties imposed for a violation of the provisions of the Labor Code, and, in particular, Section 1735.

24. REGISTRATION OF CONTRACTORS:

Before submitting bids, contractors shall be licensed in accordance with the provisions of Chapter 9, Division 3, of the Business and Professional Code of the State of California.

25. URBAN RUNOFF MANAGEMENT:

The Contractor shall avoid creating excess dust when breaking asphalt or concrete and during excavation and grading. If water is used for dust control, contractor shall use as little as necessary. Contractor shall take all steps necessary to keep wash water out of the streets, gutters and storm drains.

The Contractor shall develop and implement erosion and sediment control to prevent pollution of storm drains. Such control includes but is not limited to:

- a. Use storm drain inlet protection devices such as sand bag barriers, filter fabric fences, block and gravel filters. (Block storm drain inlets prior to the start of the rainy season (October 15), on site de-watering activities and saw-cutting activities; shovel or vacuum saw-cut slurry and remove from the site).
- b. Cover exposed piles of soil or construction material with plastic sheeting. All construction materials must be stored in containers.
- c. Sweep and remove all materials from paved surfaces that drain to streets, gutters and storm drains prior to rain as well as at the end of the each work day. At the completion of the project, the street shall be washed and the wash water shall be collected and disposed of offsite in an appropriate location.
- d. After breaking old pavement, Contractor shall remove all debris to avoid contact with rainfall or runoff.
- e. Contractor shall maintain a clean work area by removing trash, litter, and debris at the end of each workday. Contractor shall also clean up any leaks, drips, and other spills as they occur.

The objective is to ensure that the City and County of Alameda County-Wide Clean Water Program is adequately enforced. These controls should be implemented prior to the start of construction, up-graded as required, maintained during construction phases to provide adequate protection, and removed at the end of construction.

These recommendations are intended to be used in conjunction with the State's Best Management Practices Municipal and Construction Handbooks, local program guidance materials from municipalities, Section 7.1.01 of the Standard Specifications and any other appropriate documents on storm water quality controls for construction.

Failure to comply with this program will result in the issuance of noncompliance notices, citations, project stop orders or fines. The fine for noncompliance of the above program is two hundred and fifty dollars (\$250.00) per occurrence per day. The State under the Federal Clean Water Act can also impose a fine on the contractor, pursuant to Cal. Water Code §13385.

26. COMPLIANCE WITH MARSH CRUST ORDINANCE:

Contractor shall perform all excavation work in compliance with the City's Marsh Crust Ordinance as set forth at Section 13-56 of the Municipal Code. Prior to performing any excavation

work, Contractor shall verify with the Building Official whether the excavation work is subject to the Marsh Crust Ordinance. Contractor shall apply for and obtain permits from Building Services on projects deemed to be subject to the Marsh Crust Ordinance.

27. COMPLIANCE WITH THE CITY'S INTEGRATED PEST MANAGEMENT POLICY:

The Contractor shall follow the requirements of the City's Integrated Pest Management (IPM) Policy to ensure the City is in compliance with its Municipal Regional Stormwater NPDES Permit, Order No. R2-2009-0074, issued by the San Francisco Bay Regional Water Quality Control Board.

- Contractor shall use the most current IPM technologies available to ensure the long-term prevention or suppression of pest problems and to minimize negative impacts on the environment, non-target organisms, and human health for the control or management of pests in and around City buildings and facilities, parks and golf courses, urban landscape areas, rights-of-way, and other City properties.
- Contractor will consider the City IPM Policy's hierarchy of options or alternatives listed below, in the following order before recommending the use of or applying any pesticide on City property: (1)
 - a. No controls (e.g. tolerating the pest infestation, use of resistant plant varieties or allowing normal life cycle of weeds);
 - b. Physical or mechanical controls (e.g. hand labor, mowing, exclusion);
 - c. Cultural controls (e.g. mulching, disking, alternative vegetation) and good housekeeping (e.g. cleaning desk area);
 - d. Biological controls (e.g., natural enemies or predators);
 - e. Reduced-risk chemical controls (e.g., soaps or oils);
 - f. Other chemical controls.
- Prior to applying chemical controls the contractor shall complete a checklist for the City's pre-approval that explains why a chemical control is necessary. For annual contracts that require regular application of chemical controls the contractor shall submit one checklist prior to the initiation of the project demonstrating that the hierarchy has been reviewed and no other options exist. (Attached as Exhibit C). Additionally, the Contractor shall provide documentation to the City's project manager of the implementation of the IPM techniques hierarchy described in the City's IPM Policy.
- Contractor shall avoid the use of the following pesticides that threaten water quality, human health and the environment:
 - a. Acute Toxicity Category I chemicals as identified by the Environmental Protection Agency (EPA)
 - b. Organophosphate pesticides (e.g., those containing Diazinon, chlorpyrifos or malathion)

- c. Pyrethroids (bifenthrin, cyfluthrin, beta-cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, lambda-cyhalothrin, permethrin, and tralomethrin), carbamates (e.g., carbaryl), and fipronil
 - d. Copper-based pesticides unless their use is judicious, other approaches and techniques have been considered, and the threat of impact to water quality is prevented.
- Contractor shall sign the Contractor Verification Form (attached as Exhibit B) indicating the intent to implement the City's IPM Policy, and return a signed copy to the City's project manager.
 - Contractor shall provide to the City's project manager an annual Report of all pesticide usage in support of City operations including pesticide name, active ingredient(s), target pest(s), the total amounts used and the reasons for any increase in use of any pesticide.
 - Contractor shall provide a copy of any current IPM certifications(s) to the City's project manager prior to initiation of the service work.

A copy of the City's IPM Policy may be obtained from the City's project manager and is also on file with the City Clerk.

If this agreement pertains to the use of any items listed above, the Contractor will need to fill out and send in the Contractor Verification Form and Contractor Check List. ADD EXHIBIT B IF PEST CONTROL.

28. PURCHASES OF MINED MATERIALS REQUIREMENT:

Contractor shall ensure that all purchases of mined materials such as construction aggregate, sand and gravel, crushed stone, road base, fill materials, and any other mineral materials must originate from a surface mining operation identified on the AB3098 List per the Surface Mining and Reclamation Act of 1975 (SMARA).

Within five days of award of contract, Contractor shall submit a report to City which lists the intended suppliers for the above materials and demonstrates that the suppliers are in compliance with the SMARA requirements. The AB3098 List is maintained by the Department of Conservation's Office of Mine Reclamation (OMR) and can be viewed at: www.conservation.ca.gov/OMR/ab_3098_list/index.htm. Note that the list changes periodically and should be reviewed accordingly.

29. TERMINATION:

In the event Contractor fails or refuses to perform any of the provisions hereof at the time and in the manner required hereunder, Contractor shall be deemed in default in the performance of this Agreement. If such default is not cured within a period of two (2) business days after receipt by Contractor from the City of written notice of default, specifying the nature of such default and the steps necessary to cure such default, the City may terminate the Agreement forthwith by giving to the Contractor written notice thereof.

The City shall have the option, at its sole discretion and without cause, of terminating this Agreement by giving seven (7) days' prior written notice to Contractor as provided herein. Upon termination of this Agreement, each party shall pay to the other party that portion of compensation specified in this Agreement that is earned and unpaid prior to the effective date of termination.

30. ATTORNEY'S FEES:

In the event of the bringing of any action or suit by a party hereto against the other party by reason of any breach of any covenants, conditions, obligation or provision arising out of this Agreement, the prevailing party shall be entitled to recover from the non-prevailing party all of its costs and expenses of the action or suit, including reasonable attorneys' fees, experts' fees, all court costs and other costs of action incurred by the prevailing party in connection with the prosecution or defense of such action and enforcing or establishing its rights hereunder (whether or not such action is prosecuted to a judgment). For the purposes of this Agreement, reasonable fees of attorneys of the Alameda City Attorney shall be based on the fees regularly charged by private attorneys with the equivalent number of years of experience in the subject matter area of the law for which the Alameda City Attorney's services were rendered who practice in Alameda County in law firms with approximately the same number of attorneys as employed by the Alameda City Attorney's Office.

31. CONFLICT OF LAW:

This Agreement shall be interpreted under, and enforced by the laws of the State of California excepting any choice of law rules which may direct the application of laws of another jurisdiction. The Agreement and obligations of the parties are subject to all valid laws, orders, rules, and regulations of the authorities having jurisdiction over this Agreement (or the successors of those authorities.) Any suits brought pursuant to this Agreement shall be filed with the courts of the County of Alameda, State of California.

32. ADVERTISEMENT:

Contractor shall not post, exhibit, display or allow to be posted, exhibited, displayed any signs, advertising, show bills, lithographs, posters or cards of any kind pertaining to the services performed under this Agreement unless prior written approval has been secured from the City to do otherwise.

33. WAIVER:

A waiver by City of any breach of any term, covenant, or condition contained herein, shall not be deemed to be a waiver of any subsequent breach of the same or any other term, covenant, or condition contained herein, whether of the same or a different character.

34. INTEGRATED CONTRACT:

This Agreement represents the full and complete understanding of every kind or nature whatsoever between the parties hereto, and all preliminary negotiations and agreements of whatsoever kind or nature are merged herein. No verbal agreement or implied covenant shall be held to vary the provisions hereof. Any modification of this Agreement will be effective only by written execution signed by both the City and Contractor

EXHIBIT B

35. INSERTED PROVISIONS:

Each provision and clause required by law to be inserted into the Agreement shall be deemed to be enacted herein, and the Agreement shall be read and enforced as though each were included herein. If through mistake or otherwise, any such provision is not inserted or is not correctly inserted, the Agreement shall be amended to make such insertion on application by either party.

36. CAPTIONS:

The captions in this Agreement are for convenience only, are not a part of the Agreement and in no way affect, limit or amplify the terms or provisions of this Agreement.

Signatures on next page

IN WITNESS WHEREOF, the parties have caused the Agreement to be executed on the day and year first above written.

COMPANY NAME
(A California Corporation, partnership,
sole proprietor, individual)

CITY OF ALAMEDA,
a Municipal Corporation

(Name)
(Title)

Eric J. Levitt
City Manager

RECOMMENDED FOR APPROVAL

(Name)
(Title)

Liam Garland
Public Works Director

Contractor License No. _____

APPROVED AS TO FORM:
City Attorney

DIR No. _____

Lisa N. Maxwell
Assistant City Attorney

EXHIBIT B

POLICY NUMBER:

COMMERCIAL GENERAL LIABILITY
CG 20 10 10 93

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED - OWNERS, LESSEES or CONTRACTORS FORM B

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name of Person or Organization:

City of Alameda
Public Works Department
Alameda Point, Building 1
950 West Mall Square, Room 110
Alameda, CA 94501-7558

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

WHO IS AN INSURED (Section II) is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of your ongoing operations performed for that insured.

**REF: _____
The City of Alameda, its City Council, boards and commissions, officers, employees and volunteers; are additional insured for work done on their behalf by the named insured.**

PRIMARY INSURANCE:

IT IS UNDERSTOOD AND AGREED THAT THIS INSURANCE IS PRIMARY AND ANY OTHER INSURANCE MAINTAINED BY THE ADDITIONAL INSURED SHALL BE EXCESS ONLY AND NOT CONTRIBUTING WITH THIS INSURANCE.

SEVERABILITY OF INTEREST:

IT IS AGREED THAT EXCEPT WITH RESPECT TO THE LIMIT OF INSURANCE, THIS COVERAGE SHALL APPLY AS IF EACH ADDITIONAL INSURED WERE THE ONLY INSURED AND SEPARATELY TO EACH INSURED AGAINST WHOM CLAIM IS MADE OR SUIT IS BROUGHT.

WAIVER OF SUBROGATION:

IT IS UNDERSTOOD AND AGREED THAT THE COMPANY WAIVES THE RIGHT OF SUBROGATION AGAINST THE ABOVE ADDITIONAL INSURED (S), BUT ONLY AS RESPECTS THE JOB OR PREMISES DESCRIBED IN THE CERTIFICATE ATTACHED HERETO.

NOTICE OF CANCELLATION:

IT IS UNDERSTOOD AND AGREED THAT IN THE EVENT OF CANCELLATION OF THE POLICY FOR ANY REASON OTHER THAN NON-PAYMENT OF PREMIUM, 30 DAYS WRITTEN NOTICE WILL BE SENT TO THE CERTIFICATE HOLDER BY MAIL. IN THE EVENT THE POLICY IS CANCELED FOR NON-PAYMENT OF PREMIUM, 10 DAYS WRITTEN NOTICE WILL BE SENT TO THE ABOVE.

EXHIBIT B

POLICY NUMBER:

COMMERCIAL AUTO
CG 20 48 02 99

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

DESIGNATED INSURED

This endorsement modifies insurance provided under the following:

- BUSINESS AUTO COVERAGE FORM
- GARAGE COVERAGE FORM
- MOTOR CARRIER COVERAGE FORM
- TRUCKERS COVERAGE FORM

With respect to coverage provided by this endorsement, the provisions of the Coverage Form apply unless modified by this endorsement.

This endorsement identifies person(s) or organization(s) who are “insureds” under the Who Is An Insured Provisions of the Coverage Form. This endorsement does not alter coverage provided in the Coverage Form.

This endorsement changes the policy effective on the inception date of the policy unless another date is indicated below.

Endorsement Effective:	Countersigned By: (Authorized Representative)
Named Insured:	

SCHEDULE

Name of Person or Organization:

City of Alameda
Public Works Department
950 West Mall Square, Room 110
Alameda, CA 94501-7558

WHO IS AN INSURED (Section II) is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of your ongoing operations performed for that insured.

REF: _____
The City of Alameda, its City Council, boards and commissions, officers, employees and volunteers are additional insured for work done on their behalf by the named insured.

NOTICE OF CANCELLATION:

IT IS UNDERSTOOD AND AGREED THAT IN THE EVENT OF CANCELLATION OF THE POLICY FOR ANY REASON OTHER THAN NON-PAYMENT OF PREMIUM, 30 DAYS WRITTEN NOTICE WILL BE SENT TO THE CERTIFICATE HOLDER BY MAIL. IN THE EVENT THE POLICY IS CANCELED FOR NON-PAYMENT OF PREMIUM, 10 DAYS WRITTEN NOTICE WILL BE SENT TO THE ABOVE.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

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

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

(Name of Owner)

(Address of Owner)

hereinafter called OWNER, in the penal sum of _____ Dollars. (\$ _____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____, 2020, a copy of which is hereto attached and made a part hereof for the construction of:

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

PERFORMANCE BOND FORM

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

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

IN WITNESS WHEREOF, this instrument is executed on _____ counterparts, each one
(Number)
of which shall be deemed an original, this the _____ day of _____, 2020.

ATTEST:

_____	Principal
_____	By: _____ (SEAL)
Principal Secretary	
_____	(Address)
(Witness as to Principal)	
_____	(Surety)
(Address)	

ATTEST:

_____	Surety Secretary
_____	By: _____ (SEAL)
(Witness as to Surety)	Attorney-in-fact
_____	(Address)
(Address)	

NOTE: Date of BOND must not be prior to date of Contract.
If the CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

PAYMENT BOND FORM

KNOW ALL MEN BY THESE PRESENTS: that

a _____, hereinafter called Principal, and

hereinafter called Surety, are held and firmly bound unto

hereinafter called OWNER, in the penal sum of _____ Dollars. (\$ _____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____, 2020, a copy of which is hereto attached and made a part hereof for the construction of:

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WORK whether by SUBCONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PAYMENT BOND FORM

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

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

IN WITNESS WHEREOF, this instrument is executed on _____ counterparts, each one
(Number)
of which shall be deemed an original, this the _____ day of _____, 2020.

ATTEST:

Principal

Principal Secretary By: _____ (SEAL)

(Witness as to Principal) (Address)

(Address)

(Surety)

ATTEST:

(Witness as to Surety) By: _____ (SEAL)
Surety Secretary
Attorney-in-fact

(Address) (Address)

NOTE: Date of BOND must not be prior to date of Contract.

If the CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

**City of Alameda Contractor Verification Form
Implementation of City of Alameda Integrated Pest Management Policy**

The City of Alameda (City) is mandated to:

- (a) Minimize its reliance on pesticides that threaten water quality, and
- (b) Require the effective use of Integrated Pest Management (IPM) in all municipal operations and on all municipal property.

To ensure compliance with this mandate, all City operations need to verifiably implement the practices and policies described in the City’s IPM Policy adopted June 15, 2010. A copy of this IPM Policy is included with this form. The implementation of the IPM Policy is applicable to all municipal contractors that provide landscaping, structural pest control, or other pest management services in support of City operations and/or on municipal property.

The undersigning parties acknowledge that all elements of the City’s IPM Policy will be implemented throughout the period of contractual services provided to City operations and on municipal property. Specific actions to document this performance shall include:

- Pest Management Contractor shall provide to City project manager for pre-approval the Pest Management Considerations Checklist.
- Pest Management Contractor shall avoid the use of the following pesticides that threaten water quality, human health and the environment:
 - o Acute Toxicity Category I chemicals as identified by the Environmental Protection Agency (EPA)
 - o Organophosphate pesticides (e.g., those containing Diazinon, chlorpyrifos or malathion)
 - o Pyrethroids (bifenthrin, cyfluthrin, beta-cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, lambda-cyhalothrin, permethrin, and tralomethrin), carbamates (e.g., carbaryl), and fipronil
 - o Copper-based pesticides unless their use is judicious, other approaches and techniques have been considered and the threat of impact to water quality is prevented.
- Pest Management Contractor shall provide to the City’s project manager an annual Report of all pesticide usage in support of City operations including product name and manufacturer, active ingredient(s), target pest(s), the total amounts used and reasons for any increase in use of any pesticide.
- If the Contractor’s on-site personnel are currently IPM certified through either the EcoWise or GreenPro programs, or through another program, the contractor shall provide written evidence of any certifications to the City’s project manager.

City Departmental Representative

Contractor Representative

Print Name

Print Name

Date

Date

City Department

City Contractor

**City of Alameda Pest Management Contractor Checklist:
Pest Management Options Considerations**

Contractor will consider the City IPM Policy’s hierarchy of options or alternatives listed below, in the following order before recommending the use of or applying any pesticide on City property. Please provide a written explanation in each section below of why the specific pest management option is not appropriate:

(1) No controls (e.g. tolerating the pest infestation, use of resistant plant varieties or allowing normal life cycle of weeds)

Comment: _____

(2) Physical or mechanical controls (e.g. hand labor, mowing, exclusion)

Comment: _____

(3) Cultural controls (e.g. mulching, disking, alternative vegetation), good housekeeping (e.g. cleaning desk area)

Comment: _____

(4) Biological controls (e.g., natural enemies or predators)

Comment: _____

(5) Reduced-risk chemical controls (e.g., soaps or oils)

Comment: _____

(6) Other chemical controls

Comment: _____

Contractor Representative

Print Name

Date

City Contractor

TECHNICAL REQUIREMENTS

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SECTION 01 50 50

EROSION CONTROL

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. The Contractor shall provide all materials, labor and equipment necessary to complete all work as specified herein, including but not limited to the following:
 - 1. Apply specified treatments to all excavation, cuts and fill slopes, soil stockpiles, and all disturbed areas.
 - 2. Install all temporary erosion control devices per Plans and Specifications.
- B. All other labor and materials reasonably incidental to the satisfactory completion of the work in different stages and sequence of the project, including cleanup of the site.

1.2 RELATED SECTIONS

- A. Section 01 10 00, Supplemental General Requirements

1.3 RELATED DOCUMENTS

- A. Caltrans Standard Specifications, 2015
 - 1. Section 21, Erosion Control
- B. Association of Official Seed Analysts Procedures
- C. California State Seed Law of the Department of Food and Agriculture

1.4 CONTRACTOR SUBMITTALS

- A. The Contractor shall submit, in accordance with Section 01 10 00, Supplemental General Requirements, manufacturer's letters of compliance and manufacturer's literature for the following items, when used for the project:
 - 1. Seed Mixes (or individual items)
 - 2. Mulches
 - 3. Binders/Tackifiers
 - 4. Fiber rolls
 - 5. Erosion Control Blanket

1.5 SITE CONDITION

- A. It is the responsibility of the Contractor to visit the site to determine existing conditions including access to the site, the nature and extent of existing improvements upon adjacent public and private property, the nature of materials to be encountered, and other factors that may affect the work of this section.
- B. It is the responsibility of the Contractor to have finished the grading of the slopes, including track walking the areas to be treated with erosion control treatments during the different stages of the project.

1.6 WORK SCHEDULE

- A. The Contractor shall proceed with work during a period as indicated in Division 1 and contractor document. The work shall progress as soon as the site becomes available consistent with normal seasonal limitations.

1.7 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. All products shall be delivered to the site in manufacturer’s unopened standard containers bearing original labels showing quantity, analysis and name of manufacturer.
- B. All materials shall be stored in designated areas and in such a manner as to protect them from weather or other conditions that might damage or impair the effectiveness of the product.

1.8 ANALYSIS OF SAMPLES AND TESTS

- A. Samples: The Owner reserves the right to take and analyze samples of materials for conformity to the Specifications at any time. On request, seed shall delivered to Owner’ Representative 150 days prior to seeding so seed can be tested. Seed samples shall be drawn in accordance with procedures outlined in Association of Official Seed Analysts.
- B. Rejected material: Rejected materials shall be removed immediately from the site at Contractor’s expense. Contractor shall pay the cost of testing replacement materials.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All products shall be in conformance with the Specifications listed below. Any changes to products to be used shall be approved, in writing, by the Owner or Owner’s representative prior to job site delivery.

2.2 SEED MIX

- A. Seed shall conform to the provisions in Section 21-2.02F, "Seed," of the CalTrans Standard Specifications. Individual seed species shall be measured and mixed in the presence of the Owner’s Representative.
- B. Seed shall be delivered to the project site in unopened separate containers with the seed tag attached. Containers without a seed tag attached will not be accepted.
- C. Composition:

Species	Common Name	PLS lbs. /acre
<i>Gazania</i>	<i>Trailing Gazania</i>	<i>4 lbs. /acre</i>

NON-LEGUME SEED

Botanical Name (Common Name)	Percent Germination (Minimum)	Kilograms Pure Live Seed Per Hectare (Slope Measurement)
(Blue Wildrye, Festuca idahoensis)	35	4

(Idaho Festuca)

Hordium brachyantherum Californicum

40

8

D. Quality

1. All seed shall be in conformance with the California State Seed Law of the Department of Food and Agriculture. Each seed bag shall be delivered to the site sealed and clearly marked as to species, purity, percent germination, dealer's guarantee, and dates of test. In addition, the container shall be labeled to clearly reflect the amount of Pure Live Seed (PLS) contained.
2. Prior to seeding at the request of the Owner, the Contractor shall provide a letter of certification, original Association of Official Seed Analysts (AOSA) seed test results, and calculations of PLS.
3. All legume seed shall be pellet-inoculated. Inoculant sources shall be species specific and shall be applied at a rate of 2 pounds of inoculant per one hundred pounds of seed.

2.3 MULCH

- A. Mulch shall be 100% wood hydroseed and shall be composed of wood fiber derived from whole wood chips with no growth or germination inhibiting substances, and shall be manufactured in such a manner that when thoroughly mixed with seed, fertilizer, organic stabilizer, and water, in the proportions specified, will form a homogeneous slurry which is capable of being sprayed to form a porous mat.
- B. The fibrous mulch in its air-dry state shall contain no more than 15% by weight of water. The fiber shall have a temporary green dye and shall be accompanied by a certificate of compliance stating that the fiber conforms to these Specifications.

2.4 ORGANIC STABILIZER/TACKIFIER

- A. Stabilizer and tackifier shall be an organic substance supplied in powder form and shall be psyllium-based and packed in clearly marked bags stating the contents of each package. The California Department of Food and Agriculture shall certify the material as an Auxiliary Soil Chemical.

2.5 FIBER ROLLS

- A. Fiber rolls shall be of commercial quality, conform to the requirements of the California Department of Food and Agriculture Code, and per Caltrans Type 1, Type 2 as required for erosion protection purpose.

2.6 WATER

- A. Water shall be furnished by Owner and shall be made readily available at the sites indicated on the project map. Water shall be of potable quality.
- B. Contractor shall add 4-6 lbs. of Vulpia Microstachys or 20 lbs. of Regreen per acre if hydroseeding occurs in the fall or winter months.
- C. Hydroseed mix can be obtained from Pacific Coast Seed, Inc., (925)373-4417.

2.7 EROSION CONTROL BLANKETS

- A. Erosion control must be Erosion Control Technology Council (ECTC) Type 2D and made of processed natural fibers that are mechanically, structurally, or chemically bound together to form a continuous matrix that is surrounded by 2 natural nets. Erosion control blanket must comply with the requirements shown in the following table:

Erosion Control Blanket

Quality characteristic	Test method	Requirement		
		Type A	Type B	Type C
Roll width (min, inches)	--	72		
Matrix (%)				
Straw/coconut Woven coir (coconut fiber)	--	70/30	-- 100	--
Wood excelsior (6 inches or longer)		--	--	-- 80
USLE C-Factor for a 1:1 (H:V) unvegetated slope	--	≤ 0.20		
Shear stress (max, psf)	ASTM D6460	1.75		
Tensile strength (min, psf)	ASTM D5035	75		
Functional longevity (months)	--	12		

PART 3 - EXECUTION

3.1 SOIL PREPARATION

- A. No soil amendments shall be required except as noted on the Plans.
- B. Verification: Contractor shall verify:
 - 1. That all areas to receive erosion control treatments are free of vegetation and other objectionable material.
 - 2. That grades are final for permanently treated areas and within reasonable standard for temporary treatments.
 - 3. That all sloped areas are uniformly compacted: wherever possible, the surface compaction of the top 1 foot shall be 85% or less.

3.2 EROSION CONTROL BLANKET INSTALLATION

- A. Before placing the erosion control blankets, Contractor shall ensure the subgrade has been graded smooth and has no depressed voids. The subgrade must be free from obstructions, such as tree roots, projecting stones, or foreign matter greater than 1 inch in diameter. Overlap the end of the erosion control blanket by 24 inches. Use 18 inch staples staked at maximum of 4 feet on center in staggered pattern. Do not drive vehicles on the erosion control blanket.
- B. General plant maintenance shall immediately follow seeding and continue for **90 days**.
- C. Protect areas against all damage, including erosion and trespass, and provide proper safeguards. Maintain and keep in good repair all temporary barriers erected to prevent trespassing. Check all barrier and temporary fencing daily, and make immediate repairs or replacements
- D. Repair all damage to seeded areas.
- E. Maintain constant moisture depth in soil to insure vigorous growth.

3.3 FINAL INSPECTION AND ACCEPTANCE:

- A. Final inspection will be conducted upon completion of maintenance, replacements and corrective work. Five (5) days' notice shall be given. If project improvements, corrective work, and maintenance have not been performed as specified and to the satisfaction of the Owner's

FIRE STATION #2 PAVEMENT REPLACEMENT

Representative, maintenance shall continue at Contractor's expense until such time as work has been successfully completed.

3.4 GUARANTEE AND REPLACEMENT

- A. Guarantee all planting to be in a healthy, thriving condition until the end of the maintenance period or beyond that time until active growth is evident and for one year from date of acceptance.
- B. Replace all seeded areas not in vigorous condition as soon as directed by Owner's Representative. Seed mixture used for replacement must be of the same kind and quantity as specified in this section.

3.5 CLEAN-UP

- A. Erosion control work areas shall be maintained in a neat and orderly condition. Keep paved area free of erosion treatment, soil, and other debris.
- B. Overspray: Installing Contractor is responsible for washing or otherwise cleaning excess material off all areas not intended to receive treatment.
- C. Debris: Clean up and remove erosion control associated materials and debris from project site before Final Acceptance.

END OF SECTION

SECTION 01 55 26

TRAFFIC AND PEDESTRIAN CONTROL

PART 1 – GENERAL

Contractor shall provide traffic control within the construction area in accordance with General Requirements Section II.Q. and these technical requirements.

The requirements in this section apply to pedestrian traffic, wheelchair access as well as vehicle traffic and may be modified or altered if, in the opinion of the Engineer, public traffic will be better served and work expedited. Said modifications or alterations shall not be adopted until approved in writing by the Engineer.

PART 2 – DESCRIPTION OF WORK

The Contractor shall maintain vehicular and pedestrian access to all areas, both public right-of-way and private throughout the fire station. The Contractor will be required to submit traffic control and pedestrian access plans to specific construction operations. For example, the Contractor must submit a traffic control plan for Phase I pavement in the rear and east driveway work and a separate plan for Phase II pavement for the west and front driveways. The control plans shall allow the use of the area by the staff in Fire Department in one phase while contractor is working on the other phase such that the Fire Station can remain in operation.

PART 3 – MATERIALS

The Contractor will be expected to provide all necessary materials for this work.

The Contractor must use City provided “No Parking” signs. Signs are provided at no cost to the Contractor and will be provided on request to the assigned project inspector.

PART 4 – CONSTRUCTION METHODS

The requirements in this section may be modified or altered if, in the opinion of the Engineer, public traffic will be better served and work expedited. Modifications or alterations shall not be adopted until approved in writing by the Engineer.

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

No excavation shall remain open longer than is necessary to perform the work as determined by the Engineer.

All excess and unsuitable material resulting from the Contractor’s operations shall be removed as it develops and before the end of each day.

No material or equipment shall be stored where it will interfere with the free and safe passage of the public and at the end of each day’s work and at other times when construction operations are suspended for any reason, the Contractor shall remove all equipment and other obstructions from that portion of the roadway open for public use.

4.1 Traffic Control Plan

Contractor shall submit a traffic control plan showing the location of signs and flagmen in accordance with Part 6 of the “California Manual on Uniform Traffic Control Devices 2012 Edition (2012 CA MUTCD),” issued by the California Department of Transportation, and as necessary to keep traffic off of the new asphalt and concrete pavement. No work will be allowed until a traffic plan that applies to each work site has been submitted to the City and approved by the City, and the traffic control has been put in place, including properly trained and equipped flagmen at their planned positions. A minimum of two flagmen are required

FIRE STATION #2 PAVEMENT REPLACEMENT

on all streets, except for courts where the street may be barricaded and appropriate "Road Closed" signage is posted. Traffic Control Plans and staging plans for the pavement work operations shall be submitted for each day's work, showing all streets, barricades, signs, cones, flagmen and other warning devices.

The Contractor shall submit traffic control plans for each location, and obtain the Engineer's approval prior to commencing work. A checklist for completing a Traffic Control Plan is provided in the attachments to this project manual.

Contractor shall submit traffic control plans 14 working days before work begins or at the pre-construction meeting with the City, whichever occurs earliest. Revised submittals, if necessary, will be due within 5 working days of return from City.

4.2 Lane Closures

Lane closures in the public roadway and street are not permitted.

4.3 Site Access

The Fire Station shall remain in operation during construction. Work shall be accomplished in phases in such a manner as to provide access to Fire Station staff.

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 be required to build temporary driveways or ramps to existing vehicular access ways if necessary to maintain vehicular access to property. Personal vehicles of the Contractor's employees shall not be parked on Fire Station property.

4.4 Pedestrian Access Plan

The Contractor shall submit pedestrian access plans for each phase of the work, and obtain the Engineer's approval prior to commencing work. Pedestrian access plan may be included on the traffic control plan.

Contractor shall submit a pedestrian access plan showing the location of signs and detours in accordance with Part 6 of the "California Manual on Uniform Traffic Control Devices 2012 Edition (2012 CA MUTCD)," issued by the California Department of Transportation.

The Contractor shall be required to build temporary ramps if necessary to maintain pedestrian access to sidewalks and facilities as shown on plan. Ramps shall be constructed of plywood, wood railing and carpet, or other construction materials, and shall be submitted to the Engineer for review prior to placement. Temporary ramps shall be free of any irregularities, skid resistant and conform to Section 12-7 of Caltrans Standard Specifications.

4.5 Flaggers

Flaggers shall not be used during hours of darkness unless authorized by the City.

Flaggers are a required part of Traffic Control. The minimum number of flaggers required is one per intersection in all the areas where work is being done or as shown per plan, whichever is greater.

Flaggers must be trained for flagging duties according to the 2012 CA MUTCD and CCR Title, 8, Chapter 4, Article 11, Section 1598-1599 and have a certificate showing the training accomplished, date and name of trainer. Copies of Certificates shall be submitted to the City before beginning work. The project superintendent shall keep copies of the certificates on-site for all persons charged with flagging duties. Changes to flaggers must be coordinated through the City's project inspector.

END OF SECTION

SECTION 01 71 13

MOBILIZATION

PART 1 – GENERAL

Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of all offices, buildings, staging areas and other facilities necessary for work on the project; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the project site; and for obtaining permits, insurance, and bonds as required for the proper performance and completion of the work. Payment for procuring and maintaining a staging area is included in the Bid Item entitled "Mobilization".

The City may provide a staging area for the duration of the project. The Contractor has the option to use the staging area provided by the City at no cost. Full compensation for furnishing all labor, materials, tools, equipment, fencing, signage, clean-up work and incidentals and for doing the work involved in the setup of the city provided staging area shall be considered as included as part of "Mobilization". The Contractor is responsible for restoring the City provided staging area to its original condition. Damage to the City provided staging area shall be repaired in a manner acceptable to the Engineer, at the Contractor's expense.

This item includes any de-mobilization and re-mobilization that may be required for completing various stages or work or for the suspension of work.

END OF SECTION

SECTION 02 40 00

DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Removing above-grade site improvements within limits indicated.
- B. Disconnecting, capping or sealing, and abandoning site utilities in place.
- C. Disconnecting, capping or sealing, and removing site utilities.
- D. Disposing, recycling, reusing, and/or salvaging of objectionable material.

1.3 RELATED SECTIONS

- A. Section 31 10 00 – Site Clearing.

1.4 DEFINITIONS

- A. ANSI: American National Standards Institute.
- B. CAL-OSHA: California Occupational Safety and Health Administration.
- C. CA-CHPS: California Collaborative for High Performance Schools

1.5 PROJECT CONDITIONS

- A. Except for materials indicated to be salvaged, stockpiled or to remain the Owner's property, cleared materials are the Contractor's property. Remove cleared materials from site and dispose, recycle, reuse, and/or salvage the materials in a lawful manner. If possible, identify an organization within 1000 miles that will purchase or accept the donation of construction waste for reuse. This organization must intend to reuse the waste as-is, or sell the material for the intent of re-use (CA-CHPS Criteria).
- B. Salvageable Improvements: Carefully remove items indicated to be salvaged and store where indicated on plans or where designated by the Owner. Avoid damaging materials designated for salvage.
- C. Unidentified Materials: If unidentified materials are discovered, including hazardous materials that will require additional removal other than is required by the Contract Documents, immediately report the discovery to the Owner. If necessary, the Owner will arrange for any testing or analysis of the discovered materials and will provide instructions regarding the removal and disposal of the unidentified materials.

PART 2 EXECUTION

2.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points during construction.
- B. Protect existing site improvements to remain during construction.

2.2 RESTORATION

- A. Restore damaged improvements to their original condition, as acceptable to the Owner.

2.3 UTILITIES

- A. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed or abandoned.
- B. Arrange to shut off indicated utilities with utility companies or verify that utilities have been shut off.
- C. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless authorized in writing by the Owner, and then only after arranging to provide temporary utility services according to requirements indicated.
- D. Coordinate utility interruptions with utility company affected.
- E. Do not proceed with utility interruptions without the permission of the Owner and utility company affected. Notify Owner and utility company affected two working days prior to utility interruptions.
- F. Excavate and remove underground utilities that are indicated to be removed.
- G. Securely close ends of abandoned piping with tight fitting plug or wall of concrete minimum 6-inches thick.

2.4 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, and gutters, as indicated. Where concrete slabs, curb, gutter and asphalt pavements are designated to be removed, remove bases and subbase to surface of underlying, undisturbed soil.
- C. Unless the existing full-depth joints coincide with line of pavement demolition, neatly saw-cut to full depth the length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.
- D. Remove driveways, curbs, gutters and sidewalks by saw cutting to full depth. If saw cut falls within 30-inches of a construction joint, expansions joint, score mark or edge, remove material to joint, mark or edge.

2.5 BACKFILL

- A. Place and compact material in excavations and depressions remaining after site clearing in conformance with Caltrans specifications.

2.6 DISPOSING

- A. Remove surplus obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off the Owner's property. In addition to disposing the materials, consider recycling or donating/selling the materials to a reuse organization within 1000 miles.

END OF SECTION

SECTION 31 10 00

SITE CLEARING

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Removal of existing vegetation
- B. Clearing vegetation, debris, trash and other materials within limits indicated
- C. Grubbing of vegetation within limits indicated
- D. Removing above-grade site improvements within limits indicated
- E. Disconnecting, capping or sealing, and abandoning site utilities in place
- F. Disconnecting, capping or sealing, and removing site utilities
- G. Disposing of objectionable material

1.2 RELATED SECTIONS

- A. Section 32 12 16, Asphalt Paving
- B. Section 03 30 53, Cast-in-Place Concrete

1.3 DEFINITIONS

- A. ANSI: American National Standards Institute
- B. CAL-OSHA: California Occupational Safety and Health Administration
- C. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of weeds, roots, and other deleterious materials.

1.4 QUALITY ASSURANCE

- A. Tree prune to the standards of the International Society of Arborists and to ANSI A300.

1.5 PROJECT CONDITIONS

- A. Except for materials indicated to be stockpiled or to remain the Owner's property, cleared materials are the Contractor's property. Remove cleared materials from site and dispose of in lawful manner.
- B. Salvageable Improvements: Carefully remove items indicated to be salvaged and store where indicated on plans or where designated by the Owner's Representative. Avoid damaging materials designated for salvage.
- C. Unidentified Materials;
 - 1. If unidentified materials are discovered, including hazardous materials that will require additional removal other than is required by the Contract Documents, immediately report the discovery to the Owner's Representative.

2. If necessary, the Owner's Representative will arrange for any testing or analysis of the discovered materials and will provide instructions regarding the removal and disposal of the unidentified materials.

PART 2 - EXECUTION

2.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points during construction.
- B. Locate and clearly flag trees and vegetation to remain or to be relocated.
- C. Protect existing site improvements to remain during construction.

2.2 RESTORATION

- A. Restore damaged improvements to their original condition, as acceptable to the Owner's Representative.
- B. Repair or replace vegetation indicated to remain that are damaged by construction operations, as directed by the Owner's Representative.
 1. Employ a qualified arborist, licensed in jurisdiction where the Project is located, to submit details of proposed repairs and to repair damage to trees and shrubs.
 2. Replace shrubs and lawn that cannot be repaired and restored to full-growth status, as determined by the Owner's Representative.

2.3 UTILITIES

- A. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed or abandoned.
- B. Arrange to shut off indicated utilities with utility companies or verify that utilities have been shut off.
- C. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner's Representative or others unless authorized in writing by the Owner's representative, and then only after arranging to provide temporary utility services according to requirements indicated.
- D. Coordinate utility interruptions with utility company affected.
- E. Do not proceed with utility interruptions without the permission of the Owner's Representative and utility company affected. Notify Owner's Representative and utility company affected two working days prior to utility interruptions.
- F. Excavate and remove underground utilities that are indicated to be removed.
- G. Fill abandoned piping with cement slurry.
- H. Securely close ends of abandoned piping with tight fitting plug or cement slurry minimum 6 inches thick.

2.4 CLEARING AND GRUBBING

- A. Areas to be graded shall be cleared of existing vegetation, rubbish, existing structures, and debris.
- B. Remove obstructions, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots.

- C. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
- D. Use only hand methods for grubbing within drip line of remaining trees.

2.5 SITE STRIPPING

- A. Strippings and spoils shall be disposed at an off-site location, per geotechnical recommendations.
- B. Remove vegetation before stripping soil.
- C. Surface soils that contain organic matter should be stripped. In general, the depth of required stripping will be relatively shallow (i.e. less than 2 inches); deeper stripping and grubbing may be required to remove isolated concentrations of organic matter or roots.
- D. Remove trash, debris, weeds, roots, and other waste materials.
- E. Stockpile soil materials designated to remain on site at a location approved by the Owner's Representative at a location away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.
- F. Do not stockpile soil within drip line of remaining trees.

2.6 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

2.7 BACKFILL

- A. Place and compact material in excavations and depressions remaining after site clearing.

2.8 DISPOSAL

- A. Remove surplus soil material, unsuitable soil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off the Owner's property.

END OF SECTION

SECTION 31 21 00

UTILITY TRENCHING AND BACKFILL

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Excavation, bedding, and backfill for underground storm drain, sanitary sewer, and water piping, underground piping, electrical conduit, telephone and communication conduit, gas piping, etc., and associated structures.
- B. Provide labor, material, equipment, and services necessary to complete the backfilling and compacting as necessary for this project. Section includes, but is not limited to:
 - 1. Select Backfill Material
 - 2. Aggregate Base
 - 3. Detectable Tape
 - 4. Trench Excavation
 - 5. Pipe Bedding
 - 6. Trench Backfill
 - 7. Trench Surfacing

1.2 RELATED SECTIONS

- A. Section 32 11 00 – Pavement Base Course
- B. Section 33 41 00 – Storm Utility Drainage Piping

1.3 RELATED DOCUMENTS

- A. ASTM Standards
 - 1. D1557, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.
 - 2. D2321, Standard Practice for Underground Installation of Thermoplastic Pipe for Sewer and Other Gravity-Flow Applications.
- B. California Administrative Code, Title 24, Part 2 - Basic Building Regulations, Chapter 24, Excavations, Foundations, and Retaining Walls.
- C. Caltrans Standard Specifications, 2015
 - 1. Section 19, Earthwork
 - 2. Section 26, Aggregate Bases
 - 3. Section 68, Subsurface Drains
 - 4. Section 96, Geosynthetics
- D. CAL/OSHA, Title 8

1.4 DEFINITIONS

- A. AC: Asphalt Concrete.
- B. ASTM: American Society for Testing and Materials.
- C. Base: The layer placed between the subgrade and surface pavement in a paving system.

- D. Bedding: Material from bottom of trench to bottom of pipe.
- E. CDF: Controlled Density Fill.
- F. DIP: Ductile Iron Pipe.
- G. HDPE Pipe: High Density Polyethylene Pipe.
- H. Engineered Fill:
 - 1. Soil or soil-rock material approved by the City of Alameda and transported to the site by the Contractor in order to raise grades or to backfill excavations.
 - 2. Contractor shall provide sufficient tests, and a written statement that all materials brought onto the project site comply with specification requirements.
- I. Excavation: Consists of the removal of material encountered to subgrade elevations.
- J. Initial Backfill: Material from bottom of pipe to 12 inches above top of pipe.
- K. PCC: Portland Cement Concrete.
- L. RCP: Reinforced Concrete Pipe.
- M. Relative Compaction: In-place dry density of soil expressed as percentage of maximum dry density of same materials, as determined by laboratory test procedure ASTM D1557.
- N. Springline of Pipe: Imaginary line on surface of pipe at a vertical distance of ½ the outside diameter measured from the top or bottom of the pipe.
- O. Subgrade: The uppermost surface of an excavation or the top surface of a fill or backfill immediately below base.
- P. Subsequent Backfill: Material from 12 inches above top of pipe to subgrade of surface material or subgrade of surface facility or to finish grade.
- Q. Trench Excavation: Removal of material encountered above subgrade elevations and within horizontal trench dimensions.
 - 1. Authorized Trench Over-Excavation: Excavation below trench subgrade elevations or beyond indicated horizontal trench dimensions as shown on plans or authorized by the Geotechnical Engineer.
 - 2. Unauthorized Trench Over-Excavation: Excavation below trench subgrade elevations or beyond indicated horizontal trench dimensions without authorization by the Geotechnical Engineer. Unauthorized excavation shall be without additional compensation.
- R. Utility Structures:
 - 1. Storm drainage manholes, catch basins, drop inlets, curb inlets, area drains, vaults, sump pit, etc.
 - 2. Sanitary sewer manholes, vaults, etc.
 - 3. Water or electrical boxes, vaults, etc.

1.5 SUBMITTALS

- A. Test Reports: Submit the following report for import material directly to the City of Alameda from the Contractor’s testing services:
 - 1. Compaction test reports for all import/engineered fill.
 - 2. Compaction test reports for aggregate base.

- B. Samples:
 - 1. If required by the Geotechnical Engineer, provide 20-pound samples of all imported trench bedding and backfill material sealed in airtight containers, tagged with source locations and suppliers of each proposed material. Do not import materials to Project without written approval of the Geotechnical Engineer and the City of Alameda.
 - 2. Provide materials from same source throughout work. Change of source requires approval of the Geotechnical Engineer and the City of Alameda.

1.6 QUALITY ASSURANCE

- A. Conform all work and materials to the recommendations or requirements of the Geotechnical Engineer.
- B. Conform all work to the appropriate portion(s) of the Caltrans Standard Specifications, Section 19, Earthwork.
- C. Percentage of compaction specified shall be the minimum acceptable. The percentage represents the ratio of the dry density of the compacted material to the maximum dry density of the material as determined by the procedure set forth in ASTM D 1557.
- D. The Geotechnical Engineer will perform observations and tests required to enable him to form an opinion of the acceptability of the trench backfill. Correct the trench backfill that, in the opinion of the Geotechnical Engineer, does not meet the requirements of these Technical Specifications and the Geotechnical Report.
- E. Soil Testing:
 - 1. Contractor to engage a geotechnical testing agency, to include compaction testing and for quality control testing during fill operations.
 - 2. Test results will be submitted to the City of Alameda.

1.7 PROJECT CONDITIONS

- A. Promptly notify the City of Alameda of surface or subsurface conditions. First notify the City of Alameda verbally to permit verification and extent of condition and then in writing. No claim for conditions differing from those anticipated in the Contract Documents will be allowed unless Contractor has notified the City of Alameda in writing of differing conditions prior to contractor starting work on affected items.
- B. Barricade open excavations and post with warning lights.
 - 1. Operate warning lights and barricades as required.
 - 2. Protect structures, utilities, sidewalks, pavements, and other facilities immediately adjacent to excavations, from damages caused by settlement, lateral movement, undermining, washout, and other hazards.
 - 3. Protect open, trenches, and utility structure excavations with fences, covers and railings to maintain safe pedestrian and vehicular traffic passage.
- C. Stockpile on-site and imported backfill material temporarily in an orderly and safe manner.
- D. Provide dust and noise control in conformance with Section 01 10 00 Supplemental General Requirements.
- E. Environmental Requirements:
 - 1. Protect existing storm drainage system from silt and debris resulting from construction activities. If contamination occurs, remove contamination at no cost to the District.

- 2. Protect existing streams, ditches and storm drain inlets during work on this project.
- F. Protection of Subgrade: Do not allow equipment to pump or rut subgrade, stripped areas, footing excavations, or other areas prepared for project.
- G. Transport all excess soils materials by legally approved methods to disposal areas.
 - 1. Coordinate with the Engineer.
 - 2. Any additional fill requirements shall be the responsibility of the Contractor.

1.8 EXISTING UTILITIES

- A. Locate existing underground utilities in the areas of work. For utilities that are to remain in place, provide adequate means of protection during excavation operations.
 - 1. Locating of existing underground utilities shall include but not be limited to pot-holing prior to the start of construction.
- B. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult City of Alameda and/or utility agency immediately for directions.
 - 1. Cooperate with the City of Alameda and public and private utility companies in keeping their respective services and facilities in operation.
 - 2. Repair damaged utilities to the satisfaction of the agency with jurisdiction.
- C. Do not interrupt existing utilities serving facilities occupied and used by the City of Alameda or others, except when permitted in writing by the City of Alameda and then only after acceptable temporary utility services have been provided.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Import materials will be subject to approval of the Geotechnical Engineer.
- B. For approval of imported fill material, notify the City of Alameda at least 7 days in advance of intention to import material.

2.2 PIPE BEDDING AND INITIAL BACKFILL

- A. ASTM D2321, Class IA, IB or II.
 - 1. Clean and free of clay, silt or organic matter.
- B. Permeable Material: In accordance with Section 68-2.02F of Caltrans Standard Specifications, Class 1, Type A or Class 2.
- C. Class 2 Aggregate Base: In accordance with Section 26 of Caltrans Standard Specifications, ¾ inch maximum.
- D. Sand: In accordance with Section 19-3.02F of Caltrans Standard Specifications.

2.3 SELECT BACKFILL

- A. Select backfill material shall be gravel, free of clay or organic matter and shall conform to the following gradation:

Sieve Size	Percentage Passing
1 inch	100

¾ inch	90 – 100
No. 4	35 – 60
No. 200	2 – 9

- B. For gas pipe and fuel piping select backfill shall be clean, graded building sand conforming to the following gradation:

Sieve Size	Percentage Passing
No. 4	100
No. 200	0 -5

2.4 WARNING TAPE

- A. Polyethylene plastic and metallic core or metallic-faced, acid- and alkali-resistant, polyethylene plastic warning tape manufactured specifically for warning and identification of buried utility lines. Provide tape on rolls, 3 inch minimum width, color coded as specified below for the intended utility with warning and identification imprinted in bold black letters continuously over the entire tape length. Warning and identification to read, "CAUTION, BURIED (intended service) LINE BELOW" or similar wording. Color and printing shall be permanent, unaffected by moisture or soil.

1. Warning Tape Color Codes
 - a. Red: Electric
 - b. Yellow: Gas, Oil; Dangerous Materials
 - c. Orange: Telephone and Other Communications
 - d. Blue: Water Systems
 - e. Green: Sewer Systems
 - f. White: Steam Systems
 - g. Gray: Compressed Air
2. Warning Tape for Metallic Piping: Acid and alkali-resistant polyethylene plastic tape conforming to the width, color, and printing requirements specified above. Minimum thickness of tape shall be 0.003 inch. Tape shall have a minimum strength of 1500 psi lengthwise, and 1250 psi crosswise, with a maximum 350 percent elongation.
3. Detectable Warning Tape for Non-Metallic Piping: Polyethylene plastic tape conforming to the width, color, and printing requirements specified above. Minimum thickness of the tape shall be 0.004 inch. Tape shall have a minimum strength of 1500 psi lengthwise and 1250 psi crosswise. Tape shall be manufactured with integral wires, foil backing, or other means of enabling detection by a metal detector when tape is buried up to 3 feet deep. Encase metallic element of the tape in a protective jacket or provide with other means of corrosion protection.

2.5 DETECTION WIRE FOR NON-METALLIC PIPING

- A. Detection wire shall be insulated single strand, solid copper with a minimum of 12 AWG.

2.6 SUBSEQUENT BACKFILL

- A. Conform to on-site or imported structural backfill per Caltrans.

2.7 CONTROLLED DENSITY FILL (CDF) (IN TRENCHES)

- A. Provide non-structural CDF, from bottom of trench to finish subgrade of subbase or base material, that can be excavated by hand and produce unconfined compressive 28-day strengths from 50-psi to a maximum of 150-psi. Provide aggregate no larger than 3/8 inch top size. The 3/8 inch aggregate shall not comprise more than 30% of the total aggregate content.

- B. Cement: Conform to the standards as set forth in ASTM C150, Type II Cement.
- C. Fly Ash: Conform to the standards as set forth in ASTM C618, for Class F pozzolan. Do not inhibit the entrainment of air with the fly ash.
- D. Air Entraining Agent: Conform to the standards as set forth in ASTM C260.
- E. Aggregates need not meet the standards as set forth in ASTM C33. Any aggregate, producing performances characteristics described herein will be accepted for consideration. The amount of material passing a #200 sieve shall not exceed 12% and no plastic fines shall be present.
- F. Provide CDF that is a mixture of cement, Class F pozzolan, aggregate, air entraining agent and water. CDF shall be batched by a ready mixed concrete plant and delivered to the job site by means of transit mixing trucks.
- G. The Contractor shall determine the actual mix proportions of the controlled density fill to meet job site conditions, minimum and maximum strengths, and unit weight. Entrained air content shall be a minimum of 4.0%. The actual entrained air content shall be established for each job with the materials and aggregates to be used to meet the placing and unit weight requirements. Entrained air content may be as high as 20% for fluidity requirements.
- H. Mix design shall meet the Geotechnical Engineer's approval.

2.8 CONCRETE STRUCTURE BEDDING AND BACKFILL

- A. Precast Structures: Same materials to the same heights as specified for pipe bedding and backfill, or other material approved by the Geotechnical Engineer.
- B. Poured-in-Place Structures:
 - 1. Bedding: Bedding shall meet the approval of the Geotechnical Engineer. In general, bedding is not required, pour bases against undisturbed native earth in cut areas and against engineered fill compacted to 90% relative compaction in embankment areas.
 - 2. Side Backfill: On-site or imported structural fill meeting the requirements given in Section 31 20 00, Earth Moving.

2.9 GEOSYNTHETICS

- A. Filter Fabric:
 - 1. Filter Fabric: Section 96-1.02 of Caltrans Standard Specifications.
 - 2. Mirafi 140N, Mirafi Inc., or approved equal.

PART 3 – EXECUTION

3.1 GENERAL

- A. Comply with the recommendations of the Geotechnical Engineer.
- B. Protect existing trees to remain. No grading is permitted under the drip line of protected trees unless approved by the City Engineer or his representative.
- C. Excavations for appurtenant structures, such as, but not limited to, manholes, transition structures, junction structure, vaults, valve boxes, catch basins, thrust blocks, and boring pits, shall be deemed to be in the category of trench excavation.
- D. Unless otherwise indicated in the Plans, all excavation for pipelines shall be open cut.

FIRE STATION #2 PAVEMENT REPLACEMENT

- E. Prior to commencement of work, become thoroughly familiar with site conditions.
- F. In the event discrepancies are found, immediately notify the City of Alameda in writing, indicating the nature and extent of differing conditions.
- G. Backfill excavations as promptly as work permits.
- H. Do not place engineered fill or backfill until rubbish and deleterious materials have been removed and areas have been approved by the City of Alameda.
- I. Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below.
- J. In excavations, use satisfactory excavated or borrow material.
- K. Under grassed areas, use satisfactory excavated or borrow material.

3.2 SITE PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, which are to remain, from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Protect existing storm drainage system from silt and debris resulting from construction activities. If contamination occurs, remove contamination at no cost to the City of Alameda.

3.3 EXISTING UTILITIES

- A. Identify the location of existing utilities.
 - 1. Prior to trenching, the Contractor shall excavate at locations specifically indicated on the Plans, if any, and where new lines cross other utilities of uncertain depth and determine the elevation of the utility in question to ensure that the new line will clear the potential obstruction.
 - 2. The Contractor shall contact Underground Service Alert (USA) at 1-800-227- 2600 for assistance in locating existing utilities.
 - 3. If, after the excavation, a crossing utility does present an obstruction, then the line and grade of the new line will be adjusted as directed by the City of Alameda to clear the utility.
- B. Protect all existing utilities to remain in operation.
- C. Movement of construction machinery and equipment over existing pipes and utilities during construction shall be at Contractor's risk.
- D. Excavation made with power-driven equipment is not permitted within 2 feet of any known utility or subsurface structure.
 - 1. Use hand or light equipment for excavating immediately adjacent to known utilities or for excavations exposing a utility or buried structure.
 - 2. Start hand or light equipment excavation on each side of the indicated obstruction and continue until the obstruction is uncovered or until clearance for the new grade is assured.
 - 3. Support uncovered lines or other existing work affected by excavation until approval for backfill is obtained.
 - 4. Report damage of utility line or subsurface structures immediately to the City of Alameda.
- E. Backfill trenches resulting from utility removal in lifts of 8 inches maximum.

3.4 TRENCH EXCAVATION

A. General

1. Excavation shall include removal of all water and materials that interfere with construction. The Contractor shall remove any water which may be encountered in the trench by pumping or other methods during the pipe laying, bedding and backfill operations. Material shall be sufficiently dry to permit approved jointing.
2. Excavation shall include the construction and maintenance of bridges required for vehicular and pedestrian traffic, support for adjoining utilities.
3. The Contractor shall be responsible to safely direct vehicular and pedestrian traffic through or around his/her work area at all times.
4. The Contractor shall relocate, reconstruct, replace or repair, at his/her own expense, all improvements which are in the line of construction or which may be damaged, removed, disrupted or otherwise disturbed by the Contractor.

B. Existing Paving and Concrete:

1. Existing pavement over trench shall be sawcut, removed, and hauled away from the job. Existing pavement shall be neatly sawcut along the limits of excavations.
2. Existing concrete over the trench shall be sawcut to a full depth in straight lines, at a minimum distance of 12 inches beyond the edge of the trench, either parallel to the curb or at right angles to the alignment of the sidewalk.
3. Boards or other suitable material shall be placed under equipment outrigging to prevent damage to paved surfaces.

C. Trench Width:

1. The maximum allowable trench widths at the top of the all pipe materials outside diameter of barrel pipe plus 18 inches. shall be as follows:
 - a. The maximum trench width shall be inclusive of all shoring.
 - b. If the maximum trench width is exceeded, the State's representative may direct the Contractor to encase or cradle the pipe in concrete at no additional charge.
2. For pipes 3 inch diameter and larger, the free working space on each side of the pipe barrel shall not be less than 6 inches.

D. Excavation Width at Springline of Pipe:

1. Up to a nominal pipe diameter of 24 inches: Minimum of twice the outside pipe diameter, or as otherwise allowed or required by the Geotechnical Engineer.
2. Nominal pipe diameter of 30 inches through 36 inches: Minimum of the outside pipe diameter plus 2 feet, or as otherwise allowed or required by the Geotechnical Engineer.
3. Nominal pipe diameter of 42 inches through 60 inches: Minimum of the outside pipe diameter plus 3 feet, or as otherwise allowed or required by the Geotechnical Engineer.

E. Open Trench:

1. The maximum length of open trench shall be 300 feet or the distance necessary to accommodate the amount of pipe installed in a single day, whichever is greater. No trench shall be left open at the end of the day.
2. Provisions for trench crossings and free access shall be made at all street crossings, driveways, water gate valves, and fire hydrants.
3. Excavate by hand or machine. For gravity systems begin excavation at the outlet end and proceed upstream. Excavate sides of the trench parallel and equal distant from the centerline of the pipe. Hand trim excavation. Remove loose matter.
4. Excavation Depth for Bedding: Minimum of 6 inches below bottom of pipe or as otherwise allowed or required by the Geotechnical Engineer, except that bedding is not required for nominal pipe diameters of 2 inches or less.
5. Over-Excavations: Backfill trenches that have been excavated below bedding design subgrade, with approved bedding material.
6. Where forming is required, excavate only as much material as necessary to permit placing and removal of forms.

7. Grade bottom of trench to provide uniform thickness of bedding material and to provide uniform bearing and support for pipe along entire length. Remove stones to avoid point bearing.
- F. Excavated Material:
1. All excavated material not required for backfill shall be immediately removed and properly disposed of in a legal manner by the Contractor.
 2. Material excavated in streets and roadways shall be laid alongside the trench no closer than 2 feet from the trench edge and kept trimmed to minimize inconvenience to public traffic.
 3. Provisions shall be made whereby all storm and wastewater can flow uninterrupted in gutters or drainage channels.

3.5 CONTROL OF WATER AND DEWATERING

- A. Be solely responsible for dewatering trenches and excavations and subsequent control of ground and surface water. Provide and maintain such pumps or other equipment as may be necessary to control ground water and seepage to the satisfaction of the Geotechnical Engineer and the City of Alameda until backfilling is completed.
- B. Dewater during backfilling operation so that groundwater is maintained a least one foot below level of compaction effort.
- C. Obtain the Geotechnical Engineer's approval for proposed control of water and dewatering methods.
- D. Reroute surface water runoff away from open trenches and excavations. Do not allow water to accumulate in trenches and excavations.
- E. Maintain dewatering system in place until dewatering is no longer required.

3.6 BRACING AND SHORING

- A. Conform to California and Federal OSHA requirements.
- B. Place and maintain such bracing and shoring as may be required to support the sides of the excavations for the proper protection of workmen; to facilitate the work; to prevent damage to the pipes and appurtenances being constructed; and to prevent damage to adjacent structures or facilities. Remove all bracing and shoring upon completion of the work.
- C. Be solely responsible for all bracing and shoring and, if requested by the City of Alameda, submit details and calculations to the City of Alameda. The City of Alameda may forward the submittal to the Geotechnical Engineer, the Consulting Engineer and/or the California Division of Industrial Safety for their review. The Contractor's submittal shall include the basic design, assumed soils conditions and estimation of forces to be resisted, together with plans and specifications of the materials and methods to be used, and shall be prepared by a civil engineer or structural engineer registered in California. No excavations in trench section or around structures shall precede a response to the submittal by the City of Alameda.
- D. Be solely responsible for installing and extracting the sheathing in a manner which will not disturb the line, grade, or backfill compaction or operation of the utility being installed or adjacent utilities and facilities.

3.7 PIPE BEDDING

- A. Obtain approval of bedding material from the Geotechnical Engineer.

- B. Accurately shape bedding material to the line and grade called for on the Plans. Carefully place and compact bedding material to the elevation of the bottom of the pipe in layers not exceeding 8 inches in loose thickness. Compact bedding material at optimum water content to 90% relative compaction unless specified otherwise on the Plans or by the Geotechnical Engineer. Compact by pneumatic tampers or other mechanical means approved by the Geotechnical Engineer. Jetting or ponding of bedding material will not be permitted.
- C. Stabilization of Trench Bottom: When the trench bottom is unstable due to wet or spongy foundation, trench bottom shall be stabilized with gravel or crushed rock. The State's inspector will determine the suitability of the trench bottom and the amount of gravel or crushed rock needed to stabilize a soft foundation. Soft material shall be removed and replaced with gravel or crushed rock as necessary.
- D. Placement of Bedding Material: The trench bottom shall be cleaned to remove all loose native material prior to placing select backfill material. Sufficient select backfill material shall be placed in trench and tamped to bring trench bottom up to grade of the bottom of pipe. The relative compaction of tamped material shall be not less than 90 percent. It is the intention of these requirements to provide uniform bearing under the full length of pipe to a minimum width of 60 percent of the external diameter.

3.8 BACKFILLING

- A. Initial Backfill:
 - 1. Obtain approval of backfill material from Geotechnical Engineer.
 - 2. Bring initial backfill up simultaneously on both sides of the pipe, so as to prevent any displacement of the pipe from its true alignment. Carefully place and compact initial backfill material to an elevation of 12 inches above the top of the pipe in layers not exceeding 8 inches in loose thickness. Compact bedding material at optimum water content to 90% relative compaction unless specified otherwise on the Plans or by the Geotechnical Engineer. Compact by pneumatic tampers or other mechanical means approved by the Geotechnical Engineer. Jetting or ponding of initial backfill material will not be permitted.
- B. Pipe Detection: In trenches containing pressurized plastic pipes, tracer wire shall be placed directly above the pipe and shall be connected to all valves, existing exposed tracer wires, and other appurtenances as appropriate.
- C. Installation of Tracer Wire:
 - 1. Install a continuous length of tracer wire for the full length of each run of nonmetallic pipe.
 - 2. Attach wire to top of pipe in such manner that it will not be displaced during construction operations.
 - 3. Form a mechanically and electrically continuous line throughout the pipeline, extending to the nearest valve or other pipeline appurtenance. Extend the wire up the outside of the valve box/riser and cut a hole that is 8 inches from the top, extend a 12 inch wire lead to the inside of the box. At other pipeline appurtenances, terminate the 12 inch wire lead inside the enclosure.
 - 4. Splice wire with a splicing device consisting of and electro-tin plated seamless copper sleeve conductor. Install as recommended by the manufacturer. Wrap splices and damaged insulation with electrician's tape.
- D. Installation of Warning Tape
 - 1. Install tape approximately 1 foot above and along the centerline of the pipe.
 - 2. Where tape is not continuous lap tape ends a minimum of 2 feet.
- E. Subsequent Backfill:
 - 1. Above the level of initial backfill, the trench shall be backfilled with non- expansive native material from trench excavation or with imported select backfill material (Contractor's

FIRE STATION #2 PAVEMENT REPLACEMENT

- option). Subsequent backfill shall be free of vegetable matter, stones or lumps exceeding 3 inches in greatest dimension, and other unsatisfactory material.
2. Bring subsequent backfill to subgrade or finish grade as indicated. Carefully place and compact subsequent backfill material to the proper elevation in layers not exceeding 8 inches in loose thickness. Compact bedding material at optimum water content to 90% relative compaction, except that the upper 36 inches in areas subject to vehicular traffic shall be compacted to at least 95% relative compaction, unless specified otherwise on the Plans or by the Geotechnical Engineer. Compact by pneumatic tampers or other mechanical means approved by the Geotechnical Engineer. Jetting or ponding of subsequent backfill material will not be permitted.
- F. Do not use compaction equipment or methods that produce horizontal or vertical earth pressures that may cause excessive pipe displacement or damage the pipe. Jetting of trench backfill is not permitted.
 - G. Utility backfill shall be inspected and tested by the Geotechnical Engineer during placement. Cooperate with the Geotechnical Engineer and provide working space for such tests in operations. Backfill not compacted in accordance with these specifications shall be re-compacted or removed as necessary and replaced to meet the specified requirements, to the satisfaction of the Geotechnical Engineer and the City of Alameda prior to proceeding with the Project.
 - H. Compaction testing shall be in accordance with California Test Method ASTM D1556 or D1557.

3.9 CLEANUP

- A. Upon completion of utility earthwork all lines, manholes catch basins, inlets, water meter boxes and other structures shall be thoroughly cleaned of dirt, rubbish, debris and obstructions of any kind to the satisfaction of the City of Alameda.

END OF SECTION

SECTION 31 23 19

DEWATERING

PART 1 – GENERAL

1.1 SCOPE OF WORK

- A. The Contractor shall provide all labor, materials, and equipment necessary to dewater trench and structure excavations, in accordance with the requirements of the Contract Documents. The Contractor shall secure all necessary permits to complete the requirements of this section. The Contractor shall refer to Section 01 57 23, Storm Water Pollution Control, 31 20 00, Earth Moving, and 31 21 00, Utility Trenching and Backfill for other dewatering requirements.

1.2 RELATED SECTIONS

- A. Section 31 20 00, Utility Trenching and Backfill

1.3 CONTRACTOR SUBMITTALS

- A. Prior to commencement of excavation, the Contractor shall submit a detailed plan and operation schedule for dewatering of excavations. The Contractor may be required to demonstrate the system proposed and to verify that adequate equipment, personnel and materials are provided to dewater the excavations at all locations and times. The Contractor's dewatering plan is subject to review by the Owner's Representative.

1.4 QUALITY CONTROL

- A. It shall be the sole responsibility of the Contractor to control the rate and effect of the dewatering in such a manner as to avoid all objectionable settlement and subsidence.
- B. All dewatering operations shall be adequate to assure the integrity of the finished project and shall be the responsibility of the Contractor.
- C. Where critical structures or facilities exist immediately adjacent to areas of proposed dewatering, reference points shall be established and observed at frequent intervals (at least weekly) to detect any settlement which may develop. The responsibility for conducting the dewatering operation in a manner which will protect adjacent structures and facilities rests solely on the Contractor. The cost of repairing any damage to adjacent structures and restoration of facilities shall be the responsibility of the Contractor.
- D. It is the Contractor's responsibility to obtain all necessary local, state, and federal permits, permissions, and approvals for the selected discharge location.

PART 2 – PRODUCTS

2.1 EQUIPMENT

- A. Dewatering, where required, may include the use of well points, sump pumps, temporary pipelines for water disposal, rock or gravel placement, and other means. Standby pump equipment shall be maintained on the jobsite.

PART 3 – EXECUTION

3.1 GENERAL REQUIREMENTS

- A. The Contractor shall provide all equipment necessary for dewatering. It shall have on hand, at all times, sufficient pumping equipment and machinery in good working condition and shall have available, at all time, competent workmen for the operation of the pumping equipment. Adequate standby equipment shall be kept available at all times to insure efficient dewatering and maintenance of dewatering operation during power failure.
- B. Place dewatering system into operation to lower water to specified levels before excavating below ground-water level. Dewatering shall be continuous until suchtimes as water can be allowed to rise in accordance with the provisions of this section or other requirements.
- C. At all times, site grading shall promote drainage. Surface runoff shall be diverted from excavations. Water entering the excavation from surface runoff shall be collected in shallow ditches around the perimeter of the excavation, drained to sumps, and be pumped or drained by gravity from the excavation to maintain a bottom free from standing water.
- D. Dewatering shall at all times be conducted in such a manner as to preserve the undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation.
- E. If foundation soils are disturbed or loosened by the upward seepage of water or an uncontrolled flow of water, the affected areas shall be excavated and replaced with drain rock at no cost to the Owner. Drain rock layer shall be approved Class II Permeable Material.
- F. The Contractor shall maintain the water level below the bottom of excavation in all work areas where groundwater occurs during excavation, construction, backfilling, and up to acceptance.
- G. Flotation shall be prevented by the Contractor by maintaining a positive and continuous removal of water. The Contractor shall be fully responsible and liable for all damages which may result from failure to adequately keep excavationsdewatered.
- H. If well points or wells are used, they shall be adequately spaced to provide the necessary dewatering and shall be sand packed and/or other means shall be used to prevent pumping of fine sands or silts from the subsurface. A continual check by the Contractor shall be maintained to ensure that the subsurface soil is not being removed by the dewatering operation. If well points or wells are used, a permit from the County shall be obtained by the Contractor. Wells, well points and piezometers shall be installed and removed or abandoned in accordance with Countyrequirements.
- I. Dewatering wells, well points, sump pumps, or other means shall be used to remove water and continuously maintain groundwater at a level at least two feet below the bottom of excavations before the excavation work begins at each location. Water shall be removed and excluded until backfilling is complete and all field soils testing have been completed.
- J. Dewatering Design Criteria: The Contractor shall design its dewatering systems to meet the following minimum requirements:

FIRE STATION #2 PAVEMENT REPLACEMENT

1. Provide stable excavation walls and bottom in accordance with California and Federal OSHA requirements.
 2. Provide reasonably dry base of excavation.
 3. Prevent boiling of the excavation bottom.
 4. Filter native soil and prevent loss of soil through piping action.
 5. Preserve the undisturbed bearing capacity of subgrade soils at the bottom of the excavation.
 6. Draw down the groundwater level below and beyond the excavation bottom and sidewalls where shoring is not designed to resist hydrostatic pressures.
- K. The release of groundwater to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soils, prevent disturbance of compacted backfill and prevent floatation or movement of structures, pipelines and sewers.
- L. Discharge of removed groundwater shall be in accordance with the Contractor's SWPPP and State and Federal regulations. Water removed from excavations shall be discharged to a sedimentation tank(s). Groundwater shall be tested for contaminants prior to discharge. All discharges shall be approved by the local and State jurisdiction.
- M. It is the Contractor's responsibility to obtain all necessary local, state, and federal permits, permissions, and approvals for the selected discharge location.
- N. Discharge of groundwater removed by the dewatering system may be allowed to the Sanitation District wastewater collection system. Groundwater must meet specific quality and quantity requirements before discharge to the sewer is allowed. The Contractor shall coordinate with the Sanitation District and obtain approval for discharge to the sewer. If the Contractor elects to discharge elsewhere, it is the Contractor's responsibility to obtain all necessary local, state, and federal permits, permissions, and approvals for the selected discharge location.
- O. Dewatering of trenches and other excavation shall be considered as incidental to the construction of the Work and all costs thereof shall be included in the various contract prices of the Bid Forms, unless a separate bid item has been established for dewatering.

END OF SECTION

SECTION 32 11 00

PAVEMENT BASE COURSE

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Aggregate subbase
- B. Aggregate base
- C. Cement treated base

1.2 RELATED SECTIONS

- A. Section 01 50 50, Erosion Control

1.3 RELATED DOCUMENTS

- A. ASTM:
 - 1. D1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort
 - 2. D3740, Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
 - 3. E329, Specification for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
 - 4. E548, Guide for General Criteria Used for Evaluating Laboratory Competence
- B. Caltrans Standard Specifications, 2015
 - 1. Section 24, Stabilized Soils
 - 2. Section 25, Aggregate Subbases
 - 3. Section 26, Aggregate Bases
 - 4. Section 27, Cement Treated Bases

1.4 DEFINITIONS

- A. Geotechnical Testing Agency: An independent testing agency qualified according to ASTM E329 to conduct soil materials and rock definition testing, as documented according to ASTM D3740 and ASTM E548.
- B. Rock: Rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material $\frac{3}{4}$ cubic yards or more in volume that when tested by an independent geotechnical testing agency, according to ASTM D1586, exceeds a standard penetration resistance of 100 blows/2 inches.
- C. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man made stationary features constructed above or below grade.
- D. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, base or topsoil materials.

1.5 SUBMITTALS

- A. Submit material certificates signed by the material producer and the Contractor, certifying that that each material item complies with, or exceeds the specified requirements.

1.6 QUALITY ASSURANCE

- A. Conform all work and materials to the recommendations or requirements of the Geotechnical Report and meet the approval of the Geotechnical Engineer.
- B. Percentage of compaction specified shall be the minimum acceptable. The percentage represents the ratio of the dry density of the compacted material to the maximum dry density of the material as determined by the procedure set forth in ASTM D1557.
- C. Perform installation of base materials under the observation of the Geotechnical Engineer. Materials placed without approval of the Geotechnical Engineer will be presumed to be defective and, at the discretion of the Geotechnical Engineer, shall be removed and replaced at no cost to the Owner. Notify the Geotechnical Engineer at least 24 hours prior to commencement of base material installation and at least 48 hours prior to testing.
- D. Do not mix or place cement treated base when the temperature is below 36 degrees F or when the ground is frozen.
- E. Finish surface of material to be stabilized prior to lime treatment shall be in accordance with Caltrans Standard Specification Section 24, Stabilized Soils.
- F. Finish surface of the stabilized material after lime treatment shall be in accordance with Caltrans Standard Specifications Section 24, Stabilized Soils.
- G. Finish surface of cement treated base shall be in accordance with Caltrans Standard Specification Section 27, Cement Treated Bases.
- H. Do not project the finish surface of aggregate subbase above the design subgrade.
- I. Finish grade tolerance at completion of base installation: +0.05 feet

1.7 PROJECT CONDITIONS

- A. Protect open excavations, trenches, and the like with fences, covers and railings to maintain safe pedestrian and vehicular traffic passage.
- B. Temporarily stockpile material in an orderly and safe manner and in a location approved by the Owner.
- C. Provide dust and noise control in accordance with Section 01 10 00, Supplemental General Requirements.

PART 2 – PRODUCTS

2.1 AGGREGATE SUBBASE

- A. Material: Class 2 in accordance with Caltrans Standard Specification Section 25, Aggregate Subbases.

2.2 AGGREGATE BASE

- A. Material: Class 2, 3/4 inch maximum in accordance with Caltrans Standard Specification Section 26, Aggregate Bases.

PART 3 - EXECUTION

3.1 GENERAL

- A. Placement and compaction of material by flooding, ponding, or jetting will not be permitted.

3.2 WET WEATHER CONDITIONS

- A. Do not place or compact subgrade if above optimum moisture content.
- B. If the Geotechnical Engineer allows work to continue during wet weather conditions, conform to supplemental recommendations provided by the Geotechnical Engineer.

3.3 AGGREGATE SUBBASE

- A. Spreading and Compacting: In accordance with Caltrans Standard Specification Section 25-1.03D, Spreading and 25-1.03E, Compacting.

3.4 AGGREGATE BASE

- A. Watering, Spreading and Compacting: In accordance with Caltrans Standard Specification Section 26-1.03D, Spreading and 26-1.03E, Compacting.

3.5 DISPOSAL

- A. Lawfully dispose of all unsuitable and excess or surplus material off-site at no cost to the Owner.

END OF SECTION

SECTION 32 12 16

ASPHALT PAVING

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Hot Mix Asphalt
- B. Tack coat
- C. Hot Mix Asphalt Paving
- D. Asphalt curbs
- E. Pavement grinding
- F. Adjusting manholes, valves, monument covers and other structures to grade

1.2 RELATED SECTIONS

- A. Section 32 11 00, Pavement Base Course

1.3 RELATED DOCUMENTS

- B. ASTM STANDARDS
 - 1. D979: Standard Practice for Sampling Bituminous Paving Mixtures
 - 2. D1188: Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Coated Samples
 - 3. D2041: Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
 - 4. D2726: Standard Test Method for Bulk Specific Gravity and Density of Non- Absorptive Compacted Bituminous Mixtures
 - 5. D2950: Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods
 - 6. D3549: Standard Test Method for Thickness or Height of Compacted Bituminous Paving Mixture Specimens.
- C. Caltrans Standard Specifications, 2015
 - 1. Section 20: Landscape
 - 2. Section 39: Asphalt Concrete
 - 3. Section 88: Engineering Fabrics
 - 4. Section 92: Asphalt Binder
 - 5. Section 94: Asphaltic Emulsions
 - 6. Section 96: Geosynthetics

1.4 DEFINITIONS

- A. ASTM: American Society for Testing Materials.
- B. Caltrans: State of California, Department of Transportation

1.5 QUALITY ASSURANCE

- A. Testing Agency: Owner’s Representative will engage a qualified independent testing agency to perform field inspections and tests and to prepare test reports.
 - 1. Testing agency will conduct and interpret tests and state in each report whether tested work complies with or deviates from specified requirements.
- B. Additional testing, at Contractor's expense, will be performed to determine compliance of corrected Work with specified requirements.
- C. Thickness of hot mix asphalt: In-place compacted thickness of asphalt courses will be determined according to ASTM D3549.
- D. Surface Smoothness: Finished surface of each asphalt course will be tested for compliance with smoothness tolerances.
- E. In-Place Density: Samples of uncompacted paving mixtures and compacted pavement will be secured by testing agency according to ASTM D979.
 - 1. Reference maximum theoretical density will be determined by averaging results from 4 samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM D2041, and compacted according to job-mix specifications.
 - 2. In-place density of compacted pavement may be determined by testing core samples according to ASTM D1188 or ASTM D2726.
 - a. One core sample may be taken for every 1,000 square yard or less of installed pavement, but in no case will fewer than 3 cores be taken.
 - b. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D2950 and correlated with ASTM D1188 or ASTM D2726.

1.6 SUBMITTALS

- A. Job-Mix Designs: Certificates signed by manufacturers certifying that each hot mix asphalt mix complies with requirements.
- B. Material Certificates: Certificates signed by manufacturers certifying that each material complies with requirements.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations:
 - 1. Tack Coat: Minimum surface temperature of 60 F at application.
 - 2. Asphalt Base Course: Minimum surface temperature of 40 F and rising at application.
 - 3. Asphalt Surface Course: Minimum surface temperature of 60 F at application.
 - 4. Reinforcing Fabric: Air temperature is 50 degree F and rising and pavement temperature is 40 degree F and rising.

PART 2 - PRODUCTS

2.1 HOT MIX ASPHALT

- A. Type A in accordance with Caltrans Standard Specifications, Section 39-2, Hot Mix Asphalt.
- B. Hot Mix Asphalt Materials:
 - 1. Asphalt Binder: Grade PG 64-10 in accordance with Caltrans Standard Specification

Section 92, Asphalt Binders.

2. Tack Coat: Grade SS1 in accordance with Caltrans Standard Specification Section 94, Asphaltic Emulsions.
- C. Aggregates: 1 inch max gradation for virgin aggregate and recycled asphalt pavement (RAP) in accordance with to Caltrans Standard Specification Section 39-2.02, Type A Hot Mix Asphalt.
- D. Soil Sterilant: In accordance with Caltrans Standard Specifications Section 20-5.03, Inert Ground Covers and Mulches.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify that subgrade is dry and in suitable condition to support paving and imposed loads.
- B. Contractor shall anticipate saturated subgrade soil or high water table at the time of construction. Prevent surface water and subsurface water or ground water from flowing into excavation and from flooding project site and surrounding area.
- C. Do not allow water to accumulate in excavations. Remove water to prevent softening of excavation bottoms, and soil changes detrimental to stability of subgrades. Provide and maintain temporary drainage pipes, pump, sumps, suction and discharge lines and other dewatering system components necessary to convey water away from excavations to positive free draining outlet.
- D. Do not use trench excavations as temporary drainage ditches.
- E. Proof-roll subbase to locate areas that are unstable or that require further compaction.
- F. If necessary, perform subgrade preparation or remediation in accordance with recommendations from the soil report/soil engineer.
- G. Notify Owner in writing of any unsatisfactory conditions. Do not begin paving until these conditions have been satisfactorily corrected.

3.2 PAVEMENT GRINDING

- A. Clean existing paving surface of loose or deleterious material immediately before pavement grinding.
- B. Grind conforms as indicated.

3.3 SOIL STERILANT

- A. Furnish and apply to areas per manufacturer's specifications.

3.4 SURFACE PREPARATION FOR AGGREGATE BASE MATERIALS

- A. General: Immediately before placing asphalt materials remove loose and deleterious material from substrate surfaces and ensure that prepared subgrade is ready to receive paving in accordance with Caltrans Standard Specification Section 39-2.01C(3)(b) and in accordance with Section 32 11 00, Pavement Base Course.
- B. Tack Coat: Apply uniformly and at specified rates between HMA layers, to vertical surfaces of curbs, gutters and construction joints, and to existing pavement, including planed surfaces, in accordance with Caltrans Standard Specification Section 39- 2.01C(3)(f).
 1. Allow tack coat to cure undisturbed before paving.

2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.5 SURFACE PREPARATION FOR PAVEMENT AT HOT MIX ASPHALT OVERLAYS

- A. Pavement Irregularities: Level with hot mix asphalt, Type A, ½ inch max aggregate.
- B. Pavement Cracks:
 1. Less than ¼ inch wide: Clean of all dirt by compressed air jet, spray and seal with RS-1 asphaltic emulsion.
 2. Wider than ¼ inch: Clean of all dirt by compressed air jet, spray and seal with RS-1 asphaltic emulsion and skin patch.
- C. Clean surface of all material, such as leaves, dirt, sand, gravel, water and vegetation prior to applying binder of paving asphalt to existing surface.

3.6 HOT MIX ASPHALT SPREADING AND COMPACTING EQUIPMENT

- A. Provide spreading and compacting equipment in accordance with Caltrans Standard Specification Section 39-2.01C(2).

3.7 HOT MIX ASPHALT PLACEMENT

- A. Place, spread and compact hot mix asphalt to required grade, cross section, and thickness in accordance with Caltrans Standard Specification Sections 39-2.01C(2), 39- 2.01C(3), and 39-2.01C(8).
- B. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.8 JOINTS

- A. Construct joints to ensure continuous bond between adjoining paving sections in accordance with Caltrans Standard Specification Sections 39-2.01C(4)
 1. Construct joints free of depressions with same texture and smoothness as other sections of asphalt course.
 2. Clean contact surfaces and apply tack coat.
 3. Offset longitudinal joints in successive courses a minimum of 6inches.
 4. Offset transverse joints in successive courses a minimum of 24inches.
 5. Compact joints as soon as hot mix asphalt will bear roller weight without excessive displacement.

3.9 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact in accordance with Caltrans Standard Specification Sections 39-2.01C(2).
- B. Compaction Requirements: Average Density to be 92 percent of reference maximum theoretical density according to ASTM D2041, but not less than 90 percent nor greater than 96 percent.
- C. Finish Rolling: Finish roll paved surfaces to remove roller marks while asphalt is still warm.

- D. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while still hot, with back of rake or smooth iron. Compact thoroughly using tamper or other satisfactory method.
- E. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh asphalt. Compact by rolling to specified density and surface smoothness.
- F. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.10 HOT MIX ASPHALT CURBS AND DIKES

- A. Construction: Place over compacted surfaces in accordance with Caltrans Standard Specification Section 39-2.01C(9). Apply a light tack coat prior to construction, unless pavement surface is still tacky and free of dust.
- B. Shape: Place hot mix asphalt to curb cross section indicated.

3.11 ADJUSTING MANHOLES, VALVES, MONUMENT COVERS AND OTHER STRUCTURES TO GRADE

- A. Remove pavement, using vertical cuts, as needed to remove frame and provide for concrete collar. Do not damage adjacent pavement.
 - 1. Circular Covers: Cut circle with radius 6 inches larger than cover and concentric with cover.
 - 2. Rectangular Covers: Cut rectangle 6 inches larger than cover on all sides.
- B. Install grade rings or blocking as needed to raise cover to finish grade.
- C. Pour concrete collar:
 - 1. Bottom of Collar: Top of existing collar or 6 inches below top of proposed collar, whichever is at a higher elevation.
 - 2. Top of Collar: Bottom of existing asphalt pavement.
 - 3. Apply tack coat to all exposed surfaces.
 - 4. Fill excavation with hot mix asphalt and, while still hot, compact flush with adjacent surface.

3.12 INSTALLATION TOLERANCES

- A. Hot Mix Asphalt Pavement:
 - 1. Course thickness and surface smoothness shall be in accordance with Caltrans Standard Specification Section 39-2.01A(4)(i)(iii)
 - 2. Total Thickness: Not less than indicated.
- B. Trench Patch:
 - 1. Compacted surface: Within 0.01 foot of adjacent pavement.
 - 2. Do not create ponding.
- C. Adjust Covers:
 - 1. Compacted surface: Up to 0.01 foot higher, and no lower, than adjacent pavement.
 - 2. Do not create ponding.

END OF SECTION

SECTION 32 17 23

PAVEMENT MARKINGS

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Cleaning and sweeping of asphaltic pavement surface before application of traffic stripes and pavement markings
- B. Materials and application for pavement markers

1.2 RELATED SECTIONS

- A. Section 32 12 16, Asphalt Paving

1.3 RELATED DOCUMENTS

- A. Caltrans Standard Specifications, 2015
 - 1. Section 78, Incidental Construction
 - 2. Section 82, Signs and Markers
 - 3. Section 84, Markings
- B. Caltrans Standard Plans, 2015
 - 1. Plan A20A: Pavement Markers and Traffic Lines, Typical Details
 - 2. Plan A24A: Pavement Markings Arrows
 - 3. Plan A24C: Pavement Markings, Symbols and Numerals
 - 4. Plan A24E: Pavement Markings, Words
 - 5. Plan A73B: Markers
- C. The State of California Traffic Manual, 2014
- D. The regulations, standards, and tests of the State of California Department of Transportation Materials and Research Division, edition in effect at time of date on Plans.
- E. Professional Land Surveyor's Act, Business and Professions Code §§ 8700 – 8805

1.4 SUBMITTALS

- F. Submit product data for each of the following in accordance with Section 01 10 00, Supplemental General Requirements:
 - 1. Traffic paint
 - 2. Pavement markers and adhesives

1.5 QUALITY ASSURANCE

- S. Deliver certificates showing conformance with this specification to the Owners Representative with each shipment of materials and equipment to the Project site.
- T. Provide proper facilities for handling and storage of products to prevent damage. Where necessary, stack products off ground on level platform, fully protected from weather.

1.6 PROJECT CONDITIONS

- E. Do not apply traffic striping or pavement markings to the pavement until after approval to proceed has been given by the Owners Representative.
- F. Thoroughly cure new asphalt concrete and portland cement concrete before application of stripes, markings or markers.

PART 2 - PRODUCTS

2.1 PAINTED STRIPES AND MARKINGS

- E. Painted striping and marking materials shall be in accordance with Caltrans Standard Specifications Sections 84-2.02 and 84-2.02C, unless noted otherwise herein or on the Plans.

2.2 TRAFFIC CONTROL SIGNS

- C. General: Traffic control signs shall be in accordance with Caltrans Standard Specification Section 82-1, Signs and Markers.
- D. Sign Panels shall be in accordance with Caltrans Standard Specification Section 82-2, Sign Panels. Conform type (regulatory or warning), size, shape and pattern to the State of California, Department of Transportation, Traffic Manual, edition in effect at the date of the Plans.

PART 3 - EXECUTION

3.1 TEMPORARY PAVEMENT MARKERS

- A. If permanent pavement markers cannot be installed immediately, and the driveway is to be placed in service, install short term, temporary pavement markers on the new pavement prior to opening to traffic.

3.2 PAINTED TRAFFIC STRIPES AND PAVEMENT MARKINGS

- A. Apply in conformance with the manufacturer's instructions and the applicable requirements of Caltrans Standard Specification Section 84-3.03, 3.04 and 3.05 and Caltrans Standard Plans.

3.3 PAVEMENT MARKERS

- A. Place in accordance with Caltrans Standard Specification Section 81-3.03, Construction.
- B. Pavement recesses are not required. Markers shall be installed accurately to the line established by the Owner's Representative. No markers shall be installed until the surface has been approved by the Owner's Representative.

3.4 PROTECTION

- A. Protect the newly installed traffic stripes and pavement markings from damage until the material has cured.
- B. Replace any traffic stripes or pavement markings or markers broken, misaligned or otherwise disturbed prior to opening roadway to traffic.

3.5 RESTORATION OF EXISTING IMPROVEMENTS

- A. Existing signs striping or other markings removed or damaged due to the installation of new facilities shall be replaced in kind.
- B. Existing landscaping or planting removed, damaged or disturbed due to the installation of traffic control signs or street name signs shall be replaced in kind.

END OF SECTION

SECTION 33 41 00

STORM UTILITY DRAINAGE SYSTEM

PART 1 – GENERAL

A. SECTION INCLUDES

- A. Storm drainage system and miscellaneous utility lines up in driveways and service yard.

1.2 RELATED SECTIONS

- A. Section 31 21 00, Utility Trenching and Backfill
- B. Section 32 12 16, Asphalt Paving
- C. Section 16 05 50, Basic Electrical

1.3 RELATED DOCUMENTS

3. AASHTO

- 1. M199: Precast Reinforced Concrete Manhole Sections
- 2. M252: Corrugated Polyethylene Drainage Pipe
- 3. M294: Corrugated Polyethylene Pipe, 12 to 604 inch Diameter

4. ASTM

- 1. A74: Cast Iron Soil Pipe and Fittings
- 2. C443: Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
- 3. C564: Rubber Gaskets for Cast Iron Soil Pipe and Fittings
- 4. C1173: Flexible Transition Couplings for Underground Piping Systems
- 5. D1785: Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120
- 6. D2321: Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity Flow Applications
- 7. D2564: Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems
- 8. D3034: Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings
- 9. D4101: Propylene Injection and Extrusion Materials
- 10. F477: Elastomeric Seals (Gaskets) for Joining Plastic Pipe
- 11. F656: Primers for Use in Solvent Cement Joints of Poly(Vinyl Chloride) (PVC) Plastic Pipe and Fittings
- 12. F679: Poly(Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings
- 13. F1336: Poly(Vinyl Chloride) (PVC) Gasket Sewer Fittings

5. AWWA

- 1. C104: Cement-Mortar Lining for Ductile-Iron Pipe and Fittings
- 2. C105: Polyethylene Encasement for Ductile-Iron Pipe Systems
- 3. C110: Ductile-Iron and Gray-Iron Fittings, 3 In. Through 48 In. for Water
- 4. C111: Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- 5. C115: Flanged Ductile-Iron Pipe With Ductile-Iron or Gray-Iron Threaded Flanges
- 6. C116: Protective Fusion-Bonded Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings
- 7. C150: Thickness design of Ductile Iron Pipe
- 8. C151: Ductile-Iron Pipe, Centrifugally Cast

9. C153: Ductile-Iron Compact Fittings
 10. C219: Bolted, Sleeve-type Couplings for Plain-End Pipe
 11. M41: Ductile Iron Pipe and Fittings
6. Caltrans Standard Specifications, 2015
 7. Caltrans Standard Plans, 2015

1.4 DEFINITIONS

1. AASHTO: American Association of State Highway and Transportation Officials
2. ASTM: American Society for Testing Materials
3. AWWA: American Water Works Association
4. CMP: Corrugated metal pipe
5. DIP: Ductile iron pipe
6. HDPE: High-density polyethylene
7. NPS: Nominal pipe size
8. PE: Polyethylene
9. PVC: Polyvinyl Chloride
10. RCP: Reinforced concrete pipe

1.5 SUBMITTALS

- A. Product data for the following:
 1. Piping materials and fittings
 2. Joint sealants
 3. Cleanout plugs or caps
 4. Precast concrete catch basins, inlets, curb inlets, junction structures and area drains, including frames and grates
 5. Precast clean out boxes and box covers
 6. Sump pump
- B. Shop drawings: Include plans, elevations, details and attachments for the following:
 1. Precast concrete utility vault/pit, frames and covers
- C. Design Mix Reports and Calculations: For each class of cast in place concrete
- D. Field Test Reports: Indicate and interpret test results for compliance with performance.

1.6 DELIVERY, STORAGE AND HANDLING

8. Delivery and Storage
 1. Piping: Inspect materials delivered to site for damage; store with minimum of handling. Store materials on site in enclosures or under protective coverings. Store plastic piping and

jointing materials and rubber gaskets under cover out of direct sunlight. Do not store materials directly on the ground. Keep inside of pipes and fittings free of dirt and debris.

2. Metal Items: Check upon arrival; identify and segregate as to types, functions, and sizes. Store off the ground in a manner affording easy accessibility and not causing excessive rusting or coating with grease or other objectionable materials.
9. Handling
 1. Handle pipe, fittings, and other accessories in such manner as to ensure delivery to the trench in sound undamaged condition. When handling lined pipe, take special care not to damage linings of pipe and fittings; if lining is damaged, make satisfactory repairs. Carry, do not drag, pipe to trench.
 2. Handle precast concrete pipe, manholes and other precast structures according to manufacturer's written instructions.
 3. Protect imported bedding and backfill material from contamination by other materials.

PART 2 - PRODUCTS

2.1 DRAINAGE PIPES

1. Storm drain pipes and fittings shall be High Density Polyethylene pipes with SDR 35 per ASTM D3034 and Caltrans Standard Specification Section 64, including pipe fitting and connections.

2.2 CATCH BASINS, DROP INLETS, JUNCTION STRUCTURES, SUMP PITS, VAULTS, AREA DRAINS, UTILITY BOXES, ETC.

- A. General: Size, shape, configuration, depth, etc. of structure and frame, grate, or cover shall be as indicated on drawings.
- B. Precast Structure: Rate for AASHTO H20 loading in traffic areas.
- C. Frames, Grates and Covers: Caltrans Standard Specification Section 75-1.02, 75-1.02.B and 75-2
 - a. Galvanize steel frames, grates and covers
 - b. Grates and covers shall be non-rocking
 - c. Rate for AASHTO H20 loading in traffic areas

2.3 JOINT SEALANT FOR PRECAST STRUCTURES AND MANHOLES

- A. Mortar: Caltrans Standard Specification Section 51-1.02F
 1. Use to seal around pipes at connections to structures and manholes. Also use to seal joints between precast sections of structures and manholes.
- B. Gaskets: Preformed flexible rubber or plastic gasket
 1. Rubber Gaskets: ASTM C443
 2. Plastic Gaskets: Federal Specification SS-S-00210 (GSA-FSS), Type I, Rope Form; or alternate standard which may exist. Acceptable material is "Ram-Nek," as manufactured by Henry Company, or approved equal.

2.4 PIPE TO STRUCTURE CONNECTOR/SEAL

- A. A flexible pipe to manhole connector shall be used for all pipe penetrations to pre-cast and/or cast-in-place concrete structures.
 1. The seal shall provide a flexible, positive, watertight connection between pipe and concrete wastewater structures. The connector shall assure that a seal is made between (1) the connector and the structure wall, and (2) between the connector and the pipe. The seal

between the connector and the manhole wall shall be made by casting the connector integrally with the structure wall during the manufacturing process in such a manner that it will not pull out during coupling. The seal between connector and pipe will be made by way of a stainless steel take down band compressing the gasket against the outside diameter of the pipe.

2. The connector shall be molded from materials whose physical/chemical properties meet or exceed the physical/chemical resistant properties outlined in ASTM C923. The connector and stainless steel hardware shall meet or exceed the performance requirements proscribed in ASTM C923.
3. The connector shall be of size specifically designed for the pipe material being used and shall be installed in accordance with recommendations of the manufacturer.
4. Connectors shall be Z-LOK or G3 connectors manufactured by A-LOK Products Inc. or approved equivalent.

2.5 SUMP PUMP AND PRECAST PIT

- A. General: Sump pump shall be submersible sump pump as indicated on drawings.

PART 3 - EXECUTION

3.1 PIPE INSTALLATION

- A. General: Install pipe, fittings, and appurtenances utilizing best practices, manufacturer's instructions, and in accordance with Section 6 and 7 of ASTM D 2321 for plastic pipe, Caltrans Standard Specification Section 65-2.03 for reinforced concrete pipe, Caltrans Standard Specification Section 66-1.03 for corrugated metal pipe, and chapter 11.3.3 of AWWA M41 for cast iron and ductile iron pipe.
- B. Pipe Depth and Trench Configuration: Conform to typical trench section(s) indicated.
- C. Excavation, Bedding, Backfill, and Compaction: Section 31 21 00, Utility Trenching and Backfill
- D. Handling: Carefully handle during loading, hauling, unloading and placing operations to avoid breakage or damage. Use strap type slings for lifting and placing; no chains or hooks will be permitted. Comply with the manufacturer's recommendations.
- E. Laying: Before lowering pipe into the trench, remove all stakes, debris, loose rock and other hard materials from the bottom of the trench. Lay accurately in conformance with lines and grades indicated. Start laying the pipeline at the low end and proceed upstream. Lay bell and spigot pipe with the bell end facing upstream. Lay pipe on a bed prepared by handwork, dug true to grade. Furnish firm bearing for pipe throughout its entire length with bell holes provided at the ends of each pipe length of sufficient size to permit making up the particular type of joint being used. Adjust pipe to line and grade by scraping away or filling and tamping material under the body of the pipe for the entire pipe length and not by blocking or wedging. After final positioning, hold pipe in place in trench with backfill material placed equally on both sides of the pipe at as many locations as required to hold the pipe section in place.
- F. Closure: Close open ends of pipes and appurtenance at the end of each day's work or when work is not in progress.

3.2 SPECIAL PIPE COUPLINGS

- A. General: Use where required to join piping and no other appropriate method is specified. Do not use instead of specified joining methods.

- B. Installation: Manufacturers' instructions

3.3 INSTALLATION OF CURB INLETS, CATCH BASINS, DROP INLETS, JUNCTION STRUCTURES, AREA DRAINS, PIT AND PUMP, ETC.

- A. Excavation, Bedding, Backfill, and Compaction: Section 31 21 00, Utility Trenching and Backfill
- B. Poured in Place Structures: Install as indicated and Caltrans Standard Specification Section 51.
 - 1. Shape bottoms to convey flows as indicated.
- C. Precast Structures: Install as indicated.
 - 1. Seal all joints and pipe entrances and exits.
 - 2. Place concrete in bottom and shape to convey flows as indicated.

3.4 POURED-IN-PLACE CONCRETE

- A. Concrete shall be mixed in accordance with applicable provisions of Section 90 of Caltrans Standard Specifications.
- B. Construction of concrete structures shall conform to applicable provisions of Section 51 of the Caltrans Standards Specifications. Unless otherwise noted herein or in the Plans, exposed surfaces of structures shall be Class 1 surface finish.
- C. Curing shall conform to applicable portions in Section 90 of Caltrans Standard Specifications. No pigment shall be used in curing compounds. All work shall be subject to inspection. No concrete shall be placed until the Project Manager has approved the forms and reinforcement.
- D. Concrete shall not be cropped freely where reinforcing bars will cause segregation, nor shall it be dropped freely more than six feet. Spouts, elephant trunks, or other approved means shall be used to prevent segregation.

3.5 PIPELINE FLUSHING

- A. Newly constructed storm drain pipes shall be flushed with water to clean. A metal screen shall be used to collect and remove any rock, silt and other debris that is flushed out during cleaning.

3.6 DEFLECTION TESTING

- A. Upon completion of work, perform a deflection test on entire length of installed plastic pipeline. Completed work includes superimposed loads adjacent to and over the pipeline, such as compacted backfill and earthwork, and does not include paving, concrete curbs and gutters, sidewalks, walkways, and landscaping.
- B. Under external loads, deflection of pipe in the installed pipeline shall not exceed 4.5 percent of the average inside diameter of pipe.
- C. Determine whether the allowable deflection has been exceeded by use of a pull-through device or a deflection-measuring device.
- D. Pull-Through Device:
 - 1. Provide a spherical, spheroidal, or elliptical ball, a cylinder, or circular sections fused to a common shaft.

- a. Circular sections shall be so spaced on the shaft that distance from external faces of front and back sections will equal or exceed diameter of the circular section.
- b. Pull-through device may also be of a design approved by the Uni-Bell Plastic Pipe Association, provided that the device meets the applicable requirements specified in this paragraph, including those for diameter of the device.
2. Ball, cylinder, or circular sections shall conform to the following:
 - a. A diameter, or minor diameter as applicable, of 95 percent of the average inside diameter of the pipe; tolerance of plus 0.5 percent will be permitted.
 - b. A homogeneous material throughout, with a density greater than 1.0 as related to water at 39.2 degrees F, and a surface Brinell hardness of not less than 150.
 - c. Center bored and through bolted with a ¼ inch minimum diameter steel shaft having a yield strength of not less than 70,000 pounds per square inch, with eyes or loops at each end for attaching pulling cables.
 - d. Each eye or loop shall be suitably backed with a flange or heavy washer such that a pull exerted on opposite end of shaft will produce compression throughout remote end.
3. Pull-Through Device:
 - a. Pass the pull-through device through each run of pipe, either by pulling it through or flushing it through with water.
 - b. If the device fails to pass freely through a pipe run, replace pipe which has the excessive deflection and completely retest in same manner and under same conditions as specified.
- E. Deflection measuring Device:
 1. Sensitive to 1.0 percent of the diameter of the pipe being tested and accurate to 1.0 percent of the indicated dimension.
 2. Obtain approval of deflection measuring device prior to use.
- F. Deflection Measuring Device Procedure:
 1. Measure deflections through each run of installed pipe.
 2. If deflection readings in excess of 4.5 percent of average inside diameter of pipe are obtained, retest pipe by a run from the opposite direction.
 3. If retest continues to show a deflection in excess of 4.5 percent of average inside diameter of pipe, remove pipe which has excessive deflections, replace with new pipe, and completely retest in same manner and under same conditions.
- G. Warranty Period Test: Pipe found to have a deflection of greater than 5 percent of average inside diameter when deflection test is performed just prior to end of 1 year warranty period shall be replaced with new pipe and tested as specified for leakage and deflection.

3.10 CLEANING

- A. Thoroughly clean storm drain lines, manholes, catch basins, field inlets, culverts, and similar structures, of dirt, debris, and obstructions of anykind.

3.11 TELEVISION INSPECTION

- A. After completion of the pipe installation, service connections, flushing and cleaning, and prior to placement of pavement, the drain line shall be televised with a color closed-circuit television with tilt-head camera recorded in DVD format. The original disc and log sheets shall be provided to the Owner for review.

- B. The following observations from television inspections will be considered defects in the construction of sewer pipelines and will require correction prior to placement of pavement:
 - 1. Low spot (1 inch or greater - mainlines only)
 - 2. Joint separations (3/4 inch or greater opening between pipe sections)
 - 3. Cocked joints present in straight runs or on the wrong side of pipe curves.
 - 4. Chips in pipe ends
 - 5. Cracked or damaged pipe
 - 6. Dropped joints
 - 7. Infiltration
 - 8. Debris or other foreign objects
 - 9. Other obvious deficiencies
 - 10. Irregular condition without logical explanation

END OF SECTION

SECTION 32 12 13

CONCRETE FORMWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplemental Conditions and Division 1 Specifications, apply to work of this Section.
- B. Refer to other sections and determine extent of related work, and coordinate work to produce complete project.
- C. Related Sections:
 - 1. Section 03200: Concrete Reinforcement.
 - 2. Section 03310: Site Concrete.

1.2 DESCRIPTION OF WORK

- A. This section requires the Contractor to furnish all labor, tools, equipment, materials and services to provide a complete formwork system for the concrete work as shown on the drawings.

1.3 WORK INCLUDED

- A. Formwork for cast-in-place concrete, complete with shoring, bracing and anchorage.
- B. Coordinate installation of items supplied under other specification sections.
- C. Void forms.

1.4 QUALITY ASSURANCE

- A. Design Requirements:
 - 1. Responsibility: Design of formwork is the Contractor's responsibility and shall be reviewed and approved by a Civil Engineer licensed in California.
 - 2. Standards: Comply with the following, except as modified by the Building Code or these specifications.
 - a. ACI 301 - "Specifications for Structural Concrete for Buildings."
 - b. ACI 347 - "Recommended Practice for concrete Formwork."
 - c. ACI 303R - "Guide to Cast-in-Place Architectural Concrete Practice."
 - 3. Allowable Tolerances:
 - a. Construct formwork to provide completed cast-in-place concrete surfaces complying with the tolerances specified in ACI 347. Architectural concrete formwork shall conform to the recommendations of ACI 303R.
 - b. All exterior exposed concrete shall be considered architectural concrete. "Exposed" includes painted as well as unpainted concrete.
 - c. Note special tolerance requirements for locations of certain area drains, as indicated on drawings.
- B. Shoring and Bracing:
 - 1. Design of shoring and Bracing for Formwork: Conform to the following for additional shoring required as work of this section:
 - a. Pursuant to Labor Code 6707, the Contractor shall include in his bid all costs incidental to the provision of adequate shoring, bracing or equivalent method for the protection of life or limb, which shall conform to applicable Federal and State Safety orders.

- b. The Contractor shall comply with Section 832 of the Civil Code of the State of California relating to lateral, general and sub-adjacent supports wherever structures or improvements adjacent to an excavation may be damaged by such excavation.

1.5 SUBMITTALS

- A. Product Data: Submit Manufacturer's data and installation instructions for proprietary materials such as form coatings, manufactured form systems, ties and accessories.
- B. Submit manufacturer's certification that form release agent will provide clean stain-free surfaces of concrete and not interfere with bond of applied finishes.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver form release agents in manufacturer's sealed and trademarked containers.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

- A. General: Form material shall be as required to produce continuous, straight, smooth exposed surfaces. Materials selected shall be satisfactory to Owner's Representative for effect on finished appearance of concrete. Architectural concrete formwork shall be one material throughout the work, for all similar types of concrete surfaces.
- B. Form Coatings: Commercial formulation resin-based form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent treatment of concrete surfaces requiring bond, or adhesion, nor impede the wetting of surfaces to be cured with water or curing compounds. Oils and petroleum distillates are not acceptable. Verify compatibility of form coating with proposed surface finish.
- C. Metal Inserts: Provide metal inserts for anchorage of materials or equipment to concrete construction, where not supplied by other trades and required for the work.
- D. Rustications and Reveals: Neoprene rubber, Symons Corporation, or equal.
 - 1. Provide curved rustication strips where required, smoothly curved to correct radius.

2.2 FORMWORK SYSTEMS

- A. Design, erect, support, brace and maintain framework so that it will safely support vertical and lateral loads that might be applied, until such loads can be supported by the concrete structure. Carry vertical and lateral loads to ground by formwork system and in-place construction that has attained adequate strength for that purpose. Construct formwork so that concrete members and structures are of correct size, shape, alignment, elevation and position.
- B. Design forms and falsework to include assumed values of live load, dead load, weight of moving equipment operated on formwork, concrete mix, height of concrete drop, vibrator frequency, ambient temperature, foundation pressures, stresses, lateral stability, and other factors pertinent to safety of structuring during construction.
- C. Provide shores and struts with positive means of adjustment capable of taking up formwork settlement during concrete placing operations, using wedges or jacks or a combination thereof. Provide trussed supports when adequate foundations for shores and struts cannot be secured.
- D. Support form facing materials by structural members spaces sufficiently close to prevent

deflection. Fit forms placed in successive units for continuous surfaces to accurate alignment, free from irregularities and within allowable tolerances. Provide camber in formwork as required for anticipated deflections due to weight and pressures of fresh concrete and construction loads.

- E. Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.
- F. Provide formwork sufficiently tight to prevent leakage of cement past during concrete placement. Solidly butt and gasket joints and provide backup material at joints to prevent leakage and fins.
- G. Earth forms are permitted only where shown.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine surfaces and conditions receiving or effecting the work. Do not proceed until unsuitable conditions have been corrected.

3.2 FORM CONSTRUCTION

- A. General: Construct forms complying with ACI 347 and ACI 303R, as applicable to the sizes, shapes, lines and dimensions shown, and to accurate alignment, location, grades, levels, and plumbness. Provide for openings, sleeves, offsets, recesses, reglets, chamfers, inserts, and other features required. Use selected materials to obtain required finishes. Before placing concrete, check the lines and levels of erected formwork. Make corrections and adjustments to ensure proper size and location of concrete members and stability of forming system.
 - 1. Ridges, fins, depressions, and plugs are not acceptable in exposed architectural concrete work.
 - 2. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where the slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the line, to prevent swelling and assure ease of removal.
 - 3. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Brae temporary closures and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings on forms in an inconspicuous location as possible, consistent with project requirements. Start forms with a 6", minimum, wide space to provide continuous cleanout space. Locate cleanouts in unexposed areas of architectural concrete.
 - 4. Form intersecting planes to provide true, clean-cut corners, with edge grain of plywood not exposed as form for concrete.
 - 5. Place steel forms with ribs perpendicular to supports and secure with plug welds to each rib occurring over supports.
- B. Forms for Exposed Concrete:
 - 1. Drill forms to suit ties used and to prevent leakage of concrete mortar around tie holes. Do not splinter forms by driving ties through improperly prepared holes.
 - 2. Do not use metal cover plates or plastic plugs for patching holes or defects in forms for concrete that will be permanently exposed in the finished work.
 - 3. Provide sharp, clean edges at intersecting planes, without visible edges or offsets. Back joints with extra studs or girts to maintain true, square intersections.
 - 4. Use extra studs, walers and bracing to prevent bowing of forms between studs and to avoid bowed appearance in concrete. Do not use narrow strips of form material which will produce bow.
 - 5. Assemble forms so they may be readily removed without damage to exposed concrete surfaces.

6. Form recesses and projections with smooth finish materials, and install in forms with sealed joints to prevent displacement.
 7. Seal form joints with foam tape or other demonstrated effective means. Back form joints with supporting members to prevent movement during erection and concrete casting.
 8. Align restrained joints horizontally and vertically across openings.
 9. Make joints in form facing at centerline of reveals and rustications. There shall be no joints between reveals and rustications in the field of plane surfaces of architectural concrete.
 10. Provide a means to seal the bottom of forms at construction joints, such as foam tape or other gasket device.
 11. After erection, seal all cracks, holes, slits, gaps and apertures in forms, wherever located, with moulding plaster sanded smooth so that they will withstand the pressure and remain mortar tight.
- C. Ties:
1. Spacing: Space ties in a uniform pattern satisfactory to the Owner's Representative. Rest cones firmly against forms and seal to prevent leakage.
- D. Corner Treatment:
1. Make corners square, true in line and chamfered.
 2. Form chamfers with 3/4" x 3/4" strips for all edges accurately formed and surfaced to produce uniformly straight lines and tight edge joints. Extend terminal edges to required limit and miter chamfer strips at changes in direction.
 3. Concealed corners may be formed either square or chamfered.
- E. Control Joints: See Concrete Section for treatment of control and construction joints.
- F. Provision for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Size and location of openings, recesses and chases are the responsibility of the trade requiring such items. Accurately place and securely support items built into forms. Openings for doors and windows shall be formed with a tolerance of minus 0" and plus 1/2" from indicated dimensions.
- G. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is to be placed. Retighten forms immediately after concrete placement as required to eliminate mortar leaks.

3.3 FORM COATINGS

- A. Coat form contact surfaces with form-coating compound before reinforcement is placed. Do not allow excess form coating material to accumulate in the forms or to come into contact with surfaces which will be bonded to fresh concrete. Apply in compliance with manufacturer's instructions.
- B. Coat steel forms with a non-staining, rust-preventive form coating or otherwise protect against rusting. Rust-stained steel formwork is not acceptable. Do not use oil or other petroleum based coatings, or any coating that will stain concrete or adversely affect later surface treatments.

3.4 INSTALLATION OF EMBEDDED ITEMS

- A. General: Set and build into the work anchorage devices and other embedded items required for other work that is attached to, or supported by, concrete. Use top and bottom templates, setting drawings, diagrams, instructions and directions provided by suppliers of the items to be attached thereto.
- B. Coordinate and schedule the work of this Section with the work of other Sections required to-be set in, on, or contiguous with forms.

- C. Anchor bolts out of position or plumb by more than 1/4" shall be reinstalled in correct position and plumb at no increase in Contract Price.
- D. Edge forms and screeds strips for slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in the finished slab surface. Provide and secure units to support types of screeds required.

3.5 REMOVAL OF FORMS

- A. Remove forms completely. Exposed surfaces of concrete shall be clean, smooth and free of irregularities.
- B. Form Ties:
 - 1. Do not remove ties until concrete has hardened sufficiently to permit removal without damaging concrete. Do not spall concrete exposed surfaces. Pull ties of type that are wholly withdrawn from the wall toward the inside face. Cutting ties back from face of wall will not be permitted. Plug tie rod holes as specified in Concrete Section.
- C. Do not pry against face of concrete. Use wooden wedges only.
- D. Forms:
 - 1. Remove forms in manner to ensure safety of members. Do not disturb supporting forms until concrete has hardened sufficiently to permit removal with safety and without damage to concrete surfaces. Construct forms to permit their removal without disturbing the original shoring.
 - 2. Time of Removal: Time of removal will depend on weather conditions, and effectiveness of curing. The following periods between depositing of concrete and removal of forms shall be considered a minimum which may be extended if deemed necessary by the Engineer.
Location Forms
Slabs, footings or Foundation Sides 2 Days
 - 3. Stripping, shoring, reshoring and removal of shoring shall conform to the requirements of ACI-347R.
- E. Shores and Reshored:
 - 1. Shoring is defined as the total shoring system from the level being poured down through the intermediate framed levels below to the ground. Shores at lower levels must remain in place (before, during and after pouring higher level) and not be removed; times given are for the highest level; then all shores may be removed.
 - a. Refer also to the structural drawings for additional shoring requirements.
 - 2. Design and place shores so that load from successive parts of the structure will be transmitted directly through the shores to adequate support, without creating bending or shearing stresses in the concrete. Do not remove shores until supported members have attained sufficient strength to carry the imposed loads.
 - 3. Leave shoring in place to support hoisting equipment. Do not support cranes or other hoisting equipment from unshored slabs.

3.6 RE-USE OF FORMS

- A. Clean and repair surfaces of forms to be re-used in the work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable. Apply new form coating compound material to concrete contact surfaces as specified for new formwork.
- B. When forms are extended for successive concrete placement, clean surfaces, remove fins and laitance, and tighten forms to close all joints. Align and secure joints to avoid offsets. Do not use plugged or patched forms for exposed concrete surfaces.

END OF SECTION

SECTION 32 12 14

CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications, apply to work of this Section.
- B. Refer to other sections and determine extent of related work, and coordinate work to produce complete project.
- C. Related Sections:
 - 1. Section 03100: Concrete Formwork.
 - 2. Section 03310: Site Concrete.

1.2 DESCRIPTION OF WORK

- A. Consists of all work required to install all concrete work as detailed on the contract drawings. Furnish all material and labor required to construct the concrete work as shown on drawings, including but not limited to:
 - 1. Reinforcing steel bars, welded steel wire fabric or fabricated steel bar or rod mats for cast-in-place concrete, complete with tie wire.
 - 2. Support chairs, bolsters, bars supports, spaces, and other accessories for reinforcing.

1.3 QUALITY ASSURANCE

- A. Perform concrete reinforcing work in accordance with CRSI 63 and 65 and ACI 301, 315 and 318, unless specified otherwise in this Section.

1.4 REFERENCES

- A. ACI 301 - American Concrete Institute - Specification for Structural Concrete for Buildings.
- B. ACI 315 - American Concrete Institute - Details and Detailing of Concrete Reinforcement.
- C. ACI 318 - Building Code Requirements for Reinforced Concrete.
- D. CRSI 63 - Recommended Practice for Placing Reinforcing Bars.
- E. CRSI 65 - Recommended Practice for Placing Bar Supports, Specifications and Nomenclature.
- F. AWS D1.4 - Structural Welding Code - Reinforcing Steel.

PART 2 - PRODUCTS

2.1 REINFORCING

- A. Reinforcing Steel: 60 ksi yield grade; deformed type as indicated on drawings.
 - 1. Bars: Billet steel, ASTM 615; as indicated.
 - 2. Finish: Plain unless indicated galvanized on drawings or so specified.

2.2 ACCESSORY MATERIALS

- A. Tie Wire: Minimum 16-gage annealed type, or patented system accepted by Engineer.
- B. Chairs, Bolster, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcing during construction conditions.

2.3 FABRICATION

- A. Fabricate concrete reinforcing in accordance with ACI 315.
- B. Locate reinforcing splices, not indicated on drawings, at points of minimum stress. Location of splices shall be reviewed by Engineer.
- C. Where indicated, weld reinforcing bars in accordance with AWS D12.1.

PART 3 - EXECUTION

3.1 PLACEMENT

- A. Place reinforcing supported and secured against displacement. Do not deviate from true alignment.
- B. Before placing concrete, ensure reinforcing is clean, free of loose scale, dirt, or other foreign coatings which would reduce bond to concrete.

END OF SECTION

SECTION 32 12 15

SITE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications, apply to work of this Section.
- B. Refer to other sections and determine extent of related work, and coordinate work to produce complete project.
- C. Related Sections:
 - 1. Section 03100 - Concrete formwork
 - 2. Section 03200 - Reinforcement.

1.2 DESCRIPTION OF WORK

- A. Furnish all labor, materials, equipment and services necessary to provide all cast-in-place concrete complete in place, as shown and specified, including but not limited to:
 - 1. Granular subbase.
 - 2. Concrete Paving
 - 3. Concrete slab and other flatwork.

1.3 SUBMITTALS

- A. Submit the items listed below in this section to the Engineer for review and approval.
- B. Furnish samples, manufacturer's product data, test reports, and materials certifications as required in referenced sections for concrete materials and joint fillers.

1.4 QUALITY ASSURANCE

- A. Qualifications of installers: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Comply with the latest requirements of the following agencies insofar as they have jurisdiction over the work:
 - 1. Title 24, California Code of Regulation.
 - 2. CAL-OSHA (The Federal Occupational Safety and Health Act of 1970).
 - 3. Americans with Disabilities Act (ADA), DR2011 (rev 09/94).
 - 4. Business and Professions Code of the State of California.
 - 5. All other agencies having jurisdiction.
- C. In addition to complying with all pertinent codes and regulations, comply with all applicable provisions of "Structural Concrete for Buildings", with publications ACI 301, latest edition, of the American Concrete Institute. Where provisions of pertinent codes and standards conflict with these Specifications, the more stringent provisions shall govern.
- D. No aggregate base, concrete, or concrete curb shall be placed until the subgrade has been observed by the Engineer.

- E. Employ a licensed Surveyor or Civil Engineer to lay out the work and establish the necessary markers, benchmarks, and stakes.

1.5 JOB CONDITIONS

- A. Traffic Control: Maintain access vehicular and pedestrian traffic as required for other construction activities.
- B. Utilize flagmen, barricades, warning signs and warning lights as required.
- C. Grade Control:
 - 1. Establish and maintain required lines and grades, including crown and cross-slope, for each course during construction operations.
 - 2. Surface drainage on-site requires slope control to catch basins as indicated on the Drawings.

1.6 COORDINATION

- A. Do not commence placement of fill material or aggregate base course until preparation and compaction of the subgrade has been accepted.
- B. Do not place concrete until placement and compaction of fill material or aggregate base course has been accepted.

1.7 PRODUCT HANDLING

- A. Protection: Use adequate means to protect materials of this Section before, during and after installation and to protect the work and materials of other trades.
- B. Replacements: In the event of damage, immediately make repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

1.8 TESTING

- A. All concrete shall be subject to slump tests and laboratory compression testing as appropriate.
- B. All concrete testing shall be performed by a testing laboratory retained by the City.
- C. The Contractor shall notify the Owner's Representative and Engineer forty-eight (48) hours prior to placement of concrete so the Owner's Representative can arrange to observe the taking of test cylinders if he deems it necessary.
- D. Test Methods:
 - 1. Sampling concrete: ASTM C172
 - 2. Slump tests: ASTM C143
- E. Slump Tests: One slump test shall be taken for each concrete test. Reject all concrete not meeting the Drawings and Specifications.
- G. Doubtful Concrete:
 - 1. If the concrete does not conform to the requirements of ACI 318, latest edition, Section 4.3, or if 20% of the slump tests exceeds the limits shown on the Drawings or specified in this section, the Engineer shall be notified immediately and shall have the right to order a change in the mixed proportions or in the method of mixing, placing and curing of the concrete to secure the required strength and consistency for the remaining portion of the structure at no expense to the Owner.
 - 2. Concrete slabs or other concrete work not properly cured and deemed unacceptable to the Engineer shall be removed and replaced at the Contractor's expense.

1.9 INSPECTION

- A. Verify that conditions are satisfactory for concrete paving work. Do not proceed with the work of the Section until unsatisfactory conditions have been corrected.
- B. Notify the Engineer and Owner's Representative 72 hours prior to the pouring of concrete after all reinforcing, plumbing, electrical, etc., are in place for inspection.

PART 2 - PRODUCTS

2.1 CONCRETE

- A. Comply with the following as minimums:
 - 1. Portland Cement: ASTM C-150, Type II/V, low alkali.
 - 2. Aggregate, General: ASTM C-33, uniformly graded and clean. Do not use aggregate known to cause excessive shrinkage.
 - 3. Aggregate, Coarse: Crushed rock or washed gravel with maximum size of 3/4 inch and with minimum size number 4.
 - 4. Aggregate, Fine: Natural washed sand of hard and durable particles varying from fine to particles passing a 1/4 inch screen, of which at least 12% shall pass a 50-mesh screen.
 - 5. Water: Clean and potable.
- B. Mix Design:
 - 1. Site Concrete
 - a. To meet Caltrans Class A; 6.0 sacks of cement per cubic yard. Actual cement amount to be determined by mix design.
 - b. 5,000 psi and 3,000 psi minimum compressive strength at twenty-eight days for Concrete Paving in driveway having thickness 6" or more.
 - c. 3,000 psi minimum compressive strength at twenty-eight days for Concrete Paving in driveway having thickness 6" or less and all other flatwork.
 - d. 3/4 inch maximum size aggregate.
 - e. 4" maximum slump.
 - f. Water/Cement Ratio shall be 0.45 maximum.
 - g. One pound of lampblack per one cubic yard of concrete.
- C. All concrete mixes are to be designed by a laboratory retained by the Contractor and approved by the Engineer.
- D. Mixing:
 - 1. Batch, mix, and transport concrete to the site in accordance with the provisions of ASTM C94.
 - 2. When so approved by the Engineer small amounts of concrete may be site mixed in a batch mixer of a type approved by the Engineer, mixing for 1-1/2 minutes after ingredients are in the mixer.
- E. Control Joints: Preformed "T" "Quick Joint" as manufactured by SCA Construction Supply Company or approved equivalent.
- F. Expansion Joints: Where indicated on the Drawings or otherwise required for proper installation, provide:
 - 1. ASTM D94 preformed asphaltic impregnated strips for exterior concrete.
 - 2. Premolded joint filler of non-extruded and resilient, non-bituminous type conforming to ASHTO-M135.

- G. Non-shrink Grout: "Embeco" as manufactured by Master Builders, or approved equivalent.
- H. Forms: Use steel, wood or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal.
 - 1. Use straight forms free of distortion and defects.
 - 2. Use flexible spring steel forms or laminated boards to form radius bends as required.
 - 3. Coat forms with a non-staining form release agent that will not discolor or deface surface of concrete.
- I. Reinforcement:
 - 1. Welded Wire Mesh: Welded, plain, cold-drawn, steel wire fabric, ASTM A185. Furnish in flat sheets, not rolls, unless otherwise acceptable to the Engineer.
 - 2. Reinforcing Bars: Deformed Steel Bars, ASTM A615, Grade 40.
- J. Liquid Membrane Forming Curing Compound: Comply with ASTM C309, Type 1, Class A unless other type acceptable to Engineer. Moisture loss not more than 0.055 grams per square centimeter when applied at 200 square feet per gallon.
- K. Bonding Compound: Polyvinyl acetate or acrylic base, rewettable type.
- M. Epoxy Adhesive: ASTM C881, two component material suitable for use on dry or damp surfaces. Provide material type, grade, and class to suit Project conditions.

2.2 OTHER MATERIALS

- A. Materials not specifically described but required for a complete and proper installation of the work of this Section shall be as selected by the Contractor subject to the approval of the Engineer.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be installed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions have been corrected.
- B. Restore the subgrade to conform to elevation and compaction requirements. Subgrade shall be to tolerance of plus 0 to minus 1/2 inch prior to placement of aggregate base.
- C. Dispose of any surplus material in a legal manner.

3.2 FORM CONSTRUCTION

- A. Set forms to required grades and lines, rigidly braced and secured per Section 03100, Formwork, unless otherwise indicated.
- B. Install sufficient quantity of forms to allow continuous progress of the Work and so that forms can remain in place at least 24 hours after concrete placement.
- C. Check completed formwork for grade and alignment to the following tolerances:
 - 1. Top of forms not more than one-eighth inch in 10 feet.
 - 2. Vertical Face on longitudinal axis, not more than one-quarter inch in 30 feet.
- D. Clean forms after each use, and coat with form release agent as often as required to ensure separation from concrete without damage.

3.3 REINFORCEMENT

- A. Locate, place and support reinforcement as specified in Section 03200, unless otherwise indicated.

3.4 CONCRETE PLACEMENT

- A. Comply with the requirements of Division 3 for mixing and placing concrete.
- B. Place concrete in accordance with the following and the recommendations contained in ACI 304.
- C. Procedures:
 - 1. Notify the Engineer and the Owner's Representative at least 48 hours before placing concrete.
 - 2. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause formation of seams or planes or weakness within the section.

3.5 PROTECTION AND CURING

- A. Protect all concrete from injurious action of the elements and defacements of all nature during construction operation.
- B. Until forms are removed, keep all forms sufficiently wet to prevent drying out of the concrete.
- C. Cure slabs by keeping the exposed concrete surface continuously moist for a period of at least seven (7) days after the concrete has been placed by means of fog sprays or flooding.

3.6 CONCRETE FINISHING

- A. Broom Finish: At all sidewalks and slab: shall be obtained by drawing a stiff bristled broom across a floated finish. Direction of brooming to be perpendicular to direction of travel or as otherwise shown on drawings.
- B. Score Joints: Score joints shall be formed in the fresh concrete using a jointer to cut the groove so that a smooth uniform impression is obtained. All joints shall be struck before and after finishing.
- C. Expansion Joints and Edging: Expansion joints shall be at all locations where concrete paving abuts building or other vertical structures. Approved joint material shall be placed with top edge 1/4 inch below the paved surface and shall be securely held in place to prevent movement. Joint and other edges shall be formed in the fresh concrete using an edging tool to provide a smooth uniform impression. All edges shall be struck before and after brooming. After the curing period, expansion joints shall be carefully cleaned and filled with approved back rod and joint compound flush with the paved surface in such a manner as to avoid spilling on paved surfaces or overflow from joints.

3.7 MISCELLANEOUS CONCRETE ITEMS

- A. Form Removal:
 - 1. Do not remove forms for 24 hours after concrete has been placed.
 - 2. After form removal, clean ends of joints and point-up any minor honeycombed areas.
 - 3. Remove and replace areas of sections with major defects, as directed by Engineer.
- B. Filling in:
 - 1. Fill in holes and openings left in concrete structures for the passage of work of the other trades, unless otherwise directed, after the work of other trades is in place.
 - 2. Mix, place and cure concrete as specified to blend with in-place construction.

3. Provide other miscellaneous concrete filling to complete the work.

3.8 CLEAN-UP

- A. Keep work areas in workmanlike and safe condition so rubbish, wastes, and debris do not interfere with the work of others. Upon completion of work in this section, remove all rubbish, waste, and debris resulting from the operations. Remove all equipment and implements of service and leave entire area in a neat, clean, acceptable condition to the satisfaction of the Engineer.

END OF SECTION

SECTION 05500

METAL FABRICATIONS

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Furnish and install fabricated metal items including trench plates and checker plates, etc. for the trench drain and miscellaneous concrete flatwork with accessories complete in respect to function as intended.
- B. Metal fabrications includes items made from iron and steel shapes, plates, bars, strips, tubes, pipes, welded studs, and castings which are not a part of structural steel systems specified elsewhere.

1.2 RELATED SECTIONS

- B. Section 0321215 - Concrete

1.3 CODES AND STANDARDS

- A. Steel Fabrications: AISC "Manual of Steel Construction, latest edition
- B. Welding: AWS D1.1 Structural Welding Specifications

1.4 QUALITY ASSURANCE

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible; do not delay job progress; allow for trimming and fitting where necessary.
- B. Design Requirements: Design gate and fencing with accessories to support the minimum loading required by the California Building Code requirements.
 - 1. Gate for trash enclosure and fencing.
 - 2. Code: Comply with requirements of applicable except where more restrictive requirements are specified.

1.5 TESTS

- A. Galvanizing: Plates and angles shall be hot-dipped conforming to ASTM A123

1.6 SUBMITTALS

- A. Submit to the Engineer, four (4) sets of prints showing all metal fabrication for the trash enclosure gate. No metal fabrication work shall be fabricated until submittals are reviewed by the Engineer and returned to the Contractor.
- B. Product data: Submit manufacturer's literature for products used in metal fabrications, including paint, grout and pre-manufactured items.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Metal decking and panel: conform to Section A3 of the latest edition of the American Iron and

FIRE STATION #2 PAVEMENT REPLACEMENT

Steel Institute, Specifications for the Design of Cold-Formed Steel Structural Members. Steel used shall have a minimum yield strength of 33 ksi.

- B. Fasteners shall be powder-actuated and conform to ICBO ES ER-4546.
- C. Steel Shape, Plates and Bars: conform to ASTM A36 steel.
- D. Steel Pipe and Tubing: conform to ASTM A53, Grade B for pipes and ASTM A500 for tubing.
- E. Castings: Gray iron, ASTM A48, class 30; malleable iron, ASTM A47.
- F. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron ASTM A47, or cast steel ASTM A27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A153.
- G. Stainless Steel Bolts: conform to ASTM 304.
- H. Welding: Weld for steel shall be E70XX electrode and for aluminum shall be GMA welding with 4043 filler wires.

2.2 FINISHES

- A. All steel fabrication shall be hot-dip galvanized to ASTM A123 unless otherwise noted herewith or on plan: Steel members for the trash enclosure gate shall be powder coated finish. Color to be selected by Owner Representative.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Contractor shall verify measurements and conditions of the Work prior to fabrication of the Work. Delivery and accurate fitting of work in this section shall be Contractor's responsibility.
- B. Work shall be true to detail with clean, straight, sharply defined profiles. All exposed metal surfaces shall have smooth surface. All exposed welds shall be ground smooth.
- C. Galvanize all steel exposed to weather and all steel items indicated as galvanized on the drawings. Galvanized work shall be hot dipped galvanized after fabrication unless noted otherwise.
- D. All metal work not encased in concrete or in contact with cement grout shall be primed after fabrication with one coat of primer. Metal surfaces shall be cleaned of all scale, dirt, dust, grease or oil before priming.
- E. After installation, touch up field welds and scratched and damaged surfaces; use primer consistent with shop coat or recommended for galvanized surfaces, as applicable.
- F. Replace items damaged in course of installation and construction.

END OF SECTION

SECTION 160550

BASIC ELECTRICAL

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Furnish and install the electrical system as specified under this Section and Division 1.
- B. Regulations: Material and workmanship shall conform to the applicable provisions of the 2019 California Electrical Code (CEC), 2019 California Energy Code and any additional state and local regulations. Local or state codes shall take precedence where requirements are more stringent than those of CEC.
- C. Electrical work shall be coordinated with the existing field condition.
- C. Permits and Fees: Contractor shall obtain permits, have the work inspected, and pay for same. Upon completion of the work, Contractor shall deliver to the Owner's representative "Certificate of Inspection" approved by the local authority having jurisdiction.

1.2 WORK INCLUDED

- A. Furnish and Install:
 - 1. Service entrance equipment including underground pull section and junction boxes, conduits, wires, and connections for feeders and branch circuits including those specified under Storm Utility Drainage System for pump equipment branch circuit devices as indicated on drawings.

1.3 WORK IN OTHER SECTIONS

Related work and work in other section shall be included:

- 1. Furnish temporary electrical power for construction is under Division 1--General Requirements.
- 2. Furnish and install submersible pump.
- 3. Reinstall controller and reconnect existing electrical devices including but not limited to sliding gates, card readers and other existing features.

1.4 SUBMITTALS

- A. Material List: Within 15 days after the award of contract, Contractor shall transmit to OWNER for approval by Engineer, three (3) copies of a detailed list of material and routing of conduits/raceways from the sump pump to the existing service subpanel inside the Fire Station building.
- B. Catalog cut sheets.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Electrical material and equipment furnished for the work shall be new. Material and equipment used shall bear the label of Underwriters' Laboratories, Inc. (UL) and be listed by UL in their lists of electrical material where applicable, unless otherwise specified.
- B. Equipment and material furnished by Contractor shall be constructed and tested in accordance with NEMA, IEEE, and ANSI standards, unless otherwise specified.

2.3 SECONDARY WIRES AND CABLES

- A. Wires and Cables: Secondary wires and cables shall be single conductor, rated 600 volts, insulation color-coded, copper, minimum No. 10 AWG, manufactured by American Insulated Wire Corporation, Southwire Company, Rome, General Cable or an approved equivalent.
- B. Cables in high temperature areas shall have insulation type suitable for the temperature. Cables used in spaces for environmental air shall conform with applicable N.E.C. requirements.
- C. All data cables shall be CAT6, plenum rated.
- D. All conduits passing through walls, partitions and ceiling are to be appropriately sleeved and sealed.
- E. Label all junction boxes, outlets, light switches, etc. with circuit number on interior on cover plate. Use self-adhesive "DYMO" label 1/8" high letters.

2.4 CONNECTORS AND SPLICE MATERIALS

- A. Connectors: Connectors shall be Thomas & Betts "Lock-Tite" or 3M Company "Scotch-Lok" insulated type. Thomas & Betts "Aluminum Joint Compound" or Burndy "Penetrox A" shall be used for aluminum connections.
- B. Splice Material: Splices shall be insulated with 3M Company "Scotch" electrical tape with vinyl plastic backing, or rubber tape with protective friction tape. Underground splices shall be encapsulated with 3M Company "Connector Sealing Paks."

2.6 CONDUIT FITTINGS

- A. Metallic fittings shall be the same type as the conduit with which they are used. Full weight threaded couplings and connectors shall be used for rigid aluminum and rigid steel conduits. Running thread shall not be permitted. Union joints where required shall be Erickson (3 piece) couplings.
- B. EMT fittings shall be gland compression type or set screw type, Steel City, Appleton, Crouse-Hinds, or an approved equivalent. EMT indenter type fittings shall not be permitted. Fittings shall provide good mechanical and electrical connection.
- C. Slip-on type fittings for rigid PVC shall be of same material as conduit for use with solvent to weld sections together.

2.7 JUNCTION BOXES

- A. Junction boxes shall be non-concrete boxes with bottoms and covers which meet the Western Underground Committee Guide Specification. Junction boxes and box covers located in the paved streets, driveways or subject to any traffic shall be approved for H-20 Traffic Loading. Weight of cover shall not exceed 160 pounds per section. Cover shall have galvanized coating and penta-head hold-down bolts and be adjustable to grade, as approved by the Bureau of Electricity. Conduit terminations in all junction boxes shall be constructed with end bells and concrete reinforcement on exterior of box before backfill.

PART 3—EXECUTION

3.1 MANUFACTURER'S INSTALLATION DETAILS

- A. Equipment shall be installed in accordance with the manufacturer's installation details or manufacturer's printed instructions when furnished with the equipment. Contractor shall provide manufacturer's accessories and connections necessary to comply with recommendations.

3.2 WORKMANSHIP AND INSTALLATION

- A. Junction boxes, conduit, etc., shall be installed level and plumb in a neat and workmanlike manner.

3.3 EQUIPMENT IDENTIFICATION

- A. A permanent nameplate shall be fastened securely to each piece of equipment, including all panel boards, etc., and shall be engraved with letters 3/16 inches high. Designations shall be the same as used in the drawings. Equipment in finished areas shall be provided with engraved nameplates. Equipment in unfinished areas, including electrical rooms, may be provided with stenciled identification of a permanent nature on exterior of equipment.

3.4 INSERTS, SLEEVES, AND PLATES

- A. Contractor shall lay out work, furnish and set inserts and sleeves. Cost of cutting or patching shall be at Contractor's expense.
- B. Sleeves shall be made of Schedule 40 galvanized steel pipe or Adjust-To-Crete wall cans.
- C. PVC conduit, when routed through footings, shall be properly sleeved to provide an opening which has a uniform 3/4-inch clearance around the outside diameter of the conduit.

3.5 CONDUIT INSTALLATION

- A. Conduit shall be cut squarely with ends reamed to the full diameter. Conduit shall be securely fastened to outlet boxes, cabinets, panel boards, disconnecting switches, etc. In finished areas, conduit shall be concealed in walls, partitions, floors, or ceilings. Exposed conduit shall be parallel to wall and ceiling and shall be hidden behind beams, joists, etc. Open ends of conduit shall be protected from the entry of debris during construction.
- B. Raceways shall be securely fastened to the cabinets, pull-boxes, terminals, etc., with two locknuts, or other approved fittings, and the ends shall be equipped with insulating bushings. EMT fittings shall have insulating bushings as part of the fittings.
- C. Exposed conduit runs shall be installed at right angles or parallel to building lines. Conduits shall be fastened to the building structure by means of malleable iron pipe straps. Plumbers' tape shall not be permitted.

3.6 WIRE AND CABLE INSTALLATION

- A. Wiring shall be installed in conduit or surface metal raceway unless otherwise specified.
- B. Wire and cable shall be hand pulled.
- C. Prior to the pulling of conductors in raceways, the raceways shall be blown out with the use of compressed air at 100 psi minimum pressure.
- D. Splices of No. 8 AWG wire and smaller shall be made with "Scotch-Lock" solderless connectors. Terminations of No. 6 AWG wire and larger shall employ the use of solderless terminal lugs for stranded conductors. Splices shall be wrapped with sufficient tape to equal conductor insulation except where connectors are integral-insulation type. Underground splices shall be encapsulated.

3.7 JUNCTION BOXES

- A. Final junction box locations will be determined in the field. All non-traffic boxes shall clear traffic area by a minimum of two feet.

- B. Each junction box, after installation of the conduits, shall have all openings sealed with Portland cement grout to prevent the entrance of water and sand into the junction box.
- C. The top of junction boxes shall be set level approximately 1-inch above finished grade when located in unpaved areas. Junction boxes located in the sidewalks shall be parallel to the edge of sidewalk, having a minimum of 6" of concrete around the box, and set flush with the top of the sidewalk. Non-concrete junction box shall have a manufactured or poured bottom.
- D. When adjusting a junction box to the grade, an extension ring is always required. When an extension ring smaller than six inches is not available, an extension ring shall be formed from inside of the box, 3/8" rebar installed and concrete poured from outside.
- E. Secondary underground system junction boxes shall be located as shown on the Bureau approved drawings for the project. The junction boxes shall be oriented lengthwise to the direction of the pull unless a right angle direction change is required. The junction box covers section(s) shall have lifting means and shall be marked "AP Electrical" or as per local agency requirements.

3.8 WATERPROOFING

- A. Raceways, sleeves, or accessories piercing waterproof construction or waterproof membranes shall be made watertight.

3.10 GROUNDING

- A. Contractor shall provide grounding for each of the electrical systems and equipment added in the project. Equipment grounding conductor application shall comply with CEC for sizes and quantities of equipment grounding conductors.
- B. Ground connections shall be provided between the ground bus and the water service pipe. Bare copper shall be run in conduit, size as required by code. Connections at water service shall be made to metallic pipe and beyond any dielectric unions.
 - 1. Interior water, air, and gas metallic piping that may become energized shall be bonded together and made electrically continuous.
- C. Connections to ground shall include the following:
 - 1. Metallic conduit.
 - 2. Control cabinets.
- D. Ground connections shall be made with solderless connectors. Make connections in such manner as to minimize possibility of galvanic action or electrolysis. Select connectors, connection hardware, conductors and connection methods so metals in direct contact will be galvanic ally compatible.
- E. Tighten grounding and bonding connectors and terminals, including screws and bolts, in accordance with manufacturer's published torque tightening values for connectors and bolts. Where manufacturer's torque-tightening requirements are not indicated, tighten connections to comply with torque-tightening values specified in UL 486A and UL 486B.
- F. Install an insulated equipment ground conductor in nonmetallic raceways.
- G. Separate derived systems required by CEC shall be grounded.
- H. Route grounding conductors along the shortest and straightest paths possible without obstructing access or placing conductors where they may be subjected to strain, impact or damage.

3.11 TESTS AND ACCEPTANCE

- A. Inspection: Contractor shall not cover his work until it has been inspected and approved by Owner's representative and local authority having jurisdiction. Upon completion of the work, Contractor shall operate and test in the presence of Owner's representative work installed under this Section. Work that fails to operate properly shall be remedied by Contractor at Contractor's expense.

- B. Testing: Contractor shall furnish labor, material, and equipment required for satisfactory completion of testing which includes but not be limited to the following:
 - 1. Test circuits for continuity and short circuits before circuits are energized.
 - 2. Operate breakers in panel boards.

- C. VISUAL AND MECHANICAL INSPECTION
 - 1. Inspect for physical damage and compliance with plans and specification.

END OF SECTION

August 24, 2018
Project No. 403313001

Mr. Vincent Wu
Baseline Designs, Inc.
1700 Oak Street
Alameda, California 94501

Subject: Geotechnical Evaluation
Alameda Fire Station No. 2
635 Pacific Avenue
Alameda, California

Dear Mr. Wu:

In accordance with your request and authorization, we performed a limited geotechnical evaluation for Fire Station No. 2 at 635 Pacific Avenue in Alameda, California (Figure 1). The purpose of our evaluation was to assess the subsurface conditions at the site and to provide recommendations for repair or replacement of the driveway around the fire station. This report presents the findings, conclusions, and recommendations from our evaluation.

SCOPE OF SERVICES

Our scope of services for this evaluation included the following:

- Review previous geotechnical reports for the site vicinity and readily available geologic maps, and aerial photographs.
- Performance of a site reconnaissance to observe the general site conditions, visually evaluate the pavement condition, and to mark exploration locations.
- Coordination with Underground Service Alert to field-mark underground utilities near the exploration locations.
- Subsurface exploration consisting of coring the concrete driveway in four locations and hand-excavating below the slab at the core locations evaluate subsurface conditions on the site and to collect samples for laboratory testing.
- Probing the subgrade at the core locations with a dynamic cone penetrometer to evaluate in-situ subgrade support characteristics.

- Geotechnical laboratory testing on bulk soil samples collected from the excavation to evaluate soil moisture content, grain size distribution, corrosion potential, and R-value.
- Compilation and engineering analysis of the field and laboratory data, and the findings from our background review.
- Preparation of this report presenting the findings and conclusions from our evaluation, and our recommendations for repair or replacement of the driveway around the fire station.

SITE DESCRIPTION AND BACKGROUND

Fire Station No. 2 at 635 Pacific Avenue (Figure 1) is on a rectangular lot that covers approximately 17,000 square feet. The lot is bounded by Pacific Avenue to the south, a parking lot to the east, and residential properties to the north and west (Figure 2). The site and adjacent areas are relatively flat with a ground elevation of approximately 17 feet above mean sea level (Google, 2017).

A single-story building with a footprint area of approximately 6,000 square feet occupies the central portion of the lot. The apparatus bay comprises the western portion of this building with roll-up door access on the northern and southern sides. Two smaller outbuildings occupy the northeastern and northwestern corners of the lot. The northern portion of the lot is paved with concrete. Concrete driveways extend from Pacific Avenue to the roll-up door on the south side of the apparatus bay and to the rear of the building along the eastern and western sides of the central building. Portions of the eastern and western edges of the property are paved with asphalt concrete for parking.

Based on our conversations with Mr. Chris Marks of the Alameda Fire Department during our reconnaissance, we understand that standing water accumulates over portions of the pavement following significant rainstorms and deflection of the pavement surface under vehicular loading has been observed.

SITE RECONNAISSANCE AND OBSERVATIONS

We performed a site reconnaissance on July 12, 2018 to observe the general site conditions and the condition of the driveway pavements around the fire station. Selected photographs from our reconnaissance are provided in Appendix A. During this reconnaissance, we made the following observations:

- Portions of the apparatus bay driveway south of the central building had previously been repaired by reconstruction of several concrete panels and partial replacement with asphalt concrete pavement (Photographs 1 and 2). Severe cracking was present in the older concrete panels adjacent to these repairs (Photographs 1 through 3).

- Cracks were present in the concrete pavements over the northern portion of the site (Photograph 4) and in the concrete driveways along the eastern and western sides of the central building (Photographs 5 through 7).
- Boring B-1 was located in an older, cracked concrete panel on the south apparatus driveway near the asphalt-patched area (Photograph 8).
- Boring B-2 was located in a new concrete panel on the south apparatus driveway near the asphalt-patched area (Photograph 8).
- Boring B-3 was located near a depressed area in the west driveway (Photograph 9).
- Boring B-4 was located in a cracked concrete panel on the east driveway (Photograph 10).

FIELD EXPLORATION

Our subsurface exploration was performed on July 18, 2018, and consisted coring the concrete pavement in four locations and excavating below the slab at the core locations with a hand auger to depths of up to approximately 6.2 feet below the existing grade. The approximate locations of the excavations are illustrated on Figure 2. After coring and prior to excavation, the subgrade was probed with a dynamic cone penetrometer to evaluate the in-situ support characteristics of the subgrade. The results of the dynamic cone penetration testing are presented in Appendix B and the average value of the California Bearing Ratio (CBR) computed from the dynamic cone penetration (DCP) index is presented in Table 1 as an indication of the in-situ subgrade support characteristics at each location. A representative of Ninyo & Moore logged the subsurface conditions exposed in the excavations. Logs documenting the subsurface conditions encountered are presented in Appendix C. Bulk soil samples were collected from the excavations. The soil samples were transported to our laboratory for testing. The excavations were backfilled with soil and concrete after the exploration on July 18, 2018.

GEOLOGIC SETTING AND SUBSURFACE CONDITIONS

The site is located along the eastern margin of San Francisco Bay in the Coast Ranges geomorphic province. The Coast Ranges are comprised of several mountain ranges and structural valleys formed by tectonic processes commonly found around the Circum-Pacific belt. The San Francisco Bay Area has several ranges that trend northwest, parallel to major strike-slip faults such as the San Andreas, Hayward, and Calaveras. Regional geologic mapping (Radbruch, 2007)

indicates that the site is underlain by Merritt Sand described as wind- and water-deposited, beach and near-shore deposits of Pleistocene-aged silty sand and clayey sand.

The exploration for this study encountered silty sand and sandy clay below the concrete pavement. The concrete pavement was between approximately 4 and 6 inches thick at the core locations. Variations in the thickness of the pavement, within and beyond the range observed in our exploration, may be encountered due to past maintenance, utility work, or other factors. Aggregate base was not present below the concrete pavement. The subsurface conditions encountered during the exploration for this study are summarized in Table 1 and are described in more detail on the logs in Appendix C.

Table 1 – Summary of Subsurface Conditions

Location	Concrete Thickness	Aggregate Base Thickness	Subgrade Soil	In-Situ CBR
B-1	5½ inches	Not Present	Silty SAND	7
B-2	6 inches	Not Present	Silty SAND	5
B-3	4 inches	Not Present	Sandy CLAY over Silty SAND	8
B-4	4 inches	Not Present	Silty SAND	6

Groundwater was encountered in Boring B-1 at the bottom of the boring, approximately 6.2 feet below the ground surface, during the subsurface exploration for this study. Regional groundwater records indicate that the historic high groundwater level on the site is between 5 and 10 feet below the ground surface (CGS, 2006). Fluctuations in the groundwater level over time and across the study area may occur due to variations in precipitation, variations in topography or subsurface hydrogeologic conditions, and changes in irrigation practices or pumping. In addition, seeps may be encountered at elevations above the historic high groundwater levels due to perched groundwater conditions, leaking pipes, preferential drainage, or other factors not evident at the time of our exploration.

LABORATORY TESTING

Laboratory testing was performed on soil samples collected from the excavations to evaluate in-situ moisture content, grain size distribution, corrosion potential, and R-value. The result of the in-place moisture test is presented in Appendix C. The results of the other laboratory tests, and a description of the test methods utilized, are presented in Appendix D.

An evaluation of the corrosivity of the on-site materials was conducted to assess the impact to concrete and metals. The corrosion impact was evaluated using the results of limited laboratory testing on samples obtained during our subsurface study. Laboratory testing to quantify pH, electrical resistivity, chloride content, and soluble sulfate content was performed on a sample of the subgrade soil. The results of the corrosivity tests are presented in Appendix D. California Department of Transportation (Caltrans) defines a corrosive environment as an area within 1,000 feet of brackish water or where the soil contains more than 500 parts per million (ppm) of chlorides, sulfates of 0.2 (2,000 ppm) percent or more, or pH of 5.5 or less (Caltrans, 2012). The criteria used to evaluate the deleterious nature of soil on concrete are listed in Table 2. Based on these criteria, the inland location of the site, and the results of our testing, the site does not meet the definition of a corrosive environment, the sulfate exposure to concrete is negligible, and the exposure classification for sulfate is S0. Exposed ferrous metals will undergo corrosion. Recommendations for measures to mitigate the impact of corrosive soil on concrete reinforcement are presented later in this report.

Table 2 – Criteria for Deleterious Soil on Concrete		
Sulfate Content Percent by Weight	Sulfate Exposure	Exposure Class
0.0 to 0.1	Negligible	S0
0.1 to 0.2	Moderate	S1
0.2 to 2.0	Severe	S2
> 2.0	Very Severe	S3

Reference: American Concrete Institute (ACI) Committee 318 Table 19.3.1.1 (ACI, 2016)

CONCLUSIONS

Based on the observed pavement thickness, condition of the pavement, subgrade characteristics, the reported pavement deflection under vehicular loading, and the results of our analysis, we conclude that the existing pavement sections are not appropriate for the current usage. Recommendations for pavement reconstruction are provided.

CONCRETE PAVEMENT RECOMMENDATIONS

Concrete pavement sections based on methodologies developed by the Portland Cement Association (PCA) are presented in Table 3 for reconstructed pavements with a 20-year design

period and appropriate periodic maintenance. Pavement sections were evaluated for a range of loading conditions. The designer may select the pavement section that conforms with the anticipated usage.

Loading Condition^[1]	Equivalent Traffic Index	Design Period	Subgrade Modulus^[2]	Concrete Pavement Section
18-kip single axle – 8 daily	6½	20 years	150 pci	6 inches PCC ^[3] 8 inches AB ^[4]
80-kip apparatus – 1 annual, and 18-kip single axle – 1,100 daily	11½	20 years	150 pci	7 inches PCC ^[3] 8 inches AB ^[4]
80-kip apparatus – 1 weekly, and 18-kip single axle – 1,000 daily	11½	20 years	150 pci	8 inches PCC ^[3] 8 inches AB ^[4]
80-kip apparatus – 10 daily, and 18-kip single axle – 600 daily	11	20 years	150 pci	9 inches PCC ^[3] 8 inches AB ^[4]

¹ Assumes 80-kip apparatus is tiller tractor ladder truck with two 24-kip and one 32-kip single axles.

² Modulus of Subgrade Reaction in pounds per cubic inch (pci).

³ PCC is Portland Cement Concrete complying with Caltrans Standard Specification Section 90 (2015).

⁴ AB is Class II Aggregate Base complying with Caltrans Standard Specification Section 26 (2015). The aggregate base section may be eliminated where the subgrade is treated with cement to a depth of 12 inches per the recommendations in this report.

Appropriate jointing of concrete pavement can reduce the potential for crack development between joints. Joints should be laid out in a consistent square pattern. Contraction, construction, and isolation joints should be detailed and constructed in accordance with the guidelines of the ACI Committee 302 (ACI, 2016). Contraction joints formed by premolded inserts, grooving plastic concrete, or saw-cutting at initial hardening, should extend to a depth equivalent to 25 percent of the slab thickness and 1 inch or more for thin slabs. Contraction joints should be reinforced with smooth dowels placed across the joint at mid-slab height with appropriate concrete cover over reinforcing steel. Contraction joints that are within 30 feet of the pavement edge where the pavement is not laterally restrained by curbs, foundations, driveway aprons, or other pavements, should be reinforced with deformed steel tiebars, instead of dowels, placed across the joint at mid-slab height. Construction joints subject to traffic loading should be reinforced with smooth dowels as for contraction joints. Construction joints within the middle third of the typical joint spacing pattern should be reinforced with tiebars. Recommendations for contraction joint spacing, dowel dimensions, dowel spacing, tiebar dimensions, and tiebar spacing are provided in Table 4. Isolation joints should consist of full-depth premolded joint filler placed where the pavement abuts structures or other fixed objects. At isolation joints where the edge of the pavement will be subjected to traffic

loading, the thickness of the slab should be increased by 20 percent at the edge of the pavement with a 40:1 taper (horizontal to vertical) to the nominal slab thickness.

Table 4 – Concrete Pavement Joints and Reinforcement					
Slab Thickness	Contraction Joint Spacing	Dowels	Tiebars at 10 feet to free edge	Tiebars at 25 feet to free edge	Distributed Steel
6 inches	12 feet or less	¾ x 14 at 12 inches	½ x 24 at 30 inches	½ x 20 at 30 inches	#4 at 18 inches both ways
7 inches	14 feet or less	⅞ x 14 at 12 inches	½ x 24 at 30 inches	½ x 24 at 18 inches	#4 at 18 inches both ways
8 inches	16 feet or less	1 x 14 at 12 inches	½ x 24 at 30 inches	½ x 24 at 16 inches	#5 at 18 inches both ways
9 inches	18 feet or less	1⅛ x 18 at 12 inches	½ x 24 at 30 inches	¾ x 30 at 26 inches	#5 at 18 inches both ways

Notes:

¹ Dowels and Tiebars specified in nominal diameter x length at spacing along joint in inches. The designer may interpolate between the values provide for an intermediate distance to the free edge of pavement.

Distributed reinforcing steel consisting of deformed steel bars may be placed to reduce the potential for differential slab movement, should cracking occur between joints. The spacing between contraction joints may be increased where distributed reinforcing steel is utilized. Pavements reinforced with distributed steel consistent with the recommendations in Table 4, may be designed for a contraction joint spacing of up to 70 feet. Masonry briquettes or plastic chairs should be used to maintain the position of the reinforcement in the upper half of the slab with appropriate concrete cover over the steel. The distributed steel should be terminated about 6 inches from contraction or isolation joints.

The pavement surface should be sloped to provide positive drainage toward area drains, gutters, or other suitable drainage devices. Area drains should be constructed to reduce potential for ponding of water in low areas adjacent to pavements. Roof drainage (from adjacent structures) should be collected and diverted to suitable discharge areas by a tightline system or other non-erodible devices (e.g., gutters, downspouts, concrete swales, etc.). To reduce the potential for subsurface water intrusion into the subgrade and base layer, curbs or similar cutoff devices may be provided. Construction and isolation joints may also include a formed or sawcut reservoir for placement of foam backer rod and recessed, self-leveling silicone sealant to further reduce potential for water intrusion. Periodic maintenance of the pavement should include sealing cracks that develop (⅛ inch wide or wider) and replacement of joint sealant as-needed. Deep curbs that extend 6 inches below the aggregate base section may be used to reduce the potential moisture

intrusion into the aggregate base section adjacent to landscaped areas or the bottom of slopes. Subdrains may be considered as a supplement or alternative means of the mitigating moisture in the aggregate base section. Root barriers adjacent to trees may be considered to reduce the potential for pavement heave from root growth.

EARTHWORK RECOMMENDATIONS

Finish subgrade for pavement should be scarified and moisture conditioned to near and above the optimum moisture content, and compacted to 95 percent of the reference density as evaluated by ASTM D1557. Finish subgrade for pavements subject to vehicular loading should be proof-rolled with a loaded water truck to check for yielding subgrade conditions. Aggregate base for pavement should be placed in lifts of no more than 8 inches in loose thickness, moisture conditioned as-needed to approximately 2 percentage points above the optimum moisture content, and compacted to 95 percent of the reference density as evaluated by ASTM D1557.

Construction should be performed during the period between approximately April 15 and October 15 to avoid the rainy season. In the event that grading is performed during the rainy season, the plans for the project should be supplemented to include a stormwater management plan prepared in accordance with the requirements of the relevant agency having jurisdiction. Rainy weather may impact the stability of excavation subgrade and exposed ground.

Subgrade, if exposed to wet conditions, may be subject to pumping under load. The contractor should be prepared to stabilize subgrade. In general, unstable subgrade conditions may be mitigated by scarification and aeration to dry the soil to the optimum moisture content or treating the soil with quicklime. Alternatively, unstable subgrade may be removed and replaced with aggregate base. Construction of a bridging layer consisting of geotextile or geogrid may be needed to support the aggregate base so that the specified compaction can be achieved. Appropriate mitigation measures will be influenced by the conditions encountered. The geotechnical consultant should be consulted for recommendations to stabilize the site as-needed.

CHEMICAL TREATMENT

The on-site soil may be chemically treated with cement to improve the subgrade support characteristics for pavements to replace the aggregate base section and reduce the quantity of excavation for reconstructed pavements. The cement used for treatment should conform with ASTM standard C150 for Type II/V or Type V cement.

On-site materials containing roots or other organic matter are not suitable for chemical treatment and should be stripped from the area at which the treatment is to be performed. The chemical treatment should be performed by an experienced contractor that specializes in the chemical treatment of soil. The chemical agent should be proportioned and spread with a mechanical spreader and mixed into the soil on a mixing table or in place to produce consistent distribution of the agent within the treated layer. The depth of mixing should not exceed 18 inches per lift or the capacity of the mixer if less. Precautions to reduce the potential for dusting of the chemical agent, such as scheduling or suspending operations to avoid windy weather, should be taken. Casting or tailgating of the chemical agent should not be permitted. The mixer should be equipped with a rotary cutting/mixing assembly, grade checker, and an automatic water distribution system. Mixing or spreading operations should not be performed during inclement weather or when the ambient temperature is less than 35 degrees Fahrenheit or during foggy or rainy weather. Adjacent passes of the mixer should overlap by 4 inches or more.

To improve the subgrade support characteristics, cement should be mixed into the soil at a rate of 6 pounds of cement per square foot for a 12-inch depth of treatment. The moisture content of the soil should not exceed the optimum moisture content of the material, as evaluated by ASTM D1557, when the cement is spread and initially mixed. The subgrade should be mixed and aerated as-needed to reduce the moisture content. If additional water is needed to achieve the optimum moisture, the water should be added during a re-mixing operation after the cement has been initially mixed into the subgrade so as to reduce the potential for the formation of cement balls when water is applied. Mixing and pulverizing should continue until the treated soil does not contain untreated soil clods larger than 1 inch and the quantity of untreated soil clods retained on the No. 4 sieve is less than 40 percent of the dry soil mass. The cement-treated soil should be compacted within 2 hours of initial mixing to achieve 95 percent of the reference density as evaluated by ASTM D1557 on a wet density basis. Vehicular traffic and heavy construction equipment should not be allowed on the treated material for a 1 hour period after compaction. The cement-treated material should be maintained in a moist condition for a 7-day curing period by routinely sprinkling water, covering the treated material with moist straw, or placing fill over the treated subgrade. Treated subgrade for pavements should be proof-rolled with a loaded water truck to check for yielding conditions. Mitigation of yielding areas by pulverizing and re-mixing with additional stabilizing agent should be anticipated.

CONCRETE RECOMMENDATIONS

Concrete for pavement should have a 28-day compressive strength of 5,000 psi or more. Laboratory testing indicated that the concentration of sulfate and corresponding potential for sulfate attack on concrete is negligible for the soil tested. However, due to the variability in the on-site soil and the potential future use of reclaimed water at the site, we recommend that Type II/V or Type V cement be used for concrete structures in contact with soil. In addition, we recommend a water-to-cement ratio of no more than 0.45. A 3-inch thick, or thicker, concrete cover should be maintained for reinforcing steel where concrete is cast against soil in accordance with ACI guidelines. A 1½-inch thick, or thicker, concrete cover should be maintained over reinforcing steel for concrete exposed to weather. Concrete cover should be increased to 2 inches for reinforcing steel with a nominal diameter of ¾ inches or more.

ADDITIONAL RECOMMENDATIONS

The recommendations provided in this report are based on preliminary design information for the proposed construction. We recommend that a copy of the plans be provided to Ninyo & Moore for review before bidding to check the interpretation of our recommendations and that the designed improvements are consistent with our assumptions. It should be noted that, upon review of these documents, some recommendations presented in this report might be revised or modified to meet the project requirements.

The recommendations provided in this report are based on subsurface conditions encountered in discrete excavations. During construction, the geotechnical engineer or his representative in the field should be allowed to check the exposed subsurface conditions. During construction, the geotechnical engineer or his representative should be contacted to:

- Observe preparation and compaction of subgrade.
- Observe chemical treatment of subgrade.
- Observe placement and compaction of aggregate base.
- Perform field density tests to evaluate compaction of subgrade, and aggregate base.

The recommendations provided in this report assume that Ninyo & Moore will be retained as the geotechnical consultant during the construction phase of the project. If another geotechnical consultant is selected, we request that the selected consultant provide a letter to the architect and the owner (with a copy to Ninyo & Moore) indicating that they fully understand Ninyo & Moore's

recommendations, and that they are in full agreement with the recommendations contained in this report.

LIMITATIONS

The field evaluation, laboratory testing, and geotechnical analyses presented in this geotechnical report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request. Please also note that our evaluation was limited to assessment of the geotechnical aspects of the project, and did not include evaluation of structural issues, environmental concerns, or the presence of hazardous materials.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report is intended for design purposes only. It does not provide sufficient data to prepare an accurate bid by contractors. It is suggested that the bidders and their geotechnical consultant perform an independent evaluation of the subsurface conditions in the project areas. The independent evaluations may include, but not be limited to, review of other geotechnical reports prepared for the adjacent areas, site reconnaissance, and additional exploration and laboratory testing.

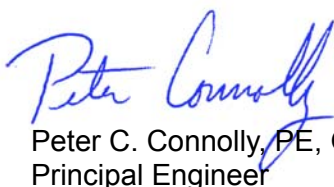
Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. If geotechnical conditions different from those described in this report are encountered, our office should be notified and additional recommendations, if warranted, will be provided upon request. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government

action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

The recommendations provided in this report are not intended to preclude differential movement of foundations, slabs, or pavements. Minor cracking (considered tolerable) may occur. This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

We appreciate the opportunity to be of service.

Sincerely,
NINYO & MOORE


Peter C. Connolly, PE, GE
Principal Engineer



PCC/vmn

Attachments: References
Figure 1 – Site Location
Figure 2 – Site Plan
Appendix A – Photographs
Appendix B – Dynamic Cone Penetration Testing
Appendix C – Boring Logs
Appendix D – Laboratory Testing

Distribution: (1) Addressee (via e-mail)

REFERENCES

American Concrete Institute (ACI), 2016, Manual of Concrete Practice (MCP).

American Society for Testing and Materials (ASTM), 2017, Annual Book of ASTM Standards, West Conshohocken, Pennsylvania.

California Department of Transportation (Caltrans), 2012, Corrosion Guidelines, Version 2.0, Division of Engineering Services, Materials Engineering and Testing Services, Corrosion Technology Branch: dated November.

California Department of Transportation (Caltrans), 2015, Standard Specifications: dated May.

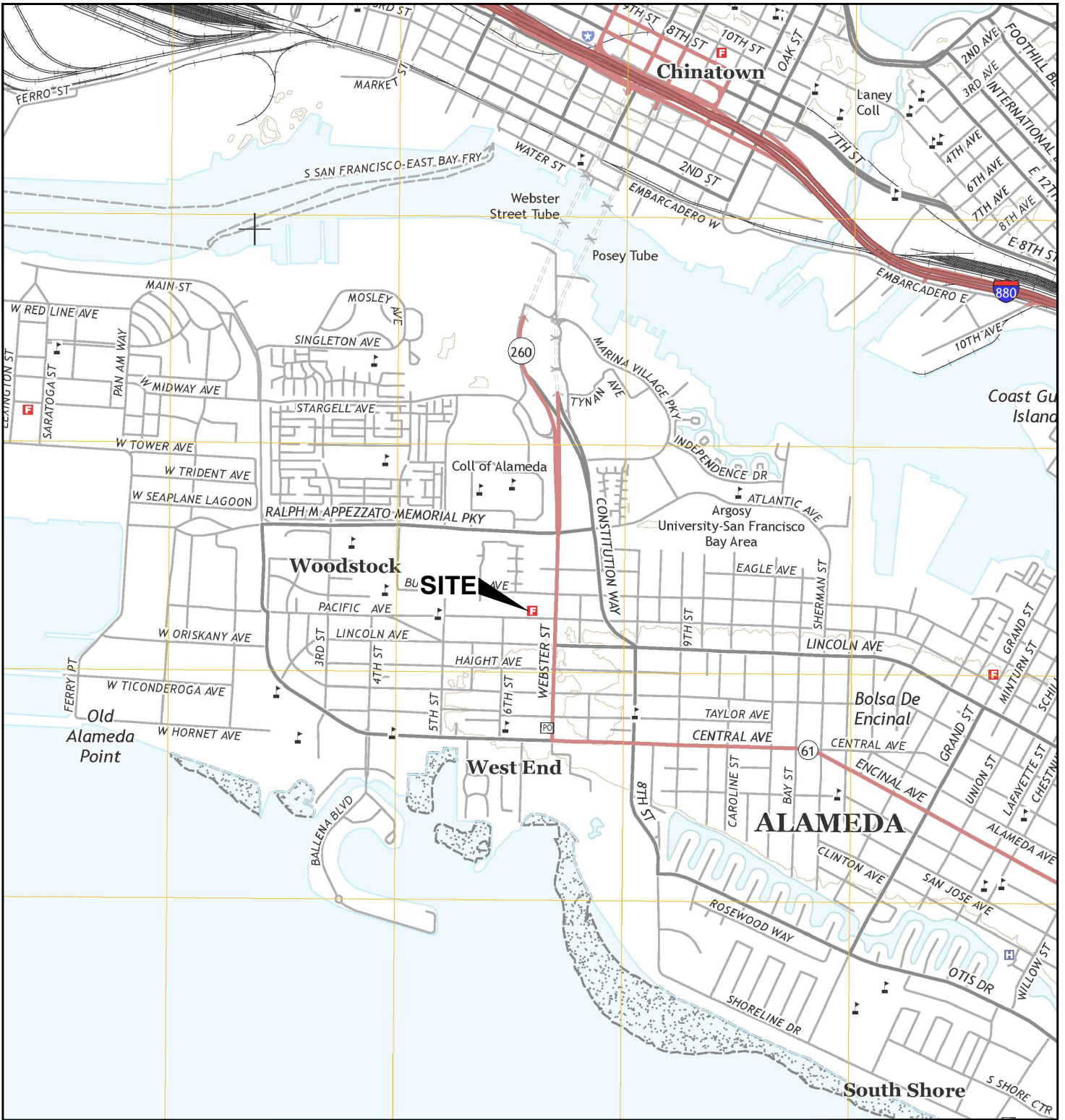
California Geological Survey (CGS), 2003, Seismic Hazard Zone Report for the Oakland West 7.5-Minute Quadrangle, Alameda County, California, Seismic Hazard Zone Report 081.

Google, 2017, Google Earth Pro 7.1.4.1529, <http://earth.google.com/>, Build Date: March 30.

Radbruch, D.H., 1957, Areal and Engineering Geology of the Oakland West Quadrangle, California, United States Geological Survey, Map I-239, Scale 1:24,000.



FIGURES



403313001.dwg 08/08/2018.AEK

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE | REFERENCE: USGS, 2015

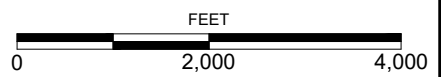
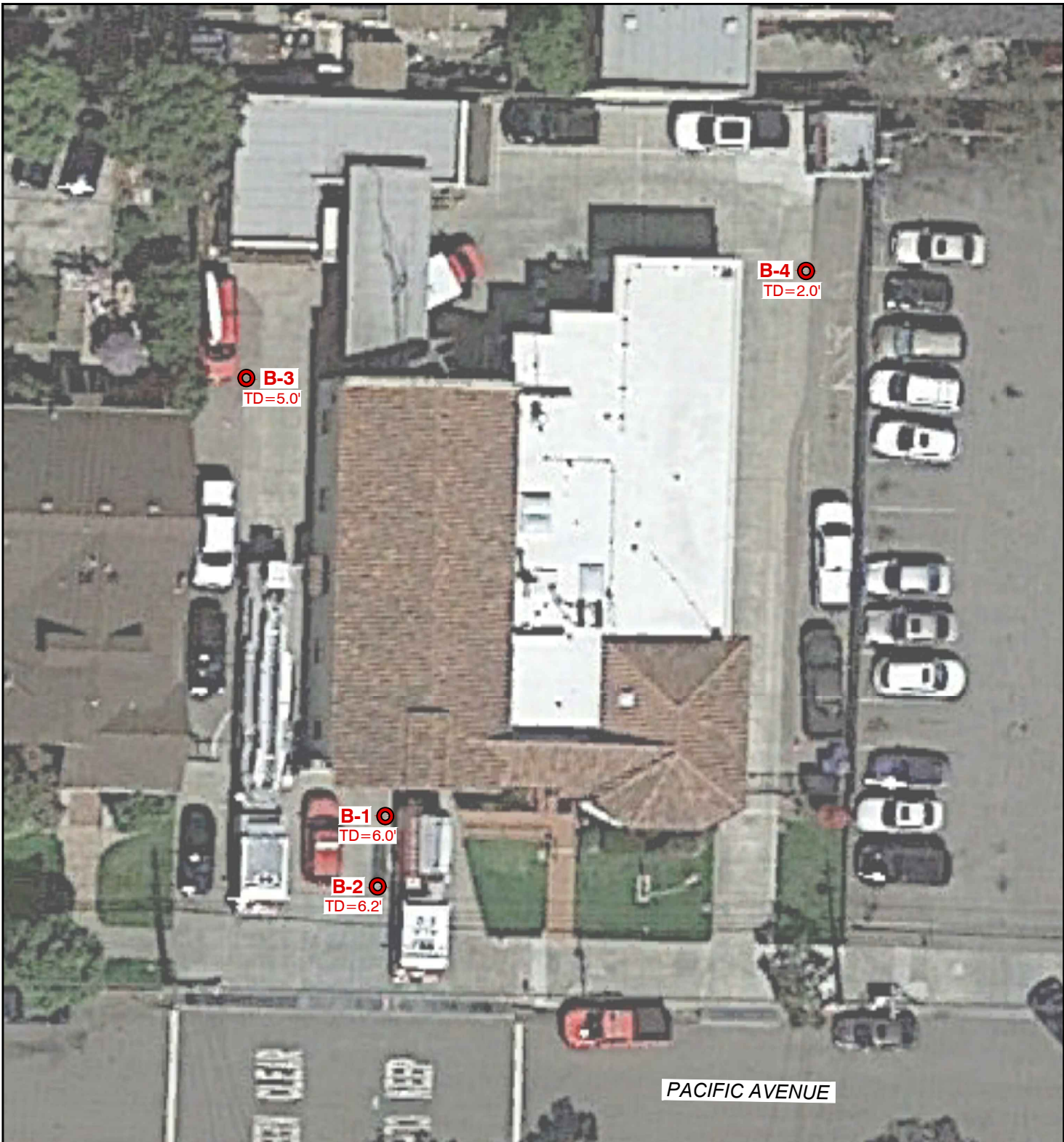



FIGURE 1

SITE LOCATION

ALAMEDA FIRE STATION No. 2
 635 PACIFIC AVENUE
 ALAMEDA, CALIFORNIA
 403313001 | 08/18



LEGEND

B-1  BORING LOCATION
TD=6.0' TD = TOTAL DEPTH, IN FEET

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE | REFERENCE: GOOGLE EARTH, 2018

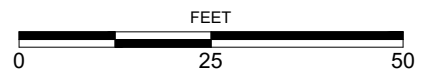


FIGURE 2



APPENDIX A

Photographs



Photograph 1: South apparatus driveway looking west at newer concrete panels and asphalt concrete patch



Photograph 2: South apparatus driveway looking north at newer concrete panels, asphalt concrete patch, and corner breaks in older panels

FIGURE A-1



Photograph 3: South apparatus driveway looking south at newer concrete panels, asphalt concrete patch, and severe cracking in older panels



Photograph 4: Cracked concrete pavement north of central building



Photograph 5: Cracked pavement at south end of west driveway



Photograph 6: Cracked pavement at north end of west driveway

FIGURE A-3



Photograph 7: Cracked pavement at east driveway



Photograph 8: Boring B-1 location in old concrete panel near asphalt patch on south apparatus driveway and Boring B-2 location in newer concrete panel near asphalt patch



Photograph 9: Boring B-3 location near depressed area in west driveway



Photograph 10: Boring B-4 location in cracked panel on east driveway



APPENDIX B

Dynamic Cone Penetration Testing

APPENDIX B

DYNAMIC CONE PENETRATION TESTING

Field Procedure for Dynamic Cone Penetration Testing

A penetrometer with a conical tip having an apex angle of 60 degrees and a cone base diameter of 20 millimeters was driven into the subgrade by dropping a dual-mass, 8-kilogram hammer from a height of 575 millimeters above an anvil connected to the conical tip by means of a drive rod. The cumulative penetration achieved was measured and recorded at intervals of two or more blows. The Dynamic Cone Penetration (DCP) index was calculated as the penetration in millimeters per blow of an 8-kilogram hammer. The California Bearing Ratio (CBR) was estimated from the DCP index using published correlations (Webster et al, 1994) as an indication of the in-situ support characteristics of the subgrade. The penetration testing was performed in general accordance with ASTM D 6951. Tabulated values of cumulative penetration, DCP index, and CBR are presented on the logs in this appendix. Test locations correspond to the boring locations indicated on Figure 2.

PROJECT NAME: Alameda FS 2
 PROJECT #: 403313001

Boring: B-1

Blows	Cumulative Penetration (in)	Penetration Between Readings (in)	Penetration Per Blow (in)	Penetration Per Blow (mm)	Hammer Blow Factor	DCP Index mm/blow	EQN	CBR %
0	0	0	-		-	-		-
6	4.5	4.5	0.750	19.050	1	19.050	1	11
4	6.9	2.4	0.600	15.240	1	15.240	1	14
5	10.9	4	0.800	20.320	1	20.320	1	10
2	13.9	3	1.500	38.100	1	38.100	1	5
3	19.8	5.9	1.967	49.953	1	49.953	1	4
4	28	8.2	2.050	52.070	1	52.070	1	3

weighted average: 7

Boring: B-2

Blows	Cumulative Penetration (in)	Penetration Between Readings (in)	Penetration Per Blow (in)	Penetration Per Blow (mm)	Hammer Blow Factor	DCP Index mm/blow	EQN	CBR %
0	0	0	-		-	-		-
4	6.2	6.2	1.550	39.370	1	39.370	1	5
5	10.4	4.2	0.840	21.336	1	21.336	1	9
5	17.6	7.2	1.440	36.576	1	36.576	1	5
6	27.6	10	1.667	42.333	1	42.333	1	4

weighted average: 5

Boring: B-3

Blows	Cumulative Penetration (in)	Penetration Between Readings (in)	Penetration Per Blow (in)	Penetration Per Blow (mm)	Hammer Blow Factor	DCP Index mm/blow	EQN	CBR %
0	0	0	-		-	-		-
4	7.6	7.6	1.900	48.260	1	48.260	1	4
2	12.6	5	2.500	63.500	1	63.500	1	3
5	15.4	2.8	0.560	14.224	1	14.224	1	15
6	18.7	3.3	0.550	13.970	1	13.970	1	15
6	23.4	4.7	0.783	19.897	1	19.897	1	10

weighted average: 8

Boring: B-4

Blows	Cumulative Penetration (in)	Penetration Between Readings (in)	Penetration Per Blow (in)	Penetration Per Blow (mm)	Hammer Blow Factor	DCP Index mm/blow	EQN	CBR %
0	0	0	-		-	-		-
3	5.6	5.6	1.867	47.413	1	47.413	1	4
7	13.1	7.5	1.071	27.214	1	27.214	1	7
6	20.7	7.6	1.267	32.173	1	32.173	1	6
4	26.9	6.2	1.550	39.370	1	39.370	1	5

weighted average: 6



APPENDIX C

Boring Logs

APPENDIX C

BORING LOGS

Field Procedure for the Collection of Disturbed Samples

Disturbed soil samples were obtained in the field using the following method.

Bulk Sample

Bulk samples of representative earth materials were obtained from the hand auger borings. The samples were bagged and transported to the laboratory for testing.

BORING LOG EXPLANATION SHEET

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	
	Bulk	Driven						
0	■							Bulk sample. Modified split-barrel drive sampler. No recovery with modified split-barrel drive sampler. Sample retained by others. Standard Penetration Test (SPT). No recovery with a SPT. Shelby tube sample. Distance pushed in inches/length of sample recovered in inches. No recovery with Shelby tube sampler. Continuous Push Sample. Seepage. Groundwater encountered during drilling. Groundwater measured after drilling.
5	X		XX/XX					
10	○			○				
15						■	SM	MAJOR MATERIAL TYPE (SOIL): Solid line denotes unit change.
15						- - -	CL	Dashed line denotes material change. Attitudes: Strike/Dip b: Bedding c: Contact j: Joint f: Fracture F: Fault cs: Clay Seam s: Shear bss: Basal Slide Surface sf: Shear Fracture sz: Shear Zone sbs: Shear Bedding Surface
20								The total depth line is a solid line that is drawn at the bottom of the boring.

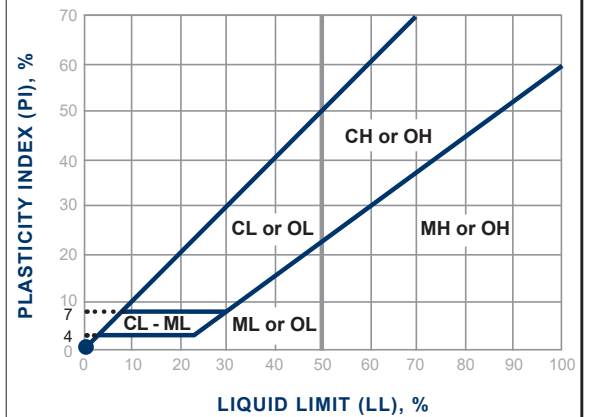
Soil Classification Chart Per ASTM D 2488

Primary Divisions		Secondary Divisions		
		Group Symbol	Group Name	
COARSE-GRAINED SOILS more than 50% retained on No. 200 sieve	GRAVEL more than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVEL less than 5% fines	GW	well-graded GRAVEL
			GP	poorly graded GRAVEL
		GRAVEL with DUAL CLASSIFICATIONS 5% to 12% fines	GW-GM	well-graded GRAVEL with silt
			GP-GM	poorly graded GRAVEL with silt
			GW-GC	well-graded GRAVEL with clay
			GP-GC	poorly graded GRAVEL with
		GRAVEL with FINES more than 12% fines	GM	silty GRAVEL
			GC	clayey GRAVEL
			GC-GM	silty, clayey GRAVEL
	SAND 50% or more of coarse fraction passes No. 4 sieve	CLEAN SAND less than 5% fines	SW	well-graded SAND
			SP	poorly graded SAND
		SAND with DUAL CLASSIFICATIONS 5% to 12% fines	SW-SM	well-graded SAND with silt
			SP-SM	poorly graded SAND with silt
			SW-SC	well-graded SAND with clay
			SP-SC	poorly graded SAND with clay
		SAND with FINES more than 12% fines	SM	silty SAND
			SC	clayey SAND
			SC-SM	silty, clayey SAND
FINE-GRAINED SOILS 50% or more passes No. 200 sieve	SILT and CLAY liquid limit less than 50%	INORGANIC	CL	lean CLAY
			ML	SILT
			CL-ML	silty CLAY
		ORGANIC	OL (PI > 4)	organic CLAY
			OL (PI < 4)	organic SILT
	SILT and CLAY liquid limit 50% or more	INORGANIC	CH	fat CLAY
			MH	elastic SILT
			OH (plots on or above "A"-line)	organic CLAY
		ORGANIC	OH (plots below "A"-line)	organic SILT
Highly Organic Soils		PT	Peat	

Grain Size

Description	Sieve Size	Grain Size	Approximate Size
Boulders	> 12"	> 12"	Larger than basketball-sized
Cobbles	3 - 12"	3 - 12"	Fist-sized to basketball-sized
Gravel	Coarse	3/4 - 3"	Thumb-sized to fist-sized
	Fine	#4 - 3/4"	Pea-sized to thumb-sized
Sand	Coarse	#10 - #4	Rock-salt-sized to pea-sized
	Medium	#40 - #10	Sugar-sized to rock-salt-sized
	Fine	#200 - #40	Flour-sized to sugar-sized
Fines	Passing #200	< 0.0029"	Flour-sized and smaller

Plasticity Chart



Apparent Density - Coarse-Grained Soil

Apparent Density	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Loose	≤ 4	≤ 8	≤ 3	≤ 5
Loose	5 - 10	9 - 21	4 - 7	6 - 14
Medium Dense	11 - 30	22 - 63	8 - 20	15 - 42
Dense	31 - 50	64 - 105	21 - 33	43 - 70
Very Dense	> 50	> 105	> 33	> 70

Consistency - Fine-Grained Soil

Consistency	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Soft	< 2	< 3	< 1	< 2
Soft	2 - 4	3 - 5	1 - 3	2 - 3
Firm	5 - 8	6 - 10	4 - 5	4 - 6
Stiff	9 - 15	11 - 20	6 - 10	7 - 13
Very Stiff	16 - 30	21 - 39	11 - 20	14 - 26
Hard	> 30	> 39	> 20	> 26

DEPTH (feet)	Bulk Samples Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.		
							7/18/2018	B-1		
							GROUND ELEVATION	SHEET	OF	
							18 ± (MSL)	1	1	
							METHOD OF DRILLING			
							3" Hand Auger			
							DRIVE WEIGHT	N/A	DROP	N/A
							SAMPLED BY			
							GL	LOGGED BY	GL	REVIEWED BY
							PCC			
							DESCRIPTION/INTERPRETATION			
0						SM	<p>CONCRETE: Approximately 5.5 inches thick.</p> <p>MERRITT SAND: Yellowish brown to dark brown, moist, medium dense, silty SAND.</p>			
5							<p>Total Depth = 6 feet.</p> <p>Backfilled with soil and concrete on 07/18/2018.</p> <p><u>Notes:</u> Groundwater was not encountered during excavation. Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>			
10										
15										
20										

FIGURE C- 1

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>7/18/2018</u> BORING NO. <u>B-2</u>	
	Bulk	Driven						GROUND ELEVATION <u>17 ± (MSL)</u>	SHEET <u>1</u> OF <u>1</u>
								METHOD OF DRILLING <u>3" Hand Auger</u>	
								DRIVE WEIGHT <u>N/A</u> DROP <u>N/A</u>	
								SAMPLED BY <u>GL</u> LOGGED BY <u>GL</u> REVIEWED BY <u>PCC</u>	
DESCRIPTION/INTERPRETATION									
0							SM	<p>CONCRETE: Approximately 6 inches thick.</p> <p>MERRITT SAND: Yellowish brown to dark brown, moist, medium dense, silty SAND.</p>	
5				9.2					
10									<p>Total Depth = 6.25 feet.</p> <p>Backfilled with soil and concrete on 07/18/2018.</p> <p>Notes: Groundwater was encountered during excavation at a depth of approximately 6.2 feet below the ground surface. Groundwater may rise to a level higher than that encountered in the excavation due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>
15									
20									

FIGURE C- 2

DEPTH (feet)	Bulk Samples Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
							7/18/2018	B-3				
							GROUND ELEVATION	SHEET	OF			
							17 ± (MSL)	1	1			
							METHOD OF DRILLING	3" Hand Auger				
							DRIVE WEIGHT	N/A	DROP	N/A		
							SAMPLED BY	GL	LOGGED BY	GL	REVIEWED BY	PCC
							DESCRIPTION/INTERPRETATION					
0						CL	CONCRETE: Approximately 4 inches thick.					
						SM	MERRITT SAND: Dark brown, moist, firm, sandy lean CLAY. Dark brown, moist, medium dense, silty SAND.					
5							Total Depth = 5 feet.					
							Backfilled with soil and concrete on 07/18/2018.					
							<u>Notes:</u> Groundwater was not encountered during excavation. Groundwater may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.					
10												
15												
20												

FIGURE C- 3

DEPTH (feet)	Bulk Driven	SAMPLES	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
								7/18/2018	B-4				
								GROUND ELEVATION	SHEET	OF			
								17 ± (MSL)	1	1			
								METHOD OF DRILLING	3" Hand Auger				
								DRIVE WEIGHT	N/A	DROP	N/A		
								SAMPLED BY	GL	LOGGED BY	GL	REVIEWED BY	PCC
DESCRIPTION/INTERPRETATION													
0							SM	<p>CONCRETE: Approximately 4 inches thick.</p> <p>MERRITT SAND: Dark brown, moist, medium dense, silty SAND.</p>					
								<p>Total Depth = 2 feet. Backfilled with soil and concrete on 07/18/2018.</p> <p><u>Notes:</u> Groundwater was not encountered in borehole during excavation. Groundwater may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>					
5													
10													
15													
20													

FIGURE C- 4



APPENDIX D

Laboratory Testing

APPENDIX D

LABORATORY TESTING

Classification

Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488-00. Soil classifications are indicated on the logs of the exploratory borings in Appendix C.

Moisture Content

The moisture content of a sample obtained from the exploratory borings was evaluated in accordance with ASTM D 2216. The test results are presented on the boring logs in Appendix C.

Gradation Analysis

A gradation analysis test was performed on a selected representative soil sample in general accordance with ASTM D 422. The grain-size distribution curve is shown on Figure D-1. This test result was utilized in evaluating the soil classifications in accordance with the Unified Soil Classification System (USCS).

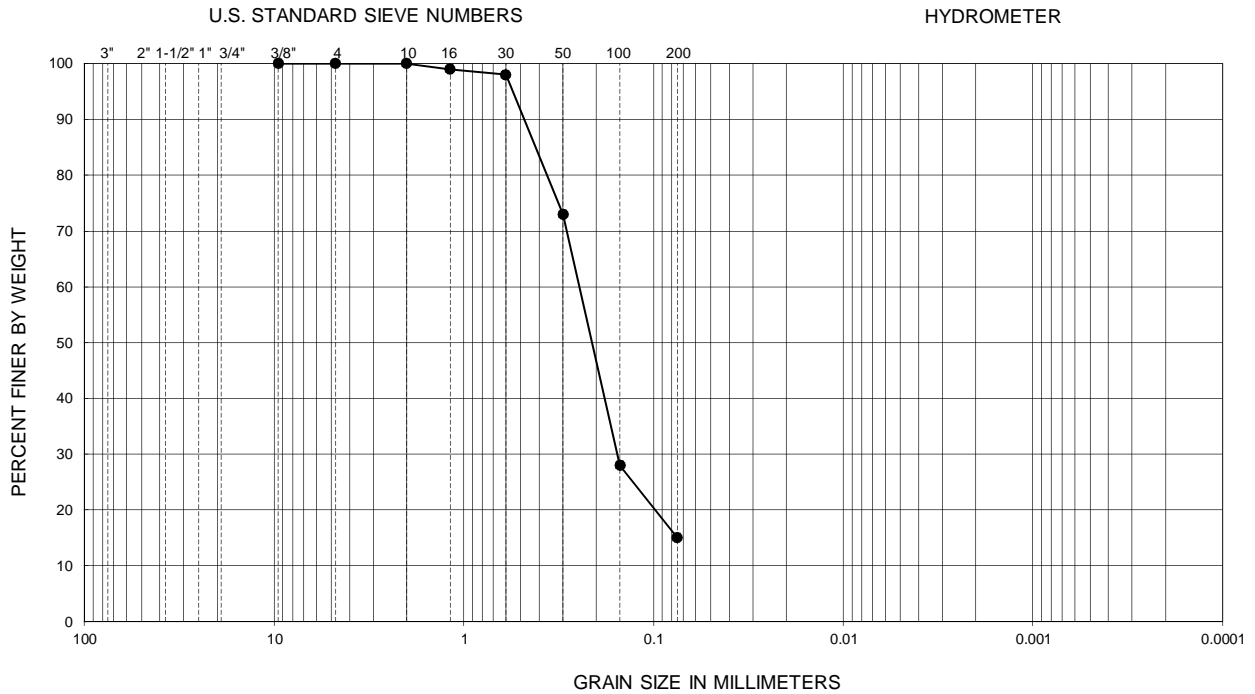
Soil Corrosivity Tests

Soil pH, and resistivity tests were performed on a representative sample in general accordance with California Test (CT) 643. The soluble sulfate and chloride contents of the selected sample were evaluated in general accordance with CT 417 and CT 422, respectively. The test results are presented on Figure D-2.

R-Value

The resistance value, or R-value, for site soil was evaluated in general accordance with California Test (CT) 301. Specimens were prepared and evaluated for exudation pressure and expansion pressure. The equilibrium R-value is reported as the lesser or more conservative of the two calculated results. The test result is shown on Figure D-3.

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (percent)	USCS
●	B-2	0.5-6.2	--	--	--	--	--	--	--	--	15	SM

PERFORMED IN ACCORDANCE WITH ASTM D 422/D 6913

FIGURE D-1

SAMPLE LOCATION	SAMPLE DEPTH (ft)	pH ¹	RESISTIVITY ¹ (ohm-cm)	SULFATE CONTENT ²		CHLORIDE CONTENT ³ (ppm)
				(ppm)	(%)	
B-2	0.5-6.2	9.1	11,400	10	0.001	5

¹ PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643

² PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417

³ PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422

FIGURE D-2

SAMPLE LOCATION	SAMPLE DEPTH (ft)	SOIL TYPE	R-VALUE
B-2	0.5 - 6.2	Silty SAND (SM)	65

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2844/CT 301

FIGURE D-3

April 15, 2020
Project No. 403313001

Mr. Vincent Wu
Baseline Designs, Inc.
1700 Oak Street
Alameda, California 94501

Subject: Supplemental Geotechnical Recommendations
Alameda Fire Station No. 2
635 Pacific Avenue
Alameda, California

Reference: Ninyo & Moore, 2018, Geotechnical Evaluation, Alameda Fire Station No. 2
635 Pacific Avenue, Alameda, California
Project No. 403313001, Dated August 24

Dear Mr. Wu:

In accordance with your request and authorization, we have prepared this letter with supplemental recommendations for asphalt concrete pavement sections to replace existing concrete pavements behind Fire Station No. 2 at 635 Pacific Avenue in Alameda, California. Ninyo & Moore previously performed a geotechnical evaluation (referenced) to assess subsurface conditions at the site and provide recommendations for concrete pavement sections to replace the driveway around the fire station.

Alternative recommendations for asphalt concrete pavement sections are presented in Table 1. Laboratory R-value testing conducted during our previous evaluation on a sample of near surface soil indicated that the R-value of the sample tested was 65. A design R-value of 50 was selected to account for potential variability in subgrade support characteristics. Subgrade support characteristics should be further evaluated after demolition and rough grading. A reduction in the design R-value may be appropriate based on the observed condition of the exposed subgrade. The pavement sections were designed for the service life listed in the table presuming that periodic maintenance, including crack sealing and resurfacing will be performed during the service life of the pavement. Premature deterioration may occur without periodic maintenance. Pavement sections were evaluated for a range of traffic indexes or loading conditions. We understand that the pavement at the rear of the fire station will be exposed to traffic from a 5-ton ambulance and will be used for personal vehicle parking. The designer may interpolate between the values provided once a traffic index or loading condition has been selected.

Table 1 – Asphalt Concrete Pavement Structural Sections

Loading Condition	Traffic Index	Service Life	Alternative 1	Alternative 2
17 daily 5-ton Ambulance	6.5	20 years	6½ inches AC ^[1]	4 inches AC 4 inches AB ^[2]
17 daily 5-ton Ambulance	6.5	5 years	5 inches AC	3 inches AC 6 inches AB
9 daily 5-ton Ambulance	6	20 years	5½ inches AC	3½ inches AC 4 inches AB
1 daily 5-ton Ambulance Personal Vehicle Drive Aisles	5	20 years	4½ inches AC	3 inches AC 4 inches AB
Personal Vehicle Parking	4	20 years	4 inches AC	2½ inches AC 4 inches AB


1 AC is Type A, Dense-Graded Hot Mix Asphalt complying with Caltrans Standard Specification 39-2 (2015).

2 AB is Class II Aggregate Base complying with Caltrans Standard Specification 26-1.02 (2015).

Finish subgrade for pavement should be scarified and moisture conditioned to near and above the optimum moisture content, and compacted to 95 percent of the reference density as evaluated by American Society for Testing and Materials (ASTM) standard D1557. Finish subgrade for pavements subject to vehicular loading should be proof-rolled with a loaded water truck to check for yielding subgrade conditions. Aggregate base for pavement should be placed in lifts of no more than 8 inches in loose thickness, moisture conditioned as-needed to approximately 2 percentage points above the optimum moisture content, and compacted to 95 percent of the reference density as evaluated by ASTM D1557. Asphalt concrete should be placed in lifts no more than 4 inches thick and compacted to 91 percent of the referenced density as evaluated by ASTM D2041. Ninyo & Moore should be retained to observe and evaluate pavement subgrade, observe aggregate base placement and paving, and perform field density testing for subgrade, aggregate base, and asphalt concrete.

We appreciate the opportunity to be of continued service.

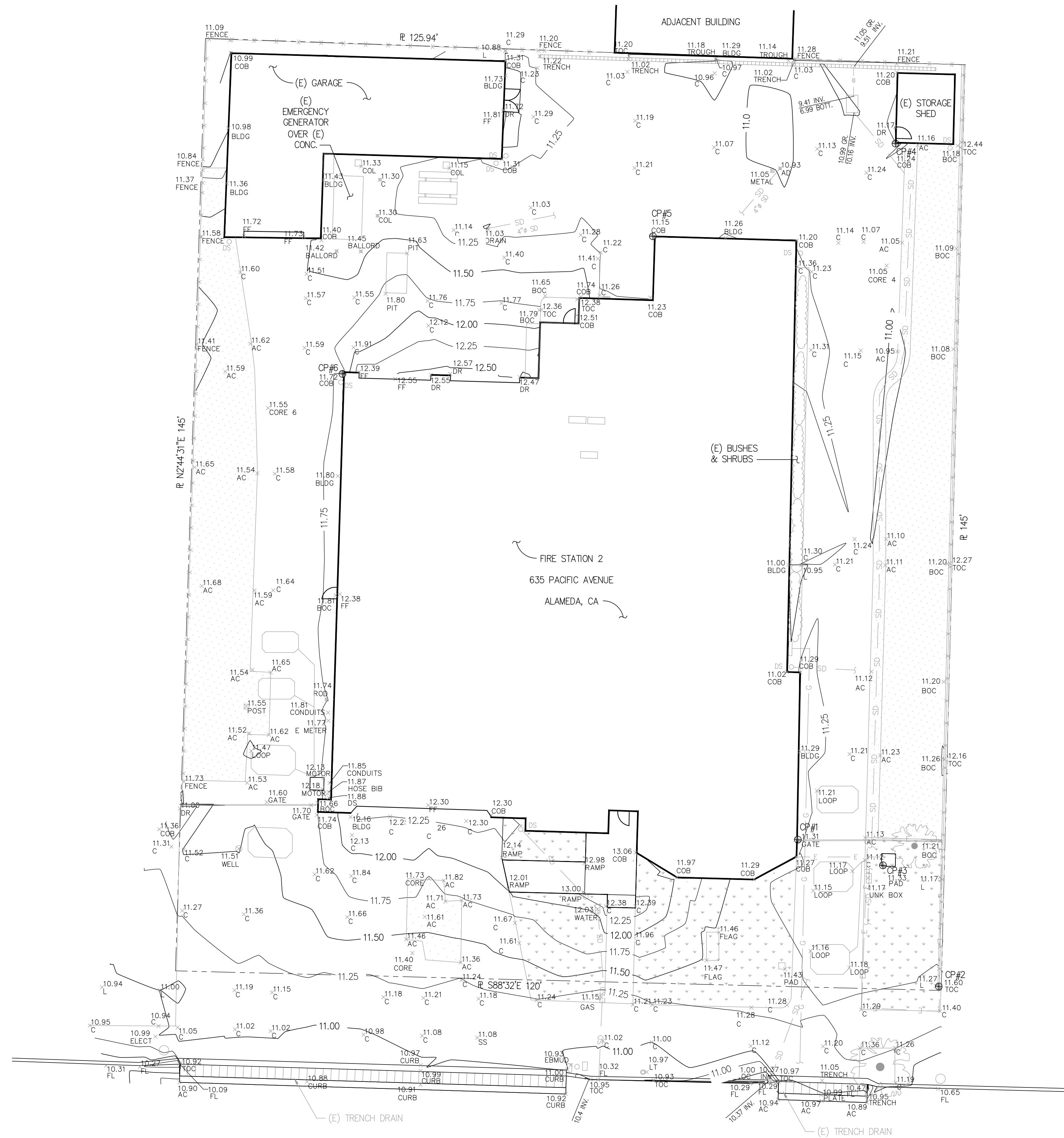
Sincerely,
NINYO & MOORE


Peter C. Connolly, PE, GE
Principal Engineer



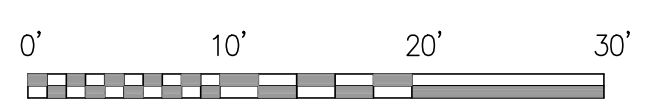
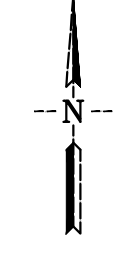
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SITE PLAN - TOPOGRAPHIC SURVEY

SCALE 1" = 10'-0"



LEGEND

— R —	PROPERTY LINE
— X —	FENCE
— G —	GAS LINE
— SD —	STORM DRAIN LINE
⊠	AREA DRAIN/CATCH BASIN
○	BOLLARD/COLUMN
X 10.45	SPOT ELEVATION
10.00	CONTOUR LINE
▬▬▬▬	TRENCH DRAIN
▨	ASPHALT
▩	LAWN
○ MH	MANHOLE
◻ WM	WATER METER
○ WV	WATER VALVE
○ U	UNKNOWN COVER
SSMH ⊗	SANITARY SEWER MANHOLE
DS ○	DOWNSPOUT
CO ○	CLEANOUT
LT ○	BOLLARD W/ LIGHT
FDC ○	FIRE DEPARTMENT CONNECTION
MW ○	MONITORING WELL
CP ⊕	CONTROL POINT

ABBREVIATIONS:

@	AT
#	NUMBER
%	PERCENT
±	PLUS OR MINUS
AC	ASPHALTIC CONCRETE
BLDG	BUILDING
BOC	BOTTOM OF CURB
C	CURB
C.B.	CATCH BASIN
CO	CLEANOUT
COB	CORNER OF BUILDING
COL	STEEL COLUMN
CONC	CONCRETE
CL OR C	CENTER LINE
CLR.	CLEAR
EA.	EACH
EL.	ELEVATION
E or ELEC	ELECTRIC/ELECTRICAL
F.H.	FIRE HYDRANT
FL.	FLOWLINE
FTG	FOOTING
G	GAS
GR.	GRADE
HB	HOSE BIB
INV.	INVERT ELEVATION
LT	LIGHT
MAX.	MAXIMUM
MH.	MANHOLE
MIN.	MINIMUM
O.C.	ON CENTER
P	PAVEMENT
PT.	POINT
REQ'D	REQUIRED
RD	ROAD
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SDCC	STORM DRAIN CLEANOUT
SQ.	SQUARE
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
SSCO.	SANITARY SEWER CLEANOUT
TC	TOP OF CURB
TEL	TELEPHONE/TELECOMMUNICATION
T.O.C.	TOP OF CONCRETE
TYP.	TYPICAL
WVB	WATER VALVE BOX

NOTES:

- THE SITE SURVEY ON THIS DRAWING IS BASED ON MONUMENT RECORD OF CALIFORNIA COORDINATE SYSTEM MONUMENT RECORD, STATION "WEB PAC - USC&GS - 1947" YEAR RECOVERED 1963, WHICH IS LOCATED ON SIDEWALK AT INTERSECTION OF PACIFIC AVE AND WEBSTER STREET. THE MONUMENT IS EQUIVALENT TO CITY OF ALAMEDA SURVEY DATUM ELEVATION 10.672. THIS MONUMENT IS NOT SHOWN ON THE PLAN. TEMPORARY BENCHMARKS LISTED BELOW AND LOCATION AS MARKED IN PLAN CAN BE USED AS CONTROL POINTS:

CONTROL POINTS:	CP#	NORTHING	EASTING	ELEV	DESCRIPTION
CP#1	46.1428'	-81.5985'	11.31'	CORNER OF BUILDING, TOP OF CONCRETE PAVING BY GATE POST.	
CP#2	23.1835'	-59.5178"	11.60'	END OF CONCRETE RETAINING WALL/CURB WALL, TOP OF WALL.	
CP#3	42.1401'	-68.2652'	11.33'	GATE OPENER MOTOR PAD, TOP OF CONCRETE PAD.	
CP#4	155.1637'	-66.3009'	11.24'	CORNER OF STORAGE SHED, TOP OF CONCRETE PAVING.	
CP#5	140.6672'	-104.2746'	11.15'	CORNER OF BUILDING, TOP OF CONCRETE PAVING	
CP#6	119.1310'	-152.9405'	11.72'	CORNER OF BUILDING, TOP OF CONCRETE PAVING	
- CONTRACTOR SHALL FIELD VERIFY THE EXISTING SITE CONDITION AND ABOVE ALL UTILITIES PRIOR TO CONSTRUCTION.
- ALL ELEVATIONS SHOWN HEREON ARE IN FEET AND DECIMALS THEREOF.

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NAME OF PROJECT

**FIRE STATION #2
PAVEMENT
REPLACEMENT
AT
635 PACIFIC AVENUE
ALAMEDA, CA**

CLIENT
PUBLIC WORKS DEPARTMENT
CITY OF ALAMEDA

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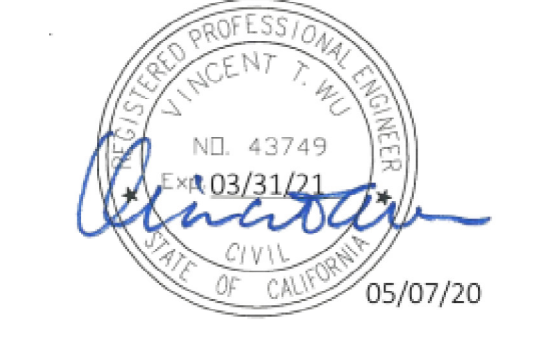
PROJECT No. : 180633

DRAWN BY : SW

CHECK BY : VTW

DATE : 05-07-2020

SCALE : AS SHOWN

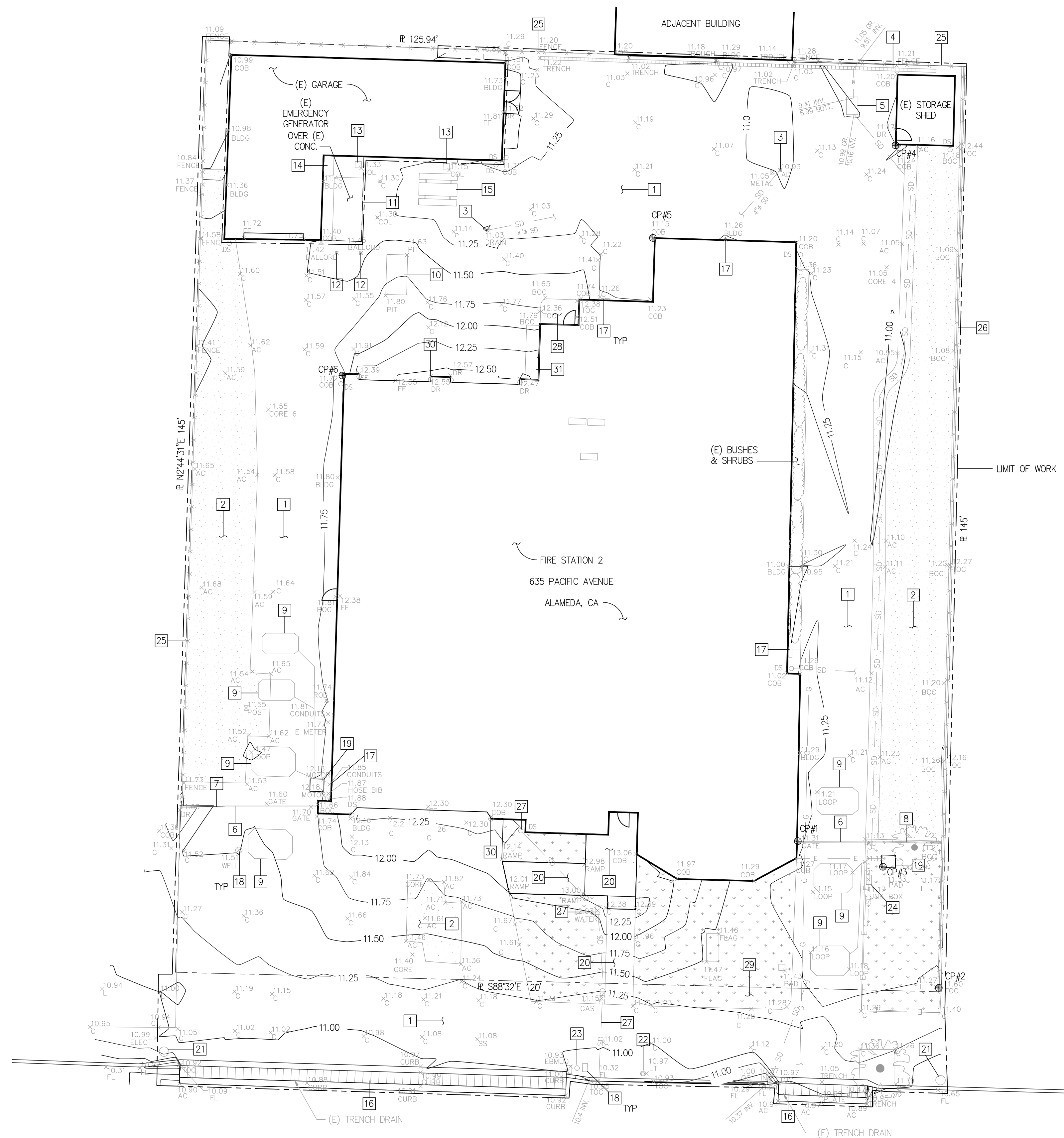


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**SITE PLAN -
TOPOGRAPHIC
SURVEY**

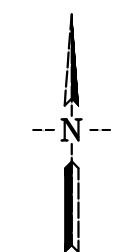
DRAWING No.

C2.1



SITE PLAN - DEMOLITION

SCALE 1" = 10'-0"



DEMOLITION NOTES:

- A. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING SITE CONDITIONS, UNDERGROUND AND ABOVE-GROUND UTILITIES PRIOR TO BEGINNING WORK. HAND DIG/TRENCH UTILITY LINE AS NEEDED TO VERIFY DEPTH AND CONDITION. HAND EXCAVATE AREAS NEAR UTILITY LINES TO AVOID DAMAGE. NOT ALL UNDERGROUND UTILITIES ARE SHOWN ON THE DRAWINGS. CONTRACTOR SHALL NOTIFY THE OWNER REPRESENTATIVE IMMEDIATELY FOR ANY DISCREPANCY BETWEEN FIELD CONDITION AND DRAWINGS FOR DECISION OF WORK AFFECTED.
- B. CONTRACTOR SHALL REVIEW AND BE FAMILIAR WITH THE SITE PRIOR TO BEGINNING WORK. CONTRACTOR SHALL REPAIR IN KIND ANY DAMAGE TO THE EXISTING STRUCTURE & OTHER ITEMS NOT TO BE REMOVED.
- B. PROTECT ALL EXISTING UTILITY LINES THAT ARE EITHER SHOWN OR NOT SPECIFIED IN THE PLAN INCLUDE, BUT ARE NOT LIMITED TO: WATER, ELECTRICAL, SEWER, STORM COMMUNICATIONS, AND ETC.
- D. CONTRACTOR SHALL NOTIFY THE CITY REPRESENTATIVE AND THE UTILITY AGENCIES HAVING JURISDICTION OF THE UTILITY LINES AT LEAST FIVE WORKING DAYS PRIOR TO BEGINNING WORK TO COORDINATE DISCONNECTION OF THE UTILITY LINE(S) AS REQUIRED.
- E. THE SECURITY OF THE CONSTRUCTION SITE IS THE RESPONSIBILITY OF THE CONTRACTOR. PROVIDE TEMPORARY FENCING AND GATE AS NEEDED. GATES SHALL BE KEPT LOCKED AFTER WORK HOURS.
- F. (N) PAVING FLAT WORK FINISH TO MATCH ADJACENT (E) FINISH
- G. CONTRACTOR IS RESPONSIBLE FOR CONTACTING USA NORTH 811 TWO DAYS PRIOR TO START OF WORKING.
- H. ITEMS TO BE SALVAGED SHALL BE STORED AT A SAFE LOCATION ON OR OFF SITE AT THE OPTION OF CONTRACTOR. SALVAGE ITEMS DAMAGED SHALL BE REPAIRED OR REPLACED IN KIND.
- I. ALL DEMOLISHED AND REMOVED ITEMS NOT SALVAGED OR REUSED SHALL BE PROPERLY DISPOSED OFF SITE.

SHEET NOTES:

- 1 REMOVE AND DISPOSE OFF SITE (E) CONCRETE PAVEMENT, AGGREGATE BASE AND SUBGRADE AS REQ'D TO DESIGNATED DEPTH AS REQ'D. EXCAVATE AND REGRADE THE YARD AS REQUIRED FOR (N) PAVING. SEE DRAWING C2.3 FOR PAVING AREA DESIGNATION, PAVEMENT SECTION THICKNESSES AND PAVING SEQUENCE.
- 2 REMOVE & DISPOSE OFF SITE (E) AC & AGGREGATE BASE SUBBASE OR SUBGRADE. EXCAVATE AND REGRADE THE AREA WITHIN THE LIMIT OF WORK AS REQUIRED FOR (N) PAVING.
- 3 REMOVE & DISPOSE OFF SITE (E) AREA DRAIN, TOTAL OF 2. CUT (E) LINE BACK TO BUILDING AND CAP/PLUG IF LINE IS ABANDONED.
- 4 REMOVE & DISPOSE OFF SITE (E) TRENCH DRAIN.
- 5 REMOVE & DISPOSE OFF SITE (E) SUMP PIT AND SUMP PUMP. PROPERLY DISCONNECT, TERMINATE & CAP (E) ELECTRICAL LINE WHERE IN STORAGE SHED.
- 6 TEMPORARY DISASSEMBLY AND REMOVE (E) AUTOMATIC GATES FOR (N) PAVING WORK, TOTAL OF 2. STORE AND PROTECT GATES OFF SITE DURING CONSTRUCTION. RE-INSTALL GATES AFTER (N) CONCRETE PAVING IS PLACED & CURED. PROTECT (E) GATE POSTS & THEIR FOOTINGS THAT ARE TO BE LEFT IN PLACE AND PROVIDE (N) GATES AND POSTS TO MATCH (E) IF DAMAGED DUE TO CONSTRUCTION.
- 7 TEMPORARY DISASSEMBLY AND REMOVE (E) MANGATE FOR (N) PAVING WORK. STORE AND PROTECT GATES OFF-SITE DURING CONSTRUCTION. RE-INSTALL AFTER (N) CONCRETE PAVING IS PLACED & CURED. PROTECT GATE POSTS THAT ARE LEFT IN PLACE, PROVIDE (N) POST TO MATCH EXISTING IF DAMAGED DUE TO CONSTRUCTION.
- 8 PROTECT (E) STEEL POSTS AND FENCE IN PLACE DURING CONSTRUCTION. REPAIR OR REPLACE TO MATCH (E) IF DAMAGED DUE TO CONSTRUCTION.
- 9 REMOVE & DISPOSE OFFSITE (E) DETECTIVE LOOPS, TOTAL OF 7.
- 10 REMOVE & DISPOSE OFFSITE TOP SECTION OF (E) UNDERGROUND PIT TO REQUIRED DEPTH FOR (N) PAVING WORK AS REQUIRED. BACK FILL EXCAVATION W/ ENGINEERED FILL AND COMPACT PER GEOTECHNICAL REPORT.
- 11 (E) TRANSFORMER AND SLAB TO REMAIN. PROTECT (E) TRANSFORMER ON SITE DURING CONSTRUCTION. SAW CUT (E) CONCRETE SLAB 4" FROM THE TRANSFORMER & ITS ANCHOR BOLTS TO REMOVE (E) CONCRETE IN DRIVEWAY AREA. SAW CUT LINE IN (E) CONCRETE SLAB SHALL BE NEAT AND STRAIGHT EDGE.
- 12 PROTECT (E) BALLARD AND ITS EMBEDDED SLEEVE, TOTAL OF 2. REPLACE SLEEVES AS REQ'D.
- 13 PROTECT (E) STEEL COLUMN AND ITS BASE AND FOOTING, TOTAL OF 2.
- 14 PROTECT (E) STORAGE SHED FOR (N) WORK.
- 15 REMOVE & STORE (E) PICNIC TABLES FOR (N) PAVING.
- 16 PROTECT (E) TRENCH PLATES AND CONC. RESTRAINERS FOR (N) PAVING.
- 17 PROTECT (E) ALL UTILITIES STUB UP, GAS METER, ELECTRICAL METER AND HOSE BID AROUND BUILDING.
- 18 ADJUST (E) UTILITIES BOX AND VALVE LIDS FOR (N) GRADE. ADJUST GRADE RING AND REPLACE (E) LIDS FOR HS-20 TRAFFIC RATED COVER AS REQ'D FOR ENTIRE SITE, TOTAL OF 10, U.O.N.
- 19 PROTECT (E) MOTOR AND ITS' CONCRETE SEAT ON SITE, TOTAL OF 2.
- 20 (E) CONCRETE RAMP, CONCRETE LANDING AND CONCRETE PATH TO REMAIN. REPAIR AND PATCH TO MATCH (E) IF DAMAGED DUE TO CONSTRUCTION.
- 21 (E) POWER POLE TO REMAIN, TOTAL OF 2.
- 22 (E) STREET LIGHT TO REMAIN.
- 23 (E) PIV OR CONTROL VALVE TO REMAIN.
- 24 REMOVE & DISPOSE OFF (E) UTILITY BOX, SWITCH VALVE AND STORM DRAIN PIPING.
- 25 (E) WOOD FENCE AND POST TO REMAIN.
- 26 (E) CONCRETE RETAINING WALL AND CHAINLINK FENCE TO REMAIN.
- 27 (E) DOWNSPOUT, DRAIN BOX AND UNDERGROUND DRAINAGE TO REMAIN. PROVIDE (N) STORM DRAIN TO MATCH (E) IF DAMAGED DUE TO CONSTRUCTION.
- 28 REMOVE (E) CONC. LANDING FOR NEW LANDING. DO NOT DAMAGE (E) DOOR & TRIM.
- 29 REMOVE LAWN AS REQUIRED FOR NEW WORK & RE-SOD.
- 30 PROTECT (E) STEEL CONE ON WALL, TYP OF 6 LOCATIONS.
- 31 REMOVE OUTDOOR SINK, EQUIPMENT & DISCONNECT WATER LINE FOR NEW PAVING WORK. REINSTALL AFTER NEW PAVING WORK IS COMPLETE.

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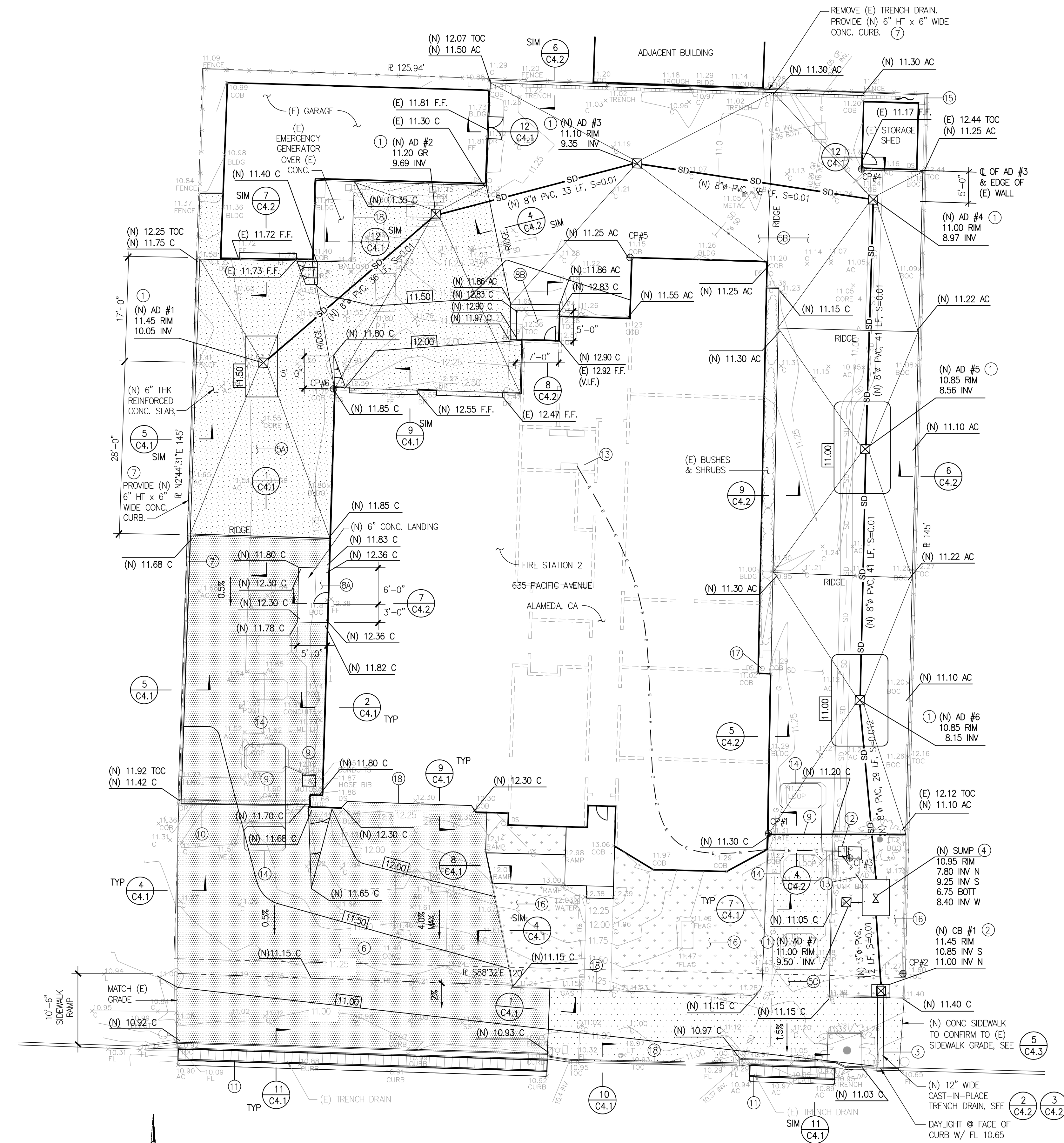


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SITE PLAN -
DEMOLITION

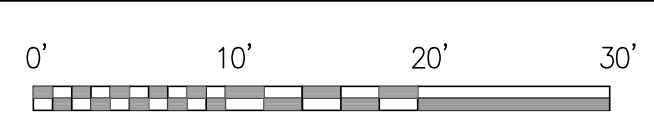
DRAWING No.

C2.2



SITE PLAN - (N) GRADING & DRAINAGE

SCALE 1" = 10'-0"



GENERAL NOTES:

- A. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING SITE CONDITIONS, UNDERGROUND AND ABOVE-GROUND UTILITIES PRIOR TO BEGINNING WORK. HAND DIG/TRENCH UTILITY LINE AS NEEDED TO VERIFY DEPTH AND CONDITION. HAND EXCAVATE AREAS NEAR UTILITY LINES TO AVOID DAMAGE. NOT ALL UNDERGROUND UTILITIES ARE SHOWN ON THE DRAWINGS. CONTRACTOR SHALL NOTIFY THE OWNER REPRESENTATIVE IMMEDIATELY FOR ANY DISCREPANCY BETWEEN FIELD CONDITION AND DRAWINGS FOR DECISION OF WORK AFFECTED.
- B. CONTRACTOR SHALL REVIEW AND BE FAMILIAR WITH THE SITE AND SUBMIT VEHICULAR TRAFFIC & PEDESTRIAN TRAFFIC CONTROL PLAN AND EROSION CONTROL PLAN FOR APPROVAL BY CITY PRIOR TO BEGINNING WORK.
- C. PROTECT ALL EXISTING UTILITY LINES THAT ARE EITHER SHOWN OR NOT SPECIFIED IN THE PLAN INCLUDE, BUT ARE NOT LIMITED TO: WATER, ELECTRICAL, SEWER, STORM COMMUNICATIONS, AND ETC.
- D. CONTRACTOR SHALL NOTIFY THE CITY REPRESENTATIVE AND THE UTILITY AGENCIES HAVING JURISDICTION OF THE UTILITY LINES AT LEAST FIVE WORKING DAYS PRIOR TO BEGINNING WORK TO COORDINATE DISCONNECTION OF THE UTILITY LINE(S) AS REQUIRED.
- E. THE SECURITY OF THE CONSTRUCTION SITE IS THE RESPONSIBILITY OF THE CONTRACTOR. PROVIDE TEMPORARY FENCING AND GATE AS NEEDED. GATES SHALL BE KEPT LOCKED AFTER WORK HOURS. CONTRACTOR SHALL REPAIR IN KIND ANY DAMAGE TO THE EXISTING STRUCTURE & OTHER ITEMS NOT TO BE REMOVED OR DAMAGED DURING THE PROJECT PERIOD.
- F. (N) PAVING FLAT WORK FINISH TO MATCH ADJACENT (E) FINISH UNLESS OTHER NOTED.
- G. CONTRACTOR IS RESPONSIBLE FOR CONTACTING USA NORTH 811 TWO WORKING DAYS PRIOR TO START OF WORK.
- H. ALL UTILITY BOXES SHALL HAVE PROPERLY RATED COVER AND IDENTIFICATION ON COVER FOR THE CORRESPONDING UTILITY TYPE. FOR EXAMPLE, WATER METER BOX SHALL HAVE THE SYMBOL "W" ON THE COVER, ETC.
- I. CONTRACTOR SHALL REMOVE DEBRIS & UNLOAD ALL PIPES, DOWNSPOUT, STORM DRAIN, MANHOLES & CATCH BASINS W/IN THE PROJECT SITE & FLOOD TEST TO ENSURE UNOBSTRUCTED FLOW PRIOR TO THE COMPLETION OF THE PROJECT.
- J. PROTECT ALL EXISTING UTILITY LINES THAT ARE EITHER SHOWN OR NOT SPECIFIED IN THE PLAN INCLUDE, BUT ARE NOT LIMITED TO: GAS, ELECTRICAL, COMMUNICATIONS, SEWER, STORM, WATER, AND ETC.
- K. ALL UTILITY WORK SHALL BE INSTALLED PER CITY STANDARDS AND SPECIFICATIONS.
- L. PROVIDE THRUST BLOCK AT 20'-0" O.C. MAX. FOR STORM PIPING WITHIN UNDERGROUND WATER TABLE, SEE SOIL REPORT FOR UNDERGROUND WATER TABLE ELEVATION.
- M. MARK ON-SITE STORM DRAIN INLETS WITH THE WORDS "NO DUMPING! DRAINS TO BAY" PER CITY REQUIREMENT.

SHEET NOTES:

- 1 (N) AREA DRAINS AND STORM DRAIN PIPES. AREA DRAIN SHALL BE 1'-6" SQ. SECTIONAL AREA DRAIN MODEL KOB-1818 W/ H-20 RATED CAST IRON GRATE BY OLDCASTLE PRECAST, INC. OR EQUIVALENT AS APPROVED BY ENGINEER. SEE DETAIL 1/C4.3. PROVIDE FLO GARD AREA DRAIN INSERT FILTER (TRASH CAPTURE DEVICE) MODEL FGP-18F BY OLDCASTLE STORM WATER SOLUTION OR APPROVED EQUAL.
- 2 (N) CATCH BASIN AND STORM DRAIN PIPES. CATCH BASIN SHALL BE 2'-0" BY 4'-10" MODIFIED TYPE IV CURB INLET TOP W/ CHECKER PLATE COVER BY OLDCASTLE PRECAST. SEE DETAIL 2/C4.2
- 3 (N) CAST-IN-PLACE TRENCH DRAIN W/ 1/2" THICK HDG STEEL GRATE W/ BOLT DOWN OPTION, SEE DETAIL 2/C4.2 AND 3/C4.2. TRENCH GRATE SHALL BE HOT-DIPPED GALVANIZED HEAVY DUTY FOR VEHICULAR TRAFFIC & ADA COMPLIANCE TYPE "THP-12-M(B)" BY GRATING PACIFIC. EMBEDDED FRAME SHALL BE HOT-DIPPED GALVANIZED TYPE "M-150" FRAME BY GRATING PACIFIC OR APPROVED EQUAL BY PROJECT ENGINEER.
- 4 (N) SUMP PIT W/ H-20 TRAFFIC FRAME AND GATE & 1/2" GALVANIZED CHECKER PLATE COVER & 1/2" HEX. HEAD BOLTS, AND SUMP PUMP, SEE DETAIL 1/C4.2. SUMP PIT SHALL BE 2'-0" X 4'-0" DRAIN BOX MODEL "DI-2448" BY OLDCASTLE PRECAST, INC. OR APPROVED EQUAL BY PROJECT ENGINEER. SUMP PUMP SHALL BE 2.0 HORSE POWER AUTOMATIC SUBMERSIBLE SUMP PUMP MODEL 631 BY ZOELLER OR APPROVED EQUAL BY PROJECT ENGINEER. PROVIDE DESIGN BUILT FOR SUMP PUMP SYSTEM PULL CONDUIT AND POWER FROM INSIDE OF BUILDING.
- 5 CONSTRUCT NEW PAVEMENT IN THE FOLLOWING SEQUENCE: START WITH AREA (A) (B) & (C) FIRST AND ENSURE AREA 6 TO HAVE FULL FIRE TRUCK ACCESS DURING WORK IN AREAS 5'S. PAVEMENT SECTIONS ARE AS FOLLOWS:
 - (A) INSTALL (N) 6" THICK CONCRETE SLAB W/ REINFORCING STEEL. SEE DETAIL 7/C4.1 & 10/C4.1 FOR TYPICAL SLAB SECTION. SEE DRAWING C2.4 FOR CONSTRUCTION JOINT, CONTRACTION JOINT AND SAWCUT JOINT LAYOUT.
 - (B) INSTALL (N) 3" AC OVER 7" COMPACTED CLASS 2 AGGREGATE BASE OVER COMPACTED SUBGRADE
 - (C) INSTALL (N) 6" THICK CONCRETE SLAB W/ REINFORCING STEEL. SEE DETAIL 7/C4.1 & 10/C4.1 FOR TYPICAL SLAB SECTION. SEE DRAWING C2.4 FOR CONSTRUCTION JOINT, CONTRACTION JOINT AND SAWCUT JOINT LAYOUT.
 - (D) INSTALL (N) 10" THICK CONCRETE SLAB W/ REINFORCING STEEL, SEE DETAIL 3/C4.1 & 4/C4.1 FOR TYPICAL SLAB SECTION. SEE DRAWING C2.4 FOR CONTRACTION JOINT AND SAWED CRACK CONTROL JOINT LAYOUT. DO NOT BEGIN WORK IN AREA 6 UNTIL AREAS (A) (B) & (C) ARE COMPLETE & ABLE TO ALLOW FULL USE OF THE AREAS AND VEHICULAR TRAFFIC LOAD.
 - (E) INSTALL (N) 6" WIDE BY 6" HEIGHT CONCRETE CUT OFF CURB, SEE DETAIL 5/C4.1.
 - (F) PROVIDE (N) 5'-0" WIDE X 9'-0" LONG X 6" THK CONC. LANDING W/ A MAX 1.5% CROSS SLOPE. PROVIDE #4 @ 12" O.C. TOP & BOTT.
 - (G) PROVIDE (N) 5'-0" WIDE X 7'-0" LONG X 6" THK CONC. LANDING W/ A MAX 1.5% CROSS SLOPE. PROVIDE #4 @ 12" O.C. TOP & BOTT.
 - (H) REINSTALL (E) AUTOMATIC GATE TO EXISTING GATE POST AND CONNECT BACK TO ITS MOTOR CONTROL UNIT, TYPICAL OF 2.
 - (I) REINSTALL (E) MANGATE TO EXISTING GATE POST. REPLACE GATE POST & ITS FOOTING IF THEY ARE DAMAGED.
 - (J) REPLACE (E) DAMAGED TRENCH FRAME AS NEEDED. PROVIDE (N) 26"x48" TRENCH PLATES THICKNESS TO MATCH (E) W/ SKID RESISTANCE SURFACE FINISH. MAINTAIN A 3/4" GAP BETWEEN EACH PLATE. SEE 11/C4.1.
 - (K) PROVIDE NO9 CHRISTY PULL BOX BY OLDCASTLE PRECAST, INC. AND 3/4" UNDERGROUND CONDUITS FOR SUMP PUMP AND (E) AUTOMATIC GATE MOTOR.
 - (L) PULL POWER SUPPLY LINE THROUGH PLENUM SPACE TO CONNECT TO (E) SUBPANEL AT UTILITY CLOSET AT PASSAGE HALLWAY.
 - (M) INSTALL DETECTIVE LOOPS BY OTHERS FOR RE-INSTALLED AUTOMATIC GATES, TOTAL OF 4.
 - (N) INSTALL 3" THICK PLAIN CONCRETE SLAB BEHIND (E) STORAGE SHED. PROVIDE POSITIVE SLOPE TO DRAIN.
 - (O) RESOD EXISTING LAWN WITH NEW SOD AS REQ'D TO MATCH (E) LAWN AREA.
 - (P) PROVIDE PRECAST CONC. SPLASH BLOCK, TYPICAL AT (E) DOWNSPOUTS.
 - (Q) (N) CONC. OR AC WORK TO CONFORM TO EXISTING CONC. ELEVATION.

LEGEND:

- | | | | |
|--|--|--|---|
| | (N) 6" REINFORCED CONCRETE PAVING = AREA (A) | | SPOT ELEV. @ (N) FINISH GRADE |
| | (N) 3" AC OVER 7" CLASS 2 AGGR. BASE = AREA (B) | | CONCRETE/WALKWAY |
| | (N) 6" REINFORCED CONCRETE PAVING = AREA (C) | | BOC |
| | (N) 10" REINFORCED CONCRETE PAVING = AREA (D) | | TOC |
| | (N) LANDSCAPING AREA | | TOW |
| | | | CB |
| | | | L |
| | | | G |
| | | | P |
| | | | INV |
| | | | (N) |
| | | | (E) |
| | | | DRAINAGE AREA. GRADE TO SLOPE TOWARD AD |
| | | | AREA WITH GRADE BRAAK |
| | (N) HDPE STORM DRAIN LINE, SIZE, LENGTH AND SLOPE AS INDICATED ON PLAN | | |
| | (N) CONTOUR LINE | | |
| | DOWNSPOUT | | |
| | AREA DRAIN OR CATCH BASIN. (AREA DRAIN SHALL BE OLDCASTLE KOB-1818 W/ CAST-IRON GRATE AND FLO-GARD TRASH CAPTURE DEVICE, U.O.N.) | | |

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NAME OF PROJECT

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DRAWN BY :
CHECK BY : VSW
DATE : 05-07-2020
SCALE : AS SHOWN



DRAWING TITLE

SITE PLAN -
(N) GRADING &
DRAINAGE

DRAWING No.

C2.3

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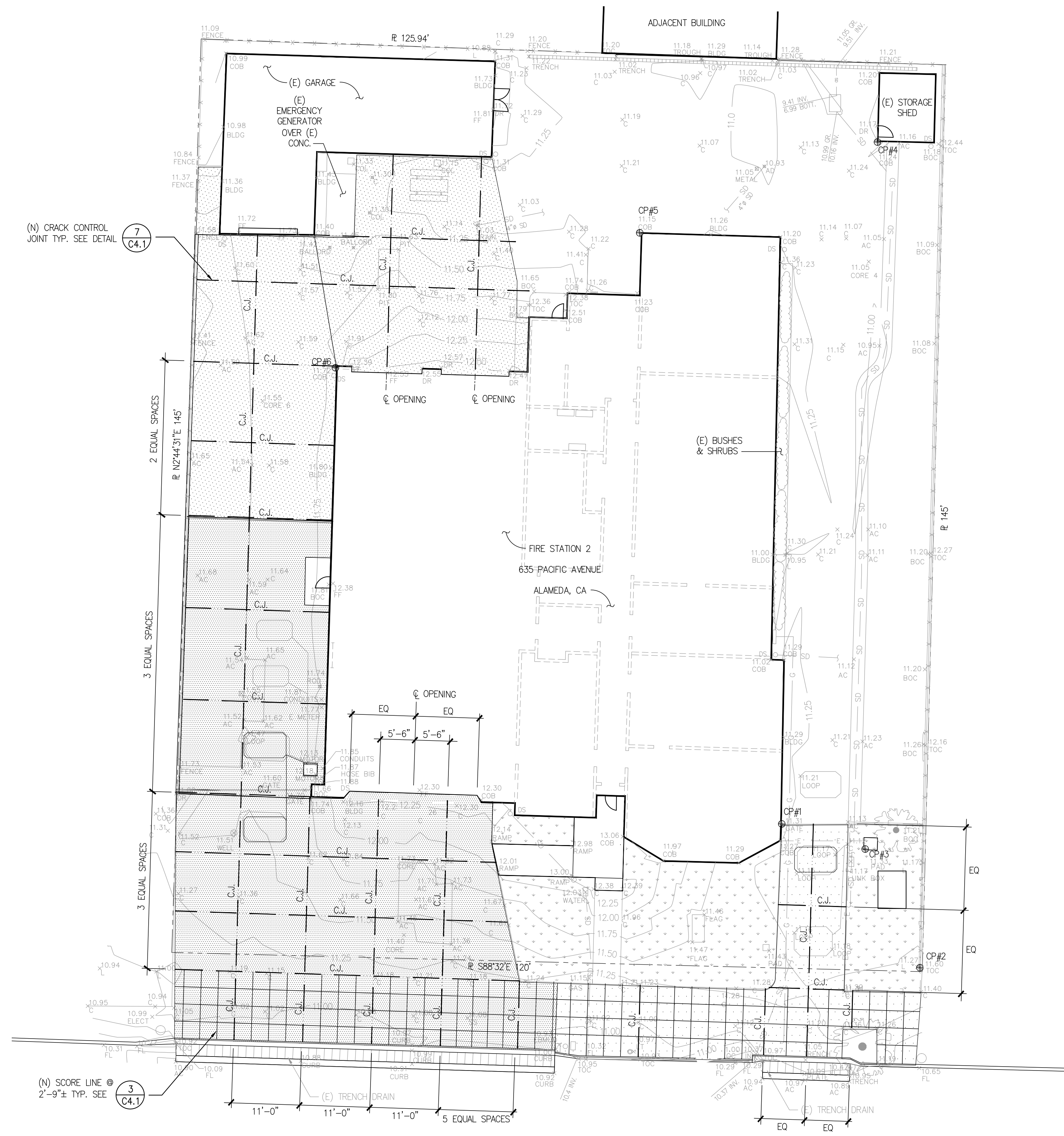
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**SITE PLAN -
(N) SCORE LINE
LAYOUT**

DRAWING No.

C2.4

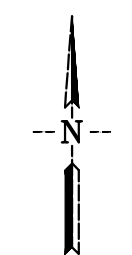
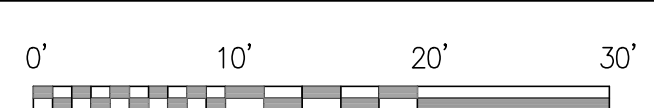
SHEET 5 OF 10



- LEGEND:**
- (N) 3" AC OVER 6" AGGR. BASE
 - (N) 5" REINFORCED CONCRETE PAVING
 - (N) 6" REINFORCED CONCRETE PAVING
 - (N) 10" REINFORCED CONCRETE PAVING
 - (N) LANDSCAPING AREA
 - (N) HDPE STORM DRAIN LINE, SIZE, LENGTH AND SLOPE AS INDICATED ON PLAN
 - (N) CONTOUR LINE
 - DOWNSPOUT
 - AREA DRAIN OR CATCH BASIN. (AREA DRAIN SHALL BE OLDCASTLE KOB-1818 W/ CAST-IRON GRATE AND FLO-GARD TRASH CAPTURE DEVICE, U.O.N.)

SITE PLAN - (N) SCORE LINE LAYOUT

SCALE 1" = 10'-0"



(N) CRACK CONTROL JOINT TYP. SEE DETAIL
7
C4.1

(N) SCORE LINE @ 2'-9"± TYP. SEE
3
C4.1

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DRAWING TITLE

SITE PLAN -
EROSION CONTROL

DRAWING No.

C2.5

SHEET 6 OF 10

EROSION CONTROL NOTES:

- GATHER ALL CONSTRUCTION DEBRIS ON A REGULAR BASIS AND PLACE IT IN A DUMPSTER OR OTHER CONTAINER WHICH IS EMPTIED OR REMOVED ON A WEEKLY BASIS. WHEN APPROPRIATE, USE TARPS ON THE GROUND TO COLLECT FALLEN DEBRIS OR SPLATTERS THAT COULD CONTRIBUTE TO STORMWATER POLLUTION. AFTER BREAKING OLD PAVEMENT, REMOVE ALL PIECES TO AVOID CONTACT WITH RAINFALL OR RUNOFF.
- ON-SITE PILES SHALL BE REMOVED REGULARLY FROM SITE, WITH ONLY TEMPORARY STORAGE ALLOWED. ALL TEMPORARY SOIL OR OTHER STOCKPILES ON SITE SHALL BE SECURELY COVERED WITH A TARP, PLASTIC SHEETING OR SIMILAR MATERIAL.
- REMOVE ALL DIRT/MUD, GRAVEL, RUBBISH, REFUSE AND GREEN WASTE FROM THE SIDEWALK, STREET PAVEMENT, AND STORM DRAIN SYSTEM ADJOINING THE PROJECT SITE DAILY AND PRIOR TO RAIN. CLEAN UP LEAKS, DRIPS AND SPILLS IMMEDIATELY. DURING WET WEATHER, AVOID DRIVING VEHICLES OFF PAVED AREAS AND OTHER OUTDOOR WORK AREAS.
- STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AND MAINTAINED TO MINIMIZE THE TRACKING OF DIRT, MUD, DUST AND DEBRIS ONTO THE PUBLIC RIGHT-OF-WAY.
- SIDEWALK AND PUBLIC STREET PAVEMENT ADJOINING THE PROJECT SITE SHALL BE BROOM-SWEEP DAILY AND PRIOR TO RAIN. CAKED-ON MUD OR DIRT SHALL BE SCARED FROM THESE AREAS BEFORE SWEEPING. AT THE COMPLETION OF WORK THE STREET SHALL BE WASHED AND THE WASH WATER COLLECTED AND DISPOSED OFF SITE.
- FILTER MATERIALS (SUCH AS BLOCK AND GRAVEL BAGS, SANDBAGS, FILTER FABRIC) SHALL BE INSTALLED AT THE STORM DRAIN INLETS SURROUNDING THE PROJECT SITE. INLET PROTECTIONS SHALL BE INSTALLED PRIOR TO THE START OF THE RAINY SEASON, SITE DE-WATERING ACTIVITIES, SAW-CUTTING ACTIVITIES OR ANY OTHER ACTIVITY THAT MAY RESULT IN THE DISCHARGE OF MATERIAL TO THE STORM DRAIN. FILTER MATERIALS SHALL BE MAINTAINED AND/OR REPLACED AS NECESSARY TO MINIMIZE SHORT-CUTTING AND TO REMOVE SEDIMENT DEPOSITS AND BUILDUP. ACCUMULATED SEDIMENT/DEBRIS SHALL BE DISPOSED OF PROPERLY.
- VACUUM SAW-CUTTING SLURRY AND REMOVE FROM SITE. DO NOT ALLOW SAW-CUT SLURRY TO ENTER THE STORM WATER CONVEYANCE SYSTEM.
- CREATE A CONTAINED AND COVERED AREA ON THE SITE FOR THE STORAGE OF CEMENT BAGS, PAINTS, FLAMMABLES, OILS, FERTILIZERS, PESTICIDES, OR ANY OTHER MATERIALS USED ON THE PROJECT SITE THAT HAVE THE POTENTIAL FOR BEING DISCHARGED TO THE STORM DRAIN SYSTEM BY WIND, EXPOSURE TO RAINFALL OR IN THE EVENT OF A MATERIAL SPILL.
- NEVER CLEAN MACHINERY, TOOLS, BRUSHES, ETC. OR RINSE CONTAINERS INTO A STREET, GUTTER, STORM DRAIN OR STREAM. SEE THE BUILDING MAINTENANCE AND REMODELING BMP FLYER AND ACCWP BMP BROCHURES FOR MORE INFORMATION. CONTACT PUBLIC WORKS ENVIRONMENTAL SERVICES DIVISION AT 747-7930 FOR ASSISTANCE WITH OBTAINING THESE DOCUMENTS.
- ENSURE THAT CONCRETE/GUNITE SUPPLY TRUCKS OR CONCRETE/PLASTER FINISHING OPERATIONS DO NOT DISCHARGE WASH WATER INTO STREET GUTTERS OR DRAINS. CONCRETE TRUCKS SHALL HAVE A SELF-CONTAINED WASH-OUT SYSTEM OR DISCHARGE TO A DEDICATED, SECURE SITE WASH-OUT IN ORDER TO AVOID THE POSSIBILITY OF DEBRIS ON CITY STREETS OR DISCHARGE OF WASH WATER TO THE STORM WATER CONVEYANCE SYSTEM.
- MINIMIZE REMOVAL OF NATURAL VEGETATION OR GROUND COVER FROM THE SITE IN ORDER TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENTATION PROBLEMS. RE-PLANT THE AREA, AND STABILIZE ALL CUT AND FILL SLOPES AS SOON AS POSSIBLE AFTER GRADING IS COMPLETED. AT A MINIMUM, 4,000 POUNDS/ACRE OF STRAW WITH TACKIFIER SHOULD BE PLACED ON ALL EXPOSED SOILS INCLUDING THOSE WITHIN ACTIVE WORK AREAS AND FLAT LOTS. NO SITE GRADING SHALL OCCUR BETWEEN OCTOBER 1 AND MAY 31 UNLESS APPROVED EROSION AND SEDIMENTATION CONTROL MEASURES ARE IN PLACE.
- PROVIDE EROSION "PREVENTION" AND PERIMETER PROTECTION MEASURES (SOIL STABILIZATION) SUCH AS FIBER ROLLS, SILT FENCE, AND/OR SEDIMENT TRAPS OR BASINS. ENSURE CONTROL MEASURES ARE ADEQUATELY MAINTAINED AND IN OPERABLE CONDITION. SEDIMENT CONTROLS, INCLUDING INLET PROTECTION, ARE NECESSARY BUT SHOULD BE A SECONDARY DEFENSE BEHIND GOOD EROSION CONTROL AND SITE PERIMETER MEASURES.
- SITE DE-WATERING OPERATIONS SHALL BE DESIGNED TO PREVENT THE DISCHARGE OF ANY SEDIMENT, DEBRIS OR OTHER POLLUTANTS TO THE MUNICIPAL STORM WATER CONVEYANCE SYSTEM.
- ALL EROSION PREVENTION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED AND REPAIRED THROUGHOUT THE SEASON. REPLACEMENT SUPPLIES SHOULD BE KEPT ON SITE. SITE INSPECTIONS SHALL BE CONDUCTED BEFORE AND AFTER EACH STORM EVENT, AND EVERY 24 HOURS FOR EXTENDED STORM EVENTS, TO IDENTIFY AREAS THAT CONTRIBUTE TO EROSION AND SEDIMENT PROBLEMS OR ANY OTHER POLLUTANT DISCHARGES. DOCUMENT ALL INSPECTION FINDINGS AND ACTIONS TAKEN. DRAINAGE ACROSS INTERIOR PROPERTY LINES WILL NOT BE PERMITTED EXCEPT IN SPECIAL CIRCUMSTANCES APPROVED BY THE CITY OF ALAMEDA ENGINEER AFTER ESTABLISHMENT OF APPROVED EASEMENTS. CONSTRUCTION GRADING AND EROSION CONTROL SHALL BE CONDUCTED IN SUCH A MANNER AS TO PREVENT SEDIMENTATION OR OTHER DAMAGE TO OFF-SITE PROPERTY. SEE 30-84.12 OF THE ALAMEDA, CALIFORNIA - CODE OF ORDINANCES FOR MORE INFORMATION.
- ALL CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT INTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED INTO PUBLIC RIGHTS-OF-WAY SHALL BE REMOVED IMMEDIATELY.
- WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE INTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE THROUGH USE OF INLET PROTECTION (E.G. SAND BAGS OR OTHER APPROVED METHODS)
- LOCATION OF CONSTRUCTION FENCING SHOWN ON THIS PLAN IS APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING THE SITE AND INSTALLING NEW CONSTRUCTION FENCING AS NECESSARY.
- CONTRACTOR SHALL APPLY WATER TO PREVENT DUST OR MINIMIZE DUST NUISANCE.
- REFERENCE: "CALIFORNIA STORM WATER BEST MANAGEMENT PRACTICE (BMP) HANDBOOK"

Storm Drain Pollution from Construction Activities

Construction sites are common sources of storm water pollution. Materials and wastes that blow or wash into a storm drain, gutter, or street have a direct impact on local creeks and the Bay. As a contractor, site supervisor, owner, or operator of a site, you may be responsible for any environmental damage caused by your subcontractors or employees.

WHAT CAN YOU DO?

Advance Planning to Prevent Pollution

- Schedule excavation, grading, and paving activities for dry weather periods.
- Control the amount of runoff crossing your construction site. Use berms or drainage ditches to divert water flow around the site.
- Identify potential pollution sources from materials and wastes that will be used, stored or disposed of on the job.
- Inform your employees and subcontractors about the clean storm water requirements and their responsibilities in pollution prevention.
- Design site to protect storm water quality; allow areas for chemical and equipment storage away from drains or channels.

Best Management Practices

The following practices can reduce pollution significantly. Compliance with environmental regulations can be as simple as minimizing contact with rainwater (covering the source), limiting the area of the source, protecting materials and waste from runoff, and maintaining a "clean" site using good housekeeping practices or Best Management Practices.

- Use one area of the site for auto parking, vehicle refueling, and routine equipment maintenance. This designated area should be well away from streams or storm drain inlets, and bermed and rocked if necessary. Make major repairs off site.
- Keep materials out of the rain prevent runoff contamination at the source. Cover exposed piles of soil or construction materials with plastic sheeting or temporary roofs. Before it rains, sweep and remove materials from paved surfaces that drain to storm drains, creeks, or channels.
- Keep work areas and the public right-of-way clean. Remove trash, litter, and debris on a daily basis.
- Clean up leaks, drips and other spills immediately so they do not pollute the soil or leave residue on paved surfaces that can be washed away when it rains.
- Maintain all vehicles and equipment in good working order. Inspect frequently for leaks and repair promptly.

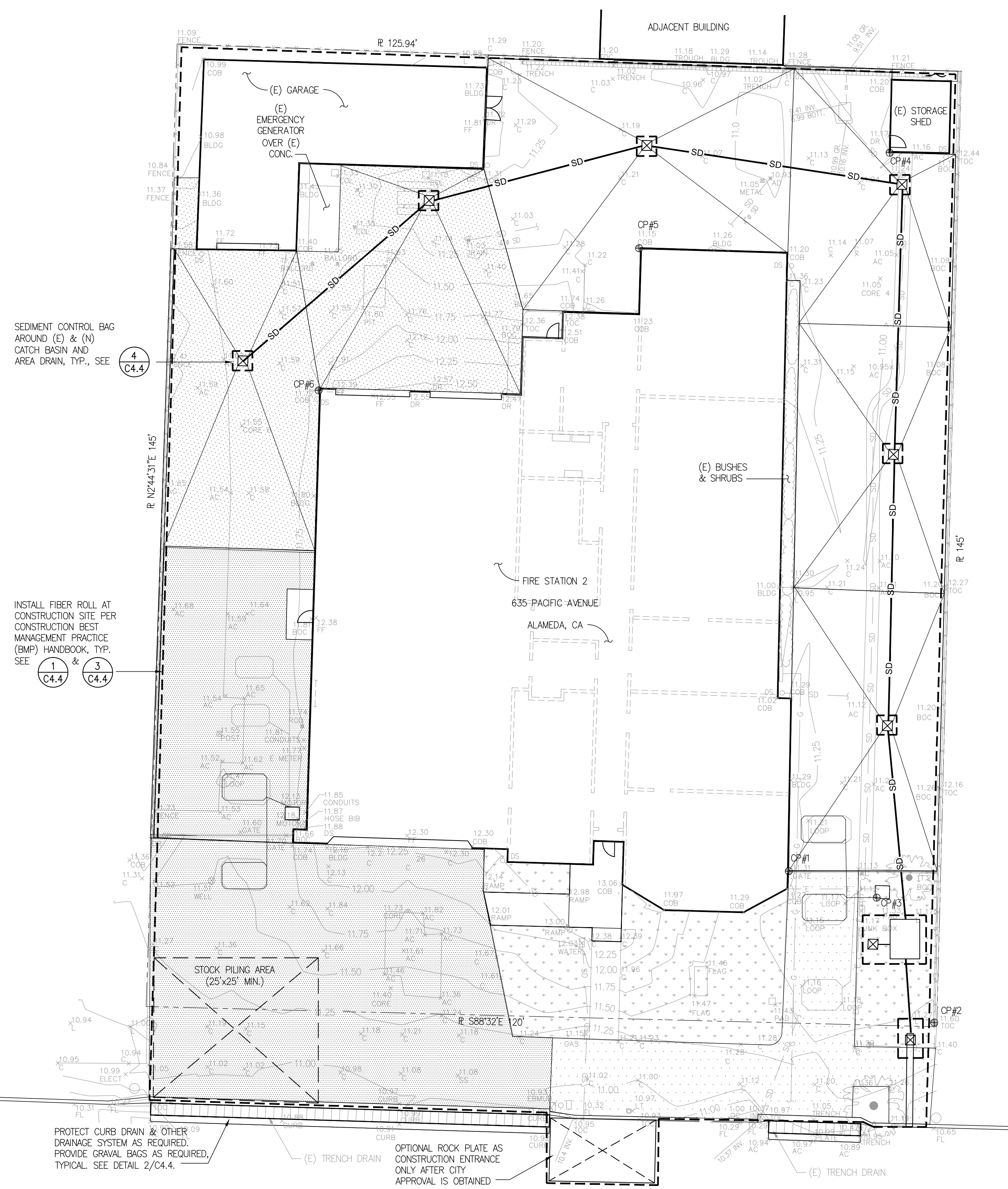
- Never wash down "dirty" pavement or surfaces where materials have been spilled; use dry cleanup methods whenever possible (absorbent materials, cat litter, and/or rags).
- Place dumpsters under roofs or cover with tarps or plastic sheeting. Never clean out a dumpster by washing it down.
- Make sure portable toilets are in good working order. Check frequently for leaks.
- Implement erosion and sediment control practices outlined in the SFRWOCB's "Erosion and Sediment Control Field Manual."

Materials and Waste Handling

- Practice source reduction by ordering only the amount you need to finish the job.
- Dispose of all wastes properly. Many construction materials and wastes, including solvents, water-based paints, vehicle fluids, broken asphalt and concrete, wood, and cleared vegetation can be recycled. Materials that cannot be recycled must be taken to an appropriate landfill or disposed of as hazardous waste. **Never bury waste materials.**
- Never clean or rinse tools or equipment into a street, gutter or storm drain.
- Use recyclable materials whenever possible.

This brochure is one of a series of pamphlets describing storm drain protection measures for specific types of construction industry activities. Other pamphlets include:

Painting and Application of Solvents and Adhesives
Fresh Concrete and Mortar Application
Roadwork and Paving
Heavy Equipment Operation and Maintenance



SITE PLAN - EROSION CONTROL

SCALE: 1"=10'-0"



SEDIMENT CONTROL BAG AROUND (E) & (N) CATCH BASIN AND AREA DRAIN, TYP., SEE C4.4

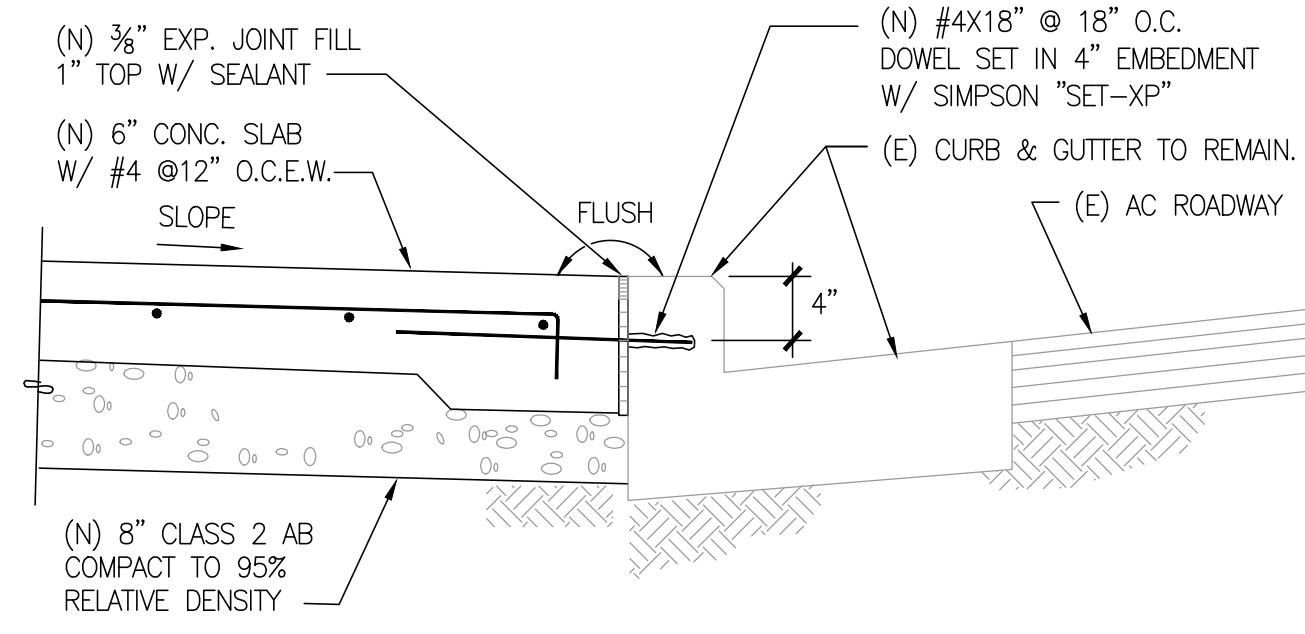
INSTALL FIBER ROLL AT CONSTRUCTION SITE PER CONSTRUCTION BEST MANAGEMENT PRACTICE (BMP) HANDBOOK, TYP. SEE C4.4

PROTECT CURB DRAIN & OTHER DRAINAGE SYSTEM AS REQUIRED. PROVIDE GRAVEL BAGS AS REQUIRED. TYPICAL SEE DETAIL 2/C4.4.

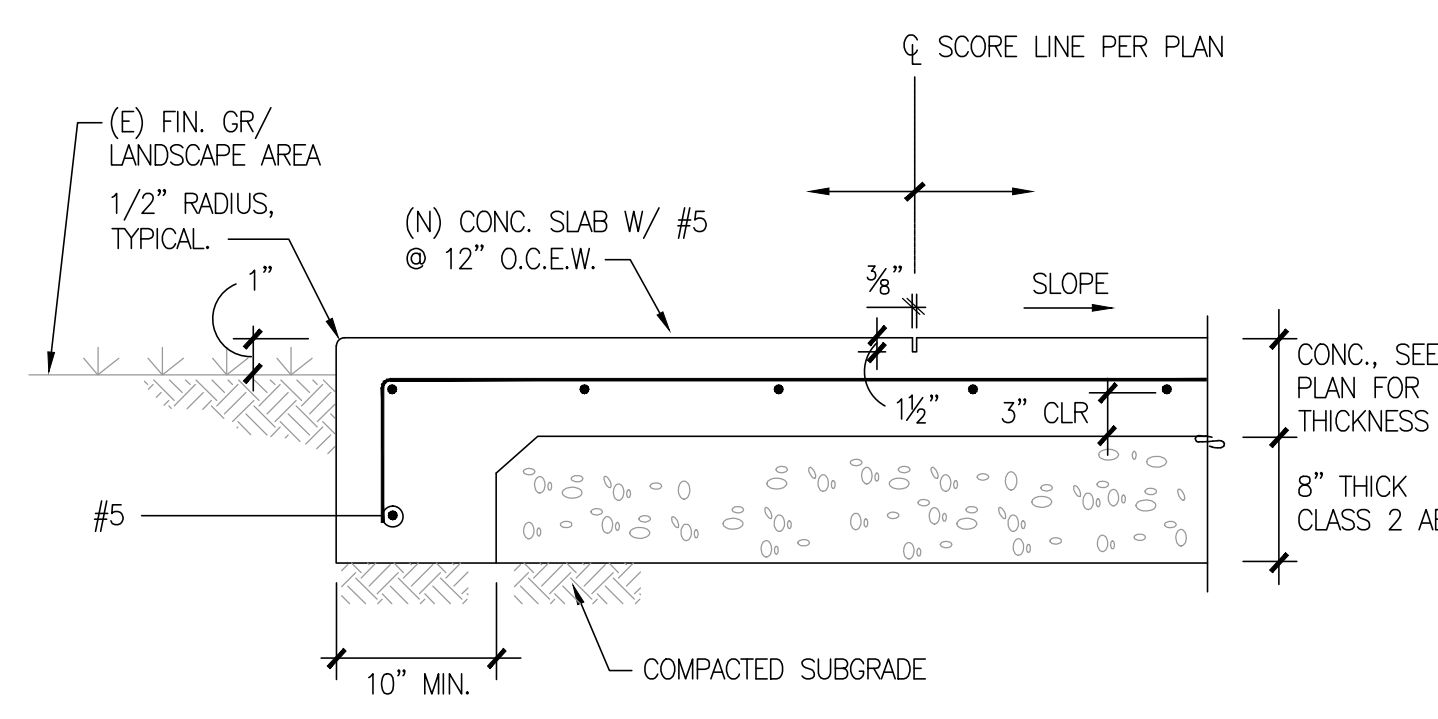
OPTIONAL ROCK PLATE AS CONSTRUCTION ENTRANCE ONLY AFTER CITY APPROVAL IS OBTAINED

No.	Revision/Issue	Date
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2	PERMIT SET	12-31-18
3	BID SET	05-07-20

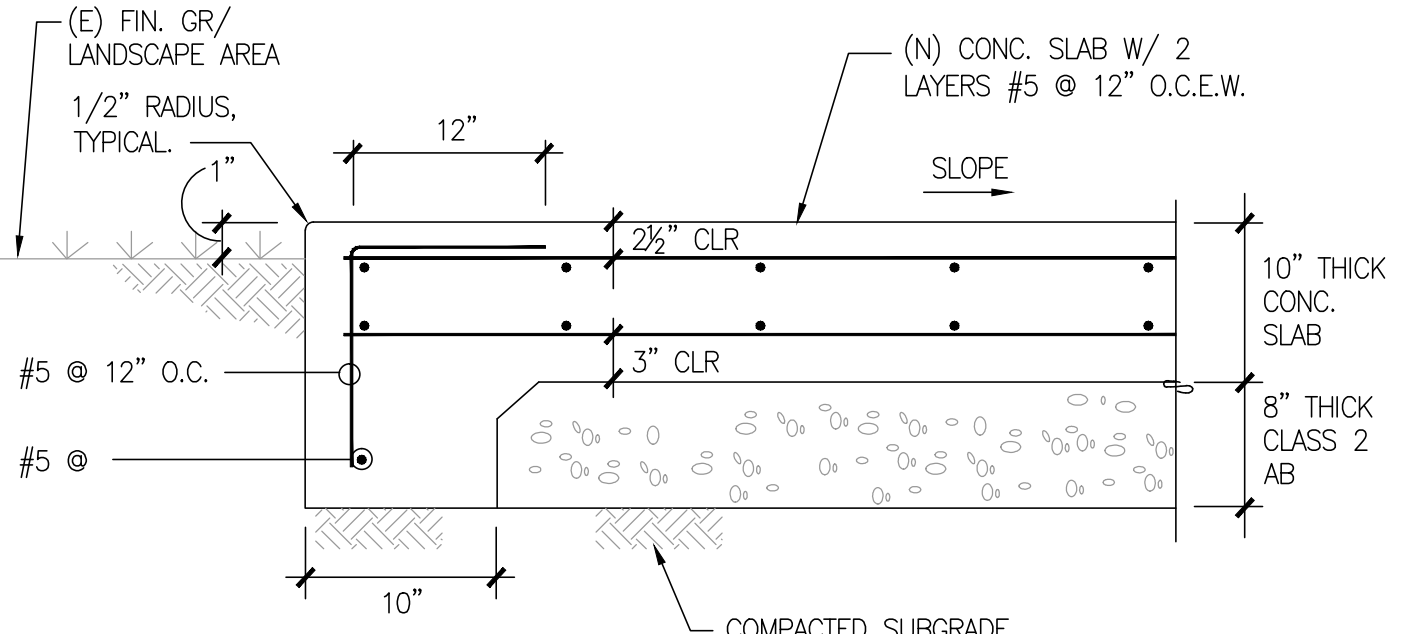
PROJECT No. :	180633
DRAWN BY :	SW
CHECK BY :	VTW
DATE :	05-07-2020
SCALE :	AS SHOWN



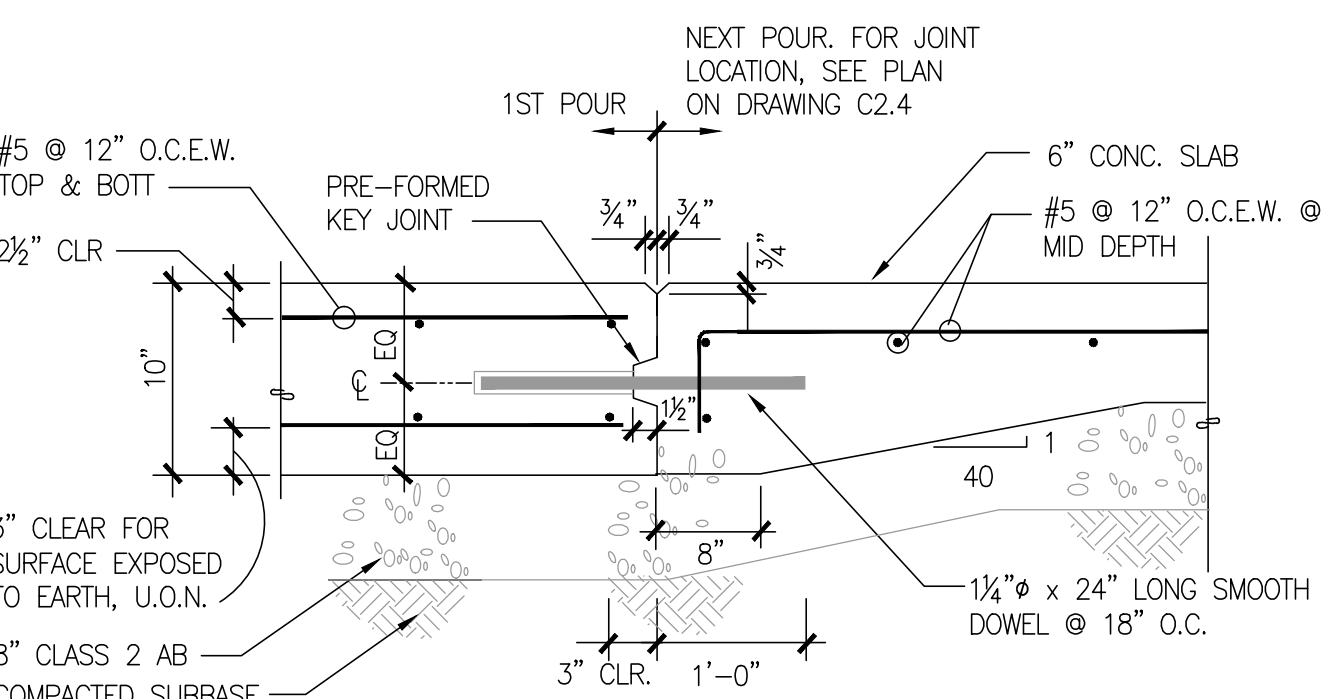
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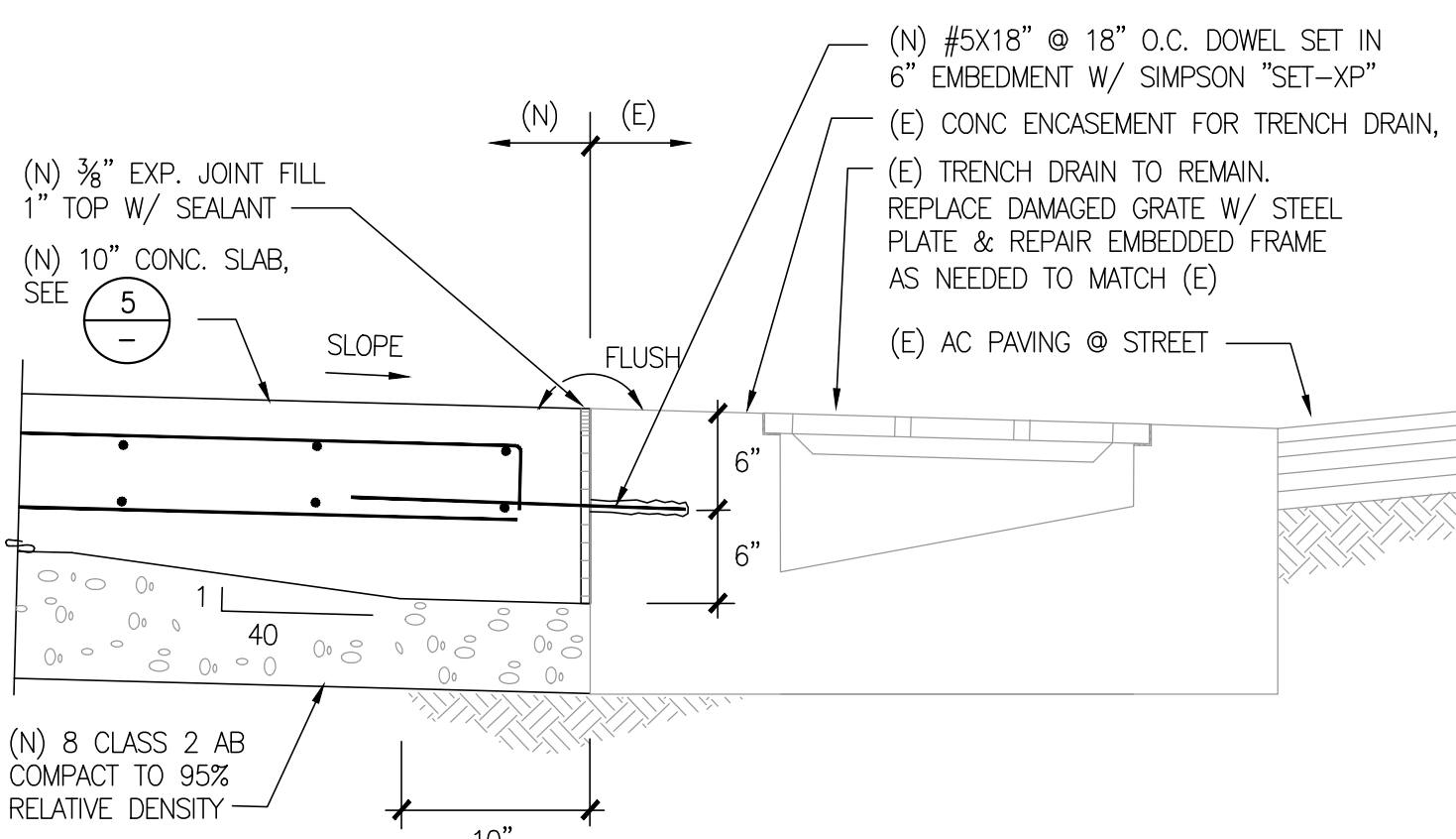
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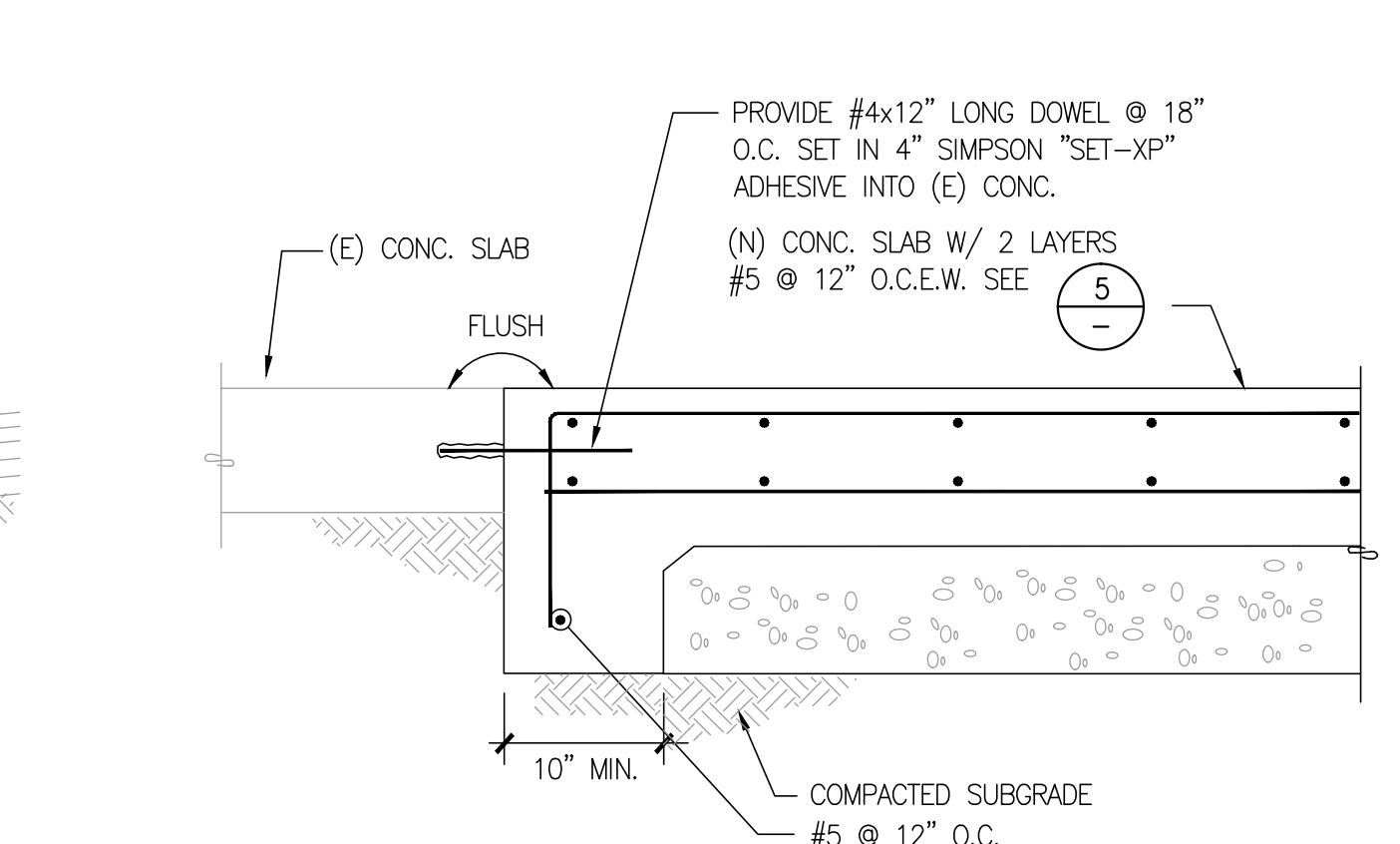
4 DETAIL
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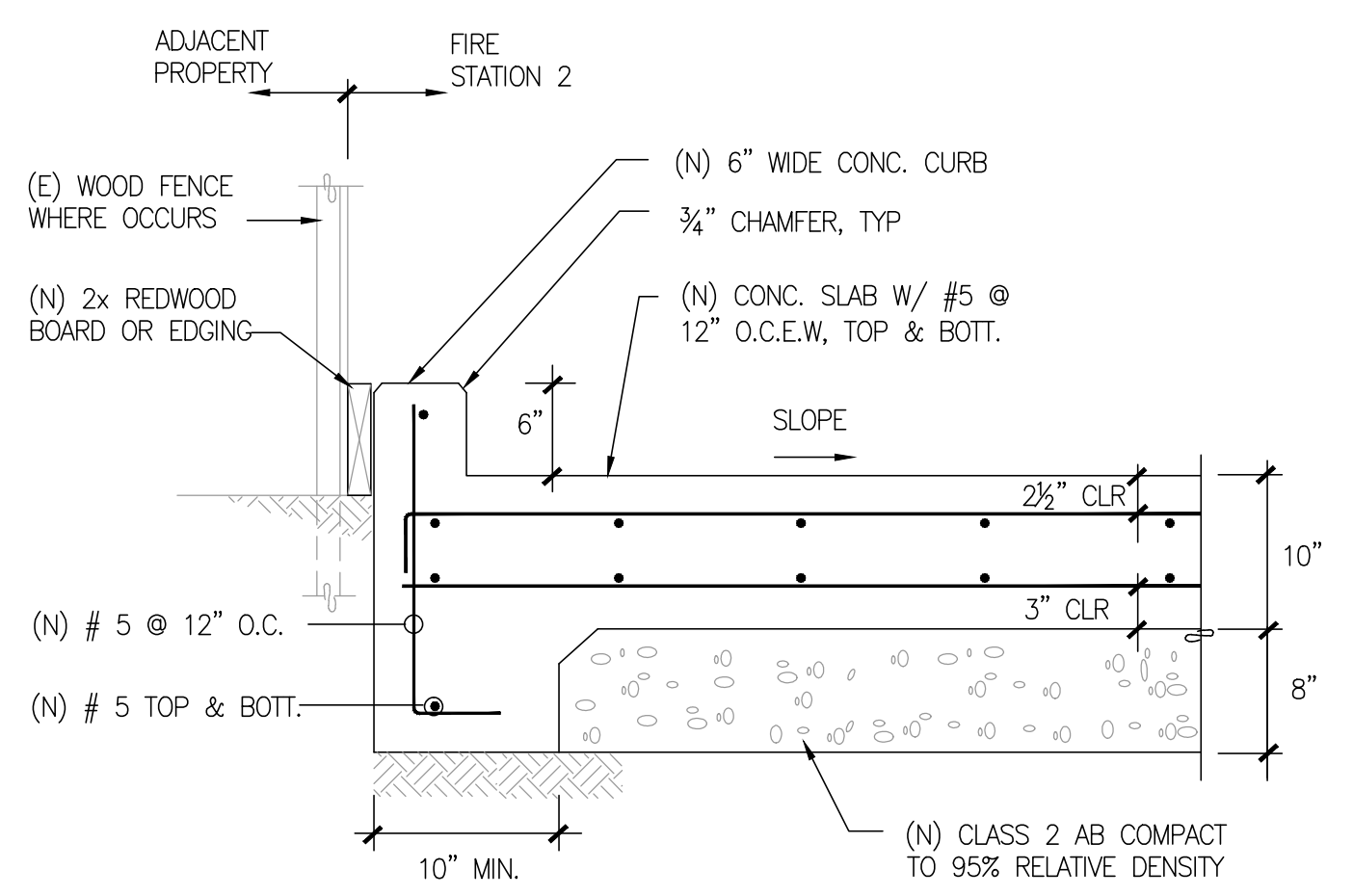
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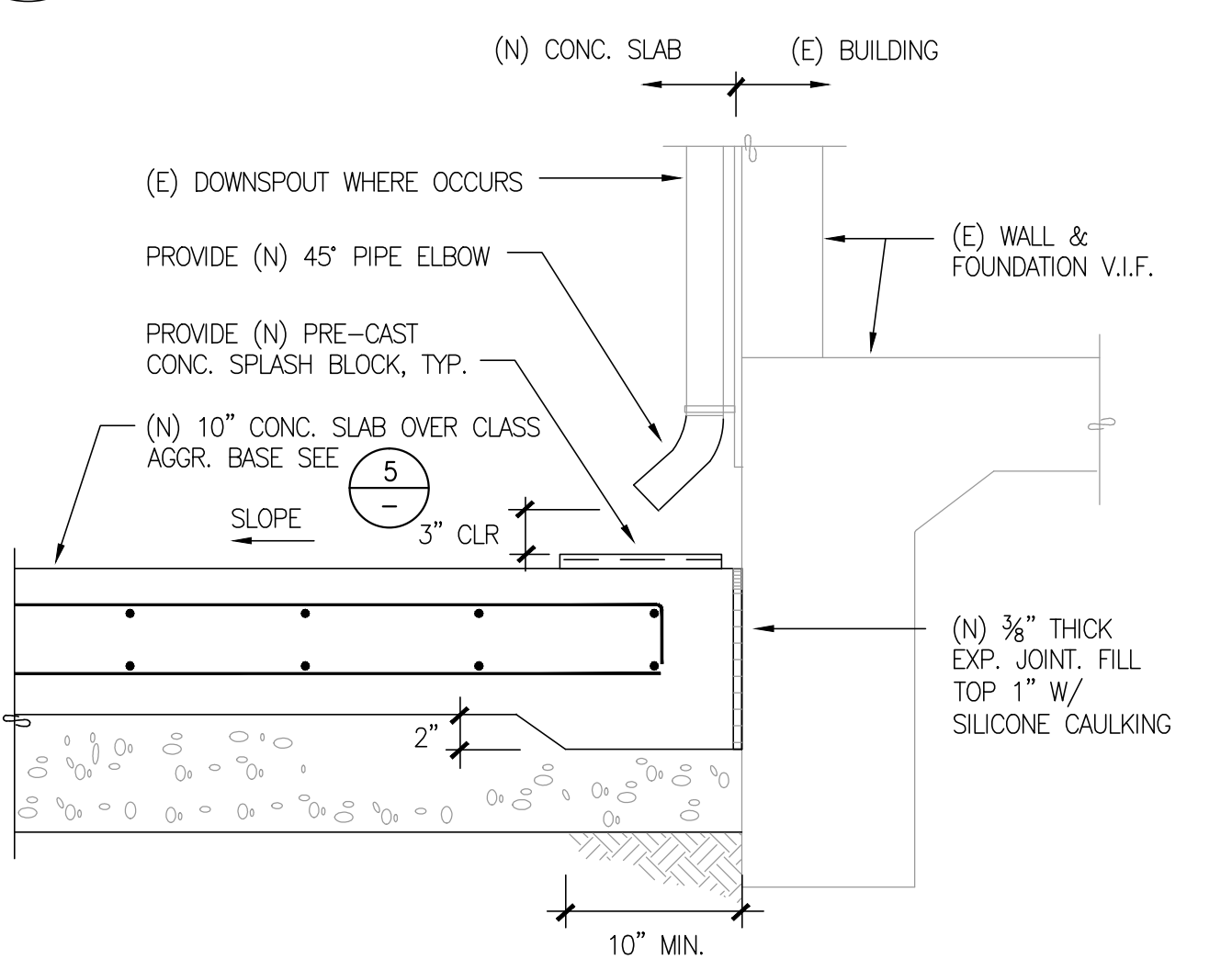
11 DETAIL
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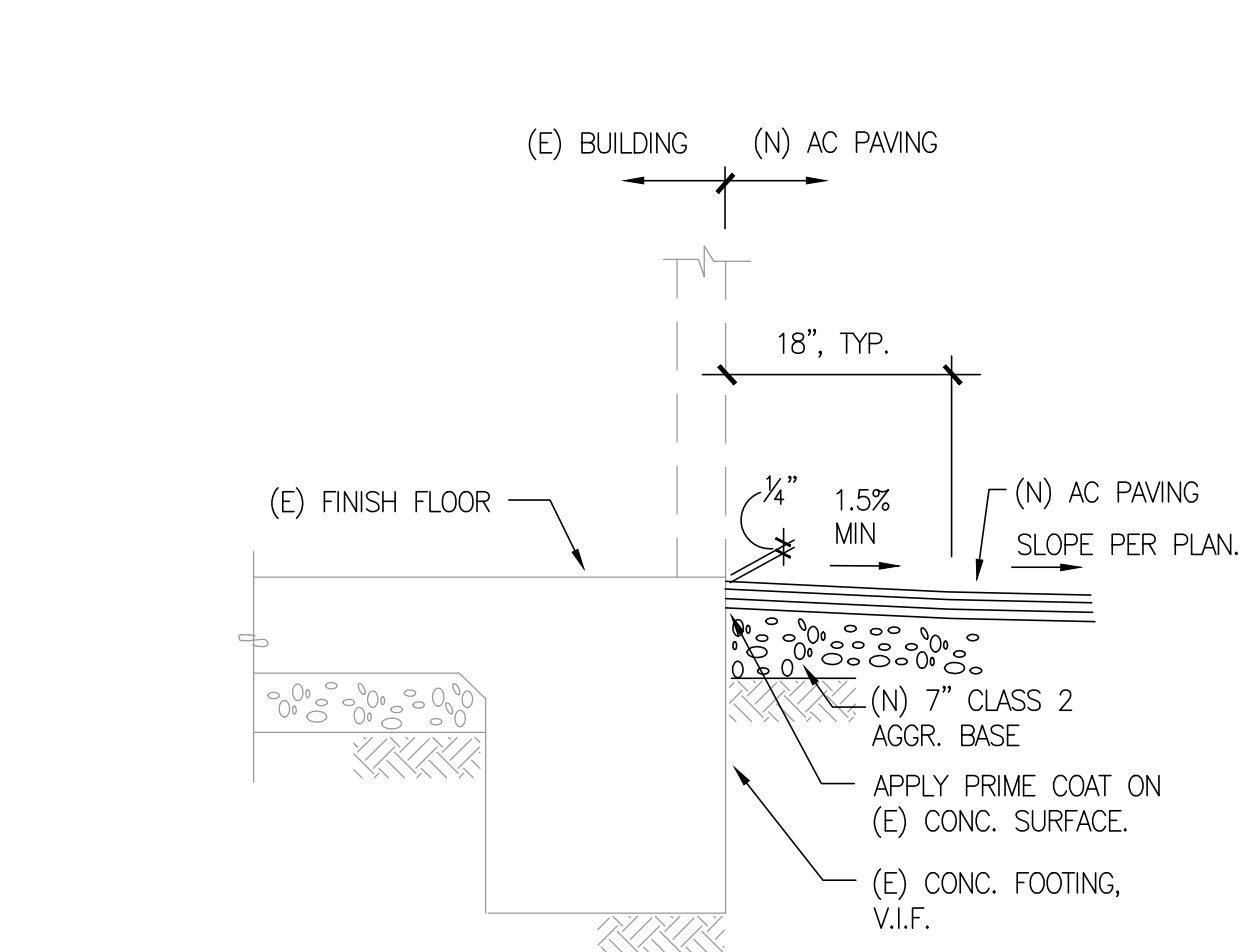
8 DETAIL
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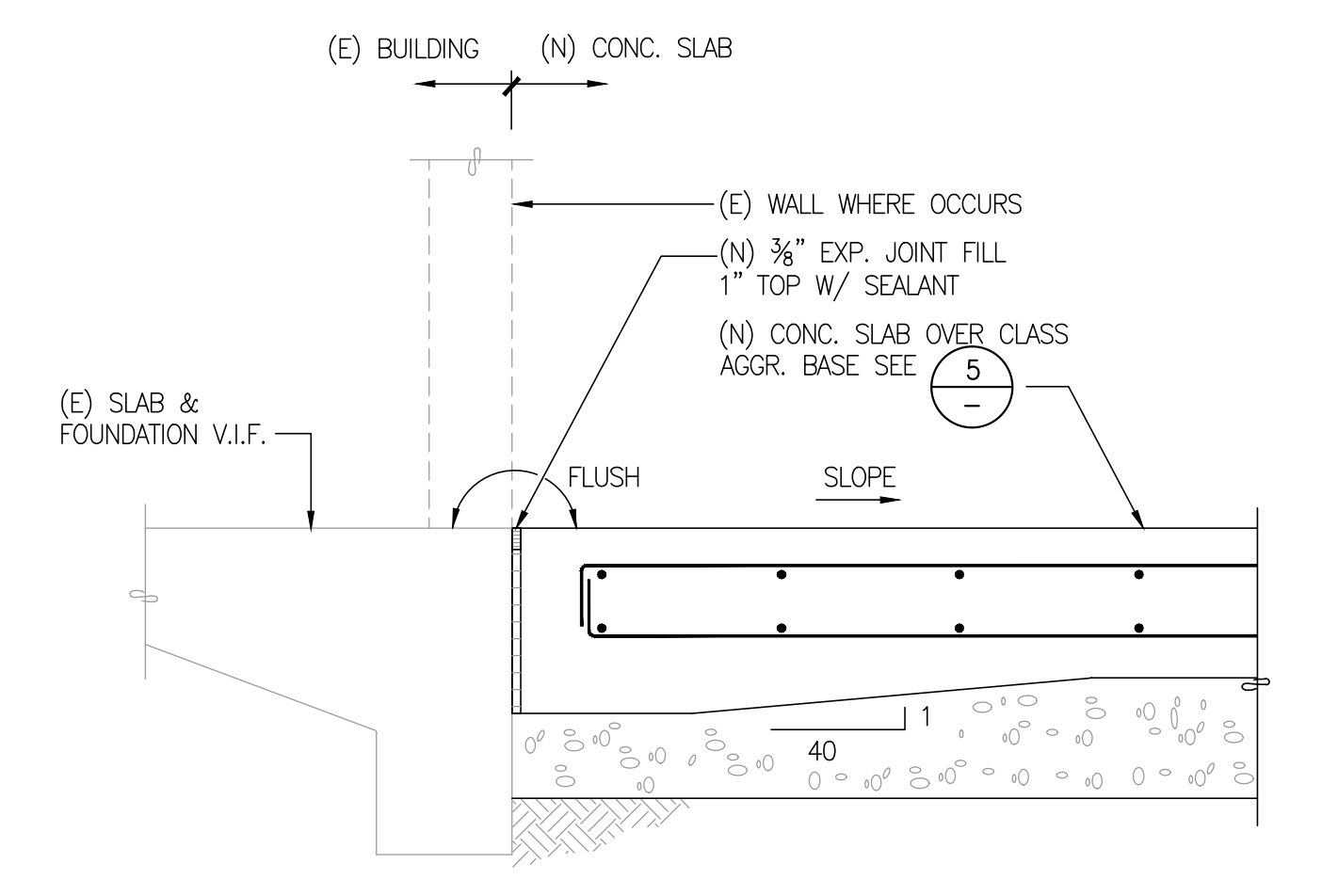
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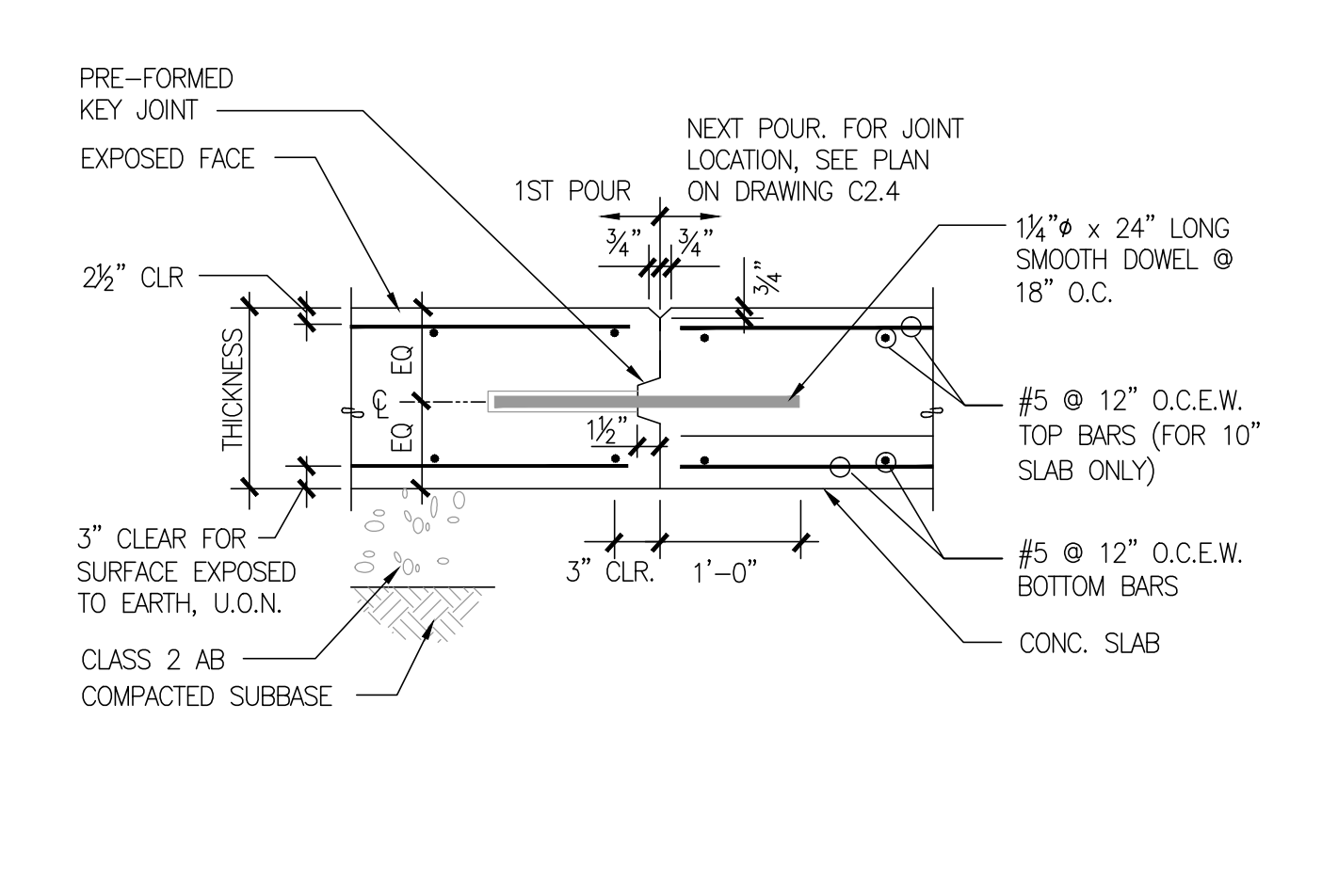
2 DETAIL
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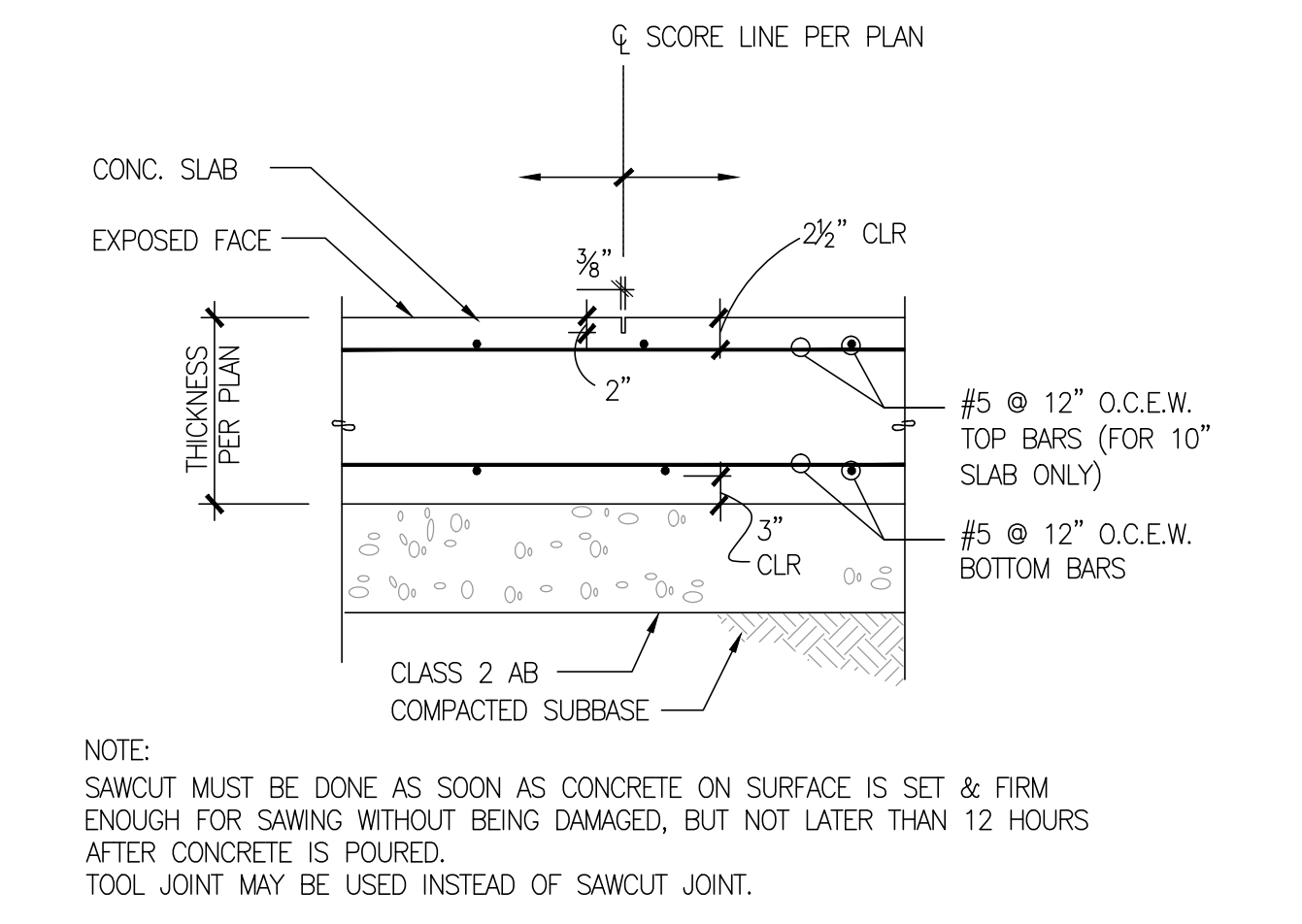
12 DETAIL
1"=1'-0"



9 DETAIL
1"=1'-0"

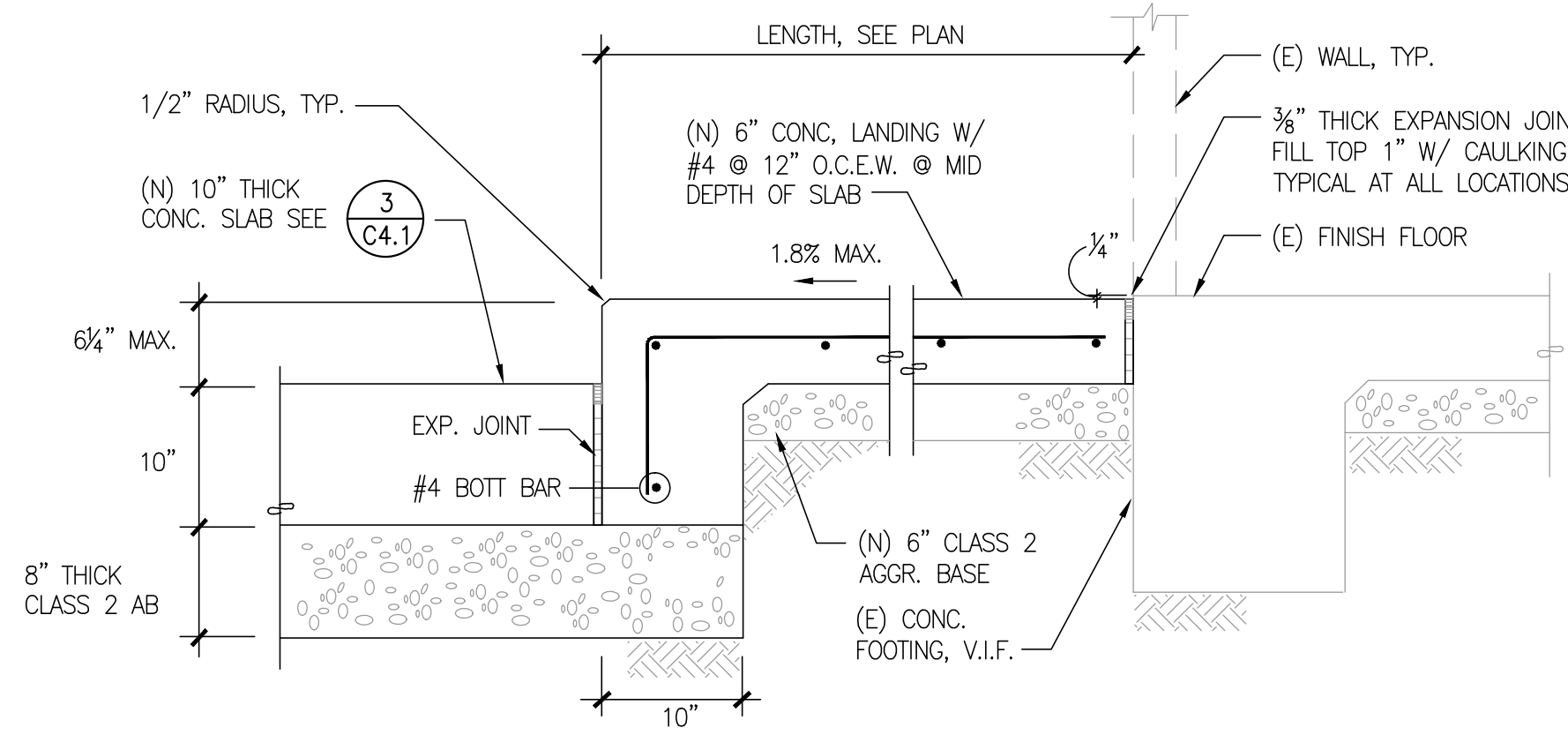


6 DETAIL CONSTRUCTION OR CONTRACTION JOINT
1"=1'-0"

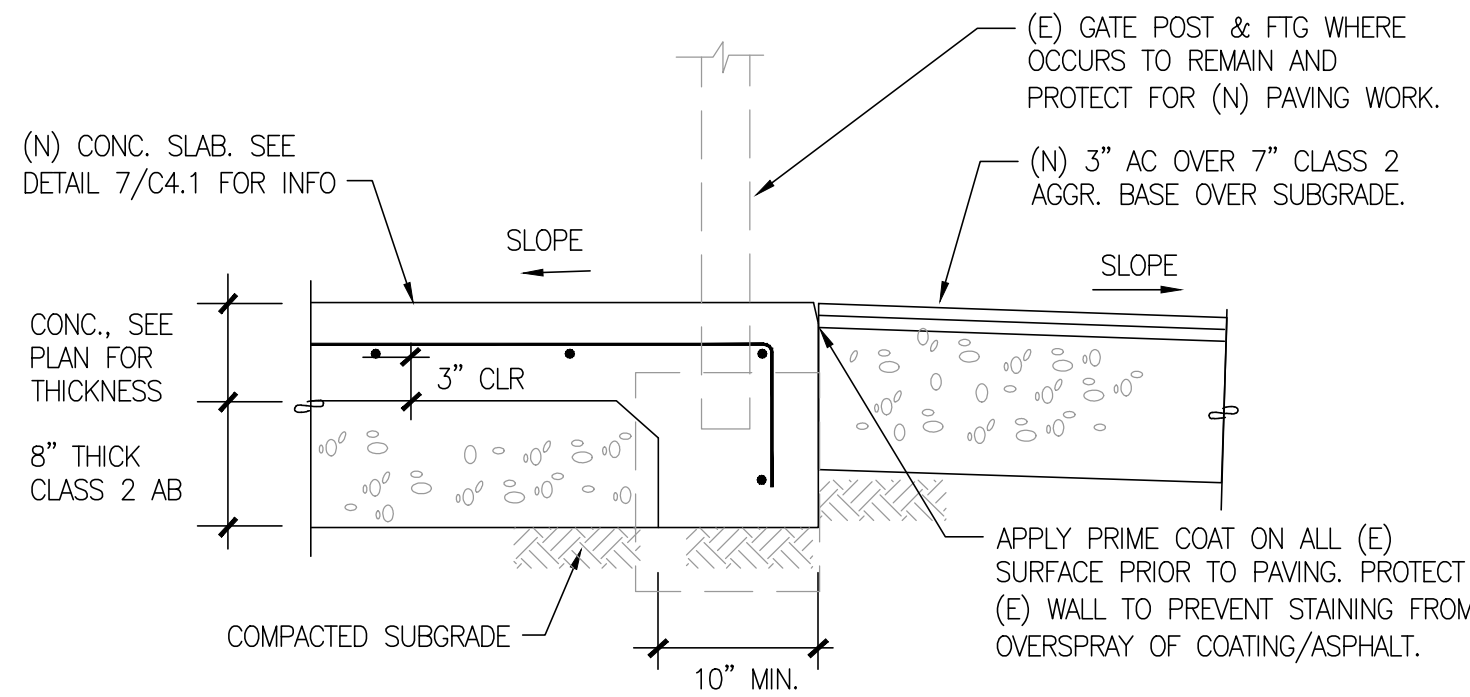


3 DETAIL CRACK CONTROL JOINT (CJ)
1"=1'-0"

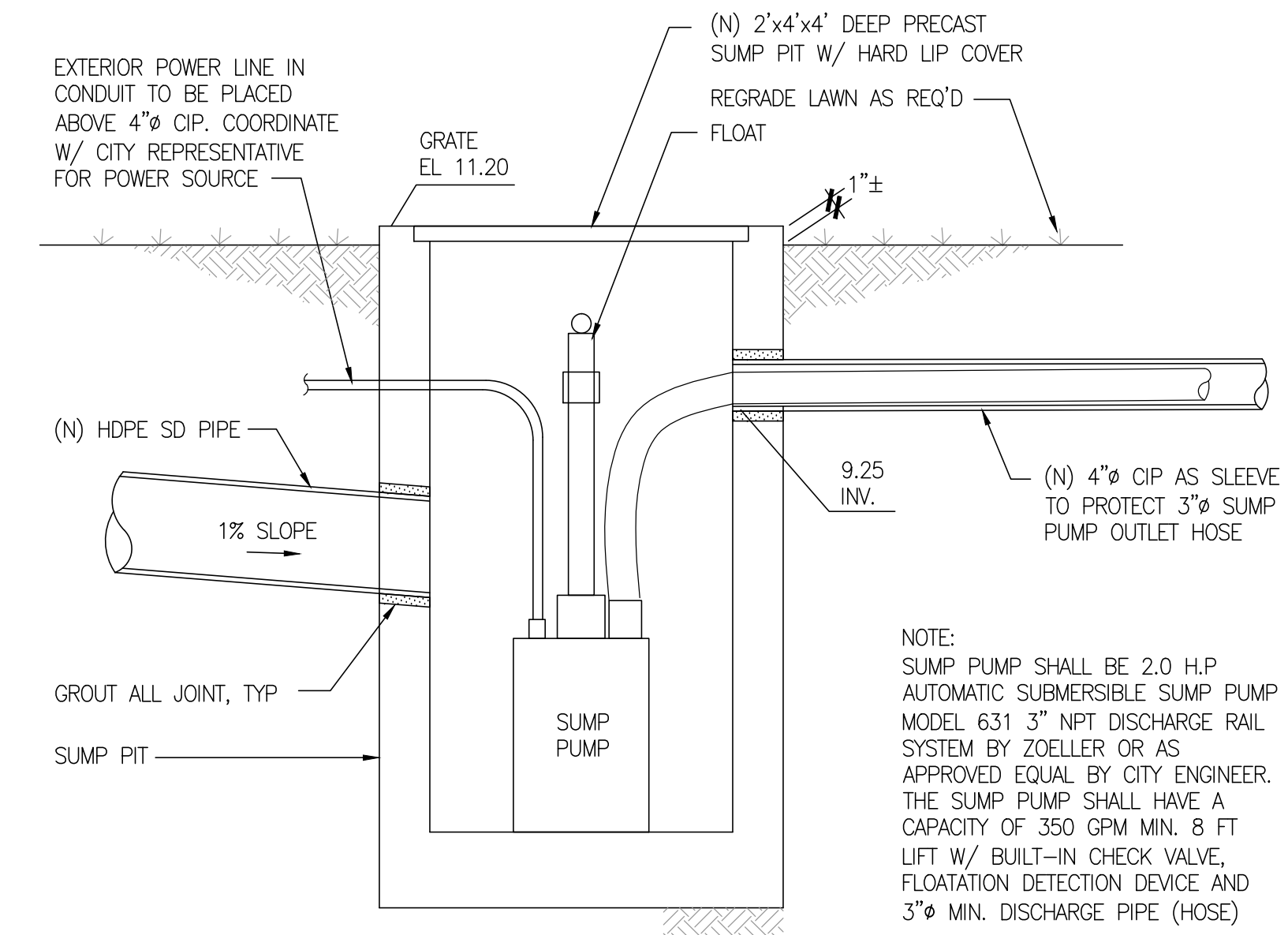
NOTE:
SAWCUT MUST BE DONE AS SOON AS CONCRETE ON SURFACE IS SET & FIRM ENOUGH FOR SAWING WITHOUT BEING DAMAGED, BUT NOT LATER THAN 12 HOURS AFTER CONCRETE IS POURED.
TOOL JOINT MAY BE USED INSTEAD OF SAWCUT JOINT.



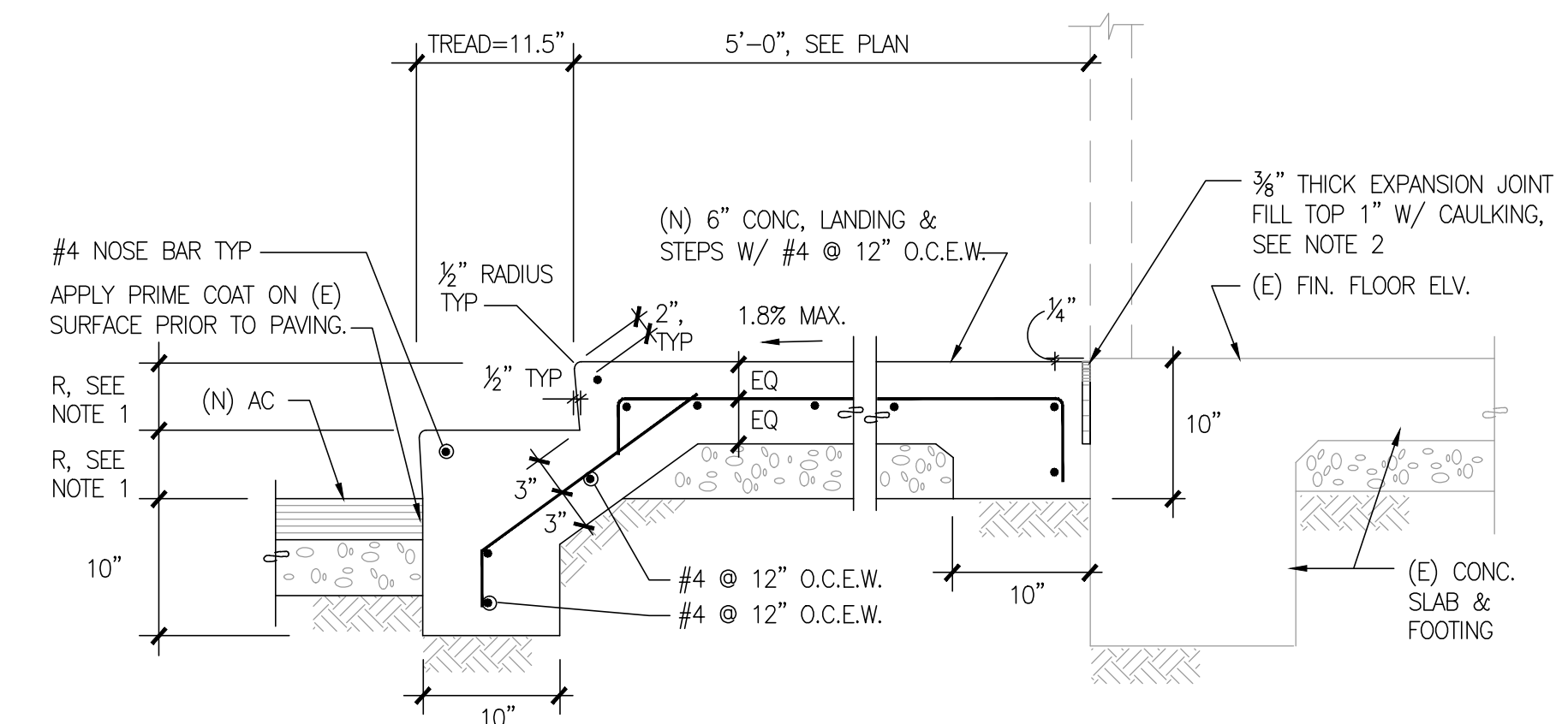
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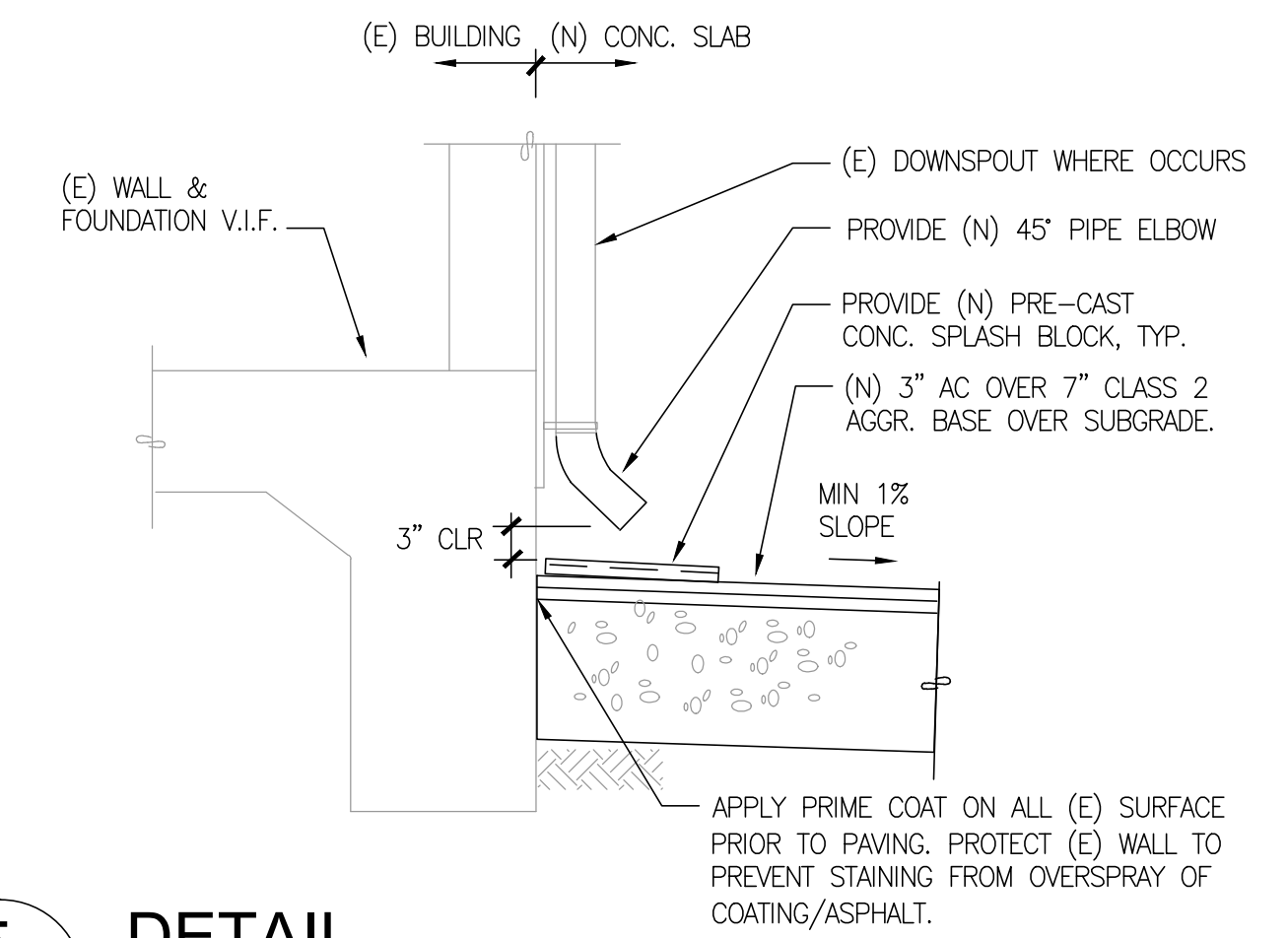
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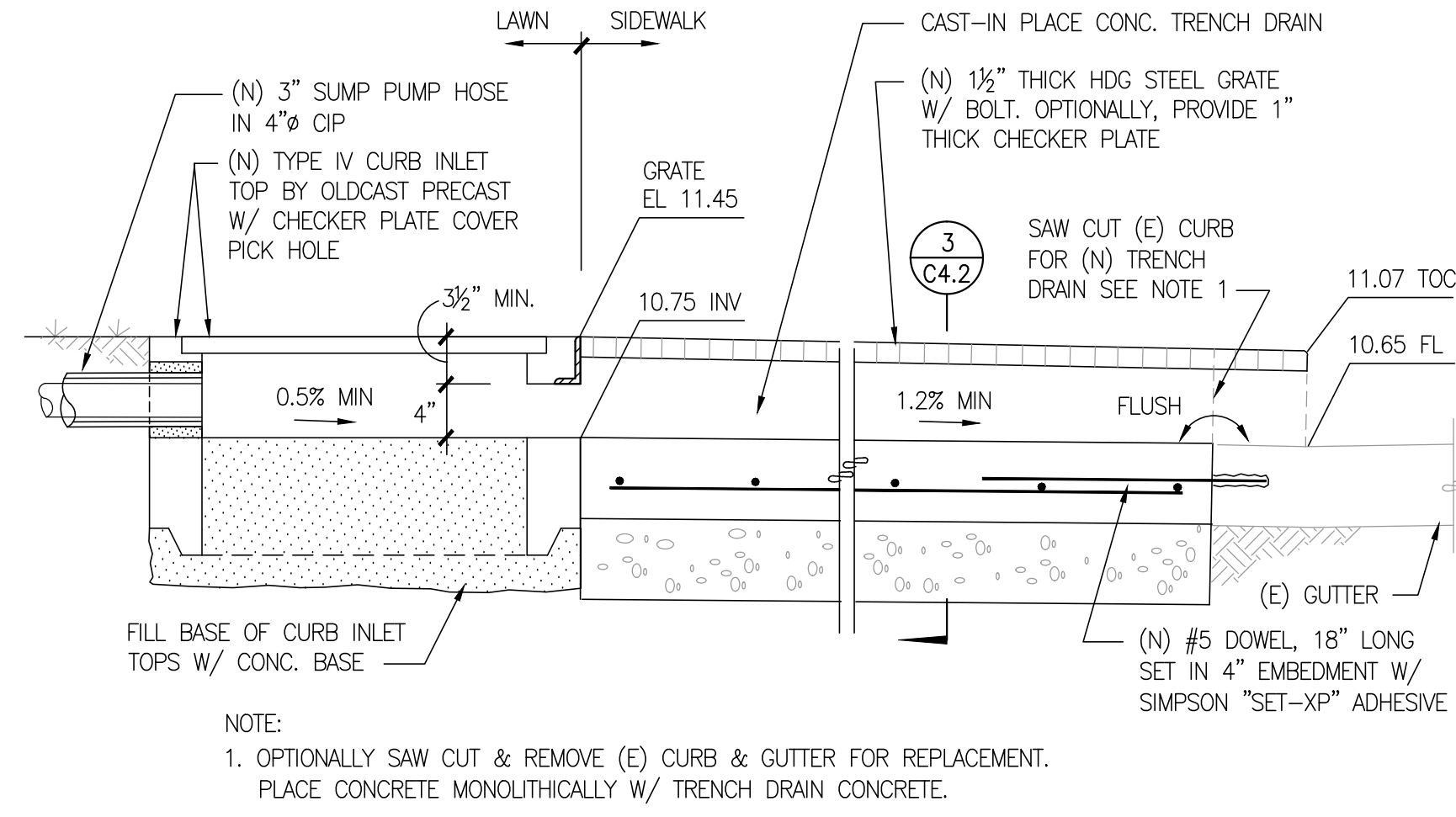
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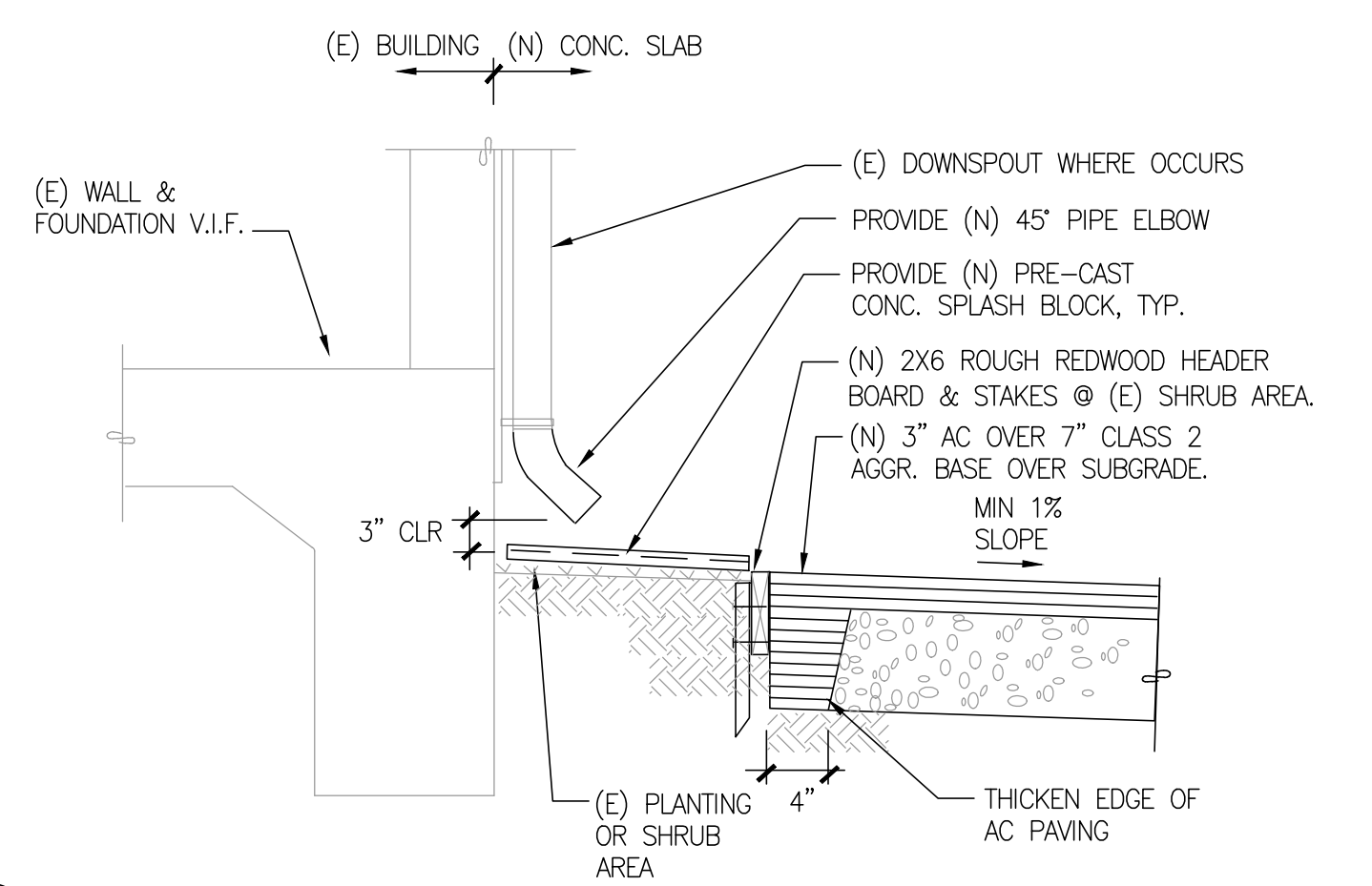
8 DETAIL
1"=1'-0"



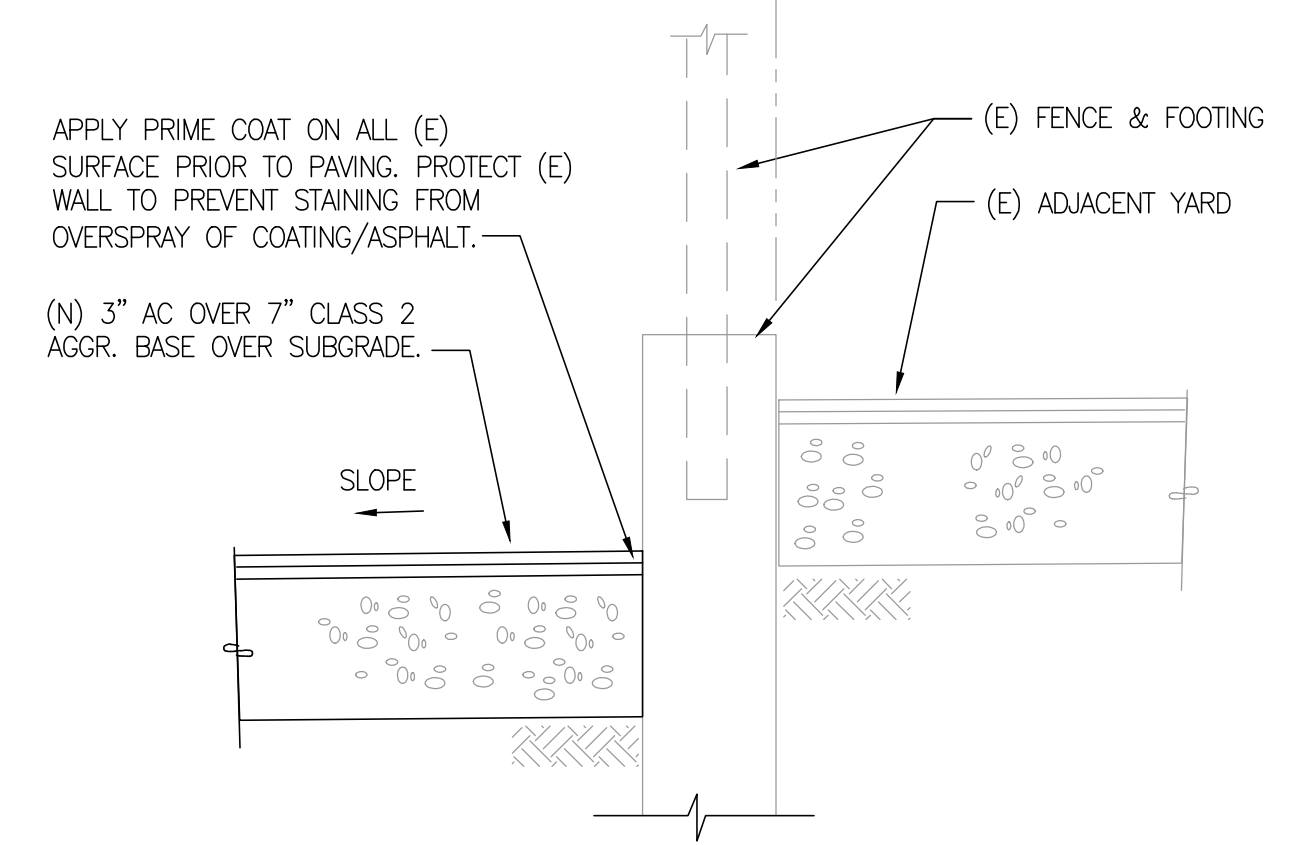
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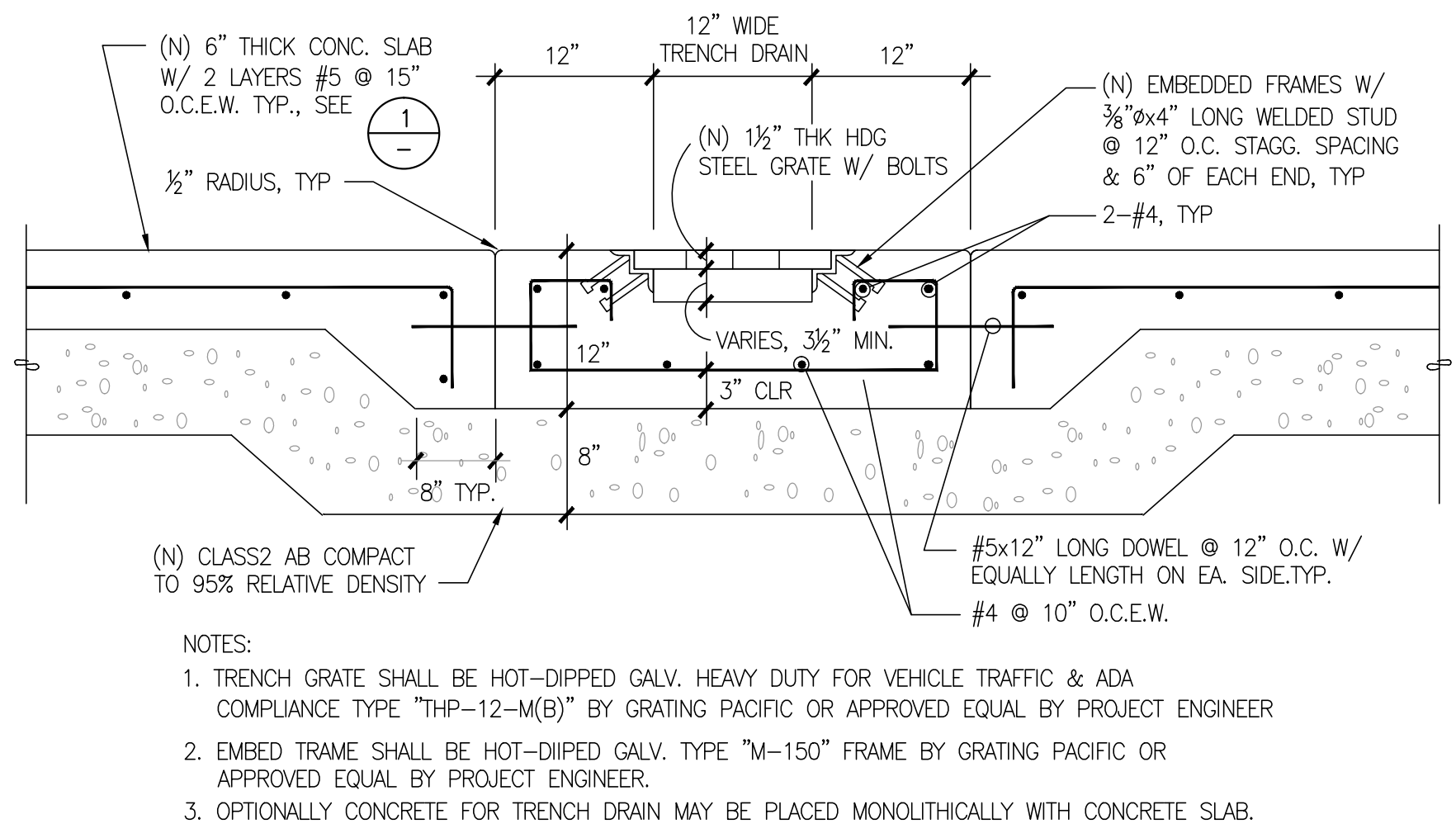
2 DETAIL
1"=1'-0"



9 DETAIL
1"=1'-0"



6 DETAIL
1"=1'-0"



3 DETAIL
1"=1'-0"

BASELINE
DESIGNS, INC.

dba Baseline Engineering
Civil & Structural Engineering
Design, Planning & Investigation

1700 Oak Street
Alameda, CA 94501
Tel. 510-865-4623
Fax. 510-865-4704

NAME OF PROJECT

**FIRE STATION #2
PAVEMENT
REPLACEMENT
AT
635 PACIFIC AVENUE
ALAMEDA, CA**

CLIENT
PUBLIC WORKS DEPARTMENT
CITY OF ALAMEDA

CONSULTANT

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No.	Revision/Issue	Date
1	REVIEW SET	09-18-18
2	PERMIT SET	12-31-18
3	BID SET	05-07-20

PROJECT No. :	180633
DRAWN BY :	SW
CHECK BY :	VTW
DATE :	05-07-2020
SCALE :	AS SHOWN

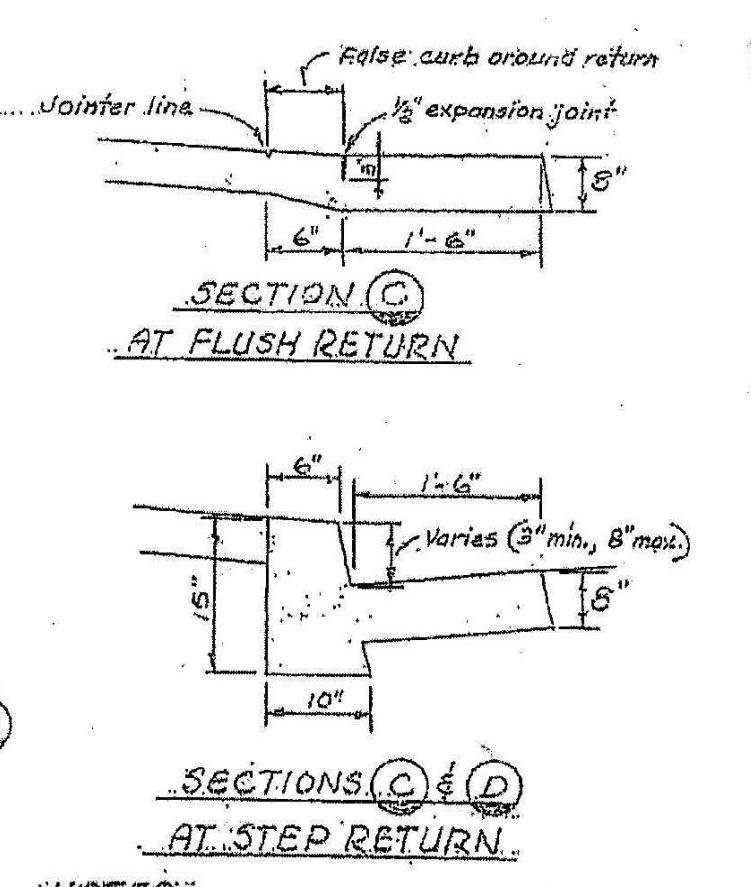
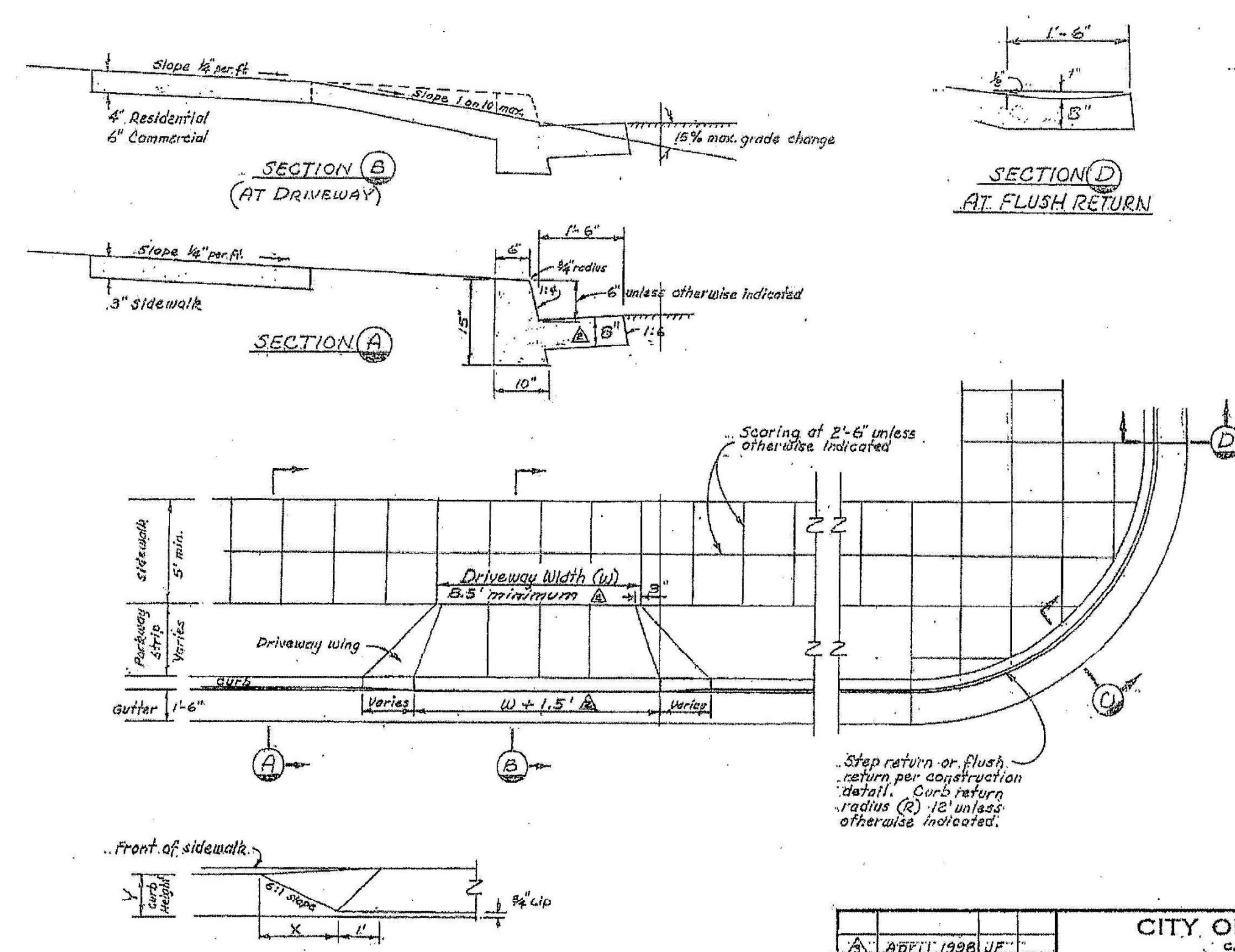


DRAWING TITLE

DRAINAGE DETAILS

DRAWING No.

C4.2



NOTES:
 Required mix design is 5 sack 3/4 aggregate, 2500 psi with 1/2" slag black per cu yd.
CURB AND GUTTER
 1/2" expansion joints at 15'.
 Jointer line at 8'.
 Finish as specified.
 Transition to existing wider gutter shall be 5' long.
SIDEWALK AND DRIVEWAY
 1/2" expansion joints at 15'.
 Finish as specified.
 See. dug. 6270-22 where driveway slopes exceed limits shown.

APR 11 1988	NE	
Jan 1972	Terry	1974
Jan 1972	Terry	1974
REVISED	BY	APP.
DRAWN	H. J. WONG	
CHECKED	J. PAU	
DATE	SCALE	
OCT 1988	NONE	

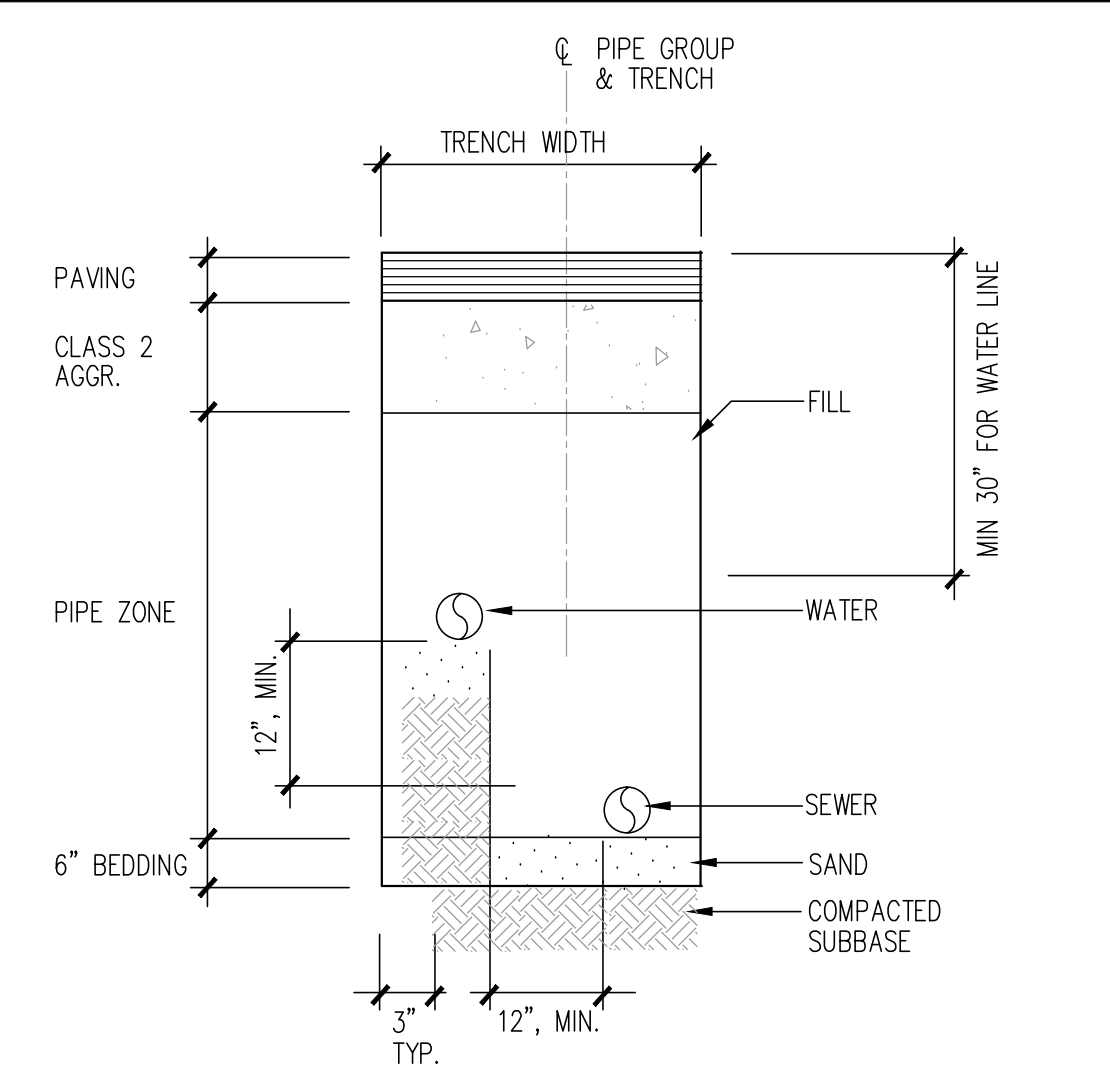
CITY OF ALAMEDA
 CALIFORNIA
 ENGINEERING DEPARTMENT
STANDARD PLAN
CURB, GUTTER
SIDEWALK AND
DRIVEWAY

SHEET 1 OF 1
 APPROVED BY
 M. J. Hanna
 CITY ENGINEER
 REG. C. E. No. 22241
 DATE 10-26-68
 DWG. CASE
 6297 24

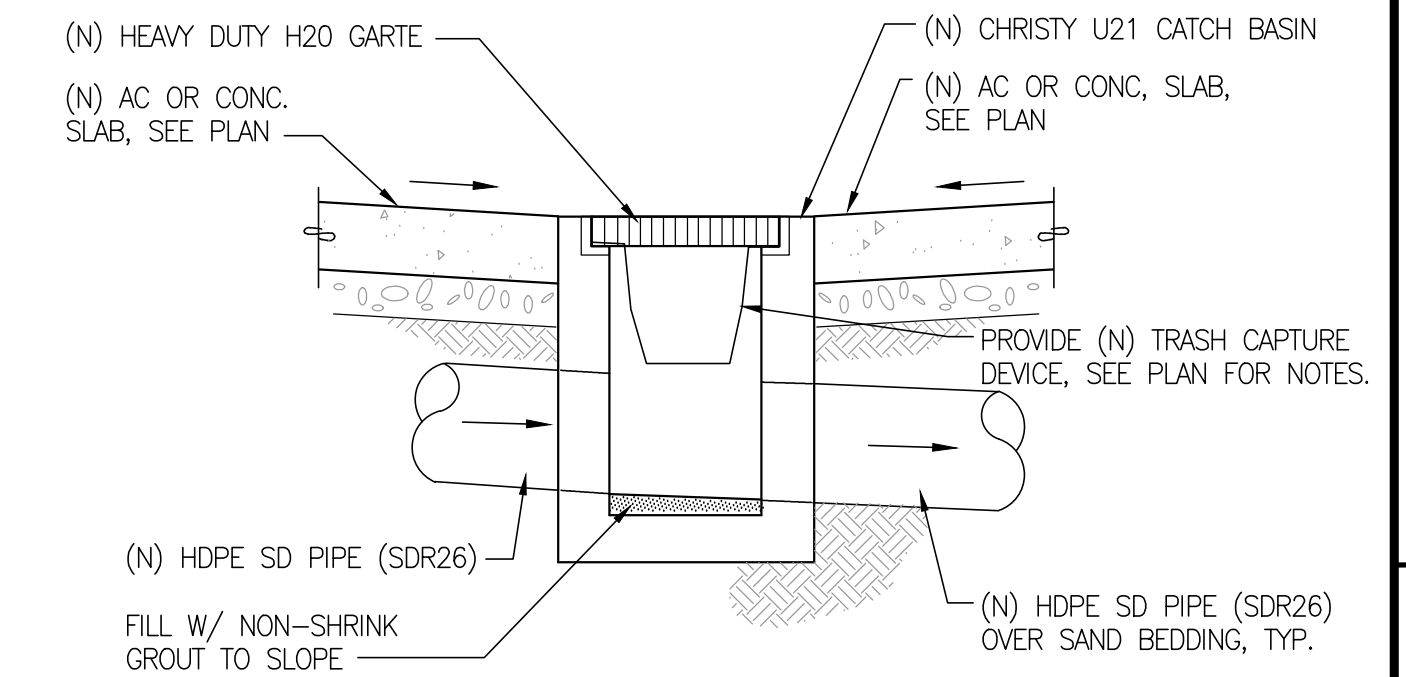
Y	4"	5"	6"	8"
X	19 1/2"	25 1/2"	31 1/2"	43 1/2"

DRIVEWAY WING LENGTHS FOR VARIOUS CURB HEIGHTS

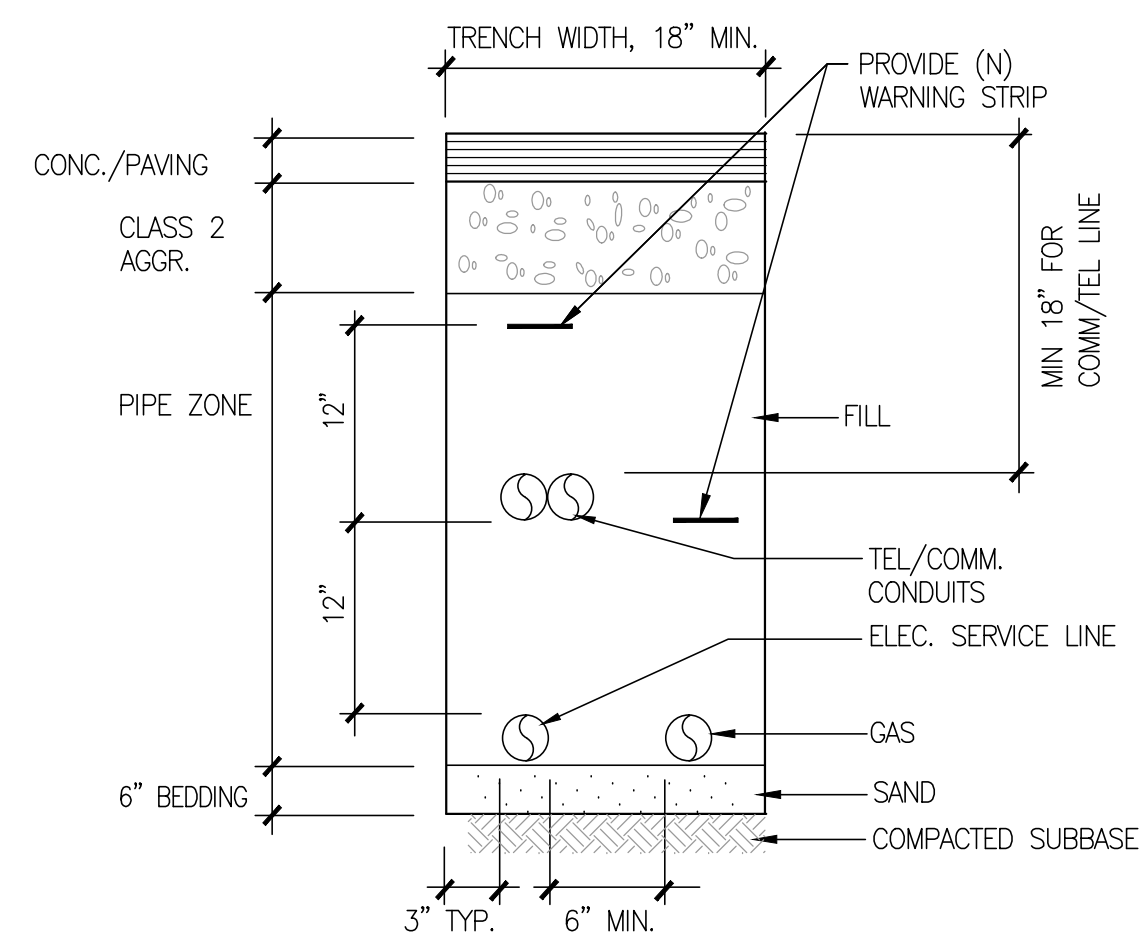
NOTES:
 WHERE EXISTING SIDEWALK OUTSIDE OF PROJECT LIMIT IS DAMAGED DUE TO THE CONSTRUCTION ACTIVITY, CONTRACTOR SHALL REPLACE THE DAMAGED ITEMS IN ACCORDANCE WITH THE CITY STANDARD AT CONTRACTOR'S OWN EXPENSE.



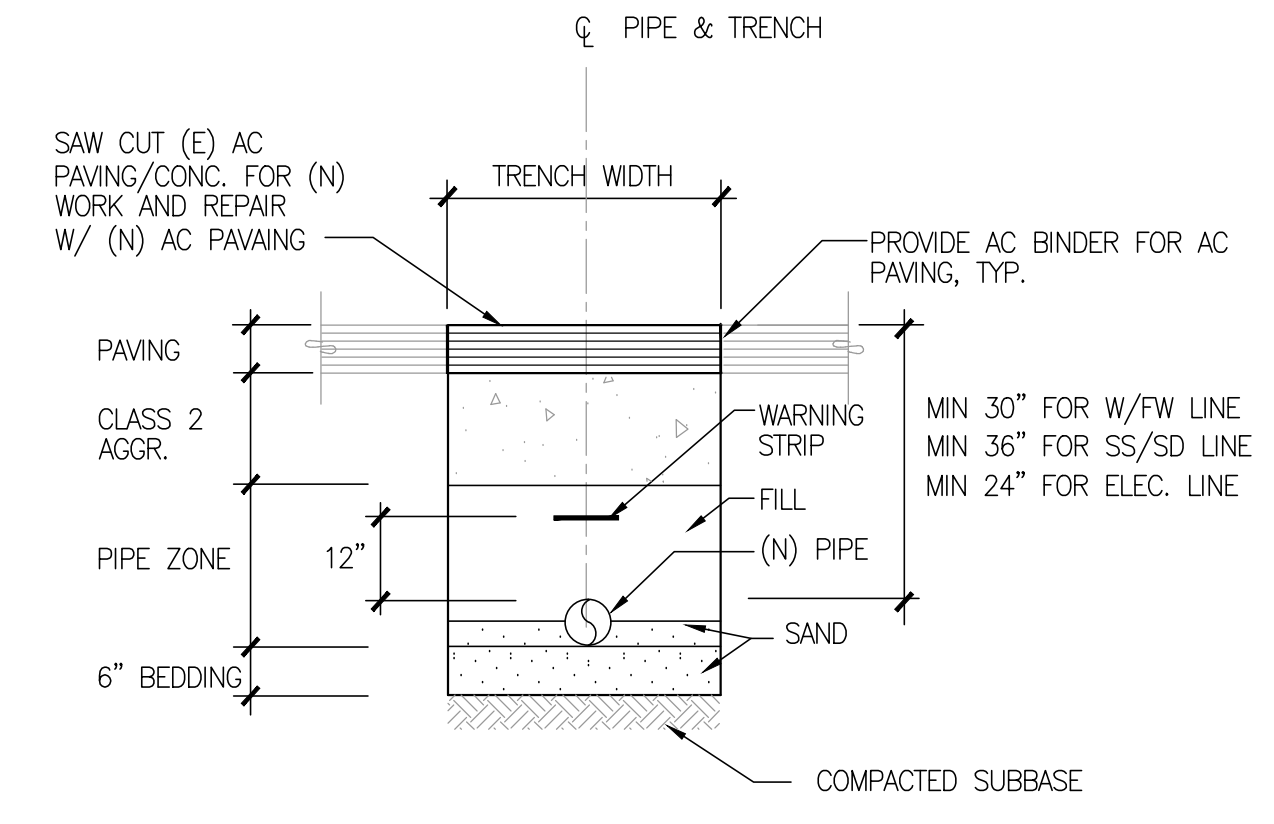
3 DETAIL TYPICAL WET WATER & SEWER JOINT TRENCH
 NOT TO SCALE



1 DETAIL CATCH BASIN & STORM LINE
 NOT TO SCALE



4 DETAIL TYPICAL DRY TEL/COMM., ELEC. & GAS JOINT TRENCH
 NOT TO SCALE



2 DETAIL TYPICAL TRENCH SECTION @ (N) UTILITY
 NOT TO SCALE

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NAME OF PROJECT

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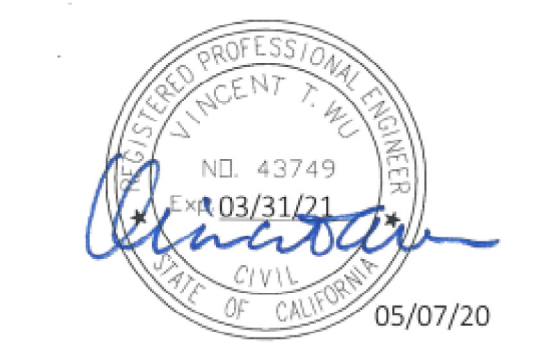
CLIENT
 PUBLIC WORKS DEPARTMENT
 CITY OF ALAMEDA

CONSULTANT

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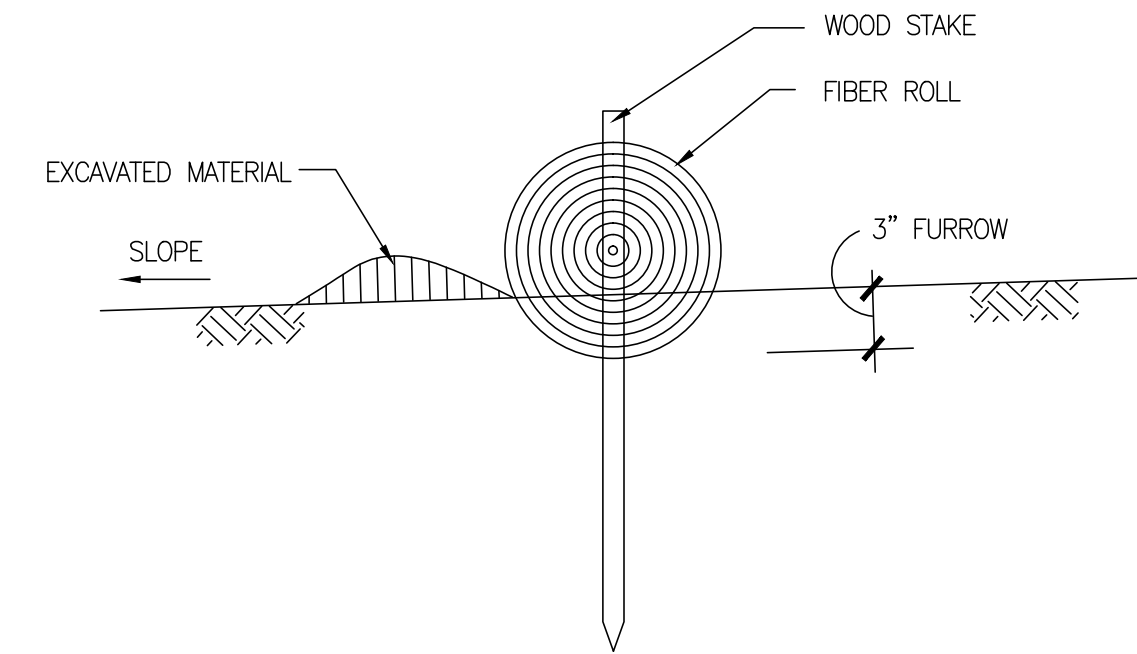
PROJECT No. :	180633
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SCALE :	AS SHOWN



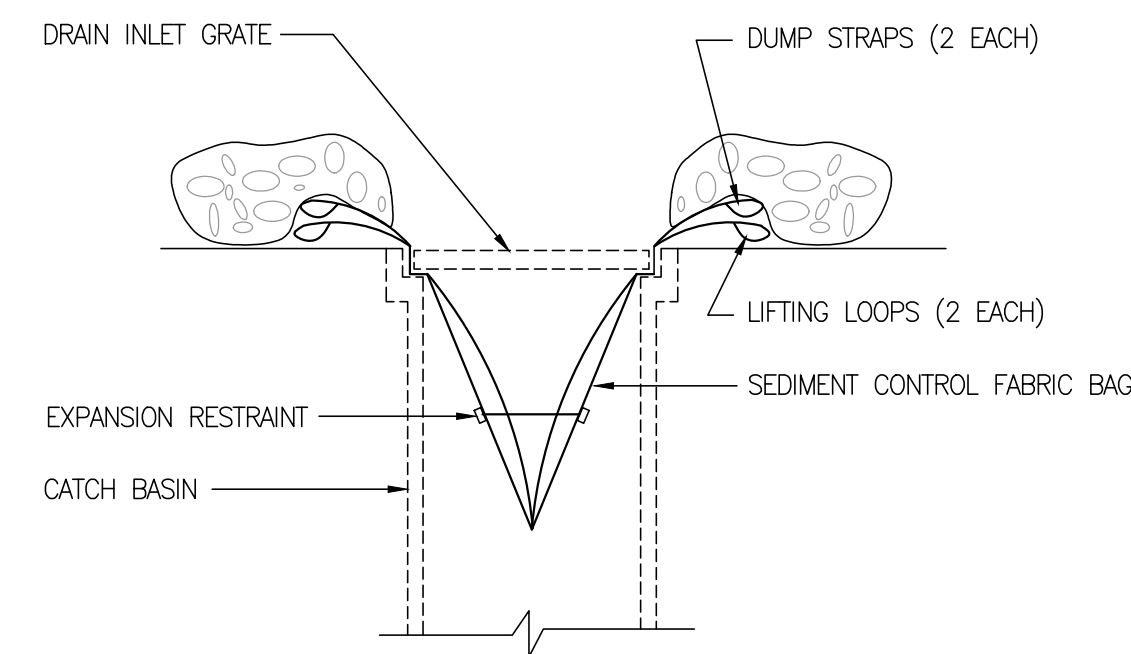
DRAWING TITLE
 STANDARD DETAILS

DRAWING No.

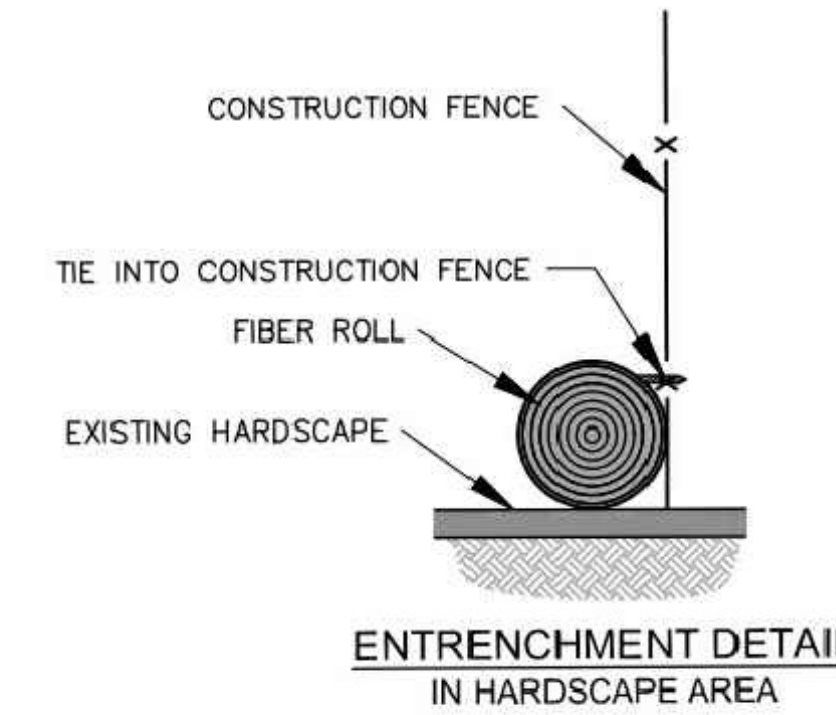
C4.3



3 DETAIL FIBER ROLLS IN FURROWS
- NOT TO SCALE



4 DETAIL SEDIMENT CONTROL BAG
- NOT TO SCALE

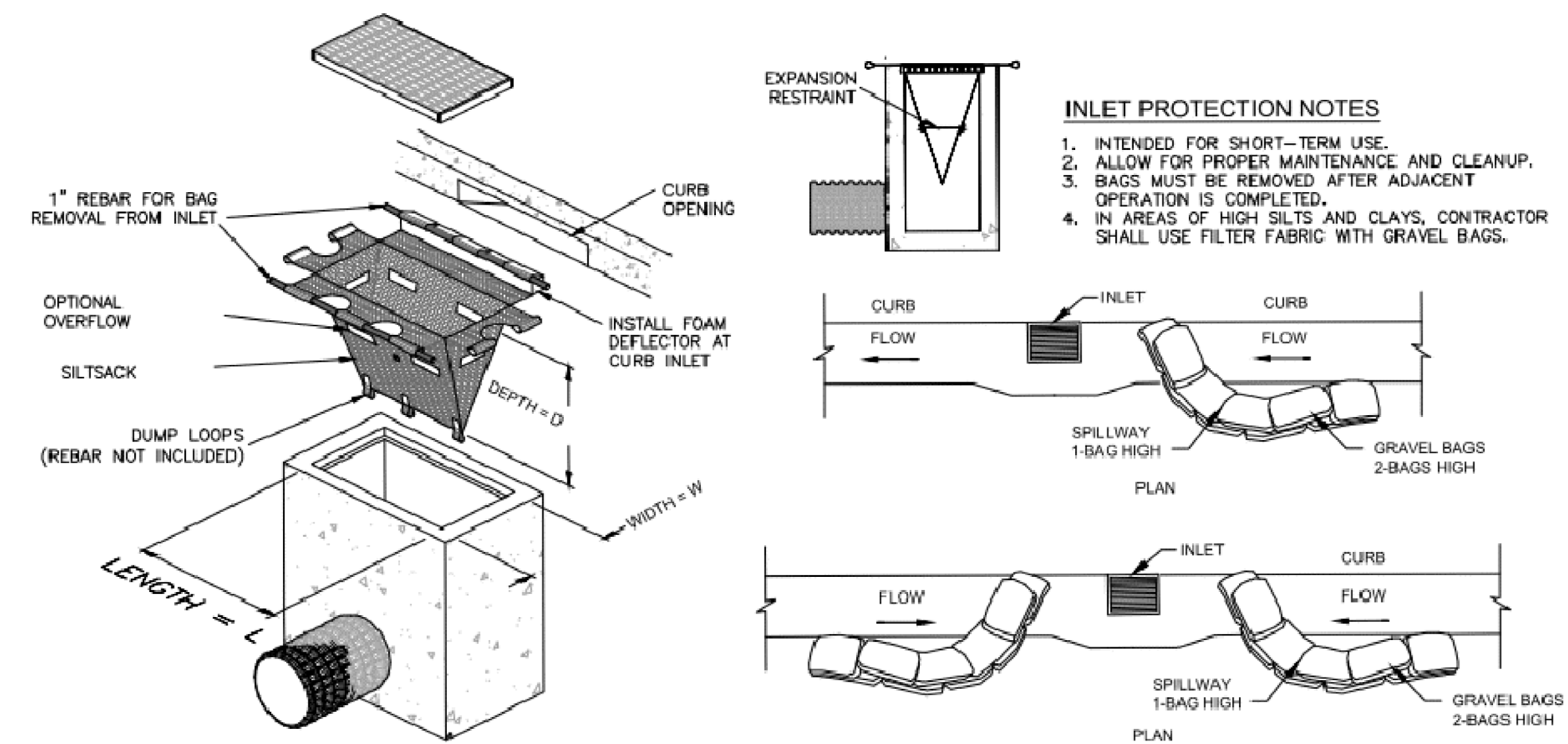


ENTRENCHMENT DETAIL IN HARDSCAPE AREA

FIBER ROLL NOTES

1. FIBER ROLLS ARE TUBES MADE FROM POROUS BIODEGRADABLE FIBER STUFFED IN A PHOTO-DEGRADABLE OPEN WEAVE NETTING. THEY ARE APPROXIMATELY 8" DIAMETER.
2. FIBER ROLL INSTALLATION REQUIRES THAT THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 2" - 4" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL. ROLLS SHOULD BE ABUTTED SECURELY TO PROVIDE A TIGHT JOINT, NOT OVERLAPPED.
3. IF FIBER ROLL IS PLACED ON PAVEMENT OR CONCRETE, SECURE IN PLACE WITH GRAVEL BAGS.

1 FIBER ROLL
- NTS



2 INLET PROTECTION
- NTS

INLET PROTECTION NOTES

1. INTENDED FOR SHORT-TERM USE.
2. ALLOW FOR PROPER MAINTENANCE AND CLEANUP.
3. BAGS MUST BE REMOVED AFTER ADJACENT OPERATION IS COMPLETED.
4. IN AREAS OF HIGH SILTS AND CLAYS, CONTRACTOR SHALL USE FILTER FABRIC WITH GRAVEL BAGS.

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2	PERMIT SET	12-31-18
3	BID SET	05-07-20

PROJECT No. :	180633
DRAWN BY :	SW
CHECK BY :	VTW
DATE :	05-07-2020
SCALE :	AS SHOWN



DRAWING TITLE

EROSION CONTROL
DETAILS

DRAWING No.

C4.4