

CITY OF ALAMEDA

MAINTENANCE SPECIFICATIONS
AND PLANS

FOR


REMOVE AND REPLACE HVAC
CHILLERS AT CITY HALL AND THE
POLICE DEPARTMENT
No. P.W. 03-13-04

MANDATORY PREBID MEETING:
LOCATION (On-Site):

Tuesday, April 16, 2013 at 10 a.m.
Alameda Police Department
1555 Oak Street
Alameda, CA 94501
(meet in front of the police department,
corner of Oak St. and Lincoln Ave.)

BID DUE DATE:
BID OPENING:
LOCATION:

Thursday, April 25, 2013 by 2 p.m.
at 2:01 p.m.
Public Works Department
950 W. Mall Square, Room 110
Alameda, CA 94501



Jesse Barajas
Public Works Superintendent

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PLANS

PROJECT

Air Cooled Chiller Replacement
City Hall
2263 Santa Clara Ave.
Alameda, CA 94501

SHEET TITLE AND NUMBER

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Air Cooled Chiller Replacement
Police Department
1555 Oak Street
Alameda, CA 94501

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CITY OF ALAMEDA, CALIFORNIA

SPECIFICATIONS, SPECIAL PROVISIONS AND PLANS
FOR
MAINTENANCE

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:

**REMOVE AND REPLACE HVAC CHILLERS AT CITY HALL
AND THE POLICE DEPARTMENT, NO. P.W. 03-13-04**

Electronic specifications and bidders forms for bidding this project can only be obtained at the City of Alameda website, www.cityofalamedaca.gov/Business/Bids-RFPs or by calling (510) 747-7900. There is no cost for the specifications.

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 "PW Supervisor" shall mean the Public Works Supervisor or Public Works Supervisor'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 give the prices proposed, **both in writing and in figures.** 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, "**REMOVE AND REPLACE HVAC CHILLERS AT CITY HALL AND THE POLICE DEPARTMENT, NO. P.W. 03-13-04**", not later than **2:00 p.m.** on the date set forth in the following paragraph.

The Mandatory prebid meeting must be attended. The meeting will be held on site at: **City of Alameda Police Department, 1555 Oak Street, Alameda, CA 94501, on Tuesday, April 16, 2013 at 10 a.m. Meet in front of the police department (corner of Oak St. and Lincoln Ave.).** City reserves the right to hold additional prebid meetings as necessary for contractors to visit the site.

Bids will be opened in the Public Works Department, 950 W. Mall Square, Room 110, Alameda, California, **at 2:01 p.m. on April 25, 2013.**

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 G.

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 PW Supervisor. 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 F). 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 E). 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 PW Supervisor 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. 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 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 and agents free and harmless from any claims, liabilities, costs, penalties or interest arising out of any failure or alleged 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 www.dir.ca.gov.

C. 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.

D. 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. Certified payrolls shall be prepared and submitted weekly to the Labor Compliance Officer, Gail Carlson, Public Works Department, 950 W. Mall Square, Room 110, Alameda, CA 94501 by the Contractor and each subcontractor. 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.

E. 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.

F. 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.

G. 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.

H. 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** from the City of Alameda, 2263 Santa Clara Avenue, Finance Department, Room 220, Alameda.
2. **Mechanical Permit** from City Hall, 2263 Santa Clara Avenue, Planning and Building Services, Room 190, Alameda.

I. 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.

J. 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.

K. 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.

L. 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).

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

N. 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.

O. 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 PW Supervisor 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.

P. NOTICES TO CONTRACTOR. Any notice required to be given to the Contractor by the City of Alameda or by the City PW Supervisor 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.

Q. 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 Underground Services Alert (USA) at 800-642-2444 forty-eight (48) hours prior to commencement of work.

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 PW Supervisor, 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 PW Supervisor, be removed and not replaced. The Contractor shall provide submittals for the PW Supervisor'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 PW Supervisor 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 PW Supervisor 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 PW Supervisor. 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.

R. 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.

S. 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 PW Supervisor 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 PW Supervisor 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 PW Supervisor 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.

T. ASBESTOS AND LEAD BASED PAINTS. Reports of a survey of possible asbestos and lead based paints, in the path of construction, was prepared by ACC Environmental.

U. 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.

V. 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 PW Supervisor 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.

W. 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.

SECTION III. SCOPE OF WORK

A. WORK TO BE DONE. The work to be done consists of furnishing all labor, tools, equipment, materials, implementing BMP's, except as herein specified, and doing all work associated with the replacement of two chillers independently located within the Alameda Police Department facility, located at 1555 Oak Street, Alameda, CA, but operate City Hall and the Alameda Police Department respectively.

The Notice to Proceed (NTP) for this project is tentatively scheduled to be issued in June 2013.

The Contractor shall provide a project schedule for review at the time of the preconstruction meeting. Contractor shall not commence work until the PW Supervisor has approved the project schedule.

The work involves the replacement of two chillers independently located within the Alameda Police Department facility, located at 1555 Oak Street, Alameda, CA, but operate City Hall and the Alameda Police Department respectively. The units consist of one 70 ton chiller that operates the City of Alameda City Hall and a 40 ton chiller for the City of Alameda Police Department, both will be replaced with like kind equipment. The work shall include but not be limited to removal and upgrade of current existing chillers, initial water treatments, supplying all required equipment including chillers, pumps and by-pass valves , preparation, integration and initiation of new system as required by the equipment manufacturer and the attached plans and specification applying industry standards for acceptance by City Representative including cleaning, Mechanical General Provisions (Section 15010), Basic Materials and Methods (Section 15050), Heating and Ventilation and Air-Conditioning (Section 15600), and Insulation (Section 15080). Other pertinent tasks include patching, caulking, making good surfaces and areas, pre-treatment, priming and system balancing and applying Best Management Practices to mitigate noise, dust or any other potential disturbances.

Contractor will provide license, labor, materials, services, skills, supervision, and necessary tools and equipment to insure that all work is executed in a professional workmanship manner. Contractor shall have the capability to perform and complete the services in all respects in accordance with the solicitation documents. Contractor hereby warrants that all services shall be performed in a timely and first-class workmanlike manner. Contractor will comply with all professional applicable trade standards and licensing regulations and mandates. Contractor shall keep the property and equipment free and clear at all times of litter and interferences. All materials, preparation and workmanship shall conform to the requirements of ASHRAE American Society of Heating, Refrigeration, and Air Conditioning Engineers and other applicable standards, and Manufacturer's Instructions for Mechanical Codes. Contractor shall provide the following services within the boundaries of the facility.

REMEDIAL DESCRIPTION

Contractor shall verify all field measurements prior to ordering equipment and verify measurements as all dimensions are factor-sized to fit in openings. Equipment will meet all specified standards and shall be identified by the manufacturer, following industry standards.

Mobilization and Procurements

Crane operations and worksite zone preparation including coordination with all regulatory agencies, City stakeholders including the Alameda Police Department, City Hall Staff and Public Works shall include staging, traffic plans and courtesy outreach as prescribed by Public Works Project Representative.

Work Included:

Furnish all specified units and equipment shown in the project drawings and/or specified in the technical specification, Section Series 15600, 15050, 15080, and 15010 prior of dismantling/disabling of current system.

DEMOLITION/ REMOVAL

Remove existing chillers securing all utilities and mounting structures including rough-in all indicated services in the necessary arrangement for making final connections to fixtures or equipment. Remove/extract chillers, refrigerants, hydraulic lubricants and pumps or equipment not earmarked for reuse within Section Series 15010 – 15600 of the technical specification. Recycle all respective reusable bi-products metals, refrigerants, lubricants as industry deems appropriate and provide written documentation to City Representative including redeemed value and licensed vendor. Contractor shall be responsible for moving all heavy equipment/furniture and provide protection from work activities including weather conditions. Contractor shall implement BMPs to provide dust and noise protection to the residents and secure opening during transition time of installation of new chillers. Contractor shall remove debris from the work site daily.

Work Included:

Demolition and removal of existing pumps, chillers, piping components, etc. and cleanup of debris of all equipment before final acceptance of this phase by the City Representative. Rough all electrical, hydraulic and control system wiring. Comply with the technical specifications, specified Section Series 15010- 15600 and the project drawings.

PREPARATION

Work Included:

Contractor shall coordinate with other sections and schedule sequence of accomplishing the work covered by this division in such a manner as not to interrupt existing services and utilities at a time which will inconvenience the occupants or drastically reduce the installation phase. Coordinate storage and all required BMPs to mitigate installation phase including; patching, framing, wiring components, flushing, air handler purging, placing hanger, sleeves, supports and

project approved engineered alterations. Contractor shall respond to any and all complaints from residents.

INSTALLATION, TESTING, PROGRAMMING, OPERATING

Contractor shall provide and install all new pumps, chillers, piping components, water system balancing, control integration, initial water treatment, purging air handlers and priming, insulation and comply with all Specifications within Sections 15010, 15080, 15050, 15600, project drawings and manufacturer recommendations, etc. as indicated on the drawings for a complete and operating system. Caulk and seal using Sikaflex-1a polyurethane elastomeric sealant/adhesive, or approved equal.

Chiller Schedule as per Building Permit

B. PLANS The following drawings are incorporated into these Specifications:

<u>PROJECT</u>	<u>SHEET TITLE AND NUMBER</u>
Air Cooled Chiller Replacement City Hall 2263 Santa Clara Ave. Alameda, CA 94501	Legend, Schedule, T24, and Site Plan, Sheet M-1 CH Floor Plans and Schematic Drawings, Sheet M-2 CH
Air Cooled Chiller Replacement Police Department 1555 Oak Street Alameda, CA 94501	Legend, Schedule, T24, and Site Plan, Sheet M-1 PD Floor & Roof Plans and Piping Schematic, Sheet M-2 PD

Contractor shall not work during City holidays. Remaining City holidays for 2013 include:

Memorial Day	Monday, May 27, 2013
Independence Day	Thursday, July 4, 2013
Labor Day	Monday, September 2, 2013
Veteran's Day	Monday, November 11, 2013
Thanksgiving Day	Thursday, November 28, 2013
Day after Thanksgiving Day	Friday, November 29, 2013
Christmas Day	Wednesday, December 25, 2013

C. 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 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 PW SUPERVISOR. The PW Supervisor 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 PW Supervisor'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 PW Supervisor, except by direction of the PW Supervisor.

C. SUPERINTENDENCE. Whenever the Contractor is not present on any part of the work where it may be desired to give directions, orders will be given by the PW Supervisor in writing and shall be received and obeyed by the superintendent or foreman in charge of the particular work in reference to which orders are given.

D. INSPECTION. The PW Supervisor 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.

Whenever the Contractor varies the period during which work is carried on each day, he shall give due notice to the PW Supervisor, so that proper inspection may be provided. Any work done in the absence of the PW Supervisor 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 PW Supervisor and accepted or estimated for payment.

Working hours in the field are restricted to 8 AM through 5 PM, Monday through Thursday, excluding City Holidays, and shall constitute “normal working hours.” The Public Works Department Inspectors work on Friday’s and can be reached at 510-747-7900. In some locations, as noted on the Plans, normal working hours may be further restricted to avoid traffic and/or school-related conflicts. 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 PW Supervisor in writing.

Inspection hours for construction shall be from 8 AM through 4 PM, Monday through Thursday, 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 PW Supervisor, 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.

E. 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 PW Supervisor, 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 PW Supervisor made under the provisions of this article, the PW Supervisor 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.

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

G. 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. 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.

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.

SECTION VI. QUANTITIES

The following preliminary estimate of the quantities of work to be done and materials to be furnished is approximate only, 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 PW Supervisor.

Quantities shall be determined by the Contractor from plans and specifications, and /or pre-construction meeting and walk - through. 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 may be awarded at the discretion of the City or depending on available funding.

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

TABULATION OF PRELIMINARY ESTIMATE OF QUANTITIES

Item No.	Description	Quantity	Unit
1.	Mobilization.	1	Lump Sum
2.	Demolition and Removal of Chillers, Pumps, and Piping Components.	1	Lump Sum
3.	Site Preparation.	1	Lump Sum
4.	Installation, Testing, Programming and Operation of Chillers, Pumps, and Piping Components.	1	Lump Sum
5.	Permits	1	Allowance

SECTION VII. CONSTRUCTION DETAILS

The construction details covered under this Section VII shall be Special Provisions.

A. MAINTAINING TRAFFIC. Attention is directed to Section 7-1.08, "Public Convenience", 7-1.09, "Public Safety", of the State of California Standard Specifications, and to Section II, Article O of these specifications.

B. EXTENT OF CONTRACT. The Contractor shall furnish all labor, material has herein specified, tools and equipment necessary and shall do all the work necessary to construct and put in complete order for use the construction project contemplated by these specifications, the various items, and in the approximate quantities tabulated in the Proposal (Exhibit A).

The work to be done shall be included in the service, repairs and updates in the Lump Sum price and all related services and shall consist of furnishing all labor, licensing, permits, vehicles, tools, equipment, materials, parts, components, except as herein specified, and doing all the work associated with replacing the chillers at City Hall and the Police Department in accordance with all specifications, drawings and manufacturer recommendations.

1. MOBILIZATION (BID ITEM NO. 1). Perform work as described this Specification, Special Provision and Plans; Technical Specifications, Exhibit A, Bidder's Proposal; and detailed in the plans.

Payment shall be at the contract lump sum price to Mobilize and procure all the supplies and necessary equipment prior to commencement of work and apply BMPs for the removal of both units using a crane and staging as per the specifications, complete and in place. Such payment shall include full compensation for furnishing all labor, tools, equipment and materials, applying BMPs, meetings, and doing all the work necessary for Replace the Chillers at City Hall and the Police Department.

2. DEMOLITION AND REMOVAL OF CHILLERS, PUMPS, AND PIPING COMPONENTS (BID ITEM NO. 2). Perform work as described this Specification, Special Provision and Plans; Technical Specifications, Exhibit A, Bidder's Proposal; and detailed in the plans.

Payment shall be at the contract lump sum price for Demolition and Removal of Chillers, Pumps and Piping Components as stipulated in the technical specification, Sections 15010, 15050, 15080, 15600 and the project drawings, including responsible documented recycling, complete and in place. Such payment shall include full compensation for furnishing all labor, tools, equipment and materials, applying BMPs, meetings, and doing all the work necessary for demolition/removal work on and around City Hall and the Police Department.

3. SITE PREPARATION (BID ITEM NO. 3). Perform work as described this Specification, Special Provision and Plans; Technical Specifications, Exhibit A, Bidder's Proposal; and detailed in the plans.

Payment shall be at the contract lump sum price for Site Preparation including flushing, purging, and all aspects related to site preparation specified in the technical specification, Sections 15010, 15050, 15080, 15600, and the project drawings, including coordination to minimize interruptions to building operations, complete and in place. Such payment shall include full compensation for furnishing all labor, license, tools, equipment and materials, applying BMPs, meetings and doing all the work necessary for site preparation work on and around City Hall and the Police Department.

4. INSTALLATION, TESTING, PROGRAMMING, AND OPERATING OF CHILLERS, PUMPS, AND PIPING COMPONENTS (BID ITEM NO. 4). Perform work as described this Specification, Special Provision and Plans; Technical Specifications, Exhibit A, Bidder's Proposal; and detailed in the plans.

Payment shall be at the contract lump sum price for Installation, Testing, Programming, and Operating of Chillers, Pumps and Piping Components as stipulated in the technical specification, Sections 15010, 15050, 15080, 15600 and the project drawings, including responsible documented recycling, complete and in place. Such payment shall include full compensation for furnishing all labor, tools, equipment and materials, applying BMPs, meetings and doing all the work necessary for Installation, Testing, Programming, and Operating work on and around City Hall and the Police Department.

5. PERMITS (BID ITEM NO. 5). Refer to Section II, Item H the specification. The amount shown in the bid form is an allowance which will change after the contract is awarded. Contractor will provide copy of receipt(s) as proof of payment

Payment shall be made for the actual cost of the permit(s).

TECHNICAL SPECIFICATIONS FOR REMOVE AND REPLACE HVAC CHILLERS AT CITY HALL AND THE POLICE DEPARTMENT

Section 15010 - Mechanical General Provisions

Section 15050 - Basic Materials and Methods

Section 15080 - Insulation

Section 15600 - Heating Ventilation and Air Conditioning

SECTION 15010
MECHANICAL GENERAL PROVISIONS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. The Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 1, General Requirements, apply to the work specified in this section.

1.02 DESCRIPTION OF WORK

- A. Work Included:
 - 1. Basic Material and Methods Section 15050
 - 2. Insulation Section 15180
 - 3. Heating, Ventilation and Air Conditioning Section 15600.
 - 4. Contractor to remove and recycle existing chillers and pumps at both City Hall and Police Department work sites.
- B. General Mechanical Provisions Sections applies to the above sections.
- C. Provide materials and systems as indicated on the drawings. Systems after installation shall be complete and fully operable. Interpret the word “provide” to mean “furnish, deliver and install ready for use”.
- D. Bidders shall submit price based upon Trane chillers and Bell & Gossett pumps specified herein as basis of design.
Prices from alternative manufactures listed may also be proposed for evaluation.

1.03 DEFINITIONS

- A. Contractor: The General Contractor along with the specific subcontractor assigned by the General Contractor to perform the work.
- B. Furnish: Supply and deliver complete.
- C. Install: Place, secure, and connect as required to make fully operational.
- D. Rough-in: Provide all indicated services in the necessary arrangement for making final connections to fixtures or equipment.

- E. Start-up: Place system or systems in operation using proper sequences for starting and where required equipment manufacturers' personnel to start equipment.
- F. Use (verb): Furnish and install as defined above.
- G. Connect: Complete hook-up of item with required services.
- H. Outdoor: Outside of building structure, including inside crawl spaces, etc.
- I. Indoor: Enclosed within building structure, excluding inside crawl spaces, etc.
- J. Concealed: Inside building, above ground and located within walls, furred spaces, crawl spaces, attics, above suspended ceilings, etc. In general, any item not visible or directly accessible.
- K. Exposed: Either visible or subject to mechanical or weather damage, indoors or outdoors, including areas such as mechanical and storage rooms. In general, any item that is directly accessible without removing panels, walls, ceilings, or other parts of structure.
- L. Above Grade: Not buried in ground and not embedded in concrete slab on ground.
- M. Below Grade: Buried in ground or embedded in concrete slab on ground.
- N. Owner- City of Alameda, CA.

1.04 LEGAL REQUIREMENTS, CODES, AND REGULATIONS

- A. General: Comply with applicable sections of State and local codes, laws, ordinances, rules and regulations of authorities having jurisdiction.
- B. Published specifications, standards, tests or recommended methods of trade, industry or governmental organizations apply to the work of this section where cited by abbreviations noted below.
- C. All regulations and standards shall be the latest issue unless the governing authorities requires the use of any earlier issue.
 - 1. Air Moving and Conditioning Association (AMCA).

2. American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE).
3. American National Standards Institute (ANSI).
4. American Society of Mechanical Engineers (ASME).
5. American Society for Testing and Materials (ASTM).
6. American Conditioning and Refrigeration Institute (ARI).
7. Associated Air Balance Council (AABC).
8. American Welding Society.
9. Hydraulic Institute.
10. National Bureau of Standards (NBS).
11. National Electric Code (NEC).
12. National Electrical Manufacturers Association (NEMA).
13. National Fire Protection Association (NFPA).
14. Sheet Metal and Air Conditioning Contractor's Association (SMACNA).
15. Underwriters Laboratories, Inc. (U.L.).
16. Uniform Building Code (UBC).
17. Uniform Mechanical Code (UMC).
18. Uniform Plumbing Code (UPC).
19. Uniform Fire Code (UFC)
20. California Administration Code.
21. Occupational Safety and Health Administration (OSHA).
22. National Environmental Balancing Board (NEBB).
23. State Fire Marshall.
24. Owner's Insurers.
25. Any other applicable Federal, State, and Local laws and regulations.

D. Minimum Requirements:

1. Comply with requirements of authorities as minimum acceptable work.
2. The drawings and specifications take precedence when they call for materials or construction of better quality or larger size than required by codes, laws, rules and regulations.
3. Do not construe anything in these drawings and specifications to permit work not conforming to these requirements. The regulations shall govern where they require higher standards or are violated by the drawings and specifications. Consider ruling

and interpretations of the enforcing agencies as part of these specifications.

1.05 DRAWING AND SITE

- A. Site Conditions: Examine the site and all mechanical and electrical, architectural, structural, and other drawings and accept such conditions and make allowances for them in preparing the bid, it is the responsibility of the Contractor to coordinate exact requirements governed by actual job conditions. Check all information and report any discrepancies before submitting bid or fabricating work, and do not make changes or additions that are subject to additional compensation without written authorization. Any changes made without the aforementioned authorization shall be at Contractor's own risk and expense.
- B. Locations:
1. All scaled and figured dimensions are approximate and are given for estimating purpose only. Before proceeding with any work, carefully check and verify all dimensions, sizes, etc.
 2. So far as possible, the work has been indicated on the drawings in such positions as to suit and accommodate the work of the other trades, but the work as indicated is largely diagrammatic and is shown primarily for clarity. Contractor is responsible for the correct placing of his work and proper location and connection of his work in relation to the work of other trades. Space conflicts which occur during or after installation of work caused by the failure to consider all such requirements shall be resolved by the contractor to the satisfaction of the Engineer and Owner at no additional expense.
 3. Where apparatus and equipment have been indicated on the drawings, dimensions have been taken from typical equipment of the class indicated. Carefully check the shop drawings to see that the equipment will fit into the spaces provided.
 4. Where equipment is furnished by others, verify dimensions and correct locations of this equipment before proceeding with roughing-in of connections.

5. Follow manufacturer's directions where they cover points not specifically indicated; however, if they are in conflict with these drawings and specifications, obtain clarifications from Engineer before starting work.
6. Install equipment and materials with all working parts readily accessible for inspection, repair, and renewal. The right is reserved by Owner to make reasonable changes in locations of equipment on the drawings prior to rough-in without involving additional expense to the Owner.

1.06 SAFETY AND INDEMNITY

- A. Safety: The Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.
- B. No act, service, drawing review or construction review by the Owner, the Engineer, the Engineers or their consultants is intended to include review of the adequacy of the Contractor's safety measures, in, or near the construction site.
- C. Indemnity: The Contractor will hold harmless, indemnify and defend the Owner, the Engineer, the Engineers and their Consultants, and each of their officers and employees and agents, from any and all liability claims, losses or damage arising or alleged to arise from the performance of the work described herein, but not including the sole negligence of the Owner, the Engineer, the Engineer and his consultants and each of their officers and employees and agents.

1.07 SUBMITTALS OF MATERIALS AND EQUIPMENT

- A. General: Within 15 calendar days after award of contract and ample time to avoid delay of work. Make submittals of the following, and in the order as listed. Refer to Division 1, Section 1500.
 1. Material list.
 2. Manufacturer's data.
 3. Shop drawings.
- B. Material List:

1. Submit a complete list of material and equipment proposed for the job, including manufacturer's name.
2. Reference all listings to paragraphs to which they are applicable.
3. List only name of manufacturer. Catalog numbers and performance data not to be included at this time.
4. Submit all materials and equipment, even if same is as specified or shown on the drawings.

C. Manufacturer's Data:

1. Submit after review of material list.
2. Include complete catalog information such as construction, capacity, types, pump curves, finish, mounting methods and operating noise levels.
3. Reference all listings to paragraphs to which they are applicable and submit in brochure form.
4. For any material specified as ASTM, Federal Specifications or trade standards, furnish the manufacturer's or vendor's certifications that the material furnished for the work does in fact equal or exceed such specifications.

D. Submittals will be checked for general conformance with the design concept of the project but acceptance does not guarantee quantities shown and does not supersede requirements of these Sections to properly install work.

E. Submittals for a product or material or area of work must be complete. Incomplete submittals will not be accepted.

F. Shop Drawings: Submit the following to 3/8-inch scale or larger, and drawn by competent draftsman.

1. Equipment and layout drawings to scale, including equipment piping, accessories, showing clearance for operating and servicing.
2. Piping diagrams of all major systems, showing all equipment, accessories, sizes.
3. Automatic temperature control systems, wiring diagrams, control panel boards. Wiring diagrams shall include all low and line voltage wiring and equipment.

4. Shop drawings of all mechanical equipment supports.
5. Details and calculations by a registered structural engineer of any changes in equipment supports due to change revision in equipment design, equipment manufacturer, substitute equipment or other causes.
6. Complete duct work and piping layout showing all elevations and crossover. All valve boxes and air outlets to be coordinated with Engineer.
7. Backing requirements for all anchorages.

1.08 SUBSTITUTION OF MATERIAL

A. Basis for Design:

1. Materials shall be new, standard, and the best quality of the respective kinds for the purpose intended, and satisfactory to the Engineer, Owner and Engineer. Existing materials or equipment shall not be reused, unless specifically stated so in the drawing or specifications.
2. The manufacturer's name and product listed on the drawings or listed first in these specifications is used as a basis for design to establish space requirements, standard of quality and performance, and all others shall be considered as substitutes.
3. Whenever a product is indicated or specified by patent or proprietary name and/or by name of manufacturer and is followed names of other similar equipment manufacturers, or is followed by the words "or approved equal", such names are used for the purpose of facilitating description of material or process desired and shall be considered as substitutes.
 - a. Contractor may offer any material or product, which in his opinion is equal in every respect to that specified and may be selected at Contractor's option and responsibility and must match those selected for design, and implies that the standard cataloged product could require modifications to meet specified requirements in order that it will be acceptable. The responsibility for proving that specified

requirements have been met remains with the manufacturer and Contractor.

- b. If material offered by Contractor is not, in the opinion of the Engineer, equal in every way to that specified, then the Contractor must furnish material or product specified.
- c. Only one request for substitution for each material or product will be reviewed.
- d. Engineer may charge Owner, who will back charge Contractor, for services rendered in review of substitutions.

One or more other manufacturer's names listed in these specifications or followed by the words "or approved equal" acceptable for quality only and will be considered as a substitute. Equipment of other manufacturers listed as equal, shall be treated as substitute material and shall conform to all requirements.

- C. Substitutions: Any equipment or material that is not used for basis of design and not listed first by name, in these specifications.
- D. Liability of Substitutions: Performance of substitutions must be equal or superior to the item used as basis for design and must meet all requirements of above "or approved equal" clause. Should the substituted item fail to perform in accordance with specifications, replace same with the originally specified item without extra compensation.
- E. All substitutions must be approved by Engineer. Engineer reserves the right to require original specified item.
- F. Mark submittals "Exactly as Specified" or accompanied by a letter from the supplier explaining in detail what difference, if any, exists between the submitted item and the specified item. Failure to point out difference will be considered cause for disapproval. The Engineer and/or Engineer will not assume any responsibility for differences concealed or otherwise not brought to their attention, and the Contractor will be required to correct any deficiencies or differences discovered at a later date, and assume responsibility for any delays, damage, and/or expenses incurred by others due to such action. The contractor shall assume responsibility for the cost of redesign and modification necessary due this substitution.
- F. Revision or additional work required due to the use of substitute materials shall be fully indicated on detailed drawings submitted with the

shop drawings. Any additional electrical, structural, architectural design, materials or labor required for installation of the substitute equipment is the sole responsibility of the Contractor and additional payment for this work will not be considered. Substitutions proposed because of insufficient time for delivery of previously approved item(s) shall be accompanied by the original purchase order with date and “received” stamp by the Vendor

1.09 PERMITS AND UTILITY CONNECTIONS

- A. Bear the cost of all construction related to utility services, from the point of connection shown on the Contract Documents. This includes any piping, excavation, backfill, meters, boxes, check valves, backflow prevention devices, general service valves, concrete work and the like, whether or not the work is performed by this contractor, the water/sanitation district or any other governmental agencies. Provide, procure and pay for all permits, services, meters, licenses, fees, etc., required to carry on and complete this work.

1.10 WORKMANSHIP AND SUPERVISION

- A. Workmanship shall be first class throughout and performed only by competent and experienced workmen in a manner satisfactory to the Engineer. Constant supervision of the work either by the Contractor or his competent representative shall be maintained.

1.11 SERVICE CONNECTIONS

- A. Arrange and pay all costs for utilities required to complete all work of this section. Connection to all on-site services, payment of service charges and provision for any installation of temporary utilities are included. On site work which relates to other crafts shall be coordinated with the work of this section.
- B. Upon completion of the work, deliver to the Engineer, all certificates of approval, signed by all authorities having jurisdiction.

1.12 PROTECTION OF EXISTING SERVICES

- A. In the area of the new construction there will be found a number of existing services. Protect active lines and maintain them in good operating condition. Whatever information could be obtained has been indicated on the drawings; however, this information may not have been

field checked, or checked by excavation and its accuracy is not guaranteed. Be responsible for pointing out to other crafts all active lines shown on the drawings or discernible from site investigation.

1.13 INTERRUPTION OF EXISTING SERVICES AND UTILITIES

- A. Coordinate with other Sections and schedule sequence of accomplishing the work covered by this division in such a manner as not to interrupt existing services and utilities at a time which will inconvenience the Owner.

1.14 CONFERENCE WITH ENGINEER

- A. Confer with the Engineer to establish exact locations, mounting heights, and arrangements of all the finish work prior to roughing-in. Minor relocations and rearrangements of the work re-requested at this time shall be included at no additional cost to Owner.

1.15 MANUFACTURER'S INSTALLATION DETAILS

- A. Follow manufacturer's installation details, wherever such details are furnished with the equipment, except as specifically modified on the drawings, and provide any valves or special fittings or other specialty called for by them.

1.16 STORAGE AND SHOP

- A. Provide all temporary storage and shop rooms that may be required at the site for the safe and proper storage of tools, materials, etc. These rooms shall be constructed only in the locations approved by the Engineer and must in no way interfere with the proper installation and completion of other work or the continuation of or with existing operations during the entire construction.

1.17 CUTTING AND REPAIRING

- A. Include in the work all cutting and repairing necessary and required for this installation. Structural members shall not be cut, notched or burnt except with written approval of the Engineer. Repairing shall be performed by workmen skilled in trades involved, in a manner satisfactory to the Engineer.

1.18 PROTECTING AND CLEANING

- A. Throughout the progress of the work, protect all pipe, conduit, ducts, fixtures, and equipment from intrusion by rain, dirt, and foreign matter, and from damage of any kind. Thoroughly clean all vitreous, metallic, plastic, and painted surfaces of equipment prior to final painting and prior to final inspection.
- B. Replace with new materials any damaged work, with-out additional cost to the Owner so that the entire installation will be left in new condition.

1.19 PROTECTION OF BUILDING

- A. Protect new and existing building structures and adjacent finished surfaces during construction. Patch, repair, and refinish existing work damaged by work under this Division to match adjacent undisturbed areas. Patching, repair, and refinishing is to be performed by workmen skilled in the Sections involved.

1.20 NOISE AND VIBRATION

- A. Cooperate in reducing objectionable noise and vibration. If noise or vibration, as a result of improper installation, occurs in the building, correct these conditions at no costs to Owner. Noise criteria shall conform with ASHRAE Guidelines. Use vibration isolators, integral spring bases, hoses and sound insulation material as required to keep transmitted noise below ambient noise level of surrounding areas.
- B. Construction Noise: Refer to specific requirements in the General Conditions and Division 1.

1.21 TESTING

- A. Provide tests specified hereinafter, where applicable. If requested, provide written verification that the tests have been successfully completed.

1.22 REVIEW OF CONSTRUCTION

- A. Work may be reviewed at any time by representatives of Engineer, Owner and regulating authorities.
- B. Advise Engineer that work is ready for review at the following times:

1. Prior to concealment of any work.
 2. When requirements of contract have been completed.
 3. Prior to installation of suspended ceiling.
- C. Do not conceal work without being inspected, tested and approved by the authority having jurisdiction and the Engineer. Any material labor, etc required to uncover and cover work because it was concealed prior to approval shall be done at no additional cost to the Owner.
- D. Maintain on job a set of approved specifications and drawings for use by Engineer's representatives.

1.23 SITE CLEAN UP

- A. **After all other work has been accomplished, clean all exposed piping, ductwork, fixtures, equipment, and supports. Remove all debris of work of this Division from each room and site daily.**

1.24 FINAL OBSERVATION

- A. Engineer shall make final observation of the job and note unacceptable items in a punch list. Final acceptance shall not be made until all items on this list have been corrected.

1.25 DAMAGE BY LEAKS

- A. Be responsible for damage to any part of the premises caused by leaks in the pipe or fixtures installed under applicable section for the period of twelve (12) months from the date of acceptance of the work by the Owner.

1.26 GUARANTEE

- A. General: Guarantee all equipment furnished under this specification for a period of one year from date of acceptance against defective workmanship and material, and improper installation. Upon notification of failure correct complaint without cost to the Owner.
- B. Parts Warranty: Provide standard warranty of manufacturer of more than one year for replacement of parts to apply after expiration of above period. Furnish replacement parts to Owner or his service agency as

directed. Furnish Owner printed manufacturer's warranties complete with material included and expiration dates upon completion of project.

- C. Where extended warranties are available Owner shall be given the option of accepting or rejecting such warranty.

1.27 OPERATING AND MAINTENANCE DATA

- A. General: Submit to the Engineer prior to acceptance of the installation, complete and at one time. Partial or separate data will not be accepted. Data shall consist of 3 copies of the following minimum submissions.

1. Piping Identification Schedule. Copy of charts as specified under valve tags and charts.
2. Equipment. List nameplates, including nameplate data and system served.
3. Manufacturer's Literature. Three copies of manufacturer's instructions for operations and maintenance of all mechanical equipment, including replacement part list.
4. Written Instructions: Typewritten instructions for operation and maintenance of these systems composed of Operating Instructions and Maintenance Instructions and Maintenance Schedule. Submit three copies to the Engineer for approval.
 - a. Operating Instructions. A brief description of the system indicating proper setting of switches and other equipment furnished for the purpose of providing control of the system and its components by operator. Do not include adjustments requiring the technical knowledge of the service agency personnel.
 - b. Maintenance Instructions: A list of each item of equipment requiring inspection or lubrication, describing the performance of such maintenance, and the month of the year when each item of equipment should be inspected or serviced.
 - c. Maintenance Schedule: A list of each item of equipment requiring maintenance, showing the exact type of bearing on every component of item of equipment, and the

frequency when each item of equipment should be inspected or serviced.

- d. Sequence of operation and field trouble shooting procedure.
- B. Verbal Instructions: Upon completion of the work, and at a time designated by the Engineer, provide a competent engineer from each supplier of the afore listed major items of equipment to instruct the Owner's representative in the operation and maintenance of the equipment supplied by his company including sequence of operation.
- C. Binders: Three complete sets of the above data in loose ring binders with permanent covers with permanent identifications on back and index.

1.28 RECORD DRAWINGS

- A. Record of Job Progress: Keep an accurate dimensional record of the "as built" locations of all work. This record shall be kept up-to-date on sepia transparencies as the job progresses and shall be available for inspection at all times. It shall be field verified by the Owner's Inspector prior to each monthly application for payment.
- B. Record of Installation: Refer to Division 1,
.
- C. Include on "as built" drawings:
 - 1. Main shut-off valves plainly marked and identified.
 - 2. Position of all buried or concealed mains accurately dimensioned, both horizontal and vertically.
 - 3. Changes in location of piping, duct or equipment.
 - 4. Ceiling access panel locations.
- D. Submit as-built drawings to the Facilities Manager, City of Campbell at project close-out .

1.29 BRIEF FORM OF SPECIFICATIONS

- A. Specifications are written in an abbreviated or streamlined form and includes descriptive phrases and incomplete sentences.

- B. Omissions of words or phrases such as “The Contractor shall”, “In conformity therewith”, “shall be”, “As noted on the drawings”, “according to drawings”, “In accordance with specifications”, “an”, “the”, and “all”, etc., have been done intentionally.

- C. This method has been employed for the purpose of clarity, and it is hereby declared that all implied words and phrases which would be necessary to make the language grammatically complete are included herein by intent with the same force as though written in each sentence.

SECTION 15050
BASIC MATERIALS AND METHODS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. The drawings and general provisions of the contract, including General and Special Conditions and Division 1, General Requirements and Section 15010, 15180 and 15600 apply to the work in this Section.

1.02 MATERIALS

- A. Materials and equipment to be those of major and reputable manufacturers with ability to render competent and thorough local organizations, and to expeditiously provide spare parts.
- B. In addition to material and equipment specified, also provide incidental materials required to effect complete installation. Such incidental materials include solders, tapes, caulking, mastics, gaskets, etc.

1.03 ELECTRICAL REQUIREMENTS

- A. Electrical work in Division 15 must conform to requirements of Electrical Division 16.

1.04 SPECIAL TOOLS

- A. Furnish to the Owner the following:
One set of any special tools required to operate, adjust, dismantle or repair any equipment of this Division. "Special Tools" means those not normally found in possession of mechanics or maintenance personnel.

PART 2 PRODUCTS

2.01 GENERAL

- A. Conform to type and quality of equipment and materials as described in this part of the specifications where applicable.
- B. Products applicable to several mechanical trades are specified in this section.

Products applicable to specific trades or for special applications are specified in other sections.

Similar products and materials specified in other sections supersede those specified in this section.

- C. Provide equipment and materials of new and recent manufacture.
- D. For each category of equipment and material provide the same manufacture and type.

2.02 VALVES

- A. If no shut-off valve is indicated, provide a hand valve at outlet and the inlet connection to all equipment. Provide the proper valve trim for service intended.
- B. Do not use solder end valves; provide threaded or flanged adapters in copper piping systems.
- C. Install all valves so their stems are located above horizontal plane of the pipe in which they are installed. In general locate valves within 6 feet of the floor, out from under equipment, and in accessible locations with adequate clearance around hand wheels or levers for easy operation. Interior valves below floor and exterior valves below grade shall be installed with stems in the vertical up position. Provide fixed extension stem to reach within 6" of floor or grade on all valves located 12" or more below floor or grade. Terminate stem with 1-1/2" square male lug. Provide Owner with three (3) 24 inch stem Tee handle wrenches with 1-1/2" female lug.
- D. Provide all valves, cocks and strainers full pipe size unless indicated otherwise.
- E. Provide Apollo, Nibco or Stockham, Demco valves. All ball or butterfly valves for general use shall have EPT seats. Valve handles, except in ground, shall be infinite throttling with memory stop. Provide chain operators on all valves located 8'-0" or more above the floor.
- F. General Use Valves:
 - 1. Hand: Through 2-1/2": Apollo ball valve, 3 piece Series 82-200 for copper pipe and 83-100 for steel pipe.
 - 2. Hand: 3" and larger : Apollo Series 88-100 Series Butterfly valve, lug type with infinite throttling and memory stop handle.

3. Balance: B and G circuit setters.
4. Pressure reducing: Watts pressure regulator model U5 Series with built in strainer. Size and pressure settings per requirements.
5. Flanged iron body OS & Y gate: Stockham G-623 gate valve for systems operating below 125 psi.
6. Bronze Gate: Stockham B-122 for systems up to 125 psi operating pressure.
7. In-line liftcheck; Valves 3" and smaller Stockham B-316.
8. Check: 2-1/2" and larger Grinnell Figure No. 402-460 or Metraflex.
9. Lubricated plug valves shall be Nordstrom 114, Powell 2202 or approved equal.

G. Cross connection control: Provide backflow prevention in accordance with code, for each piece of equipment capable of contaminating the potable water system. Where permitted by code, vacuum breakers may be used. Use backflow preventers in all other instances.

- H. Backflow preventers: Watts Series 909, or Febco, consisting of strainer with blowoff, two gate valves, two check valves, a pressure differential relief valve and test cock. Pipe relief discharge to a floor or roof drain. Size to be full line size.
- I. Vacuum breakers: The same size as the line in which they are installed, Watts 288A. Use polished chrome plated finish when exposed in finished areas. Use Watts 8A vacuum breaker at all hose connections.

2.03 PIPING SPECIALTIES

- A. Thermometers and Wells: Weksler, adjust-angle type AF, 5" diameter, or equal Philadelphia, Ashcroft. All stainless steel construction, bi-metal thermometer.

25 - 125 degrees F for chilled water

50 - 300 degrees F for heating hot water

- B. Pressure Gauges:

Weksler Model BA13P or equal Marsh or Ashcroft, 3-1/2" diameter phenol case with black numbers on white face. Install with type 35 gauge

cocks. Select dial range so that the normal operating pressure will occur as close to midpoint of the dial range as possible. Provide pressure, vacuum or compound gauges as required. Use compound gauges for systems operating at plus 5 psig or lower.

Provide differential gauge between the inlet and outlet of each pump, the inlet and outlet of each back pressure relief valve, and where indicated on drawings. The gauges shall suit the application and shall be as indicated on the drawings.

C. Temperature and Pressure Test Stations:

Peterson Engineering Company, 1/4" or 1/2" MPT "Pete's Plug" with solid brass fitting cap. Use Nordel valve core for water, and neoprene valve core for air. Use 1/8" diameter test probes at all pump inlets and outlets and at other locations as indicated on the drawings. Furnish two (2) 25-125 degrees F. and (2) 50-300 degrees F test thermometers with 1-3/4" diameter dial and 1/8" diameter probe gauge adapters, and two (2) pressure gauges as specified above.

D. Air Vents: Taco or Bell & Gossett Model 107 where automatic type is shown. Install with shut-off valves or cocks and drain to a floor sink or drain. Provide Lunkenheimer #1178-3/8 inch cock for manual air vent at coils and at each high point in piping systems, pipe drain to floor sink or floor drain. Air vents at reheat coils in attic spaces shall not be extended to drains.

E. Strainers: Metraflex 125 # Style TF, Armstrong, or Muessco flanged valve with magnetic screen assembly "Y" pattern, 175 psi w.p. Square mesh or .125 perforations. Install all strainers with a blow-off hose valve with hose adapter. Strainer shall have gasketed cover with straight thread. Sizes 2" and below Style S with screwed connections.

F. Flow Switches: Mc Donnell FS 4-3.

G. Earthquake gas Shutoff: Koso, California Earthquake, or equal, high pressure style

2.04 PIPE HANGERS AND SUPPORTS

Unless otherwise specified under other Mechanical Section of the specifications, or unless otherwise detailed on the drawings, all piping shall be supported with Grinnell, Elcen, Superstrut or approved equal, pipe hangers and supports, equivalent to Grinnell catalog numbers given below. All hangers and supports furnished for this installation shall be of one make if possible.

SCHEDULE OF HANGERS AND SUPPORTS

	Suspended from or Hangers Supported on (swivel) for Concrete slab pipes 1-1/2 and	Attachment 282 CB insert (see paragraph B. Below).	Pipe 104 smaller. clevis) for inch and pipes.
260			
2			
larger			
above	Steel Structural	225 and 228 beam clamps 226 and 266 channel clamps. 66 and 252 brackets.	Same as
	Walls	168 hook	None
	Floor Horizontal	259 saddle with stanchion stand and floor flange.	None
	Floor Vertical	261 riser clamp.	None

Maximum spacing for supports or hangers and minimum rod sizes for horizontal runs of piping shall be as given below.

SCHEDULE OF HANGER RODS AND SPACINGS

Plastic pipe shall be supported at 4 feet maximum.

Pipe Size Inches	Rod size Inches	Steel Pipe Feet	Copper Tubing-FT	Cast Iron Pipe Feet
1 and smaller	3/8	7	5	-
1-1/4	3/8	10	7	-
1-1/2 - 2	3/8	10	8	5
2-1/2 - 3	1/2	12	10	5
4 - 5	5/8	15	12	5
6	3/4	15	-	5
8	7/8	18	-	-

Every branch of piping over three feet long shall have a separate hanger.

- C. Special pipe supports for piping in equipment rooms and other locations where shown on the drawings shall be constructed as detailed on the drawings. Where roller type hangers and supports are shown, they shall be Grinnell 170 and 27 series, Superstrut, or approved equal. Unless, otherwise shown on the drawings, support channels, frames, brackets, and legs of special supports shall be made of Superstrut, Unistrut or approved equal channels, attaching clips, pipe clamps, and other required accessories. Piping installed within partitions and connected to plumbing fixture trim shall be securely attached to Superstrut, or approved equal, adjustable stud brackets, not more than two feet away from and on the inside of wall penetration.
- D. Three or more pipes six inch or smaller in size, running parallel and having similar grade or pitch may be supported on trapeze hangers. If the parallel pipes are installed under one section of the work exclusively, the trapeze hangers shall be provided under that section of the specifications. If parallel pipes are installed under more than one section of the work, they shall be supported on common trapeze hangers; clamps shall furnished and installed. An extra intermediate rod shall be installed at each trapeze over 60 inches wide. Width of trapezes are measured between support panels.

Unless otherwise shown on drawings, trapeze supports for multiple piping shall consist of Superstrut, Unistrut, Kindorf, or approved equal, channel and pipe clamps, and shall be hung by inserts or clamps and rods as described above for single pipes. Spacing of trapeze hangers shall be determined by the smallest pipe on the trapeze. Sizes of rods for trapezes shall be governed by the actual load on the trapeze.

Unless otherwise indicated on the drawings trapeze members shall be sized for the following uniform loads per inch of span with with a deflection of 1/360, "S" equal to 25,000 psi and "E" equal to 29,000,000 psi.

Maximum pipe size on trapeze, Inches -----	Loads of Trapeze Pounds per inch -----
2-1/2 and smaller	20
3	24
4	32
5	37
6	40

Trapeze hangers shall not be lighter than 16 gage. Piping run in partitions and not supported from ceiling or floor shall be securely and independently fastened to the partition members with clamps or brackets. See G below for required isolation from metal studs and structure.

- G. Use pipe Shields, Inc., "Thermal-Hanger-Shield" 360 degree calcium silicate and sheet metal vapor barrier hanger shields, thickness to match the adjoining pipe insulation, at each hanger and other support points on all insulated piping systems prior to insulation application.
- H. No metallic pipes except fire sprinkler lines shall have metal-to-metal contact with hangers, clamps, bracket, or any other pipe support, or be otherwise in direct contact with any part of the building structure. Minimum isolation where no special isolation provisions are specified for un-insulated metallic piping shall be Superstrut Cush A Strip, Unistrut, Semco, or approved equal, metal jacketed, isolating pipe wrappers.
- I. Finish of all pipe supports, attachments, rods, trapeze channels, etc., shall be galvanized or cadmium plated.
- J. Use Stoneman "trisulators", Unistrut or Superstrut isolators at each hanger and other support points on bare copper tubing system.
- K. Special pipe hangers and support provisions required for control of pipe expansion, vibration, and sound transmission in certain piping shall be done in accordance with good sound attenuation practice.

2.05 COLOR CODING OF PIPES

- A. Identify all piping with Brady Perma-Code, or equal, self-sticking pipe markers consisting of pipe content and arrow indicating direction of flow on A.S.A. color background. Arrow and wording are two separate markers which shall be placed immediately adjacent to each other. Markers shall be 12 feet apart (maximum) on centers and shall occur where a pipe enters and leaves a concealed space. Use 1"x8" markers with 3/4" letter size for pipes upto 2-1/2 inches. Use 2-1/4"x13" markers with 1-3/4" letter size for pipes larger than 2-1/2 inches. Provide at each end of each marker Brady, or equal, 2-1/2 " wide self-sticking clear tape around the periphery of pipe or insulation to further secure the marker. All markers shall be installed after finish painting is complete.

B.	Colors:		
	OF	A.S.A. COLOR	COLOR
	SERVICE		BACKGROUND
	LETTER		
	Chilled Water Return	Green	Black
	Chilled Water Supply	Green	Black
	Non-Potable Water	Yellow	Black

- C. All valves shall have engraved brass or laminated plastic identification tag secured with brass chain. Tags shall bear the service identification and numerical identification of the valve.
- D. Equipment Identification: Identify each fan, chiller, pump, motor, motor starter, and similar equipment with laminated black plastic tags with engraved white core lettering. Use tags with minimum thickness of 1/16", a minimum size of 1-1/2" x 4", and 1" high lettering. Acceptable manufacturers : Seton, W.W. Wilcox or Brady. Secure tags to equipment by means of screws or bolts.
- E. Underground Utilities Identification:

Install an underground tape system as manufactured by Emblem Tape and Label Company, Denver, Colorado: Line Guard, Inc., utility marking tape, or W.H. Brady Company.

Tape shall be 4" wide minimum and shall be installed in trench above the utility line at a depth of from 12" to 18" below finished grade or pavement subgrade level, extending continuously along entire length of all buried utility lines.

Identification shall conform to the following:

Tape Color	Legend (Black Letters)
Red	Caution Mechanical Utilities Below

2.06 PENETRATIONS AND ESCUTCHEONS

- A. Provide galvanized steel sleeves where work of this Division passes through fire rated partitions, walls, floors, concrete slabs, vertically in concrete block walls or the exterior of Structure. Sleeves shall be a minimum of 2" larger than the pipe and extend 2" above floor slabs. Fill annular space between sleeve and pipe shall be caulked with oakum and mastic and made watertight. The space between pipe and sleeve and between sleeve and slab or wall shall be sealed watertight.

At Contractor's option, Link-Seal or Metraflex/ Metraseal casing seals may be used in lieu of caulking. Wrap pipes through concrete slab or vertical runs inside concrete block walls with (2) layers of 1/8" thick foam tape to completely isolate the pipe from the concrete.

- B. Provide escutcheon plates that are neat, rigid, securely attached where work of this Section penetrates any wall. Provide stainless steel or chrome plated brass in finished areas or where required for proper appearance and galvanized steel elsewhere.

2.07 EQUIPMENT SUPPORTS

- A. Seismic Requirements: Provide seismic restraints for equipment to withstand a lateral force equal to 40% of the weight of equipment. Spring isolated equipment will be anchored by use of snubbing devices. Install in accordance with latest SMACNA guidelines for seismic restraints.
- B. Isolated Equipment:
 - 1. General: Isolate all mechanical equipment connections including conduit, piping, etc., such that equipment will operate under continuous demand without vibration transmission to the building structure.
 - a. Provide anti-vibration bases, isolation pads or isolation hangers for equipment when indicated on the drawings or when specified with the equipment.
 - b. Select bases and support units in accordance with vibration eliminator manufacturer's recommendations.
 - c. The equipment manufacturer shall furnish the weight of the equipment at each point of support.

2.08 VIBRATION ISOLATION

- A. Piping: For pipes 1-1/2" and larger use Mason type MFNC or Garlock Services 60
- B. Rated for 150 psi and 300 degrees F. For pipes 1-1/4" and smaller use Keflex KFCS stainless steel hose and braiding. Secure pipe at outboard ends of eliminators. Provide appropriate eliminators in all piping connected to spring isolated equipment furnished under this Section.

2.09 ELECTRICAL

- A. General:
 - 1. All equipment shall be selected to suit power available, this requirement supersedes other portions or the Specifications.
 - 2. All equipment shall conform to National Electrical Manufacturer's Association Standards, and shall bear Underwriter Laboratories label where applicable.
 - 3. Load and line voltage connections to equipment will be made by the Electrical Division unless specifically noted otherwise. Coordinate

work with Electrical Division. Furnish the Electrical Division with shop drawings information for indication rating and control circuits required for the actual equipment furnished.

4. Guard opening giving access to "live" or rotating parts, except smooth shafts, with screens, grilles, or structural parts to prevent accidental contact with such parts.

B. Motors:

1. Provide motors for equipment of this Division. Motors shall be minimum size as indicated but shall have sufficient starting torque to start equipment.
2. Motors shall be open drip proof for general use totally enclosed for wet or exterior use and explosive proof for hazardous duty where specified.
3. Electric motors shall be selected for quiet operation. All motors shall be rated for continuous operation at 115% of nameplate amperage but shall be selected to operate at less than nameplate rating throughout the entire operating cycle. Immediately remove and replace any motors found exceeding the nameplate amperage. The horsepower shown are minimum and shall be increased as necessary to comply with the above requirements. Furnish motors with splash proof or weatherproof housing where required or recommended by the manufacturer. Match the nameplate voltage rating with the electrical drawings. Provide a transformer for each motor not wound specifically for the system voltage.
4. Motors of 50 HP and larger shall be provided with power factor correction capacitors capable of correcting power factor to .95. The capacitors shall be furnished under the Electrical Division and installed and connected under the Electrical Division. Motors 40 HP and smaller shall be Gould E+ type high efficiency motors, or equal, Baldor, G.E.

C. Starters

1. Provide starters for all motors furnished under this Section. Connection to starters furnished by this Section shall be under Division 16. Coordinate work to provide a completely operative system.
2. Starters furnished under this Section shall be General Electric, Square D, or Cutler Hammer and shall comply with the following:

- a. Enclosures: NEMA Standard for the location used: NEMA Type 1 for general purpose, NEMA Type 3 for rain tight, NEMA Type 4 for watertight, NEMA Type 7 and 9 for explosion proof.
 - b. Thermal Overload Devices:
One (1) for single phase standard motors.
Three (3) for three phase standard motors. One (1) for each underground conductor for each winding or multi-winding or multi-speed motors.
- 3 Manual starters may be used for motors up to 1/3HP where no interlocking is required. Provide Pilot Lights to indicate the "ON" position.
 - 4 Magnetic starters shall have 120 volt control circuits, H-O-A switch in cover, auxiliary contacts for necessary interlocking, integral disconnect short-circuit and ground-fault protection.
- D. Controls: Provide devices as indicated on the mechanical drawings and in the mechanical Specifications.

2.10 DRIVES AND GUARDS

- A. Belt Drives:
- 1. Browning, Gates, Woods, or Dayton V-belt drives, with cast iron sheaves, rated for not less than 1-1/2 times motor HP.
 - 2. Adjustable motor sheaves for 15 HP and smaller; solid sheaves for others. Adjustable sheaves shall be selected at the midpoint of the adjustable range.
 - 3. Fan static pressures shown are only approximate. Installing contractor is to adjust or replace drives as required during system balancing to achieve the indicated air quantities at no additional cost.
 - 4. Provide power band belt assembly in multi-belt applications.
- B. Direct Drives:
- 1. Provide OSHA approved, expanded metal type drive guard.
 - 2. Coupling are to be heavy-duty flexible type.

- C. Drive Guards:
 - 1. Comply with requirements of the State Division of Industrial Safety and OSHA.
 - 2. Provide hole in belt guards for tachometer readings.
 - 3. Indoor belt drives: 16 gauge expanded metal or wire screen enclosures with 70% free area and steel frame, galvanized or bonderized after fabrication.
 - 4. Outdoor belt drives: 16 gauge solid galvanized sheet.
 - 5. Provide belt guard with hinged accessible sections for tachometer reading and maintenance.
- D. All rotating parts shall be statically and dynamically balanced.

2.11 ACCESS DOORS PANELS

- A. Where required: Wherever a piece of equipment is inaccessible and requires access for maintenance, repair or adjustment.
- B. Size: Size dependent upon the relationship of the door to the product being serviced; therefore, the size of the door shall be selected to provide convenient access to its contents.
- C. Frame: The frame shall be flush mounted and shall be suitable for the building surface in which it is being mounted. Provide furring around the door frame as directed where there is insufficient depth to allow a flush mounted frame and door.
- D. Door: Steel or stainless steel as indicated herein; and sufficient gauge to prevent permanent deflection from normal use.
- E. Hinges: The door shall have a minimum of two swing out type hinges which allow the door to be opened 180 degrees; piano hinges will not be acceptable. Quantity as required to suit door height.
- F. Fired Rated Doors: Provide when located in fire rated surfaces.
- H. Furnish doors, coordinate locations.
- I. Manufacturer: Karp, Inryco/Milcor, or equal Bilco,

Location:	Type	Finish
Drywall	Style KRVB	Stainless Steel
Ceramic Tile	Style "M"	Stainless Steel
Fire Rated Surfaces	Fire Rated Access Door	Baked Enamel Prime Coat
Masonry	Style "M"	Baked Enamel Prime Coat
Acoustical Tile (1)	Style "AT" (2)	Acoustical Tile
Plaster	Style "K"	Baked Enamel Prime Coat

1. Locate access door to match tile grid.
2. Field applied to match adjacent surfaces.

2.12 INSULATION WORK

Refer to Section 15180 for Insulation of ducts and piping.

PART 3 EXECUTION

3.01 A. PIPING

1. Any section of pipe for which the size is not shown or any intermediate section erroneously shown undersized shall be the same as the largest line connecting to it.
2. Thoroughly clean all pipe and maintain in such condition throughout construction. Temporarily cap off plug ends of unprotected pipe.
3. Install unions at connections to equipment, on service side of valves and elsewhere as required or shown to facilitate maintenance.
4. Install dielectric insulating connections between all dissimilar metals and at the point connection between new and existing metallic piping system.

5. Protect piping against condensation forming where pipes are located over switchboards, electrical machinery and equipment.
6. Place escutcheons on pipes passing through sleeve in walls, floors or ceilings, where exposed to view.
7. Collect and extend vents through the roof at a point not less than 18" inches from the face of the outside building walls, and 10 feet away from air intakes, offset below, as required or as detailed.
8. Run all piping generally level, free of unnecessary traps and bends, and arrange to conform to the building requirements and to suit necessities or clearance for other work.
9. Provide listed backflow preventers, check valves and vacuum-breakers where required by Code or where back-siphoning might occur to contaminate water lines.
10. Caulk space between pipe and sleeve using "Presstite" or equal, 579.63 gun-grade resilient mastic, with backing at fire walls.
11. Arrange piping and hangers to allow for expansion, contraction, and structural settlement. Do not install piping in contact with the building structure.
12. Make changes in size or direction with manufactured fittings. The use of bushings, reducing flanges, or bending of a pipe is not allowed.
13. Install piping full size through shut-off valves, balancing valves, etc. Change pipe size within three pipe size diameters of the final connection to fixtures and equipment.
14. Protect copper and steel pipe installed below grade and to a minimum of 6" above grade with factory applied covering, X-Tru-Coat plastic coating or equivalent. Protect field joints as follows: Clean fittings, nipples, and other field joints thoroughly and apply "Tape Coat # 20" heat applied 62 mil tape in accordance with manufacturer's recommendations.
15. Seal all piping penetrating the roof with 4 lb sheet lead flashing with 8" skirt and counter flashing rim sealed with non-hardening mastic. Install "Stoneman" Series # S1100-2, S1100-5, S1100-6, S1100-7 for all vents through roof. Install "Stoneman" Series S1100-2 or S1100-4 at all other piping penetrations through roof.

16. Use flexible connectors where piping is connected to pumps or vibrating equipment.
17. Do not cover or enclose the piping work before it has been tested, inspected or approved.
18. Pipe the discharge of each relief valve, air vent, backflow preventer and similar device to floor sink, floor drain, exterior or other acceptable location whether indicated or not on the drawings, and per code requirements.
19. Install exposed polished or enameled connections with special care, showing no tool marks or threads.
20. Provide swing joints at all hot water piping connections to equipment.
21. Install piping at the coils so that coils can be removed with minimum of pipe dislocation. All fittings, etc., shall be readily accessible. Install supports such that the piping does not impose weight on coils, pumps, etc.
22. Provide piping subject to expansion or contraction with anchors and expansion loops or joints as required. Provide adequate guides to prevent misalignment.
23. Use standard elbows, tees, etc., for all pressure systems.
24. Provide temperature and pressure test stations on both sides of pumps, coils, temperature control valve, heat exchangers, chillers, boilers, etc., at all inlets and outlets of mechanical equipment.
25. All pipe lines shall be installed parallel with building lines. Piping shall clear all doors, windows, and other openings, avoid all ducts, light fixtures, and similar equipment and shall be concealed in finished areas, unless otherwise authorized by the Engineer/Project Manager, and as indicated on the drawings.
26. Do not use wire, plumber's tape or other makeshift devices for hangers.
27. Install pipe rollers on trapeze supported pipe that are subject to expansion and contraction.

28. Do not burn or weld any structural member without the approval of the Engineer/Project Manager.
29. No valve or piece of equipment shall be used to support the weight of any pipe.
30. Provide a support hanger at a distance of no more than 4 diameters of pipe at each change of direction in the pipe, either horizontal or vertical.
31. When piping is installed using a trapeze hanger, bolt the pipe to the trapeze using a pipe clamp, strap or "U" bolt. Do not weld the pipe attachment to the trapeze. Support all pipe lines individually with hangers, each branch having at least one hanger.
32. Support piping near the floor with steel stanchions welded to base plate and secured to the pipe and the floor.
33. Support vertical piping at each floor level. Install coupling in piping at each support. Coupling shall rest on and transmit load to support. Isolate copper from steel supports with isolators specified.
34. Support all piping so that it is firmly held in place by approved iron hangers and supports and special hangers as required. Support all piping where called for on drawings with spring isolation type hangers. Install all inserts required. All hanger material shall be approved by the Engineer/Project Manager before installation.
35. Size hangers properly to fit around bare pipe, isolator, hanger shield or insulation as required.

B. Furring and Pipe Spaces

1. Furring spaces are provided in the design for the construction of the project to install the plumbing work, and all piping shall be kept within the furring lines where established on the drawings, unless the piping is shown exposed. Provide all necessary openings required where piping passes through beams or walls.
2. Particular care shall be given to the coordinated installation of pipe runs within furred spaces.
 - a. No additional costs will be considered for work which must be relocated due to conflicts with the work of other trades.

- b. All "tight" conditions or conflicts must be worked out in advance for coordinated work under this Section and work under other Sections, and if found necessary, supplementary drawings shall be prepared by Contractor under this Section, for the Engineer/Project Manager's approval, before the work proceeds in these areas.
 3. Differences or disputes concerning coordination, interference or extent of work will be decided by the Engineer/Project Manager and his decision shall be considered final.
 4. Should any other openings or spaces be found necessary, arrange for them with other trades and in proper time to prevent unnecessary cutting. Do all cutting necessary in connection with the work and make all repairs in a manner satisfactory to the Engineer/Project Manager.
- C. Flashing
 1. Furnish and install weatherproof flashing and counter-flashing for each pipe passing through roof or exterior wall. The flashing shall extend to a minimum of 9" inches in all directions from outside of pipe.
- D. Hangers and Vibration

Refer to Section 2.
- E. Core Drilling

Holes are to be sleeved before concrete is poured. If due to error or change a hole must be core drilled, Engineer/Project Manager must approve location and the following procedures followed.

Provide all equipment, labor and material for core drilling holes where piping penetrates existing concrete walls or floors. Drill holes 1" larger than O.D. of pipe, except where sizes are noted. Verify the location of every core drilled hole with the Engineer/Project Manager. Protect all surrounding areas from damage by water or dust while core drilling.

3.02 EXCAVATION AND BACKFILL

- A. Provide all necessary excavation and backfill for the installation of the mechanical work. All backfill shall be engineered backfill and shall meet all requirements of Division 2. Walls of all trenches shall be a minimum of six (6) inches from the side of the nearest pipe.

- B. Backfill shall not be placed until all lines have been tested and approved.

3.03 EQUIPMENT INSTALLATION

- A. Position equipment to result in good appearance, easy access to all components for maintenance, and adequate space for tube removal or other repairs. Install the piping and pipe line accessories so that they do not interfere with equipment access.
- B. Install equipment level, secure, and out of moisture. Provide shims, anchors, supports straps, angles, grouted bases, etc. as required to accomplish this.
- C. Only use galvanized screws, nuts, bolts, rods and washers. After fabrication, hot dip galvanized unfinished ferrous items for outdoor use, below grade installation, or other areas subject to moisture.
- D. When lubrication points on equipment are inaccessible or hard to reach, provide a 1/4" Type L copper extension. Terminate the lubrication extension with proper type lubrication fittings at an accessible location in front of the equipment or behind an access door.
- E. Manufacturer's Directions: Follow the manufacturer's directions where these directions cover points not included on drawings or in specifications.

3.04 WATERPROOF CONSTRUCTION

- A. Maintain the waterproof integrity of penetrations through materials intended to be waterproof. Provide flashing at exterior wall and roof penetrations. Caulk watertight penetrations of foundations, walls and floors. Provide membrane clamps at penetrations of waterproof membranes.
- B. Provide galvanized sheet metal weather protection canopies, hoods or enclosures over all out-of-door equipment, the operation or maintenance of which would be impaired by rain water. This requirement applies to, but is not limited to, damper operators and bearings, damper motors, controls and instruments.

3.05 ADJUSTMENTS TO SYSTEMS

- A. Adjust all equipment and system components as scheduled on drawings, or as required, to result in the intended system operation.

- B. Thereafter, as a result of system operation or as directed by the Engineer/Project Manager, make readjustments as necessary to refine performance.

3.06 UNDERGROUND PIPING TRACER WIRE

- A. Install tracer wire for non-metallic gas and water pipe in ground outside of. Use AWG #12 tracer wire and lay continuously below vertical projection of pipe so that it is not broken or stressed by backfilling operations. Solder all joints.
- B. Terminals: Precast concrete box and cast iron locking traffic cover; cover marked with name of service; 6" of loose gravel below box. Plastic terminal board with brass bolts; identify line direction with plastic tags. Test for continuity between terminals, after backfilling, in presence of Inspector.
- C. Alternate: Use electronically detectable plastic tape with metallic core, tape 2" wide, continuously imprinted "CAUTION GAS (WATER, etc.) LINE BELOW". Install, with printed side up, directly over pipe, 18" below finish grade. Backfill material shall be as previously specified for the particular condition where pipe is installed, but avoid use of crushed rock or of earth with particles larger than 1/2" within the top 12" of backfill. Take precautions to insure that tape is not damaged or misplaced during backfill operations. Terminal boxes not required.

3.07 PRELIMINARY OPERATION

- A. Operate any portion of the installation for the Owner's convenience if so required by the Engineer/Project Manager. Such operation does not constitute acceptance of work as complete. Cost of utilities, such as gas and electrical power, will be borne by the Owner if operation is required by the Owner.

3.08 START-UP SERVICES

- A. Prior to start-up, ensure that the systems are ready, including the following:
Proper equipment rotation, proper wiring, auxiliary connections, lubrication, venting controls, all filter and properly set relief and safety valves.
- B. Start and operate all systems. Provide the services of factory trained technicians for start-up of major equipment and systems including but not limited to temperature controls, pump sets, fans, chillers and boiler.

3.09 CLEANING EQUIPMENT AND PREMISES

- A. Piping, Ductwork and Equipment to be Insulated: Clean thoroughly to remove rust, plaster, and dirt before insulation is applied.
- B. Pipe, Ductwork and Equipment to be Painted: Clean all piping, ductwork and equipment, exposed to view in complete structure, by removing rust, plaster, and dirt by wire brushing. Remove grease, oil and similar materials by wiping with clean rags and suitable solvents.

3.10 TESTING

- A. Provide all labor, equipment and materials required to perform tests.
- B. Protect valves and equipment from damage during tests. Include connection to previously tested sections, if the systems are tested in sections.
- C. Prior to the final observation of construction or commencement of the balancing procedure, whichever occurs first, operate all systems for at least 72 consecutive hours in automatic operation. If system shutdown is experienced for any reason, repeat the test until 72 consecutive hours are achieved. Operate equipment as recommended by the equipment manufacturers and in such manner as to avoid damage to the work of other trades.
- D. Submit to the Engineer/Project Manager for approval a log of all tests made which shall include time, temperature, pressure and other readings necessary to indicate the systems have been operated and tested in the manner outlined in the Construction Documents.
- E. Refer to other Sections of these specifications for specific procedures for the various testing systems.
- F. Test all below grade coated steel pipe in the presence of the Owner's representative with a Tinker and Rastor Holiday Detector. Rewrap pipe where test indicated coating faults and retest. Repeat the procedure until the system is free of all coating faults.

SECTION 15080
INSULATION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

The drawings and general provisions of the contract, including General and Special Conditions and Division 1, General Requirements, Sections 15010, 15050 and 15600 apply to this section.

1.02 DESCRIPTION OF WORK

- A. Insulate all piping and ductwork shown on the drawing and listed below.
- B. Thermal insulation for ductwork.
- C. Chilled water supply and return piping, pumps, air separator and associated equipment. Buried chilled water piping shall be factory pre-insulated pipe and fittings as supplied by Perma Pipe.
- D. Heating hot water supply and return piping, pumps, air separator associated equipment.

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Heating, Ventilation, and Air Conditioning, Section 15600.

1.04 SUBMITTALS

- A. Submit all materials proposed for use on the project. Refer Division 15, Sections 15010 and 15050.

1.05 QUALITY ASSURANCE

- A. Insulation work shall be done only by a licensed firm employing installers specifically skilled and experienced in applying insulation to piping, ductwork, tanks and equipment.

PART 2 PRODUCTS

2.01 PIPING INSULATION

A. Straight Runs:

1. Knauf Pipe Insulation, heavy density one piece insulation with all service jacket with self sealing lap. Shall have thermal conductivity "K" factor of 0.24 at 75 F. suitable for piping at temperatures -60 F to 850 F.
2. Exterior Jackets: (Exposed to weather) Aluminum jacket, ASTM B209, 0.020 with thick smooth finish for pipe sizes up to 2", 0.028" thick for pipe sizes larger than 2".

B. Irregular Shapes (fittings, valves, etc.)

1. Fibrous glass of same density, thickness, and other characteristics as the adjacent regular shape insulation either pre-molded or field-formed to fit the item being insulated.
2. Insulation shall be snugly jacketed with be Proto, Certain Teed, Snap-Form, factory molded PVC covers.

C. Auxiliaries:

Adhesives, mastics sealants, tapes, fasteners, cements and finishes are specified in Part 3 of this section.

2.02 EQUIPMENT

- A. Knauf Tank fiberglass insulation. Thickness to meet code requirements. For use on hot and cold equipment, tanks, air separators, etc.
- B. Rigid foamed plastic block. Suitable for direct application on cold equipment with surface temperatures of 35 to 100 F. Use on chilled water pumps and irregular shaped equipment.
Unfaced flexible foamed plastic insulation with close cell elastomeric, 5 pounds per cubic feet density. "k" factor of 0.28 at 75 F. Suitable for direct application on cold equipment with temperatures as low as 35 F.

PART 3 EXECUTION

3.01 APPLICATION/ INSTALLATION

General:

- A. Use the types and thickness of insulation specified in this Section. Install insulation as specified below. Apply insulation in accordance with the manufacturer's recommendations and with instructions specified herein or noted on the drawings.

- B. Install insulation only after the systems, piping and equipment have been installed and tested, inspected, and accepted.
- C. Fit insulation snugly to the item being insulated; butt all joints tightly with no voids, spaces, or thin spots.
- D. Seal all joints completely; where sealing tape is used, center the tape over the joint. Do not use staples or fasteners which penetrate vapor barrier jackets or covers on cold systems or equipment; where such penetrating fasteners are used, seal each penetration completely to maintain the vapor barrier integrity.
- E. Use adhesives, mastics, cements, sealants, and finishes undiluted unless specifically directed otherwise; apply per manufacturer's directions.
- F. Install outdoor jacketing on all insulation outdoors (exposed to the weather).
- G. Install all indoor exposed insulation with extra care and finish neatly. Install mitered aluminum sheet and aluminum fitting covers over pipe insulation in mechanical rooms within 5'-0" of finished floor for insulation protection from routine maintenance abuse.
- H. Follow specified methods of installation unless alternative methods are submitted and approved.

3.02 INSTALLATION: PIPING INSULATION

General:

- A. Unless specifically excluded herein or on the drawings, insulate all parts of hot and cold piping systems including fittings, flanges valves, and pipe-mounted devices, except do not cover nameplates on devices.
- A. Refer to this section for thickness and special details or instructions.
- C. Install insulation in removable sections over unions, flanges, and line components or devices requiring periodic maintenance.
- D. Install insulation butted tightly to transitions such as insulated pipe shields, insulated pipe sleeves, equipment connections, etc.
- E. Install insulation on all dual temperature, cold, and chilled water piping systems so that condensation will not occur.

- F. Insulate expansion tanks on chilled water systems; insulate expansion tanks on heating water systems only when the tank is located outdoors.
- G. Treat equipment face piping as follows:
 - 1. Where piping is subject to condensation (cold, chilled, and dual temperature systems) and where installed above grade outdoors (either hot or cold systems) insulate piping completely to the point of equipment connection.
 - 2. Where not subject to condensation (hot systems) terminate insulation at the outlet side of the equipment shut-off valve, leaving the face piping un insulated unless noted otherwise.

Piping insulation

Service		Thickness
Pipe size upto 2"		
Domestic hot water	R=4	1"
Chilled water	R=4	1"
Heating hot water	R=6	1.5"
Pipe size above 2"		
Domestic hot water	R=6	1.5"
Chilled water	R=4	1"
Heating hot water	R=6	1.5"

3.03 RIGID MOLDED SECTIONAL/JACKETED

- A. Comply with applicable general instructions above.
- B. Apply to all hot, dual temperature, and cold piping installed above grade indoors and outdoors, concealed or exposed.
- C. Seal all transverse joints (except at PVC fitting jackets) with circumferential applied 3" (minimum) width tape of same material as the jacket, faced with the same adhesive as the longitudinal lap, or seal with Hardcast 4" Type DT490-C mineral impregnated woven fiber tape (synthetic fiber indoors, cotton fiber outdoors) using Hardcast FTA-20 activator joints at PVC fittings jackets with color-matching PVC tape and vapor barrier mastic adhesive.
- D. Fit insulation terminations with Zeston, Snap-Form end cap jackets, or seal with Hardcast tape as specified above for joints.

- E. On all piping (except equipment face piping) installed outdoors, install outdoor jacketing. Install aluminum sheet jacket with all joints turned down at 45 degrees below horizontal; secure in place with non-corroding bands and/or blind rivets (do not puncture vapor barrier insulation jacket). On equipment face piping (including equipment shut-off valve) coat the insulation with ¼" thick Fosters 60-25 C.I. (weather proofing) mastic reinforced with glass fabric and finished with two (2) coats of aluminum paint.

3.04 MISCELLANEOUS INSULATION

General:

- A. Insulate all parts of above-grade tanks, equipment, breechings, stacks, and other items or devices as specified herein or indicated on the drawings, except do not cover movable parts or nameplates.
- B. Install insulation in removable sections over pumps and other items or devices requiring periodic maintenance.
- C. Install insulation on all cold or chilled equipment and devices so that condensation will not occur.
- D. Install galvanized sheet steel protective sheathing (of gauge shown) over tank or equipment insulation which is within a height or six feet above the floor and subject to mechanical damage, or where shown on the drawings.

3.05 INDUSTRIAL INSULATION SERIES 700.

- A. Comply with applicable general instructions above.
- B. Apply to tanks, breechings, stacks, and similar heated vessels having operating surface temperatures less than 850 degrees F, as specified or as shown on the drawings.
- C. Cut, score, and miter to fit the contour of the vessel, butting all joints tightly. Secure in place with welded pins and speed clips at not more than 18" centers both ways on all surfaces.
- D. Completely enclose with galvanized 1" hexagonal wire mesh and apply mineral wool insulating cement trowelled to a hard finish as follows:
 - 1. Vessel or items less than 18" diameter or largest transverse side:
Apply one (1) ¼"

thick coat.

2. Vessel or item more than 18" diameter or largest transverse side:
Apply two (2) 1/4" thick coats.

- E. Over dried cement coating, apply a 6 oz. canvas, jacket embedded between two (2) coats of Foster 30-36 Sealfas.
- F. Where the insulated vessel is installed outdoors over the jacket (above), apply a (1/8" minimum thickness) protective coat of Foster, monlar mastic.

3.06 RIGID FOAMED PLASTIC BLOCK

- A. Comply with applicable general instructions above.
- B. Apply to chilled water tanks and pumps or similar cold, irregular-shaped specialty items not readily insulated with other types of insulations.
- C. Make up in two halves, contoured to closely fit the item being insulated, maintaining 1-1/2" minimum thickness; exterior shall be cylindrical, rectangular, or other regular shape. Seal halves and around penetrations with Henry's # 352, foam adhesive; cover with 6 oz. canvas, jacket where item is installed indoors.
- B. Where item is installed outdoors, embed a glass fabric jacket between two (2) coats of Foster 35-00 Sealfas G-P-M, mastic and finish with two (2) coats of aluminum paint.

3.07 FLEXIBLE FOAMED PLASTIC SHEET

- A. Comply with applicable general instructions above.
- B. Apply to cold shells and parts of chillers and similar equipment where such are not provided with factory installed insulation.
- C. Secure to the equipment with 100% coverage of Armstrong 520, John-Manville 57, adhesive; seal all joints similarly and with Armaflex, John-Manville, 2" X 1/8" tape with paper protected pressure sensitive adhesive inside face centered over the joint.
- D. Where item is installed outdoors, paint with two (2) coats of Armaflex, vinyl lacquer-type outdoor finish.

3.08 FINISHING

- A. Finishes and Protection: Insure that the exterior of all insulation is applied and complete as required, ready for painting, or painted where required.
- B. Install all required metal jackets or protective sheathing.

3.09 REPAIR, TOUCH-UP

- A. Properly repair and touch-up all dents, rips, tears, or other damage inflicted on jackets or exterior surfaces of insulation.

SECTION 15600
HEATING VENTILATION AND AIR-CONDITIONING

PART 1 - GENERAL

1.01 CONDITIONS AND REQUIREMENTS

- A. The drawings and general requirements of contract including General and Special Conditions and Division 1, General Requirements, Sections 15010 15050, 15180 apply to the work specified in this section.

1.02 WORK INCLUDED

- A. Furnish and install all heating, ventilating and air conditioning work indicated on the drawings and described herein. Also provide any incidental work not shown or specified that is necessary to provide a complete system. This includes but is not limited to the following:
1. Placement of all sleeves, hangers, supports and openings for work under this Section.
 2. Flashing of wall penetrations for work performed in this Section.
 3. Demolition and removal of existing pumps, chillers, piping components, etc and cleanup of debris of all equipment before final acceptance by City Project Manager.
 4. Providing and installation of all new pumps, chillers, piping and piping components, etc as indicated on the drawings for a complete and operating system.
 5. Cutting, patching and framing of required openings.
 6. Insulation of all new chilled water piping system and components.
 7. Control systems, wiring and components.
 8. Flushing of chilled water piping systems and filling up with fresh clean water, and chemical treatment of system.
 9. Balancing of water systems.
- B. Bidders shall submit price based upon Trane chillers and Bell & Gossett pumps specified herein as basis of design.

Prices from alternative manufactures listed may also be proposed for evaluation.

PART 2 - PRODUCTS

2.01 AIR COOLED WATER CHILLER CH-1 and CH-2

- A. Factory assembled, single piece chassis, air cooled liquid chiller, with factory wiring, refrigerant charge, piping, scroll compressors and condenser fans. Chiller shall be as manufactured by Trane, Carrier or York.
- B. Cabinet shall be heavy gauge galvanized steel with a baked enamel powder coated finish. Units shall be constructed of a galvanized steel frame with galvanized steel panels and access doors. Component surfaces shall be finished with a powder-coated paint. The coating or paint system shall withstand a 1000-consecutive-hour salt spray application in accordance with standard ASTM B117.
- C. Condenser fans shall be direct driven, 11 blade air foil cross section, reinforced polymer construction, shrouded axial type, statically and dynamically balanced. Two speed or single fan operation shall allow reduced sound levels during scheduled unoccupied operating periods. Air shall be discharged vertically upwards. Fans shall be protected by coated steel wire safety guards.
- D. Fully hermetic scroll type compressors with R410A optimized and dedicated scroll profile. Direct drive motor cooled by suction gas with only three major moving parts and a completely enclosed compression chamber which leads to increased efficiency. Each compressor will have crankcase heaters installed and properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles.
- E. Evaporator: The evaporator shall be a high efficiency, brazed plate-to-plate type heat exchanger consisting of parallel plates. Braze plates shall be stainless steel with copper braze material. The evaporator shall be protected with an etched foil heater and insulated with 3/4 inch insulation. This combination shall provide freeze protection down to -20F ambient temperatures while the heater is powered. Contractor shall provide separate power to energize heater and protect evaporator while chiller is disconnected.
- F. Condenser: The condenser coils shall consist of copper tubes mechanically bonded into plate-type aluminum fins. Condenser coils shall have a *dipped* epoxy coating. Sprayed epoxy coating is NOT acceptable. A sub cooling coil shall be an integral part of the main condenser coil. The maximum allowable working pressure of the condenser shall be 650 psig (44.8 bars). The condensers shall be factory proof and leak tested at 715 psig (49.3 bars).

Low Sound Fans shall be dynamically and statically balanced, direct drive, corrosion resistant glass fiber reinforced composite blades molded into a low noise fan blade. Low speed fan motors shall be three-phase with permanently lubricated ball bearings and individually protected by circuit breakers.

Unit shall be capable of starting and running at outdoor ambient temperatures from 32F to 125F (0C - 52C) for all sizes.

- G. Enclosures: Mount starters in a UL1995 rated panel for outdoor use. The starter shall be across-the-line configuration, factory-mounted and fully pre-wired to the compressor motor(s) and control panel. A control power transformer shall be factory-installed and factory-wired to provide unit control power.

Control panel shall be dead front construction for enhanced service technician safety.

A molded case high interrupting capacity circuit breaker, factory pre-wired with terminal block power connections and equipped with a lockable external operator handle, is available to disconnect the chiller from main power.

Power Connection: Power connections include main three-phase power and one separate 120V, 15 amp customer provided single phase power connection is required to power the heaters (if used for freeze protection).

Short circuit current rating of 65 kA is provided.

- H. Each refrigerant circuit shall include a filter drier, electronic expansion valve with site glass, liquid line service valves and a complete operating charge of both refrigerant HFC-410A and compressor oil.

Each refrigerant circuit shall include a discharge line service valve to allow the refrigerant to be isolated in the condenser.

I. WARRANTY

Provide a full parts, refrigerant, and labor warranty for one year from start-up or 18 months from shipment, whichever occurs first.

A 5-year motor/transmission/compressor warranty shall be provided based upon the RPM of the compressors as follows:

Compressor RPM	Warranty Term
0 - 5000	1 year from start-up
5001 - 10,000	5 years from start-up

Compressor RPM	Warranty Term
10,001 and above	5 years plus annual oil analysis

J. MAINTENANCE SERVICES

All inspections and service of units shall be accomplished by factory trained and authorized servicing

In conjunction with and supporting Factory warranty OEM shall furnish complete factory authorized service and maintenance of Applied Chillers for one year from Date of Substantial Completion by the factory service agency. OEM shall provide and report quarterly, annual, and bi-annual maintenance in compliance with or better than ASHRAE Standard 180-2008.

Include maintenance items as recommended in manufacturer's operating and maintenance data. Submit copy of service call work orders and summary report to the City Project Manager, including description of work performed, operating performance status and noted exceptions.

F. SUBMITTALS: Submit shop drawings and product data in accordance with the specifications. Submittals shall include the following:

Dimensioned plan and elevation view drawings, required clearances, and location of all field connections.

Product data indicating rated capacities, weights, specialties and accessories, electrical requirements and wiring diagrams.

G. OPERATION AND MAINTENANCE DATA Include manufacturer's descriptive literature, installation checklist, start-up instructions and maintenance procedure.

H. DELIVERY, STORAGE, AND HANDLING: Units shall be delivered to job site fully assembled and charged with refrigerant (unless selected with nitrogen charge) and oil by the manufacturer. Unit shall be stored and handled per manufacturer's instructions. During shipment, provide protective covering over vulnerable components. Fit nozzles and open pipe ends with enclosures.

F. Unit controls shall include the following:

The microprocessor-based unit controller shall be factory-installed and factory-tested.

The unit display shall provide the following data:

- Refrigerant levels and temperatures
- Flow switch status
- Compressor starts and run times.
- The unit controller shall provide chilled water reset based on return water as an energy saving option.

- The unit shall shut down if one or more of the following safeties has been breached:
- Low evaporator refrigerant temperature and/or pressure
- High condenser refrigerant pressure.
- Water and air temperatures
- Low oil flow
- Motor current overload
- High compressor discharge temperature
- Electronic distribution faults: phase loss, phase imbalance, or phase reversal
- Unit shall be shipped with factory control and power wiring installed.

Chilled Fluid Circuit

- Chilled fluid circuit shall be rated for 150 psig (1034 kPa) working pressure.
- Proof of flow switch shall be provided by the equipment manufacturer and installed the correct number of pipe diameters from any elbow and in the correct orientation.
- Units with brazed plate evaporators shall have a water strainer that is factory provided. It shall be installed with a blow down valve to facilitate periodic cleaning of the strainer to prevent it from becoming clogged.

I. Operating Characteristics:

1. Unit shall be capable of starting and running at outdoor ambient temperature from 45 F to 120 F.
2. Unit shall be capable of starting up with 95 F entering water temperature to the cooler.

J. Hydronic System:

1. Field piping connections shall be Victaulic and extended to the outside of the unit.
2. Water pressure gauges (2) shall be factory installed across cooler and rated for 150 psig.
3. Proof of flow switch shall be factory installed and rated for 150 psig.

K. Optional features:

1. Unit shall be supplied with factory installed non fused electrical disconnect for main power supply.
2. Leaving chilled water temperature reset from return water temperature, outdoor ambient temperature or a 4 to 20 mA input.

2.02 CHILLED WATER PUMPS CHP-1 and CHP-2

- A. The contractor shall furnish and install pumps as shown and scheduled on the plans Bell & Gossett, Taco or Peerless.
- B. Pump shall be of close-coupled, or flexible coupled, single stage, and shall be bronze fitted construction. The pump internals shall be capable of being serviced without disturbing piping connections; seal shall be standard mechanical seal.
- C. A replaceable shaft sleeve shall be employed to completely cover the wetted area under the seal or packing.
- D. The bronze impeller shall be of the enclosed type, hydraulically and dynamically balanced, and keyed to the shaft and secured by a suitable locking cap screw.
- E. The motor shall meet NEMA specifications and be up to standards required for industrial use. It shall be furnished with regreasable ball bearings completely adequate for the maximum load for which the motor is designed. Motor shall be totally enclosed, fan cooled TEFC. Pump shall be factory tested, cleaned and painted with at least one coat of high-grade machinery enamel prior to shipment.

2.03 FLEXIBLE CONNECTORS

- A. Flexible connectors shall be Mason Industries model BSS series GU general usage braided stainless hoses. Flexible connectors shall be full pipe size. Connectors shall be capable of a minimum working pressure of 221 psig at 250 F for up to size 6" dia. For sizes larger than 2" provide flanged ends.

2.04 PIPING INSULATION

- A. Refer to Section 15180 for all insulation requirements.

2.05 ABOVE GRADE CHILLED WATER PIPING

- A. Piping material: Black steel per ASTM A-120, Schedule 40, 2" and below use threaded black fittings, banded cast iron threaded, ASTM A-126 class B, 125 lbs, 2-1/2" and larger use 150 LB flanged fittings.
- B. Unions: Match pipe. Joining Method: Permacel P-142 - 1/2" wide Teflon pipe tape.

- C. Valves and accessories:
Valves: Below 2". Ball valves Nibco T-590-Y, or Kitz, Apollo 82LF-100, bronze ball valve, with TFE seats.
- Valves: Above 2": Flanged butterfly valves ductile iron Apollo LD 145 or equal.
- D. Refer to Section 15050 for other valves and piping accessories.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General:

1. System layouts as indicated on drawing are generally **diagrammatic**, but shall be followed as closely as actual construction and work of other trades will permit. Provide and install transitions, offsets and ducts of equal cross sectional area where ducts will not fit due to structural, electrical conduits, piping at other interference occurs. Coordinate layout of ductwork with other trades. Coordinate access door locations with the City Project Manager. DO NOT cut or bore holes through structural members without the written permission from the City Project Manager.
2. Drawings and arrangement: Install equipment and materials with all working parts readily accessible for inspection, repair and renewal. The right is reserved to make reasonable changes in locations of equipment shown on drawings prior to roughing in without involving additional expense to City.

3.02 CLEANING

- A. Clean equipment and materials. Remove foreign materials including dirt, grease, splashed paint and plaster, etc. Restore to original condition any finish damaged.
- B. Isolate new piping from existing by keeping the shut off valves at point of connection closed. Clean all new piping by flushing the interior of heating hot water piping. Upon completion of flushing, completely drain new piping system at low points. Fill system with clean water and add additional chemicals to system as recommended by boiler manufacturer.

3.03 TESTING IF CHILLED WATER PIPING

- A. Piping

1. Remove from systems, during testing, equipment which would be damaged by test pressure. Replace removed equipment after testing. Systems may be tested in sections as work progresses. However, any previously tested portion shall become part of any later test of composite system. Correct leaks by remaking joints with new material; makeshift remedies will not be permitted. Test time will be accrued only while full test pressure is on system.
2. Do testing before or concealing of piping.
3. Perform tests in accordance with following schedule. Unless indicated otherwise, "Tolerance" shall be no pressure drop, except that due to temperature change, in 24-hour period. Test piping with water at 150 psig pressure.

B. Valves

1. Test valve bonnets for tightness. Test and operate valves from closed-to-open-to-closed position while valve is under test pressure.
2. Test automatic valves, including solenoid valves, expansion valves, pressure reducing valves, pressure relief valves for proper operation at settings indicated.
3. Test relief valves, safety relief valves, safety valves and temperature and pressure relief valves three times.

3.04 CHILLED WATER CLOSED LOOP SYSTEM CLEANING AND CHEMICAL TREATMENT

This process shall immediately follow the successful pressure testing of newly installed piping.

A. Flushing:

Provide all equipment (temporary and permanent) as necessary to:

1. Flush building service pipes and coil branch pipes. Confirm adequate flow with pressure gauges at coil branch pipes.
2. Flushing may be feed and bleed or fill and drain until the system pH is no greater than 0.5 units above current measured city water pH. Example: City water pH 7.5, final flush pH 8.0 or less.

3. Once initial flushing has been completed, remove the Rock wool/startup strainer element from the strainer, replace with operating strainer element.
- B. Cleaning and second flushing:
 1. It takes a minimum of 48 hours (and possibly 72 hours or more if substantial fouling exists) of water circulation to clean new piping. Piping must be cleaned with an alkaline cleaner containing iron polymeric dispersants, and surfactants. The cleaning agent must be added until 3000 ppm Total alkalinity equals 3000 ppm or greater monitored at the drain or recirculation barrel. Cleaning times and readings are to be documented and signed as attested to by City Project Manager.
- C. System is to be flushed a second time. Flushing may be feed and bleed or fill and drain until the system pH is no greater than 0.5 units above current measured city water as monitored at the drain or recirculation barrel. pH. Example: City water pH 7.5, final flush pH 8.0 or less. Second flushing times and readings are to be documented and signed as attested to by City Project Manager.
- D. Closed Loop Treatment:
 1. A complete corrosion inhibitor package added. Treatment is 30.0 ppm as MoO₄, 5 ppm as TTZ (tolytriazole), 100 ppm of iron deposition polymer and a pH of 9.5-10.2. Conditions are measured and recorded, times and readings are to be documented and signed as attested to by the City Project Manager.
- E. Acceptance:

At the time this project is turned over to the Customer, this level of treatment is desired and the system should be sterile.

3.05 WATER BALANCING

- A. Water balance described herein shall be executed by a Balancing Contractor. Contractor shall be certified by AABC or NEBB. After the completion of balancing submit 6 copies of balance report to the City Project Manager.
- B. The Mechanical Contractor shall be responsible for installing all dampers, valves, drive changes, as required prior to balancing.
- C. Balancing Contractor shall be responsible for delivering designed amount + or - 5% .
- D. Use instruments accurately calibrated and maintained in good working order. If requested, conduct test in the Presence of City Project Manager .
- E. Balancing and Adjusting water Systems:
 1. Adjust valves for optimum water distribution starting with elements in wide open position.

2. Adjust circuit setters to achieve supply water quantities as specified or indicated.
3. In cooperation with control manufacturer's representative, set adjustments of automatically operated valves to operate as specified, indicated, and/or noted.
4. Additional items: Perform the following tests, compile information, and submit copies of this information for evaluation by Engineer and City Project Manager, submit in report form with suitable cover, index, etc.:
 - a. Make, size, model number, designation, and location of fan coil units, etc.
 - b. Minimum and maximum hot water flow thru coils.
 - c. Minimum and maximum chilled water flow thru coils.
 - d. Temperature of water entering and leaving coils.
 - e. Water pressure drop across coil.
 - f. Temperature of air entering and leaving coils at full heating and full cooling modes.
5. Chiller water flow balancing
 - a. CHP-1, 2 Pumps- Flow GPM and total dynamic head.
 - b. Chiller entering and leaving water temperature and pressure drops.
 - c. Water flow thru Chiller and pressure drop.

3.06 AS BUILT DRAWING

- A. Contractor shall maintain a set of drawings at the job site, which shall be kept updated with any field changes made to the original design drawings.
- B. These drawings shall be kept in good order and handed over to the City Project Manager, City of Campbell, at the completion of the project.

EXHIBITS

Exhibit 'A'

BIDDER'S PROPOSAL FORM

Bidder's Proposal

Subcontractors to be used in the Performance of this Contract (Form)

Security For Compensation Certificate

Important Instructions

BIDDER'S PROPOSAL

**REMOVE AND REPLACE HVAC CHILLERS
AT CITY HALL AND THE POLICE DEPARTMENT, NO. P.W. 03-13-04**

SCOPE OF WORK:

The work involves the replacement of two chillers independently located within the Alameda Police Department facility, located at 1555 Oak Street, Alameda, CA, but operate City Hall and the Alameda Police Department respectively. The units consist of one 70 ton chiller that operates the City of Alameda City Hall and a 40 ton chiller for the City of Alameda Police Department, both will be replaced with like kind equipment. The work shall include but not be limited to removal and upgrade of current existing chillers, initial water treatments, supplying all required equipment including chillers, pumps and by-pass valves , preparation, integration and initiation of new system as required by the equipment manufacturer and the attached plans and specification applying industry standards for acceptance by City Representative including cleaning, Mechanical General Provisions (Section 15010), Basic Materials and Methods (Section 15050), Heating and Ventilation and Air-Conditioning (Section 15600), and Insulation (Section 15080). Other pertinent tasks include patching, caulking, making good surfaces and areas, pre-treatment, priming and system balancing and applying Best Management Practices to mitigate noise, dust or any other potential disturbances.

Contractor will provide license, labor, materials, services, skills, supervision, and necessary tools and equipment to insure that all work is executed in a professional workmanship manner. Contractor shall have the capability to perform and complete the services in all respects in accordance with the solicitation documents. Contractor hereby warrants that all services shall be performed in a timely and first-class workmanlike manner. Contractor will comply with all professional applicable trade standards and licensing regulations and mandates. Contractor shall keep the property and equipment free and clear at all times of litter and interferences. All materials, preparation and workmanship shall conform to the requirements of ASHRAE American Society of Heating, Refrigeration, and Air Conditioning Engineers and other applicable standards, and Manufacturer's Instructions for Mechanical Codes. Contractor shall provide the following services within the boundaries of the facility.

REMEDIAL DESCRIPTION

Contractor shall verify all field measurements prior to ordering equipment and verify measurements as all dimensions are factor-sized to fit in openings. Equipment will meet all specified standards and shall be identified by the manufacturer, following industry standards.

Mobilization and Procurements

Crane operations and worksite zone preparation including coordination with all regulatory agencies, City stakeholders including the Alameda Police Department, City Hall Staff and Public

Works shall include staging, traffic plans and courtesy outreach as prescribed by Public Works Project Representative.

Work Included:

Furnish all specified units and equipment shown in the project drawings and/or specified in the technical specification, Section Series 15600, 15050, 15080, and 15010 prior of dismantling/disabling of current system.

DEMOLITION/ REMOVAL

Remove existing chillers securing all utilities and mounting structures including rough-in all indicated services in the necessary arrangement for making final connections to fixtures or equipment. Remove/extract chillers, refrigerants, hydraulic lubricants and pumps or equipment not earmarked for reuse within Section Series 15010 – 15600 of the technical specification. Recycle all respective reusable bi-products metals, refrigerants, lubricants as industry deems appropriate and provide written documentation to City Representative including redeemed value and licensed vendor. Contractor shall be responsible for moving all heavy equipment/furniture and provide protection from work activities including weather conditions. Contractor shall implement BMPs to provide dust and noise protection to the residents and secure opening during transition time of installation of new chillers. Contractor shall remove debris from the work site daily.

Work Included:

Demolition and removal of existing pumps, chillers, piping components, etc. and cleanup of debris of all equipment before final acceptance of this phase by the City Representative. Rough all electrical, hydraulic and control system wiring. Comply with the technical specifications, specified Section Series 15010- 15600 and the project drawings.

PREPARATION

Work Included:

Contractor shall coordinate with other sections and schedule sequence of accomplishing the work covered by this division in such a manner as not to interrupt existing services and utilities at a time which will inconvenience the occupants or drastically reduce the installation phase. Coordinate storage and all required BMPs to mitigate installation phase including; patching, framing, wiring components, flushing, air handler purging, placing hanger, sleeves, supports and project approved engineered alterations. Contractor shall respond to any and all complaints from residents.

INSTALLATION, TESTING, PROGRAMMING, OPERATING

Contractor shall provide and install all new pumps, chillers, piping components, water system balancing, control integration, initial water treatment, purging air handlers and priming,

insulation and comply with all Specifications within Sections 15010, 15080, 15050, 15600, project drawings and manufacturer recommendations, etc. as indicated on the drawings for a complete and operating system. Caulk and seal using Sikaflex-1a polyurethane elastomeric sealant/adhesive, or approved equal.

Chiller Schedule as per Building Permit

BID ITEMS:

Item No.	Approximate Quantity	Items with Unit Prices Written in Words	Unit Price	Total Price
1.	1 LS.	Mobilization @ _____ _____	\$ _____	\$ _____
		1 Lump Sum		
2.	1 LS	Demolition and Removal of Chillers, Pumps, and Piping Components . @ _____ _____	\$ _____	\$ _____
		Per Lump Sum		
3.	1 LS	Site Preparation @ _____ _____	\$ _____	\$ _____
		Per Lump Sum		
4.	1 LS	Installation, Testing, Programming, and Operation of Chillers, Pumps, and Piping Components @ _____ _____	\$ _____	\$ _____
		Per Lump Sum		

Item No.	Approximate Quantity	Items with Unit Prices Written in Words	Unit Price	Total Price
5.	1	Allowance Permits <u>@ Two Thousand Dollars</u> Allowance	<u>\$2,000.00</u>	<u>\$2,000.00</u>

TOTAL BID: \$ _____

TOTAL BID WRITTEN IN WORDS: _____

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 _____

City, State, Zip _____

Dated: _____

Phone No _____

Name	Title	Address
(Of Officers or Partners)		

Incorporated under the laws of the State of _____

Contractor's License No. _____ Expiration Date: _____

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.)

The Bidder shall list the name and address of each subcontractor to whom the Bidder proposes to subcontract portions of the work, as required by the provisions in Section 2-1.054, "Required Listing of Proposed Subcontractors," of the Standard Specifications and Section 2-1.01, "General," for the special provisions.

LIST OF SUBCONTRACTORS

Name and Address	Description of Portion Of Work Subcontracted

(THE BIDDER'S EXECUTION ON THE SIGNATURE PORTION OF THIS PROPOSAL SHALL ALSO CONSTITUTE AN ENDORSEMENT AND EXECUTION OF THOSE CERTIFICATIONS WHICH ARE A PART OF THIS PROPOSAL)

EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION

The bidder _____, proposed subcontractor _____, hereby certified that he has ____, has not ____, participated in a previous contract or subcontract subject to the equal opportunity clauses, as required by Executive Orders 10925, 11114, or 11246, and that, where required, he has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all report due under the applicable filing requirements.

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of \$10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

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)

Exhibit 'B'

**CERTIFIED PAYROLL AND
PREVAILING WAGES FORMS**

Contractor's Certification Concerning Labor Standards and Prevailing Wage Requirements

Subcontractor's Certification Concerning Labor Standards and Prevailing Wage Requirements

Certification of Bidder Regarding Section 3 and Segregated Facilities

Certification of Proposed Subcontractor Regarding Section 3 and Segregated Facilities

Certification of Understanding and Authorization

Certification for Applicable Fringe Benefit Payments

Authorization for Deductions

EXHIBIT B: Certified Payroll Forms

CITY OF ALAMEDA PUBLIC WORKS DEPARTMENT CONTRACTOR'S CERTIFICATION CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS		
(Appropriate Recipient):	DATE	
c/o	PROJECT NUMBER (if any)	
	PROJECT NAME	
<p>1. The undersigned, having executed a contract with _____ for the construction of the above-identified project acknowledges that:</p> <p>(a) The Labor Standards provisions are included in the aforesaid contract;</p> <p>(b) Correction of any infractions of the aforesaid conditions, including infractions any of his subcontractors and Any lower tier subcontractor, is his responsibility.</p>		
<p>2. He certifies that:</p> <p>(a) Neither he nor any firm, partnership or association in which he has substantial interest is designated as an ineligible contractor by the Comptroller General of the United States pursuant to Section 5.6(b) of the Regulations of the Secretary Labor, part 5 (29 CFR, Part 5) or pursuant to Section 3(a) of the Davis-Bacon Act as amended (40 U.S.C. 276u-2(a)).</p> <p>(b) No part of the aforementioned contract has been or will be subcontracted to any subcontractor if such subcontractor or any firm, corporation, partnership or association in which such subcontractor has a substantial interest is designated an ineligible contractor pursuant to any of the aforementioned regulatory or statutory provisions.</p>		
<p>He agrees to obtain and forward to the aforementioned recipient within ten days after the execution of any subcontract, including those executed by his subcontractors and any lower tier subcontractors, a Subcontractor's Certification Concerning Labor Standards at Prevailing Wage Requirements executed by the subcontractors.</p>		
<p>He certified that:</p>		
<p>(a) The legal name and the business address of the undersigned are:</p>		
<p>(b) The undersigned is:</p>		
(1) A SINGLE PROPRIETORSHIP		(3) A CORPORATION ORGANIZED IN THE STATE OF
(2) A PARTNERSHIP		(4) OTHER ORGANIZATION (Describe)
<p>(c) The name, title and address of the owner, partners or officers of the undersigned are:</p>		
NAME	TITLE	ADDRESS

EXHIBIT B: Certified Payroll Forms

(d) The names and address of all other persons, both natural and corporate, having a substantial interest in the undersigned, and the nature of the interest are (if none, so state):		
NAME	TITLE	ADDRESS
(e) The names, address and trade classification of all other building construction contractors in which the undersigned, has a substantial interest are (if none, so state):		
NAME	TITLE	ADDRESS

3. He certifies:
(a) The company's Federal Tax Identification Number is:
(b) The ethnicity of the company's owner(s) is/are:
(c) Is the company a female owned business: _____ Yes _____ No

Date _____

(Contractor)

By _____

(Signature)

WARNING

U.S. Criminal Code, Section 1010, Title 18, U.S. C. Provides in part "Whoever ..makes, passes, utters, or publishes any statement, knowing the same to be false .shall be fined not more than \$5,000 or imprisoned not more than two years or both."

EXHIBIT B: Certified Payroll Forms

CITY OF ALAMEDA PUBLIC WORKS DEPARTMENT SUBCONTRACTOR'S CERTIFICATION CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS		
(Appropriate Recipient):	DATE	
c/o	PROJECT NUMBER (if any)	
	PROJECT NAME	
<p>1. The undersigned, having executed a contract with _____ for</p> <p>in the amount of \$_____ In the construction of the above-identified project, certifies that:</p> <p>(a) The Labor Standards provisions of the contract for construction are included in the aforesaid contract;</p> <p>(b) Neither he nor any firm, partnership or association in which he has substantial interest is designated as an ineligible contractor by the Comptroller General of the United States pursuant to Section 5.6(b) of the Regulations of the Secretary Labor, part 5 (29 CFR, Part 5) or pursuant to Section 3(a) of the Davis-Bacon Act as amended (40 U.S.C.. 276u-2(a)).</p> <p>(c) No part of the aforementioned contract has been or will be subcontracted to any subcontractor if such subcontractor or any firm, corporation, partnership or association in which such subcontractor has a substantial interest is designated an ineligible contractor pursuant to any of the aforementioned regulatory or statutory provisions.</p>		
<p>2. He agrees to obtain and forward to the aforementioned recipient within ten days after the execution of any subcontract, including those executed by his subcontractors and any lower tier subcontractors, a Subcontractor's Certification Concerning Labor Standards at Prevailing Wage Requirements executed by the subcontractors.</p> <p>(a) The workmen will report for duty on or about _____ (date).</p>		
<p>3. He certifies that:</p> <p>(a) The legal name and the business address of the undersigned are:</p>		
<p>(b) The undersigned is:</p>		
(1) A SINGLE PROPRIETORSHIP	(3) A CORPORATION ORGANIZED IN THE STATE OF	
(2) A PARTNERSHIP	(4) OTHER ORGANIZATION (Describe)	
<p>(c) The name, title and address of the owner, partners or officers of the undersigned are:</p>		
NAME		ADDRESS

EXHIBIT B: Certified Payroll Forms

(d) The names and address of all other persons, both natural and corporate, having a substantial interest in the undersigned, and the nature of the interest are (if none, so state):		
NAME	TITLE	ADDRESS
(e) The names, address and trade classification of all other building construction contractors in which the undersigned, has a substantial interest are (if none, so state):		
NAME	TITLE	ADDRESS

3. He certifies:
(a) The company's Federal Tax Identification Number is:
(b) The ethnicity of the company's owner(s) is/are:
(c) Is the company a female owned business: _____ Yes _____ No

Date: _____ (Contractor)

By _____ (Signature)

WARNING

U.S. Criminal Code, Section 1010, Title 18, U.S. C. Provides in part "Whoevermakes, passes, utters, or publishes any statement, knowing the same to be falseshall be fined not more than \$5,000 or imprisoned not more than two years or both."

EXHIBIT B: Certified Payroll Forms

**CERTIFICATION OF BIDDER REGARDING SECTION 3
AND SEGREGATED FACILITIES**

Name of Prime Contractor

Project Name and Number

The undersigned hereby certified that:

- (a) Section 3 provisions are included in the Contract.
- (b) A written Section 3 plan was prepared and submitted as part of the bid proceedings (if bid equals or exceeds \$10,000).
- (c) No segregated facilities will be maintained.

Name

Name and Title of Signer (Print or Type)

Signature

Date

EXHIBIT B: Certified Payroll Forms

**CERTIFICATION OF PROPOSED SUBCONTRACTOR REGARDING
SECTION 3 AND SEGREGATED FACILITIES**

Name of Subcontractor

Project Name and Number

The undersigned hereby certified that:

- (a) Section 3 provisions are included in the Contract.
- (b) A written Section 3 plan was prepared and submitted as part of the bid proceedings (if bid equals or exceeds \$10,000).
- (c) No segregated facilities will be maintained, as required by Title VI of the Civil Right Act of 1964.

Name _____
Name and Title of Signer (Print or Type)

Signature

Date

EXHIBIT B: Certified Payroll Forms

**CERTIFICATION OF UNDERSTANDING
AND AUTHORIZATION**

Project Name: _____

This is to certify that the principals, and the authorized payroll officer, below, have read and understand the Minutes of the Preconstruction Conference and the labor standards clauses pertaining to the subject project.

The following person(s) is designated as the payroll officer for the undersigned and is authorized to sign the Statement of Compliance which will accompany our weekly certified payroll reports for this project:

Designated Payroll Officer (Name)

Designated Payroll Officer (Signature)

Authorized by (Contractor/Subcontractor)

(Signature)

(Title)

(IRS) Employer Identification Number

(Date)

EXHIBIT B: Certified Payroll Forms
CERTIFICATION FOR APPLICABLE FRINGE BENEFIT PAYMENTS

Project Name: _____

Classification/ Fringe Benefits Provided	Name, Address and Telephone Number of Plan/Fund/Program
1. _____ Health and Welfare	_____
_____	_____
_____	_____
_____	_____
_____	_____
2. _____ Health and Welfare	_____
_____	_____
_____	_____
_____	_____
_____	_____
3. _____ Health and Welfare	_____
_____	_____
_____	_____
_____	_____
_____	_____

OR: (Check if applicable)

_____ I certify that I do not make payments to approved fringe benefit plans, funds or programs.

_____	By _____
Contractor/Subcontractor	Signature
_____	_____
Date	Title

EXHIBIT B: Certified Payroll Forms

AUTHORIZATION FOR DEDUCTIONS

The undersigned authorized deductions, as noted, to be made from their wages. It is understood that these deductions: (a) are in the interest of the employee; (b) is not a condition of employment; (c) there is no direct or indirect financial benefit accruing to the employee; and; (d) it is not otherwise forbidden by law.

Employee's Name	Employee's Signature	Date	Deduction
--------------------	-------------------------	------	-----------

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Signature of Authorized Representative of Employee

Authorized Representative's Name and Title

Date

Exhibit 'C'

**SAMPLE CONTRACT AGREEMENT/
ADDITIONAL INSURED CERTIFICATE**

Sample of Contract Agreement

Additional Insured Certificates

CONTRACTOR AGREEMENT

THIS AGREEMENT, entered into this ____ day of _____, 2013 by and between CITY OF ALAMEDA, a municipal corporation (hereinafter referred to as "City"), and _____, a (California corporation, partnership, sole proprietor, individual) whose address is _____, hereinafter called the Contractor, in reference to the following:

RECITALS:

A. City 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. City and Contractor desire to enter into an agreement for removing and replacing the HVAC chillers at City Hall and the Police Department, in accordance with Specifications, Special Provisions and Plans, entitled "Remove and Replace HVAC Chillers at City Hall and the Police Department", adopted therefore, No. P.W. 03-13-04, including all exhibits and supports, filed in the office of the City Clerk on April 2, 2013, which is incorporated herein by reference.

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, entitled "Construct New Wall at the City Hall Finance Department Front Office", 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.

Contractor shall perform each requested task set forth in the Bidder's Proposal detailed in Exhibit "A", as directed by the City, which is attached hereto and incorporated herein by this reference. The Contractor acknowledges that the work plan included in Exhibit "A" is tentative and does not commit the City to perform all task 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, to be taken from CIP 90665.

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.

Compensation for bid is \$ _____.

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 agency 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 10 days after receiving payment for work satisfactorily completed and accepted including incremental acceptances of portions of the contract work by the agency. Any delay or postponement of payment may take place only for good cause and with the agency'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. This clause applies to both DBE and non-DBE subcontractors.

4. **TIME IS OF THE ESSENCE:**

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

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:**

City and Contractor intend that the relationship between them created by this Agreement is that of employer-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 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 City, its City Council, boards, commissions, officials, and employees ("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 or active negligence or willful misconduct of Indemnitees.

10. **INSURANCE:**

On or before the commencement of the terms of this Agreement, Contractor shall furnish City 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 thirty (30) days' advance written notice to the City of Alameda by certified mail, "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 City and licensed to do insurance business in the State of California. Endorsements naming the City 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 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

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 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, 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 and commissions, officers, and employees 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 Attorney. 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 Attorney:

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 City. 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, claims for money by Contractor from 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 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 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 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 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 City.

Contractor shall, at such time and in such form as 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 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 City or its designees at all proper times, and gives 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 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 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 City shall be addressed to City at:

City of Alameda
Public Works Department
Maintenance Service Center
1616 Fortmann Way
Alameda, CA 94501
Attention: Jesse Barajas, Public Works Superintendent
Ph: (510) 747-7900 / Fax: (510) 521-8762

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

Ph: () / Fax: ()

18. **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.

19. **PREVAILING WAGES:**

a. 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.

b. 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 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 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.

c. 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.

d. 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.

e. 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.

f. 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.

g. 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.

h. 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.

i. 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 www.dir.ca.gov.

20. **HOURS OF LABOR.**

a. 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.

b. 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.

c. 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.

21. **CERTIFIED PAYROLL.**

a. 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. Certified payrolls shall be prepared and submitted weekly to the Labor Compliance Officer, Gail Carlson, Public Works Department, 950 W. Mall Square, Room 110, Alameda, CA 94501 by the Contractor and each subcontractor. 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:

b. 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;

c. 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

d. 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.

e. 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.

f. 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.

22. **APPRENTICES.**

a. 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.

b. 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.

c. 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.

d. 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), in 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 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. A copy of the City's IPM Policy may be obtained from the Department of Public Works and is also on file with the City Clerk. Contractor shall provide a copy of any current IPM certifications(s) to the City's project manager prior to initiation of the service work.

28. **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) days after receipt by Contractor from City of written notice of default, specifying the nature of such default and the steps necessary to cure such default, City may terminate the Agreement forthwith by giving to the Contractor written notice thereof.

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.

29. **COMPLIANCES:**

Contractor shall comply with all laws, state or federal and all ordinances, rules and regulations enacted or issued by City.

30. **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.

31. **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 City to do otherwise.

32. **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.

33. **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 City and Contractor.

34. **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.

35. **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.

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

CONTRACTOR
(Corporation)

CITY OF ALAMEDA
A Municipal Corporation

Name
Title

John A. Russo
City Manager

RECOMMENDED FOR APPROVAL

Name
Title

Matthew T. Naclerio
Public Works Director

APPROVED AS TO FORM:
City Attorney

Stephanie Garrabrant-Sierra
Assistant City Attorney

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

SAMPLE

(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 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.

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

SAMPLE

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:
Named Insured:	(Authorized Representative)

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 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.

Exhibit 'D

EMERGENCY FORM

Emergency Form

During the course of the work and/or while the contractor has responsibility for the project, emergencies may arise where it is necessary to repair or replace safety devices, or install additional safety devices, or take preventative measures necessary for public safety. Such corrections as may be necessary are the contractor's responsibility and he, or his representative, will be called upon in such emergencies.

Please fill in the following information and submit it to the City Engineer or PW Supervisor.

CONTRACTOR'S NAME _____

CONTRACTOR'S PHONE NUMBER _____

PROJECT SUPERINTENDENT _____

CONTACT IN THE EVENT OF EMERGENCY: _____

Name: _____

Phone Number: _____

In cases where the contractor, or his representative, cannot be contacted or will not take the necessary actions, the City Public Works Department will be notified and the necessary repairs, corrections, or changes will be made. The contractor will be billed for such remedial action. Charges will include the cost of labor at applicable rates, the City's normal overhead factor, the rental of any equipment or safety devices placed during the emergency that are damaged or stolen, or otherwise not returned to the City, will be billed to the contractor.

Scheduled starting date _____

Scheduled completion date _____

Job Name Remove and Replace Chillers at City Hall and the Police Department

EXHIBIT “E”

PERFORMANCE BOND FORM

Performance Bond Form

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 _____, 2013, 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.

EXHIBIT 'E'

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

of which shall be deemed an original, this the _____ day of _____, 2013.

ATTEST:

Principal
By: _____
Principal Secretary

(SEAL)

(Witness as to Principal) (Address)

(Address)

(Surety)

ATTEST:

Surety Secretary
(SEAL) By: _____

(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.

Exhibit 'F'

PAYMENT BOND FORM

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 _____, 2013, 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.

EXHIBIT 'F'

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 _____, 2013.

ATTEST: _____
Principal

By: _____
Principal Secretary
(SEAL)

(Witness as to Principal) (Address)

(Address)

(Surety)

ATTEST: _____
Surety Secretary
(SEAL)

By: _____
(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.

Exhibit 'G'

BIDDER'S BOND FORM

EXHIBIT 'G'

Bidder's Proposal Form

Contractor Name _____

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: _____, 2013. _____

Principal

Surety

By: _____

EXHIBIT "G"

CERTIFICATE OF ACKNOWLEDGMENT

State of California
County of Alameda

On this _____ day of _____ in the year 2013 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

PROJECT PLANS

Contractor	MECH-1C
Project Name	CHILLER REPLACEMENT - CITY HALL
Project No.	2012-24-2
Address	2263 SANTA CLARA AVE., ALAMEDA, CA
City	ALAMEDA, CA
State	CA
Zip	94503

Equipment	Model	Manufacturer	Notes
Chiller	CH-2	TRANE	
Compressor	CCM-70	TRANE	

Item	TagID	Qty	Description	Material Number
CH1	CGAM70 TON	1	Air-Cooled Chiller, Scroll Compressor	XXXXXXXXXXXXXXXXXXXX

Item	TagID	Qty	Description	Material Number
CH2	CGAM70 TON	1	Air-Cooled Chiller, Scroll Compressor	XXXXXXXXXXXXXXXXXXXX

Contractor	MECH-1C
Project Name	CHILLER REPLACEMENT - CITY HALL
Project No.	2012-24-2
Address	2263 SANTA CLARA AVE., ALAMEDA, CA
City	ALAMEDA, CA
State	CA
Zip	94503

Equipment	Model	Manufacturer	Notes
Chiller	CH-2	TRANE	
Compressor	CCM-70	TRANE	

Item	TagID	Qty	Description	Material Number
CH2	CGAM70 TON	1	Air-Cooled Chiller, Scroll Compressor	XXXXXXXXXXXXXXXXXXXX

Item	TagID	Qty	Description	Material Number
CH2	CGAM70 TON	1	Air-Cooled Chiller, Scroll Compressor	XXXXXXXXXXXXXXXXXXXX

WATER SIDE SYSTEM REQUIREMENTS

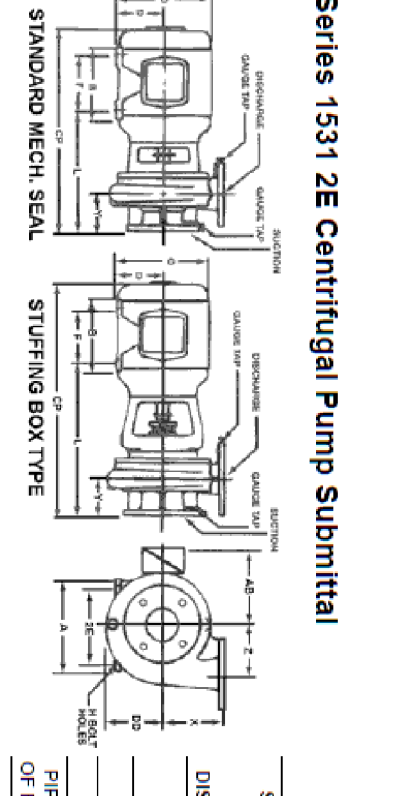
PROJECT NAME:	CHILLER REPLACEMENT - CITY HALL
DATE:	1-8-13
ITEM or SYSTEM TAG(S)	CH-2
MANDATORY MEASURES	Reference on Plans or Specification
PROPOSED MEASURES	

AIR COOLED WATER CHILLER

MARK	MANUFACTURER	MODEL	WATER				PERFORMANCE				ELECTRICAL				REMARKS
			EMT	LWT	GPM	PRESS FT. H2O	AMBIENT TEMP	100°F EER	KW	V/PH	MINIMUM AMPACITY	MAX COND FLA	COND LBS	WEIGHT	
CH-2	TRANE	CGAM-70	52	44	200	25.0	66.4	80.4	9.9	208/3	315	350	39.4	5120	R-410A REFRIGERANT, 4 COMPRESSORS,

CHILLED WATER PUMP

MARK	MANUFACTURER	MODEL	FLUID	GPM	HEAD FEET	RPM	IMPELLER	BHP	HP	ELECTRICAL V/PH/Hz	WEIGHT	REMARKS
CHP-2	BELL & HOWELL	1531-2E	WATER	250	80	1750	9.875"	7.5	10	208/3/60	300	BRONZE FITTED

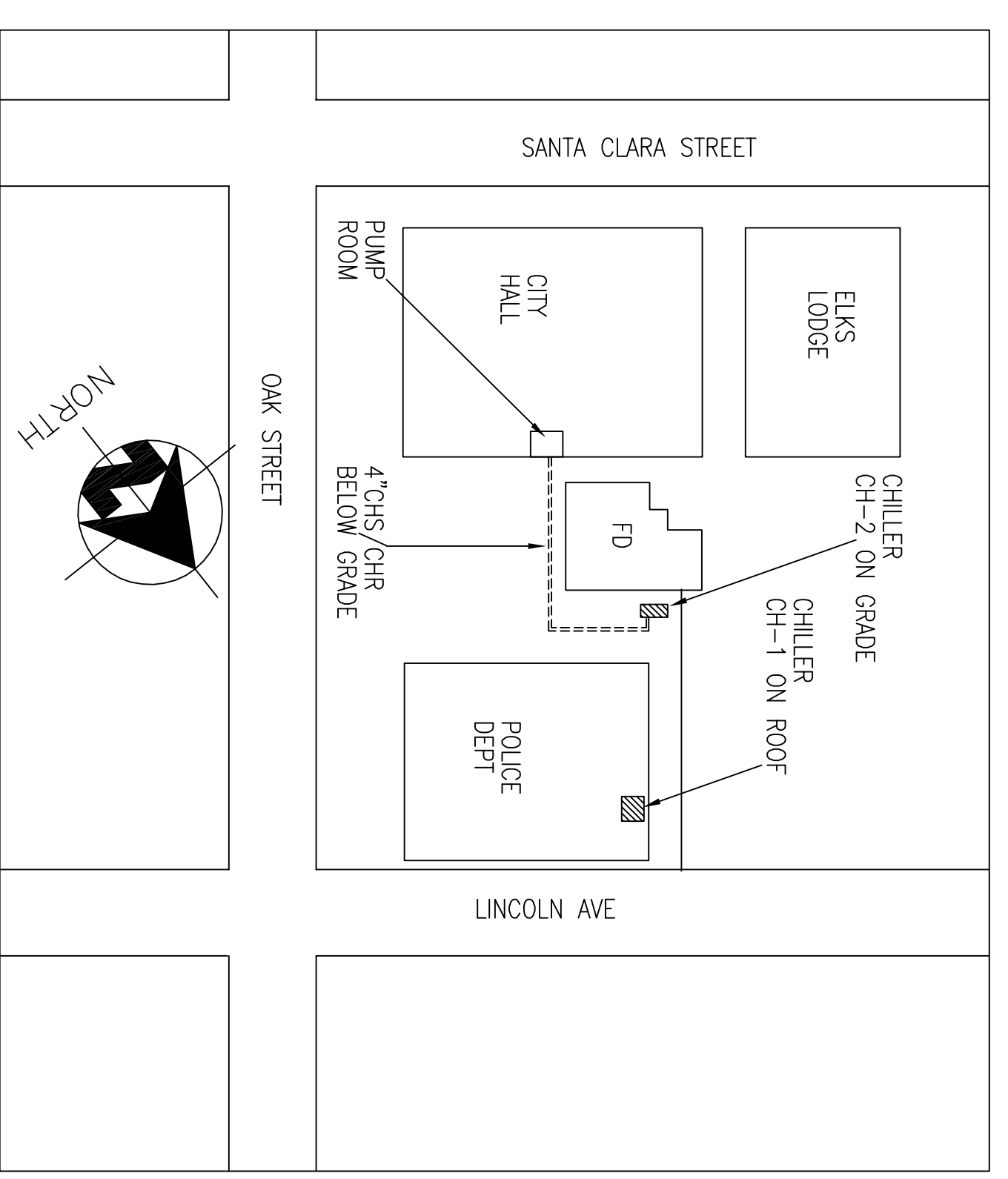


MOTOR FRAME	A (MM)	D (MM)	B (MM)	C (MM)	D (MM)	E (MM)	F (MM)	H (MM)	L (MM)	O (MM)
2134M	151.2	107.3	146.0	146.0	146.0	146.0	146.0	146.0	146.0	146.0

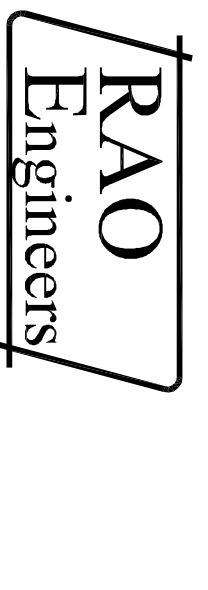
1.01 GENERAL SCOPE OF WORK

- The submission of a bid proposal shall be considered as conclusive evidence that the Contractor is thoroughly familiar with the intent of the contract documents, and scope of work.
- The Contractor prior to bidding shall check existing installation and systems related to his work and shall in the bid proposal include all labor and material required to complete the systems.
- The complete mechanical installation shall be in accordance with the applicable UMC, UPC, UFC, UBC, CAL OSHA, NFPA, the latest rules and regulations of the State of California, the Division of Industrial Safety, the National Board of Fire Underwriters, and all applicable state and local codes issued by the authorities having jurisdiction.
- All equipment and material shall be supported and anchored per SMACNA seismic standards.
- The Contractor shall be responsible for securing all required trade permits and inspections.
- The Contractor shall maintain at the job site, on up to date as built drawing set. The as built drawing set shall reflect all approved changes to the design drawings. The as built drawings set shall be kept clean and in good condition and shall be turned over to the Owner at the completion of the project.
- The contractor shall follow the Owners instructions as to exact time the services and utilities can be shut down.
- No substitute material shall be used without the written authorization of the Owners project engineer.
- Upon completion of the work the Contractor shall schedule and perform a complete functional test to demonstrate to the Owner that the new installation is operating as intended. Any defects or discrepancies in the material or work shall be corrected immediately to the satisfaction of the Owner at no additional cost to the Owner.
- The following Specifications Sections are herewith made part of the scope of work.
 - Mechanical General Provisions
 - Basic Materials and Methods
 - Insulation
 - Heating Ventilation & Airconditioning
 - Section 15010
- 1.02 SPECIFIC SCOPE OF WORK**
 - Remove and replace air cooled water chiller, chilled water pump, piping, controls, etc as indicated on the drawings.
 - Transport old chiller and pump for recycling and obtain recycling certification.
 - Install new chilled water pumps, and piping.
 - Flush and clean chilled water piping system and replenish with clean water and chemical treatment.
 - Balance chilled water system to obtain flow thru chiller, pump and bypass as indicated. Provide balance report.
 - Perform start up services and complete functional test in presence of Owner's representative.
- 1.03 BIDS**
 - BASE BID : Trane chiller and B&G pump. Alternate price for approved equal chiller/pump.
 - Separate cost for chilled water system flushing and chemical treatment.

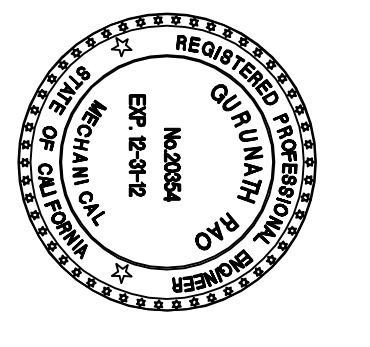
SYMBOL	DESCRIPTION
→	ELBOW DOWN
○	ELBOW UP
→	RISE OR DROP
○	BRANCH TOP CONNECTION
○	BRANCH BOTTOM CONNECTION
—	SIDE CONNECTION
—	CAP PIPE
—	PETE'S PLUG
—	UNION
—	STANMER WITH GLOBE VALVE & HOSE CONNECTION
—	CONCENTRIC REDUCER
—	ECCENTRIC REDUCER
—	BALANCING VALVE
—	BALL VALVE
—	BUTTERFLY VALVE
—	CHECK VALVE
—	GLOBE VALVE
—	PRESSURE REDUCING VALVE
—	SAFETY RELIEF VALVE
—	NEEDLE VALVE
—	THERMOMETER
—	PRESSURE GAUGE
—	NEW
—	EXISTING
—	NEW
—	EXISTING / EXISTING TO REMAIN
—	DEMOLITION
—	POINT OF CONNECTION
—	CHILLED WATER SUPPLY
—	CHILLED WATER RETURN



SITE PLAN
 NO SCALE



330 Arroyo Seco, Hollister CA 95023
 Tel:(831) 265-4254
 e-mail : rao.engineers@gmail.com



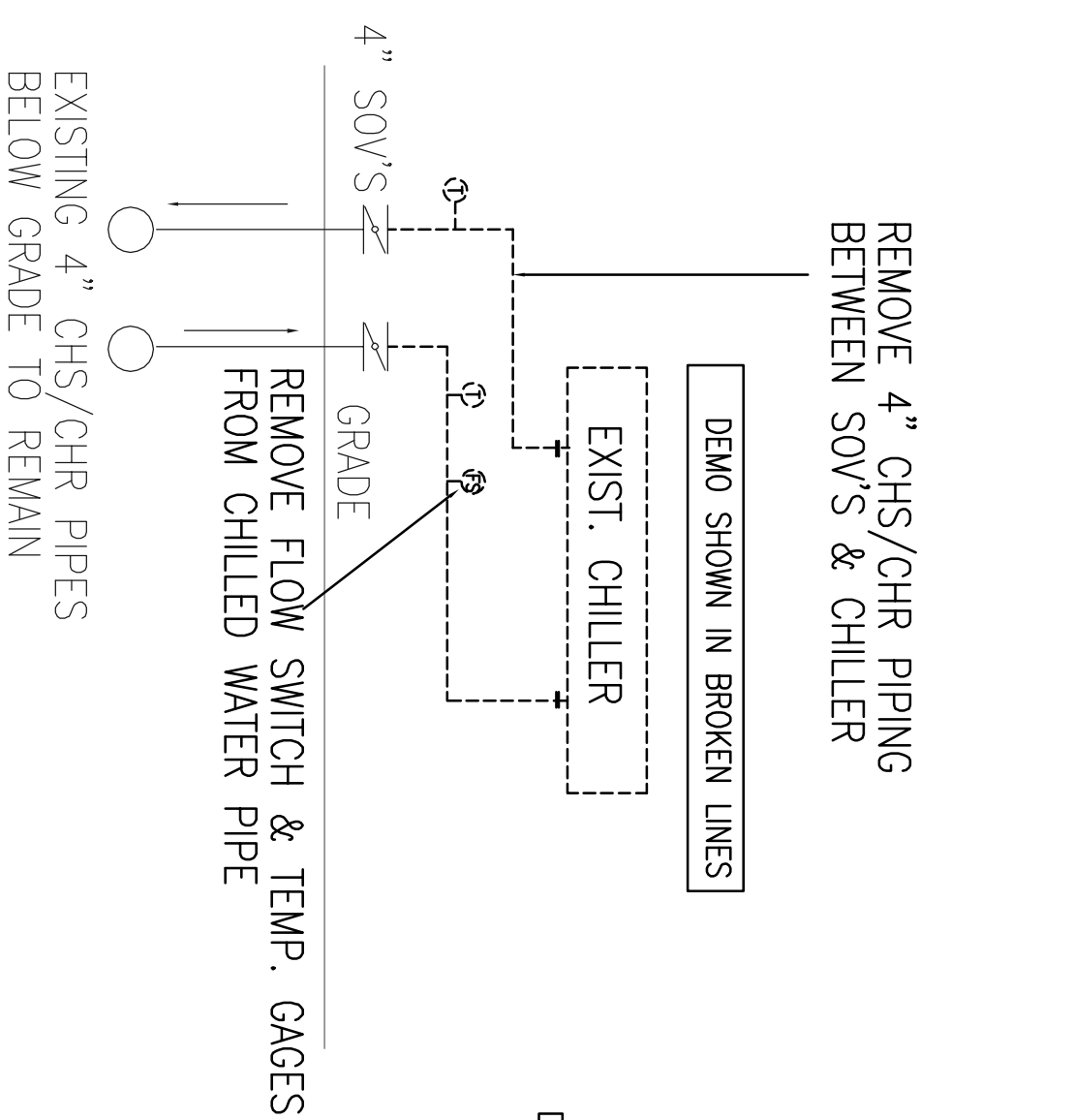
PROJECT :
 AIR COOLED CHILLER REPLACEMENT
 CITY HALL
 2263 Santa Clara Ave
 Alameda, Ca 94501

REV.	DESCRIPTION	DATE
1-14-13	REVIEW SET	
1-28-13	PLAN CHECK/BID	

SHEET TITLE:
 LEGEND, SCHEDULE, T-24
AND SITE PLAN

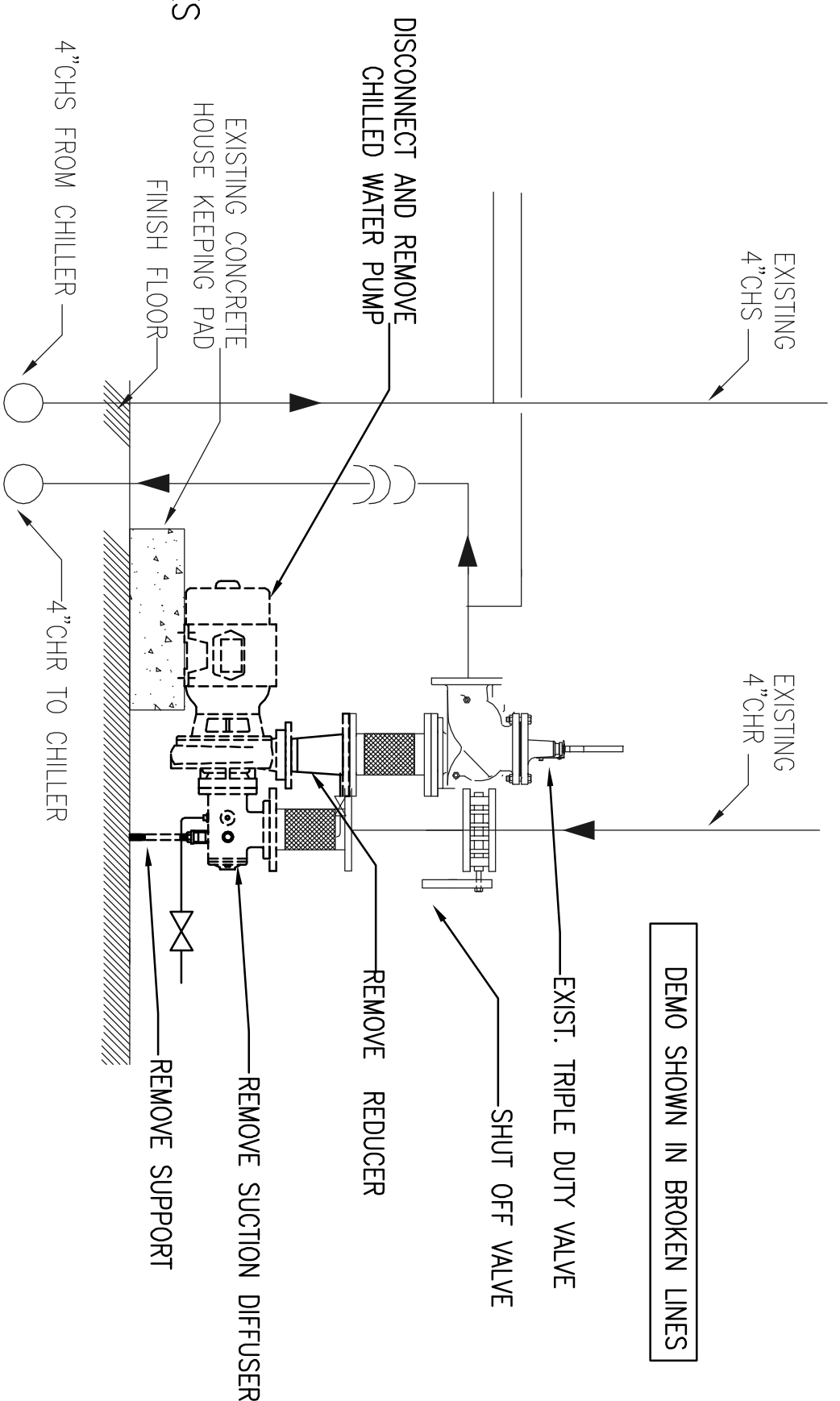
SCALE: NONE
PROJECT NO.: 2012-24-2
DATE : JAN 11, 2013
SHEET NO.: M-1 CH

REMOVE 4" CHS/CHR PIPING BETWEEN SOV'S & CHILLER



DEMO PIPING SCHEMATIC

SCALE: NONE



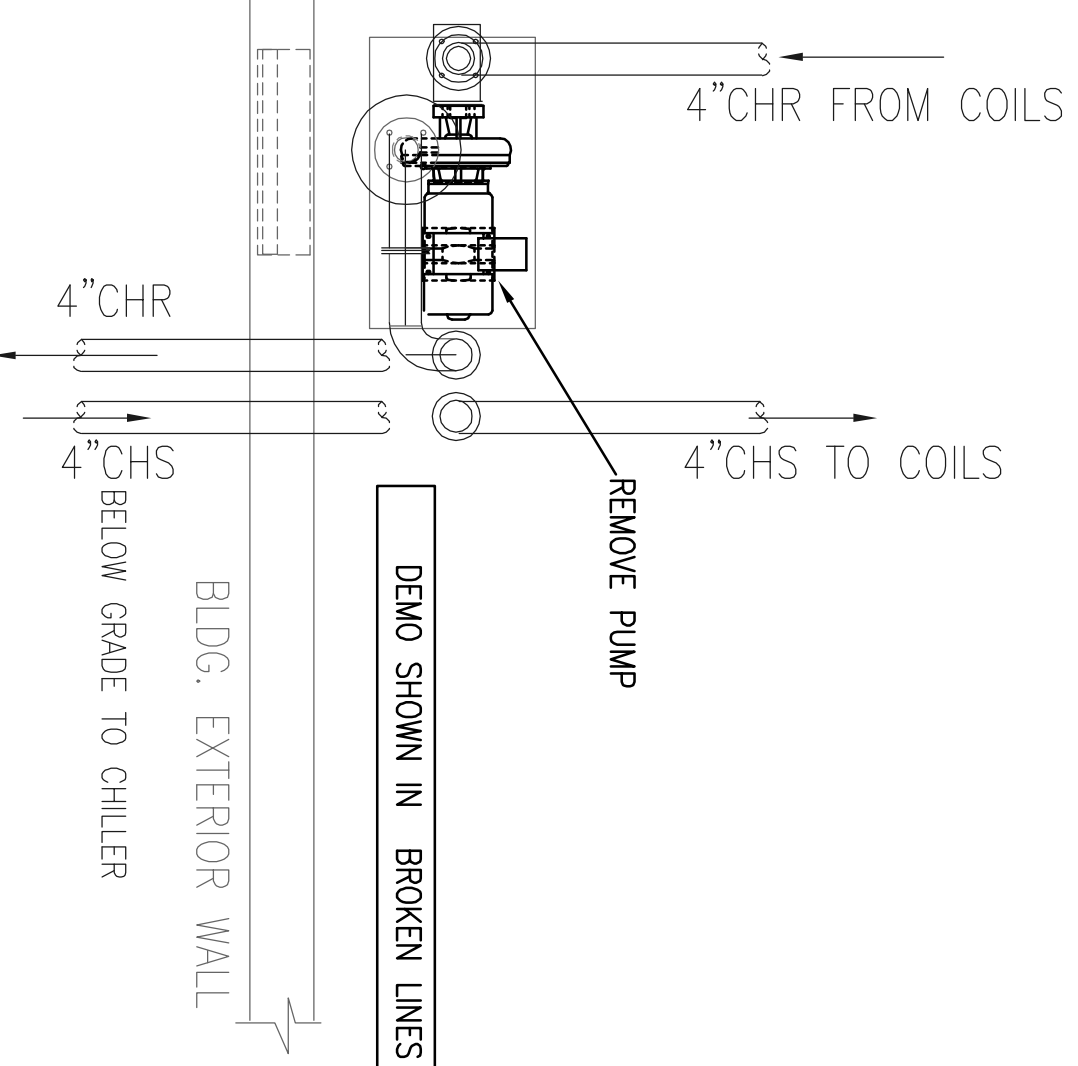
DEMO PUMP ELEVATION

SCALE: NONE

EXISTING PUMP DEMO NOTES:

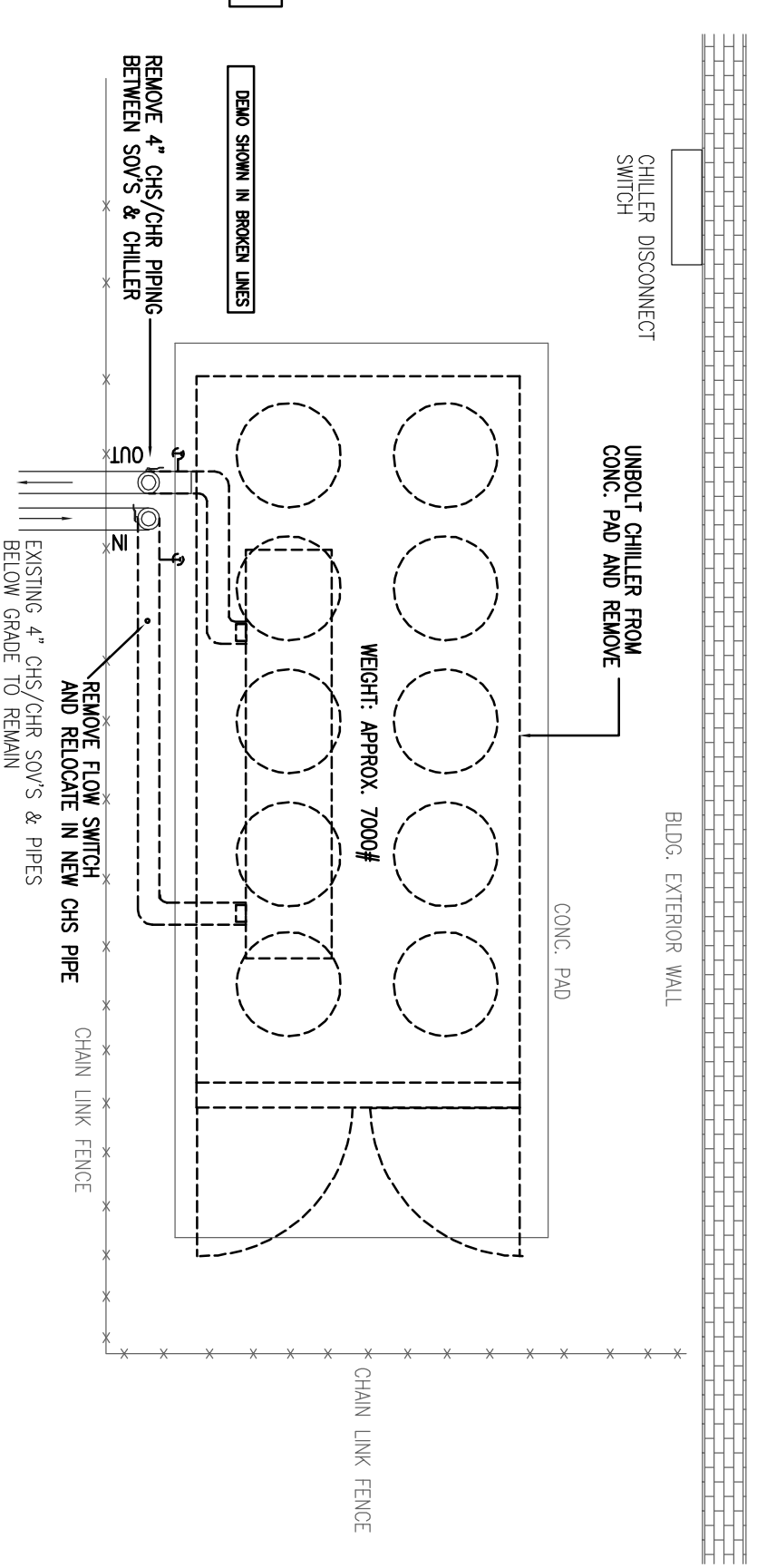
1. DISCONNECT POWER. SHUT OFF WATER VALVES AT INLET AND OUTLET OF PUMP. UNBOLT SUCTION DIFFUSER AT INLET OF PUMP, AND TRASHION AT DISCHARGE OF PUMP. REMOVE PUMP.
2. REMOVE PUMP AND TRANSPORT TO RECYCLE CENTER. OBTAIN CERTIFICATE FROM RECYCLER AND SUBMIT TO CITY OF ALAMEDA FACILITY MANAGER.

DEMOLITION DRAWINGS



DEMO PUMP PLAN

SCALE: 1/2"=1'-0"

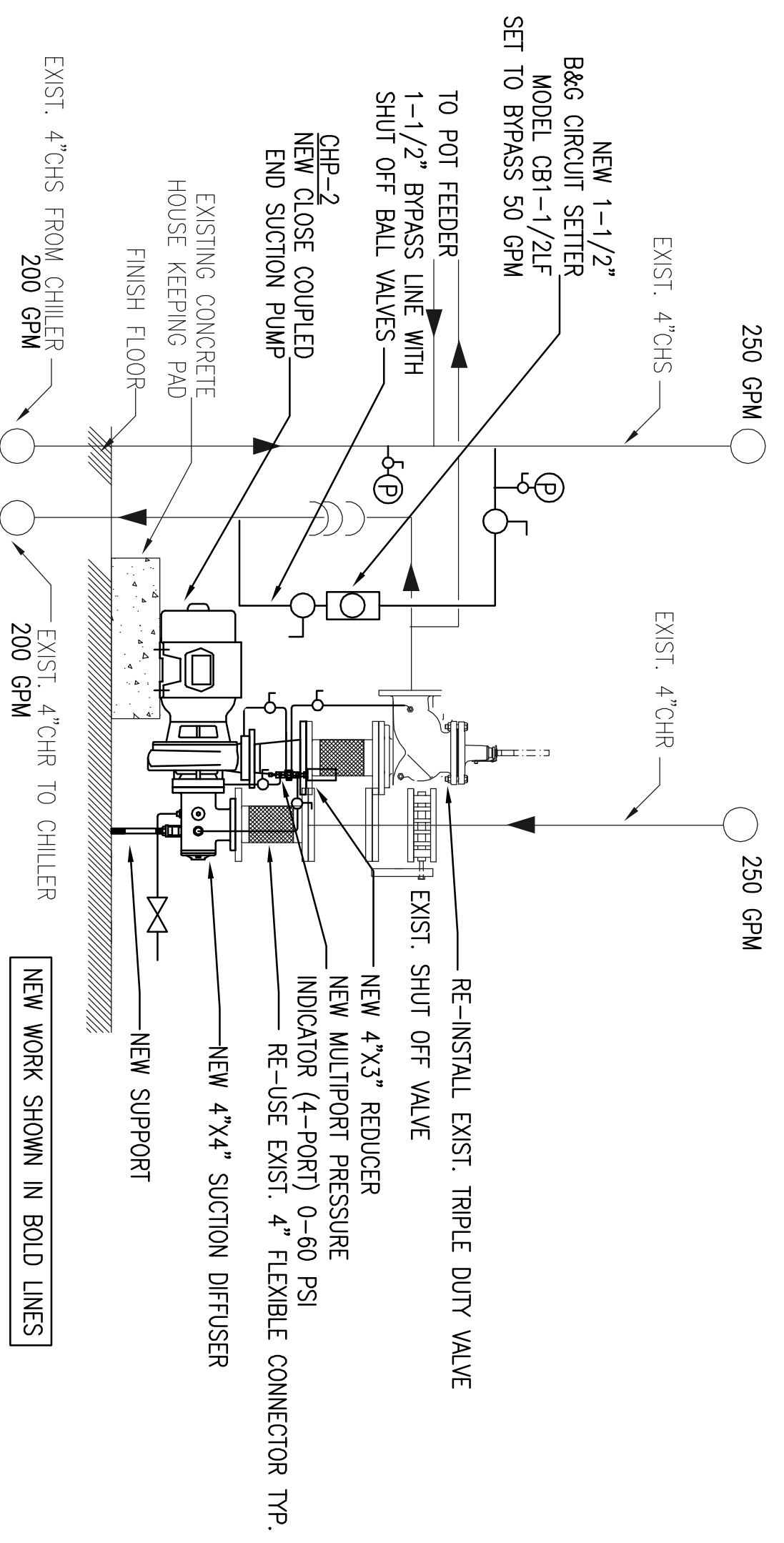


DEMO CHILLER PLAN

SCALE: 1/4"=1'-0"

CHILLER DEMO NOTES:

1. SHUT OFF ELECTRICAL POWER TO CHILLER. UNBOLT CHILLER FROM CONCRETE PAD. CLOSE SHUT OFF VALVES IN SUPPLY AND RETURN WATER LINES TO CHILLER. CUT AND REMOVE WATER SUPPLY AND RETURN WATER LINES BETWEEN SHUT OFF VALVES AND CHILLER. REMOVE AND RETAIN TEMPERATURE GAUGES AND FLOW SENSOR FOR RE-INSTALLATION.
2. REMOVE CHILLER AND TRANSPORT TO RECYCLE CENTER. OBTAIN CERTIFICATE FROM RECYCLER AND SUBMIT TO CITY OF ALAMEDA FACILITY MANAGER.

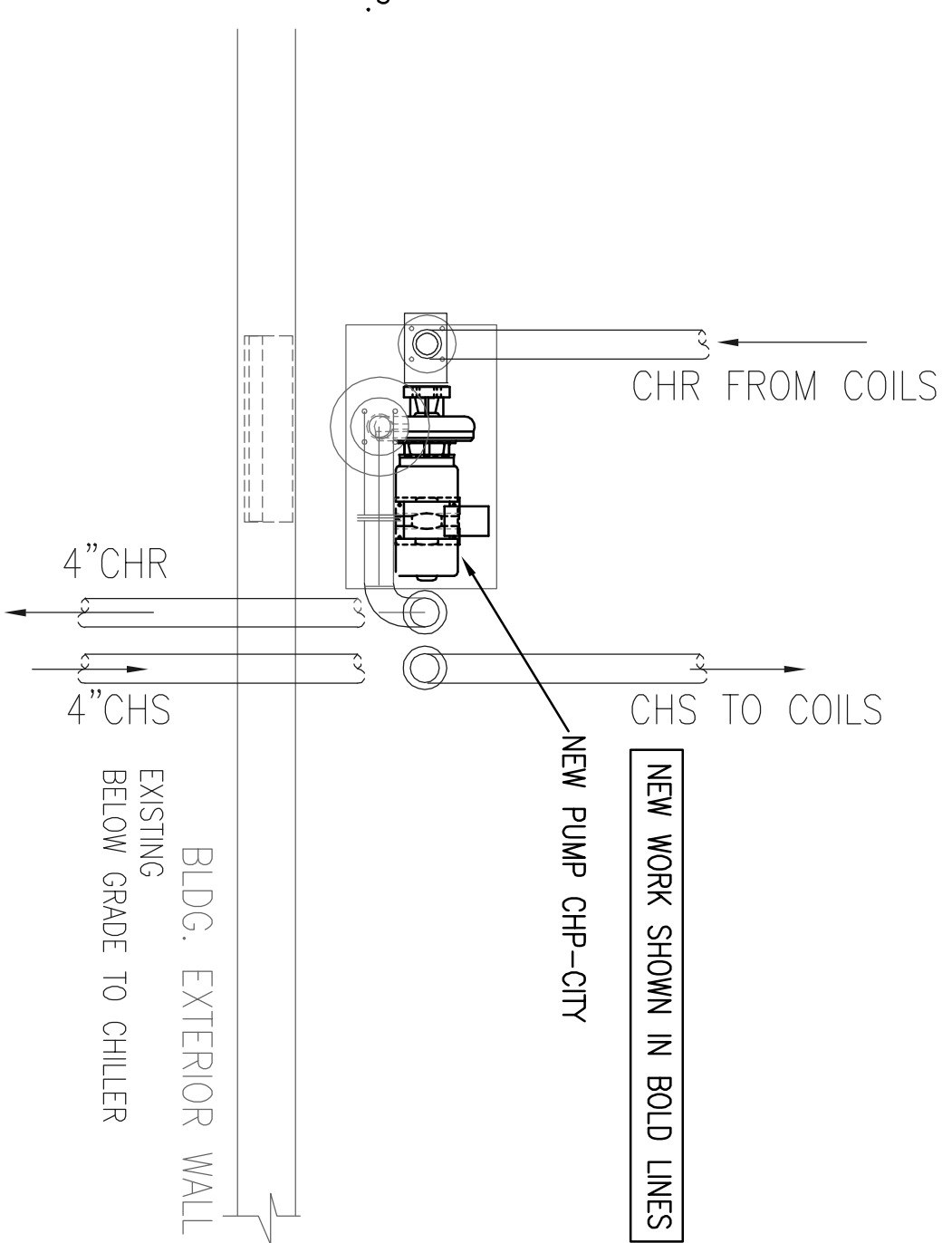


NEW PUMP ELEVATION

SCALE: NONE

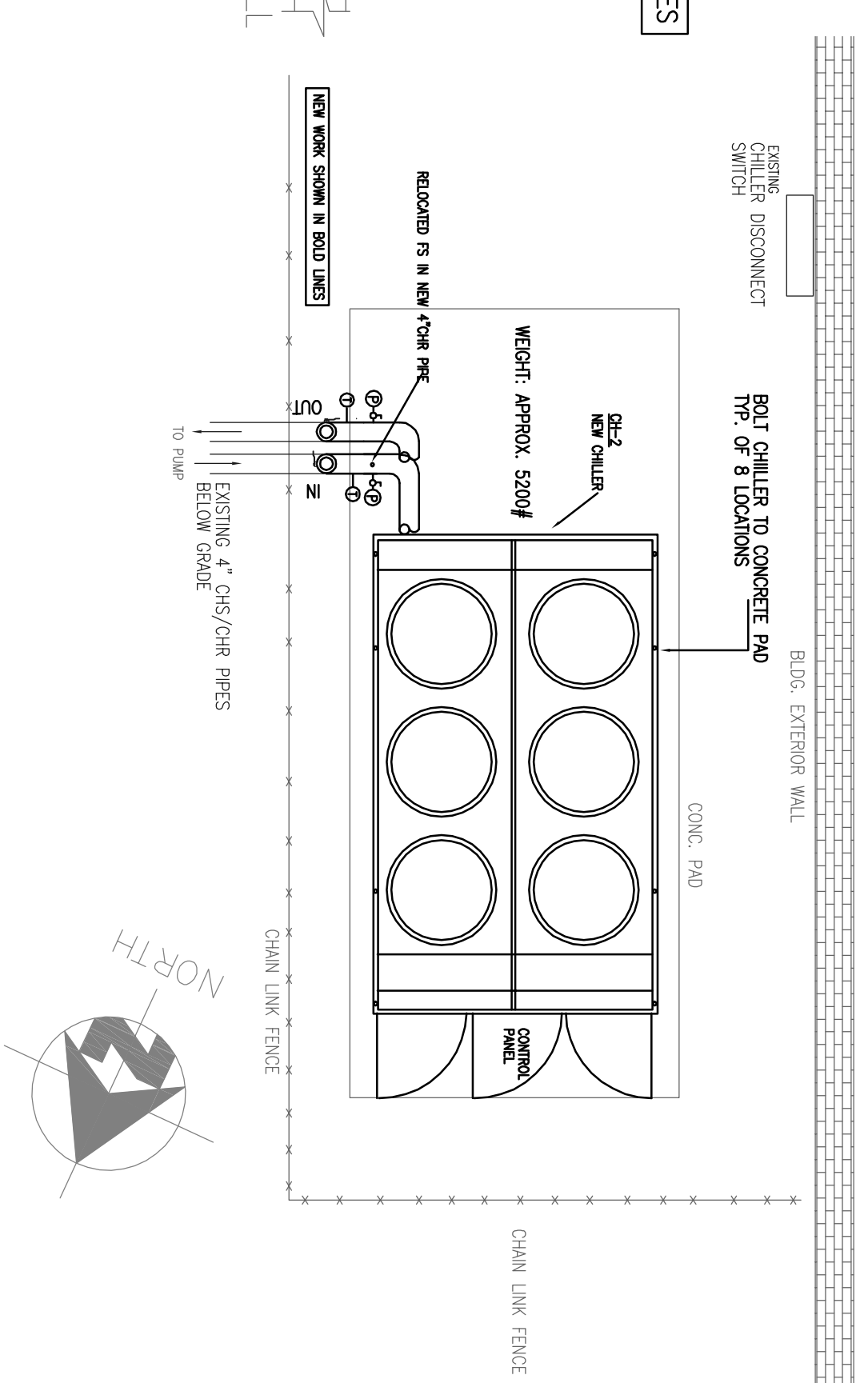
NEW PUMP INSTALLATION NOTES:

1. INSTALL PUMP ON EXISTING CONCRETE PAD, WITH MINIMUM 3" CLEARANCE FROM EDGE OF PAD. SECURE PUMP TO PAD WITH 3/8" CONCRETE ANCHOR BOLTS MIN. 2" EMBEDMENT, AT EACH SUPPORT POINT OF FRAME. IT IS IMPORTANT TO POSITION NEW PUMP SUCH THAT ITS INLET AND OUTLET ARE ALIGNED WITH EXISTING SUCTION AND DISCHARGE PIPING.
2. PROVIDE AND INSTALL NEW SUCTION DIFFUSER AT INLET OF PUMP, AND NEW 4X3 REDUCER AT PUMP DISCHARGE AND CONNECT TO EXISTING PIPING AS INDICATED. PROVIDE AND INSTALL PRESSURE GAGE AND 1/4" PIPING FOR PRESSURE READING AT INLET & OUTLET OF PUMP AND DOWNSREAM OF EXISTING TRIPLE DUTY VALVE.
3. BALANCE WATER FLOW AT PUMP TO 250 GPM FLOW AT 80' HEAD. (TO MATCH EXISTING). BALANCE WATER FLOW TO BE 200 GPM THRU CHILLER AND 50 GPM THRU BYPASS LINE.
4. INSULATE CHILLED WATER PUMP, ALL NEW PIPING AND PIPING COMPONENTS.



NEW PUMP PLAN

SCALE: 1/2"=1'-0"

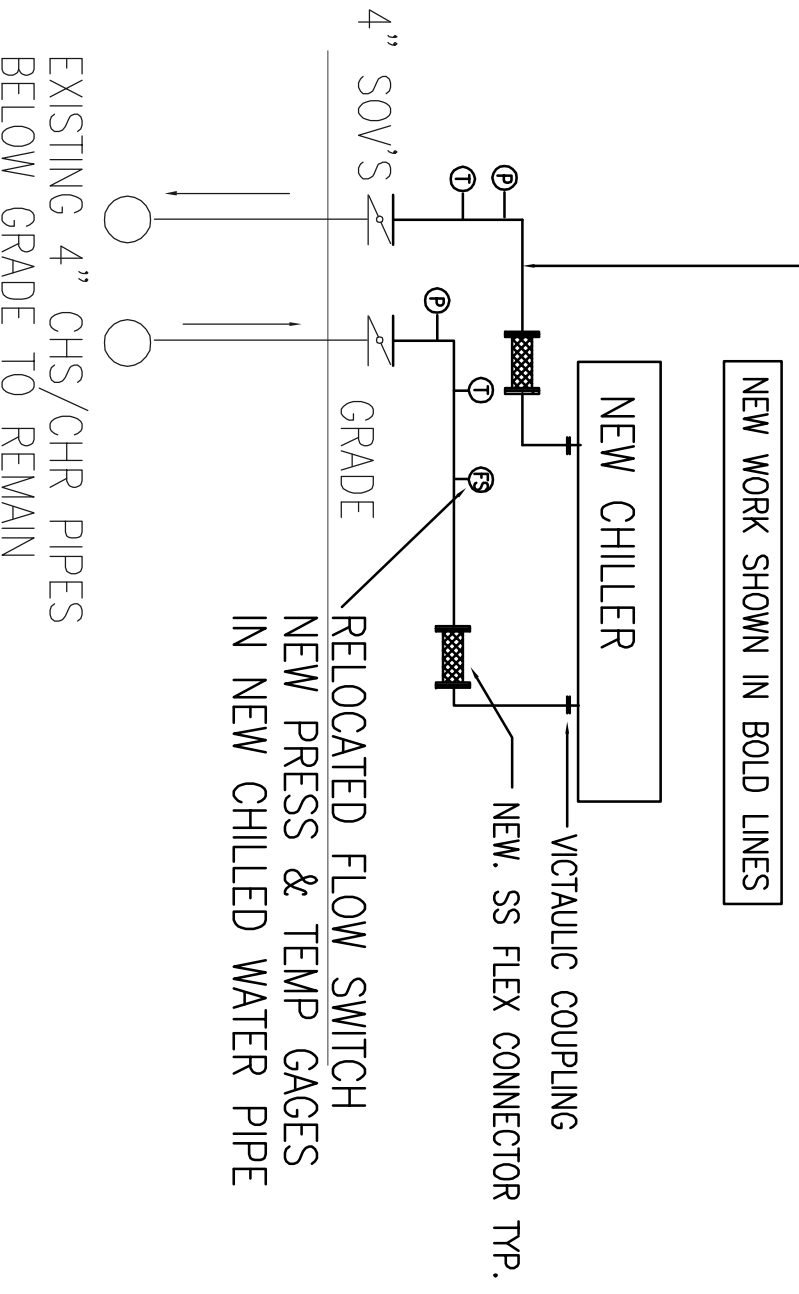


NEW CHILLER PLAN

SCALE: 1/4"=1'-0"

NEW CHILLER INSTALLATION NOTES:

1. INSTALL CHILLER ON EXISTING CONCRETE PAD, WITH MINIMUM 4" CLEARANCE FROM EDGE OF PAD. SECURE CHILLER TO PAD WITH 3/4" CONCRETE ANCHOR BOLTS MIN. 2" EMBEDMENT, AT EACH CORNER AND MID POINT OF BOTTOM SUPPORT FRAME.
2. EXTEND NEW 4" Ø SUPPLY AND RETURN PIPING FROM SHUT OFF VALVES EXISTING ABOVE GRADE AND CONNECT TO CHILLER INLET AND OUTLET. PROVIDE FLANGES, PIPE EXTENSIONS, ELBOWS, ETC AS REQUIRED. PIPING CONNECTIONS AT CHILLER ARE VICTAULIC/REINSTEAL EXISTING FLOW SWITCH AND SENSORS, NEW TEMP AND PRESSURE GAGES NEW PIPING.
3. INSULATE PIPING WITH EXTERNAL PIPE WRAP INSULATION AND INSTALL WEATHERPROOF ALUMINIUM JACKETING.
4. RE-INSTALL FLOW SWITCH AND HOOK UP TO CHILLER CONTROLS TO PREVENT CHILLER FROM STARTING AT NO FLOW CONDITIONS.
5. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR RE-INSTALLING AND HOOK UP OF EXISTING CONTROLS SYSTEM FOR CHILLER OPERATION. CHILLER MANUFACTURER'S REPRESENTATIVE SHALL PROVIDE START UP SERVICES.

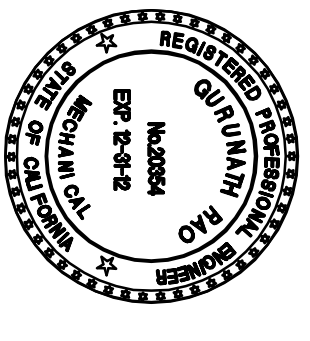


NEW PIPING SCHEMATIC

SCALE: NONE



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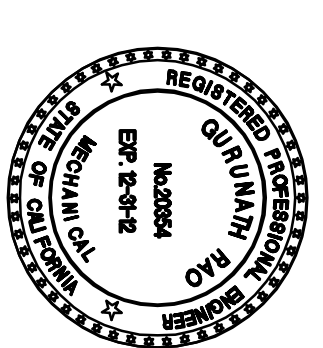
PROJECT :
AIR COOLED CHILLER REPLACEMENT CITY HALL

2263 Santa Clara Ave
Alameda, Ca 94501

REV.	DESCRIPTION	DATE
1-14-13	REVIEW SET	1-14-13
1-28-13	PLAN CHECK/BID	1-28-13

SHEET TITLE:
FLOOR PLANS AND SCHEMATIC DRAWINGS

PROJECT No: 2012-24-2
SCALE: NONE
DRAWN BY: GR
DATE: JAN 11, 2013
SHEET No: **M-2 CH**



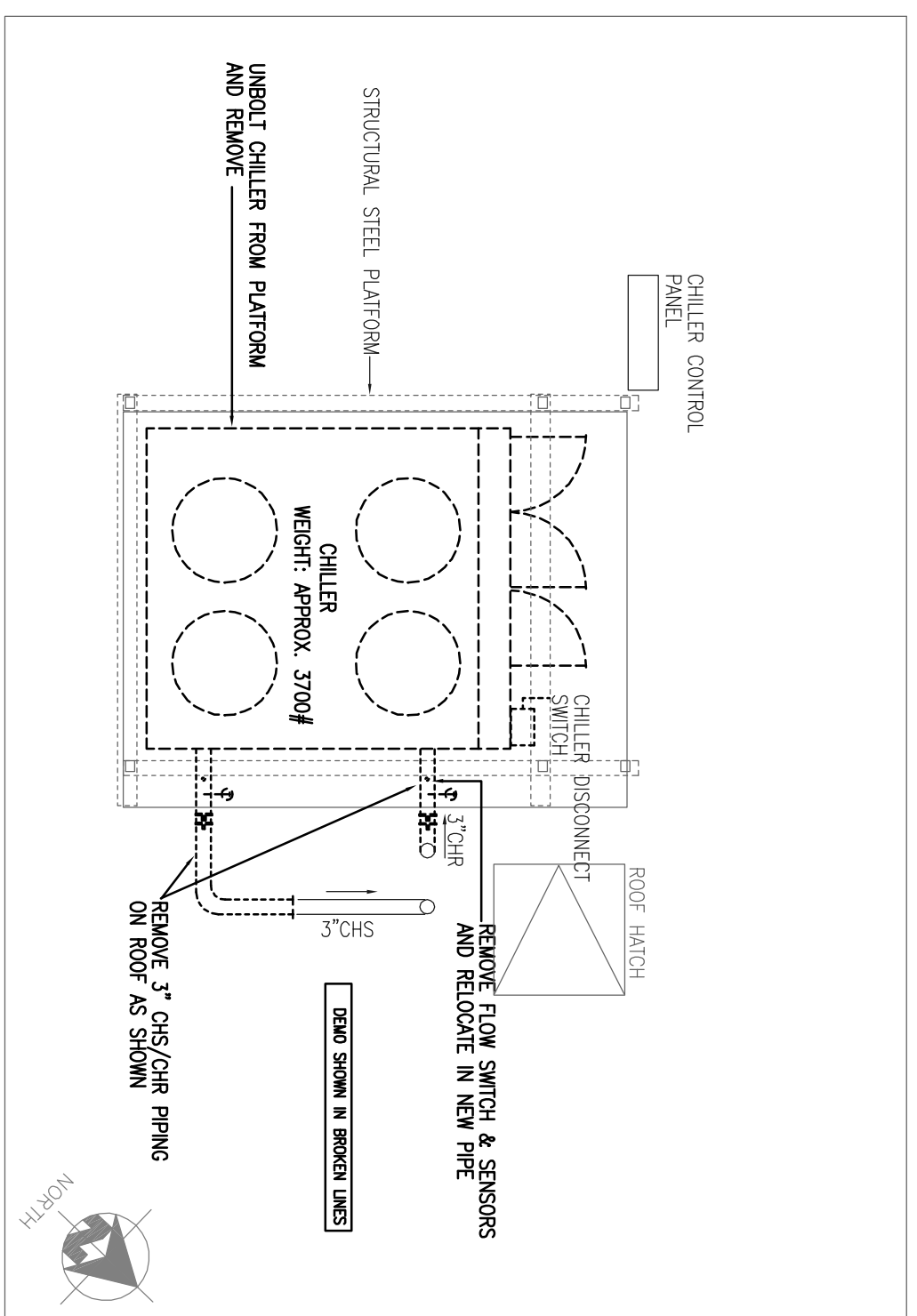
PROJECT :
AIR COOLED CHILLER
REPLACEMENT
POLICE DEPARTMENT

1555 Oak Street
Alameda, Ca 94501

REV.	DESCRIPTION	DATE
	REVIEW SET	1-14-13
	PLAN CHECK/BID	1-28-13

SHEET TITLE:
FLOOR & ROOF PLANS
AND PIPING SCHEMATIC

PROJECT NO:	2012-24-1
SCALE:	NONE
DRAWN BY:	GR
DATE:	JAN 11, 2013
SHEET NO:	M-2 PD

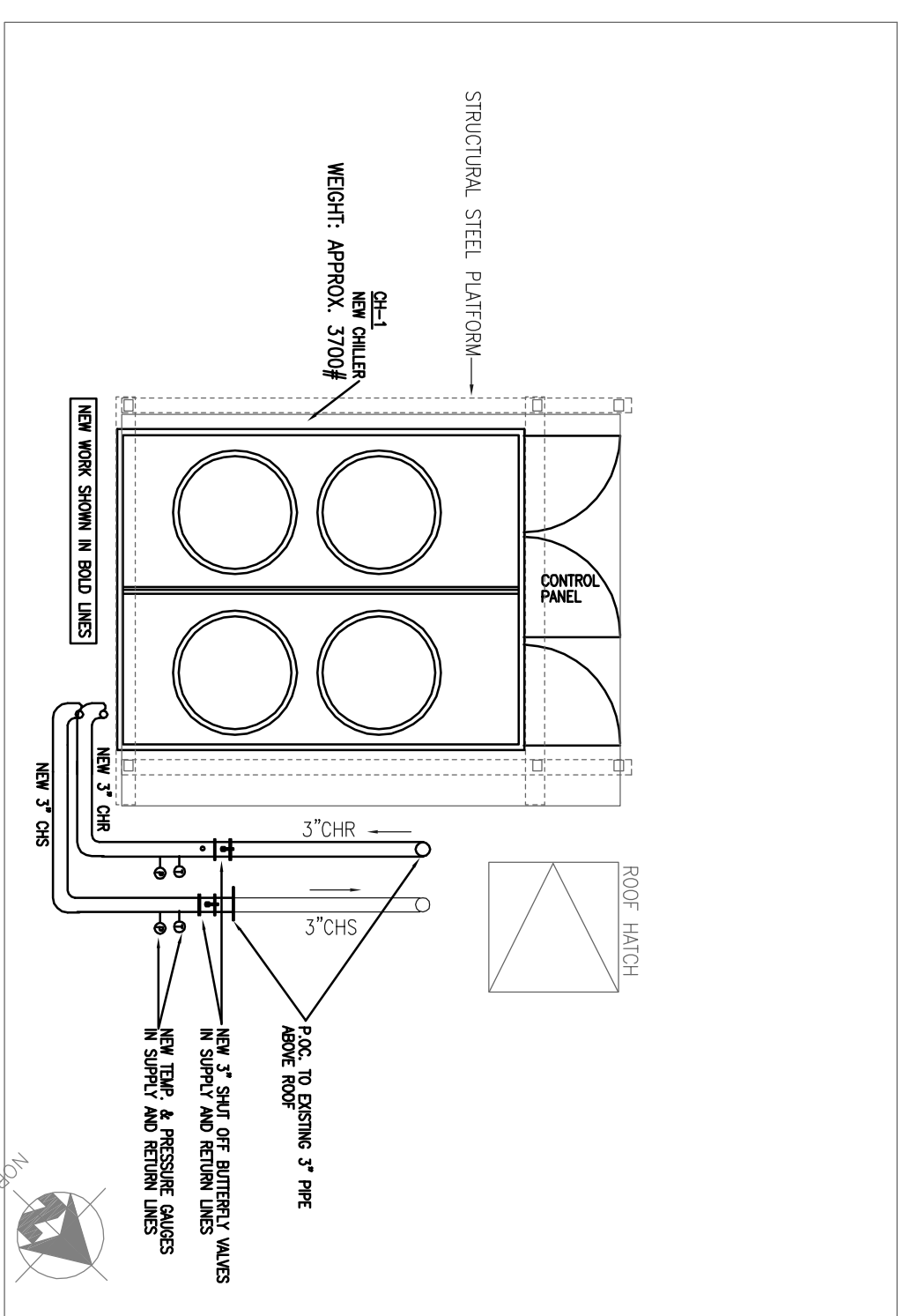


DEMO ROOF PLAN-CHILLER ROOF ABOVE 2ND FLOOR OF POLICE DEPARTMENT

SCALE: 1/4"=1'-0"

CHILLER DEMO NOTES:

1. SHUT OFF ELECTRICAL POWER TO CHILLER. UNBOLT CHILLER FROM STEEL PLATFORM. CLOSE SHUT OFF VALVES IN SUPPLY AND RETURN WATER LINES TO CHILLER. CUT AND REMOVE WATER SUPPLY AND RETURN WATER LINES BETWEEN SHUT OFF VALVES AND CHILLER. REMOVE AND RETAIN TEMPERATURE GAUGES AND FLOW SENSOR FOR RE-INSTALLATION.
2. REMOVE CHILLER FROM ROOF AND TRANSPORT TO RECYCLE CENTER. OBTAIN CERTIFICATE FROM RECYCLER AND SUBMIT TO CITY OF ALAMEDA FACILITY MANAGER.

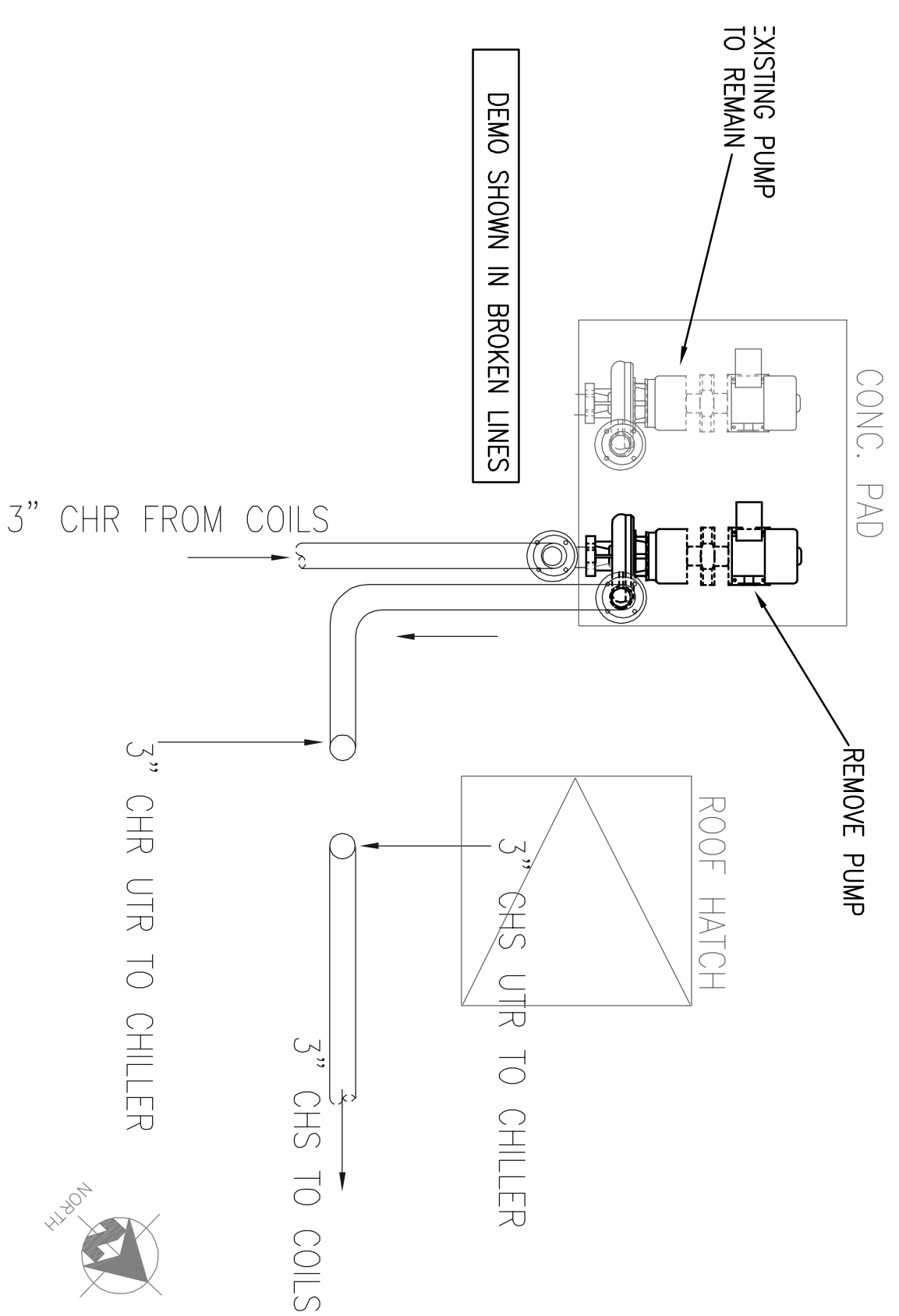


ROOF PLAN - NEW CHILLER ROOF ABOVE 2ND FLOOR OF POLICE DEPARTMENT

SCALE: 1/4"=1'-0"

NEW CHILLER INSTALLATION NOTES:

1. INSTALL CHILLER ON EXISTING STRUCTURAL STEEL PLATFORM. PROVIDE MIN. 3' CLEAR SPACE IN FRONT OF CONTROL PANEL.
2. SECURE CHILLER TO STRUCTURAL STEEL PLATFORM WITH 3/4" Ø BOLTS AT EACH CORNER AND MID POINT.
3. EXTEND NEW 3" Ø SUPPLY AND RETURN PIPING WITH NEW SHUT OFF VALVES ABOVE ROOF AND CONNECT TO CHILLER INLET AND OUTLET. PROVIDE FLANGES, PIPE EXTENSIONS, ELBOWS, ETC AS REQUIRED. REINSTALL EXISTING FLOW SWITCH AND SENSORS, NEW TEMP AND PRESSURE GAUGES NEW PIPING.
4. INSULATE ALL NEW PIPING WITH EXTERNAL PIPE WRAP INSULATION AND INSTALL WEATHERPROOF ALUMINUM JACKETING.
5. RE-INSTALL FLOW SWITCH AND HOOK UP TO CHILLER CONTROLS TO PREVENT CHILLER FROM STARTING AT NO FLOW CONDITIONS.
6. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR RE-INSTALLING AND HOOK UP OF EXISTING CONTROLS SYSTEM FOR CHILLER OPERATION. CHILLER MANUFACTURER'S REPRESENTATIVE SHALL PROVIDE START UP SERVICES.

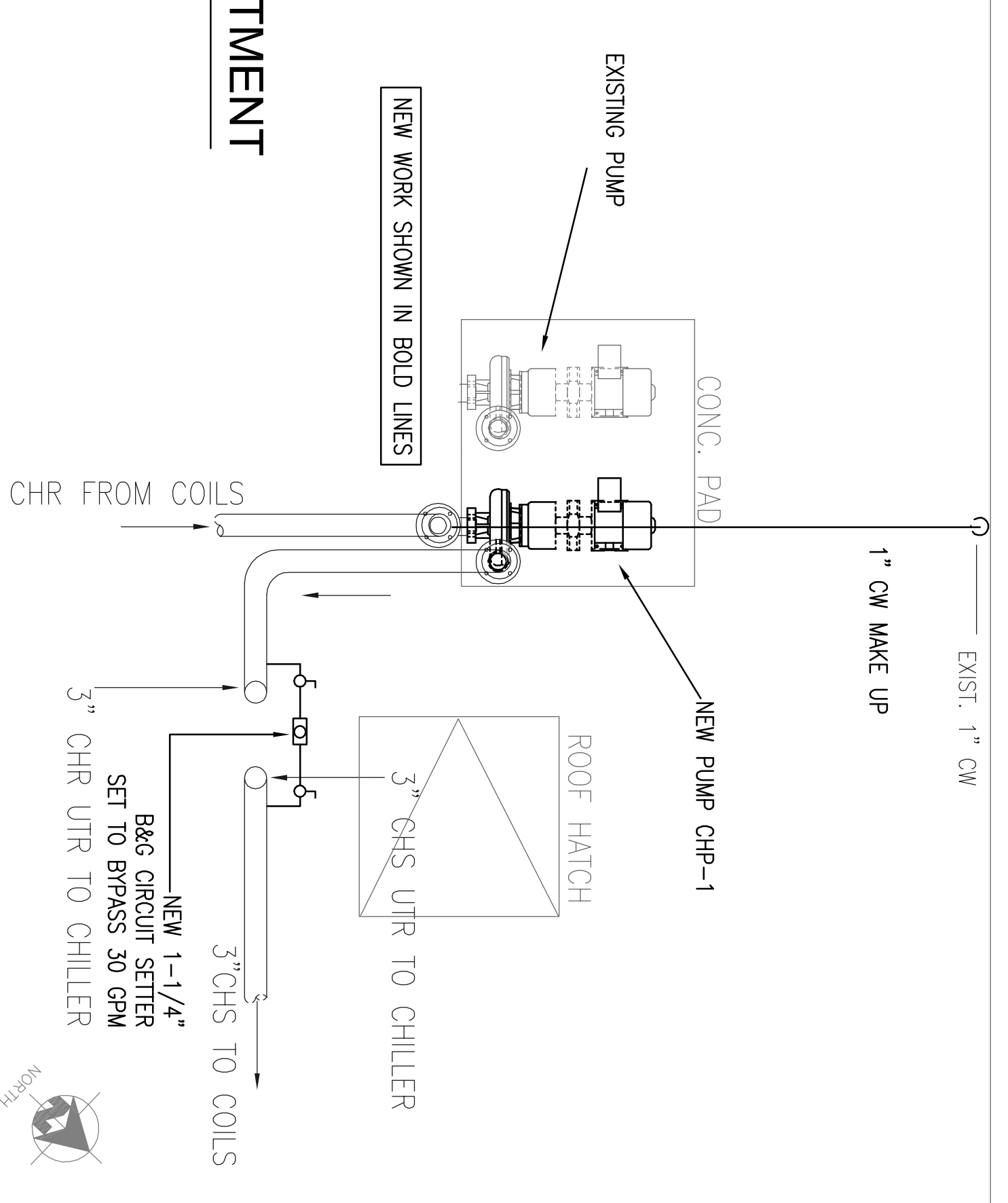


DEMO PLAN-PUMP ROOM 2ND FLOOR OF POLICE DEPARTMENT

SCALE: 1/4"=1'-0"

PUMP DEMO NOTES:

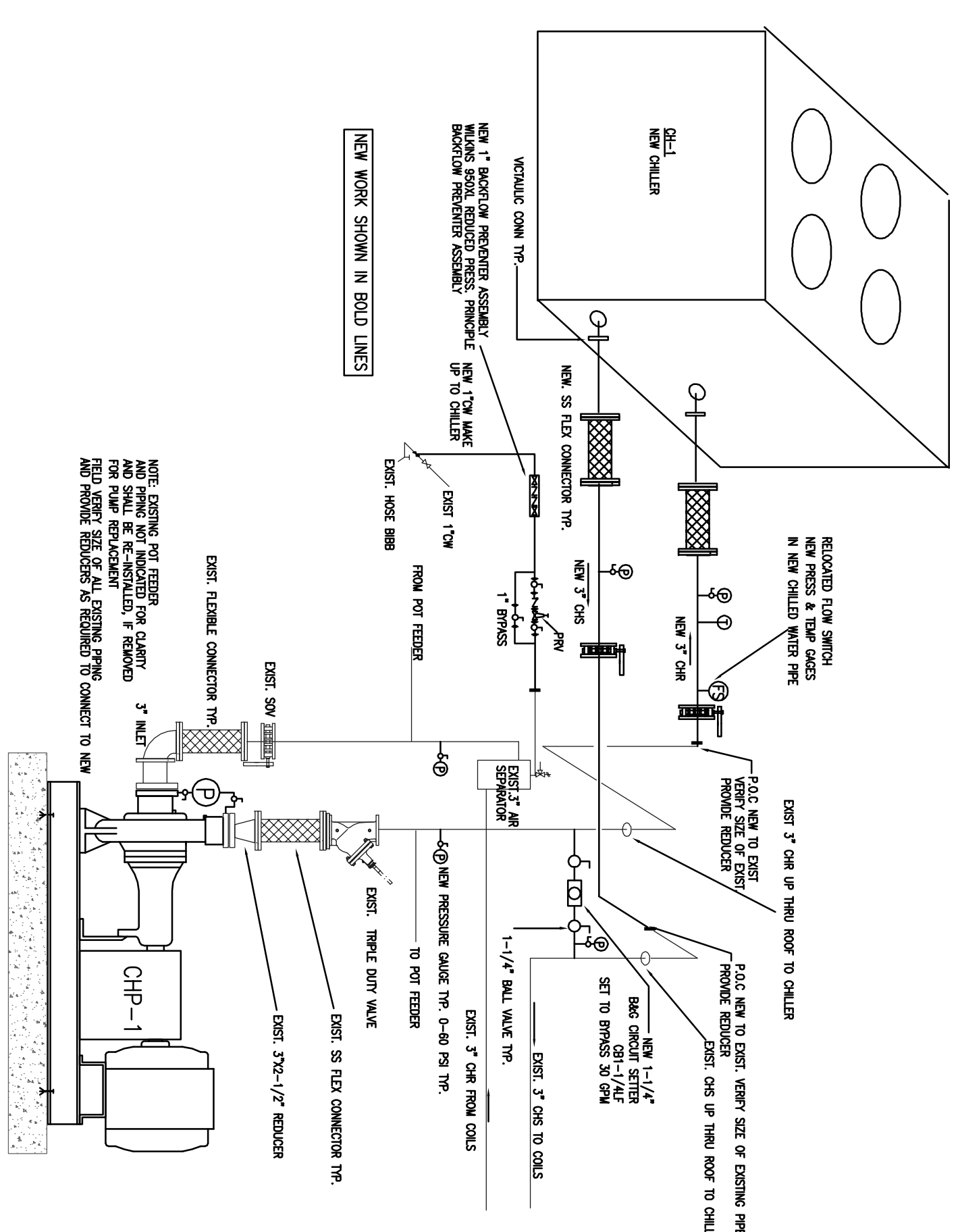
1. DISCONNECT POWER SHUT OFF WATER VALVES AT INLET AND OUTLET OF PUMP. UNBOLT SUCTION DIFFUSER AT INLET OF PUMP, AND TRANSITION AT DISCHARGE OF PUMP. REMOVE PUMP.
2. REMOVE PUMP AND TRANSPORT TO RECYCLE CENTER. OBTAIN CERTIFICATE FROM RECYCLER AND SUBMIT TO CITY OF ALAMEDA FACILITY MANAGER.



NEW PUMP-PUMP ROOM 2ND FLOOR OF POLICE DEPARTMENT

SCALE: 1/4"=1'-0"

- NEW PUMP INSTALLATION NOTES:
1. INSTALL PUMP ON EXISTING CONCRETE PAD, WITH MINIMUM 3' CLEARANCE FROM EDGE OF PAD. SECURE PUMP TO PAD WITH 3/8" Ø CONCRETE ANCHOR BOLTS MIN. 2" EMBEDMENT. AT EACH SUPPORT POINT OF FRAME. IT IS IMPORTANT TO POSITION NEW PUMP SUCH THAT ITS INLET AND OUTLET ARE ALIGNED WITH EXISTING SUCTION AND DISCHARGE PIPING.
 2. RE-INSTALL PIPING AT PUMP SUCTION AND PUMP DISCHARGE AND CONNECT TO EXISTING PIPING AS INDICATED.
 3. PROVIDE AND INSTALL PRESSURE GAUGES AT LOCATIONS INDICATED. DUCTY VALVE.
 4. INSTALL NEW BYPASS VALVE BETWEEN SUPPLY AND RETURN PIPING TO CHILLER BELOW ROOF.
 5. BALANCE WATER FLOW AT PUMP TO 140 GPM FLOW AT 48' HEAD, 110 GPM THRU CHILLER AND 30 GPM THRU BYPASS LINE.
 6. INSULATE CHILLED WATER PUMP, NEW PIPING AND PIPING COMPONENTS.



NEW CHILLER/PUMP PIPING SCHEMATIC

SCALE: NONE