

TABLE OF CONTENTS

<u>DOCUMENT</u>	<u>TITLE</u>
01 11 00	SUMMARY OF WORK
01 14 13	ACCESS TO SITE
01 20 00	PRICE AND PAYMENT PROCEDURES
01 21 50	MOBILIZATION ITEM
01 25 13	PRODUCT SUBSTITUTION PROCEDURES
01 29 73	SCHEDULE OF VALUES
01 31 00	PROJECT MANAGEMENT AND COORDINATION
01 31 19	PROJECT MEETINGS
01 32 16	CONSTRUCTION PROGRESS SCHEDULE
01 33 00	SUBMITTAL PROCEDURES
01 35 43.13	BUILDING-RELATED HAZARDOUS MATERIALS
01 41 00	REGULATORY REQUIREMENTS
01 41 15	EXCAVATION PERMIT REQUIREMENTS (inside S.F.)
01 42 00	REFERENCES
01 45 00	QUALITY CONTROL
01 50 00	TEMPORARY FACILITIES AND CONTROLS
01 56 55	TEMPORARY NOISE AND VIBRATION CONTROLS
01 60 00	PRODUCT REQUIREMENTS
01 71 33	PROTECTION OF ADJACENT CONSTRUCTION
01 73 25	SEISMIC REQUIREMENTS FOR MECHANICAL AND ELECTRICAL EQUIPMENT
01 75 60	TESTING COORDINATION AND START-UP TESTING
01 77 00	CLOSEOUT PROCEDURES
01 78 36	WARRANTIES
01 78 39	PROJECT RECORD DOCUMENTS

END OF DOCUMENT

SECTION 01 11 00
SUMMARY OF WORK

PART 1 – GENERAL

1.01 INVESTIGATION PRIOR TO BIDDING

- A. The Contractor shall be familiar with the Contract Drawings and the following Reports available at the San Francisco Public Utilities Commission, Power Enterprise – Energy Efficiency Services, 525 Golden Gate Avenue, 7th Floor, San Francisco, CA 94102:

ACIES Engineering Contract Drawings Titled:

“CAL 1-2, POTRERO TERRACE 1095 CONNECTICUT STREET SAN FRANCISCO, CA 94107 BUILDING ENERGY IMPROVEMENT”

SCA Environmental, Inc. Reports Titled:

“Hazardous Materials Abatement Specifications San Francisco Housing Authority Potrero Terrace Housing Development San Francisco, California; SCA Project No.: B-10796, October 11, 2012”

“Hazardous Materials Abatement Specifications San Francisco Housing Authority Potrero Terrace Housing Development San Francisco, California; SCA Project No.: B-10645, March 24, 2014”

- B. A site visit and inspection of the existing site is required of all bidders. Taking into full consideration the sequence of construction, the Contractor shall make proper allowances in the schedule to complete the work within the allotted time, including incidental work not shown on the Contract Drawings as part of the scope of work, for the following:
- C. Domestic hot water service shall remain in service during the course of the project except for scheduled shut-downs to cross connect the new system. Interruption in domestic hot water service shall not exceed 8 hours per shut down. Two consecutive scheduled shut-downs will not be permitted.

- D. Scheduled shut-down of domestic hot water shall be reported no later than 48 hours (weekday) to the SFHA Project Manager and the SFPUC Project Manager. Contractor shall proceed with shut-down only upon approval.

1.02 SCOPE OF WORK OR PROJECT DESCRIPTION

- A. The objective of this project is to replace the hydronic heating boiler system, domestic hot water boiler system, and the associated equipment and distribution piping serving these two systems to two multifamily housing buildings located within the San Francisco Housing Authority (SFHA) Potrero Terrace: Building E-4 (900-914 Connecticut Street) and Building G-6 (918-946 Connecticut Street). In summary, the Scope of Work shall be in compliance with the contract drawings by ACIES Engineering titled “Cal 1-2, Potrero Terrace 1095 Connecticut Street San Francisco, CA 94107 Building Energy Improvement” to include but not limited to the following:
 - 1. Provide all applicable permits as required by all local, state, and federal agencies.
 - 2. Provide Permits to Operate (PTO) as required by the SFDBI for the new boilers and water heaters as applicable for one year of service.
 - 3. Certify Backflow Preventer with the San Francisco cross-connection control program.
 - 4. Comply with all regulatory requirements by the Bay Area Air Quality Management District (BAAQMD).
 - 5. Comply with the Hazardous Materials Abatement Specifications prepared by SCA Environmental, Inc.
 - 6. Comply with the codes enforced by the San Francisco Department of Building Inspection (SFDBI) to include but not limited to the California Code of Regulations Title 24.
 - 7. Comply with the San Francisco Housing Authority Resident Hiring goals. Provide certified payroll reports (hard copies only) for resident hire personnel.
 - 8. Comply with the City and County of San Francisco Office of Labor Standards Enforcement as it pertains to prevailing wages. Provide certified payroll reports through Elations Systems.
 - 9. Provide security to prevent theft and unauthorized access to work zone.
 - 10. Replace six waste stack sewer drain pipes in Building G-6 crawl space.

11. Maintain domestic hot water services throughout the project except for pre-scheduled shut-downs not exceeding 8 hours.
12. Mechanically and electrically disconnect and demolish two (2) existing hydronic heating boilers, one (1) domestic hot water boiler, one (1) domestic hot water storage tank, expansion tanks, pumps, air separator, and all associated equipment, piping, and materials.
13. Supply and install one (1) new hydronic heating boiler, three (3) domestic hot water heaters, and the associated equipment, piping, flue stacks, and materials in the Building G-6 boiler room for a fully operational system.
14. Install new hydronic heating supply/return and domestic hot water supply/return pre-insulated copper pipes underground to interconnect hydronic heating and domestic hot water to Building E-4 served by the Building G-6 boiler room. Pipe product to be Perma-Pipe or an approved equal. Installation of pipe product to be in accordance with Perma-Pipe installation manuals or other pre-approved installation manuals. Provide all excavation and trenching services for underground pipes. Provide all hardscaping and landscaping services to match existing conditions. Existing pipe lines to be capped and abandoned in place. Excavation and trenching work to comply with USA North's California Excavation Manual, California Business and Professions Code Section 7110, California Government Code 4216, and the California Code of Regulations Title 8 Article 6. Excavations.
15. Install new hydronic heating and domestic hot water horizontal distribution pipe runs under Building E-4 and Building G-6 crawl spaces. Connect new distribution piping to underground piping and boiler room heating systems. Cap the existing underground piping at points of disconnection.
16. Insulate all new piping per the 2013 Title 24 Part 6 California Energy Code specifications.
17. Hydrostatic Test all new underground piping, above ground piping, and equipment. Provide Hydrostatic Test Reports signed and witnessed.
18. Install hydronic heating controls per the San Francisco Housing Code chapter 7, Mechanical Requirements, Section 701, Heating and Ventilation, in compliance with the City and County of San Francisco's Heat Ordinance for Apartments and Residential Hotels in San Francisco.
19. Switch over both buildings to new heating systems.
20. Provide equipment and system start-up services for fully operational systems.

21. Provide combustion analyzer print-outs showing that gas burning equipment is in compliance with the BAAQMD and performing at optimum efficiency.
 22. Provide training to SFHA facilities engineering staff.
 23. Provide all operation and maintenance (O&M) manuals, warranties, and associated close-out documents per the contract documents.
- B. The Work of this Contract shall be complete and all work, materials, equipment and services not expressly indicated or called for in the Contract Documents which may be necessary for the complete and proper construction of the Work in good faith shall be provided by the Contractor as though originally indicated, at no additional cost to the City.

1.03 MISCELLANEOUS WORK COMMON TO THE ENTIRE CONTRACT

- A. Permits and notifications as required by the San Francisco Department of Building Inspection (SFDBI), the Bay Area Air Quality Management District (BAAQMD), and CalOSHA. Excavation and trenching work to comply with USA North's California Excavation Manual, California Business and Professions Code Section 7110, California Government Code 4216, and the California Code of Regulations Title 8 Article 6. Excavations. Field testing of systems; hydrostatic testing of underground and above ground piping systems to include providing documented hydrostatic test reports; equipment start-up, testing, and tuning to include combustion tuning in compliance with the BAAQMD; training of on-site facilities engineering staff; and doing incidental and related work to place all systems in operating condition as designed and as required by federal, state, and local codes and regulations.
- B. Contractor shall provide security fences around work zone specifically in the excavation and trenching work zone and prohibit the public to include SFHA residents from entering this work zone. Contractor shall assume all responsibility pertaining to security to prohibit theft and the loss of labor hours of materials installed.
- C. Contractor shall provide proper signage indicating that the work area is a Construction Zone and is for Authorized Personnel Only and to Keep Out and any other signage that would protect the public and local residents from any harm or injury.
- D. Contractor shall perform daily work zone and staging area housekeeping to maintain a safe and clean work environment.
- E. The Work of this Contract shall be complete and all work, materials, equipment and services not expressly indicated or called for in the Contract Documents

which may be necessary for the complete and proper construction of the Work in good faith shall be provided by the Contractor as though originally indicated, at no additional cost to the City.

1.04 SERVICES TO BE PROVIDED BY THE CITY DURING THE COURSE OF CONSTRUCTION

- A. SFHA will provide site access to the work area.

1.05 DESIGN (AND OTHER) SERVICES TO BE PROVIDED BY THE CONTRACTOR

- A. Contractor shall use good judgment in laying-out equipment and associated accessories, and both above ground and below ground pipes such that they have a uniform, level, and professional appearance per standard trade practices and industry standards while meeting all local, state, and federal codes and regulatory requirements.

1.06 CONSTRUCTION SCHEDULING AND SEQUENCING

- A. Contractor shall complete all work associated with the Project within 150 calendar days from NTP. Contractor shall maintain the Domestic Hot Water system in operation throughout the duration of the project except for scheduled shut downs. Buildings shall not be without Domestic Hot Water for more than 8 hours per scheduled shut down. Two consecutive scheduled shut-downs will not be permitted.

1.07 MISCELLANEOUS INSTRUCTIONS TO THE CONTRACTOR

- A. The Contractor shall note that the Excavation Code, Article 2.04 amended December 16, 2010, and the Order No. 176,707: "Regulations for Excavating and Restoring Streets in San Francisco," approved on March 26, 2007, takes precedence over the DPW Bureau of Engineering 1986 Standard Specifications and 1987 Standard Plans when differences arise. Otherwise, the Standard Specifications and Standard Plans shall govern the excavation and restoration of City streets.
- B. The Contractor's attention is directed to the fact that there may exist inactive and/or obsolete services in the area of work to be done under this contract. Those services may not be marked, and cannot be readily located in the field because of the absence of meters or meter boxes.
- C. A complete list of all known services, including inactive or obsolete services, is on file in the Engineering Office of the City Distribution Division, located at 1990 Newcomb Avenue. Please contact Ms. Gloria Chu at (415) 920-4062.

- D. Protecting, repairing and working around such services are considered as incidental work under the appropriate bid items, and no separate payment will be made therefore.
- E. The Contractor's attention is directed to the fact that two large trees are located in the vicinity of the project work zone. Contractor to take precaution to protect and not to disturb these trees in compliance with the City and County of San Francisco's DPW-Bureau of Urban Forestry.
- F. Contractor is solely responsible for ensuring that any and all Contractor officers, employees, agents, subcontractors and suppliers on-site fully comply at all times with any and all applicable regulations, regardless of whether Contractor chooses to conduct its compliance enforcement by assigning compliance enforcement duties to its on-site foreman or superintendent, or whether Contractor chooses to retain third party inspection services which shall be paid by the Contractor as incidental work with no additional cost to the City.
- G. Contractor shall be solely and fully liable for any and all sanctions, fines, penalties, incidental and consequential damages arising out of Contractor's failure to comply with all applicable requirements referenced in this Section. Contractor shall be solely and fully liable regardless of whether the City Representative is or is not present on site at the time of such violation, and regardless of whether the City Representative has or has not identified, noticed, and/or alerted the Contractor of the violation.
- H. In the event that the City Representative identifies and/or places the Contractor on notice of work activity that fails to comply with applicable specifications and/or with applicable regulations, the City Representative shall stop the work and shall require the Contractor to remove the violating equipment and operator(s) from the work site forthwith. Any equipment and operator(s) so removed shall be barred from performing any work in any capacity on the subject project for the duration of the project. The City Representative shall also report any such violation to Cal OSHA. The Contractor shall be barred from filing a claim arising from a work stoppage caused by the Contractor's failure to comply with applicable regulations referenced above and/or with this section.
- I. SFMTA (Muni)service must be maintained at all times.
- J. Supporting, working around and protecting of all utility facilities owned and operated by the City and County of San Francisco are considered as incidental work per provisions of the Contract Requirements Section 00 73 20 "Existing Utility Facilities" and Section 00 73 20/APB (Appendix B: Utility Crossings Specifications).]

1.08 CONTRACTOR'S USE OF SITE

- A. The City will furnish, as indicated in the Contract Documents, the lands upon which the work is to be performed, rights-of-way and easements thereto. The

City Representative will identify any restrictions specifically related to use of lands so furnished with which the Contractor will have to comply in performing the work. Nothing contained in the Contract Documents shall be interpreted as giving the Contractor exclusive occupancy of the lands or rights-of-way provided. Contractor's Work Area: The Contractor's work area and staging area shall be as directed by the City Representative in the field. Contractor shall not park or stage equipment in non-designated areas without the approval of the City and the SFHA Representative. The Contractor shall submit plans showing staging and parking areas, for review and approval of the Traffic Engineer. Refer to Contract Drawings for location of Contractor's work and staging areas. Refer to Section 01 50 00 "[Temporary Facilities and Controls]" for temporary sanitary facilities requirements.

- B. Additional Staging and Storage: Contractor shall be responsible for providing any additional staging and storage areas outside the boundaries of the Building E-4 & G-6 work zone. Such staging and storage areas shall not be located on City streets. The cost of any additional staging and storage areas on nearby private property shall be borne solely by the Contractor. The Contractor shall not enter upon or use any property not under control of the City until a written temporary construction easement agreement has been executed by the Contractor and the property owner, and a copy of said agreement furnished to the City Representative prior to said use. Neither the City nor the City Representative shall be liable for any claims or damages resulting from Contractor's unauthorized trespassing or use of any such properties.
- C. Maintenance of Work Area: Contractor shall at all times maintain the areas in a safe condition, remove all accumulations of rubbish and surplus materials at the end of each working day, restore them to a condition equal to that which existed prior to the start of work, and leave them at completion of the contract in a clean, orderly fashion.
- D. Security of Contractor's Work Area: Security of Contractor's work areas and its property, equipment, construction materials, the labor hours invested in installing such equipment and materials, and all other items contained in Contractor's staging areas or elsewhere on the construction site shall be Contractor's sole responsibility at all times. This requirement shall be in effect during normal working hours as well as nighttime hours, weekends, and holidays.

1.09 NIGHT AND WEEKEND WORK

- A. Contractor shall not perform night work, i.e., between the hours of 5:00 p.m. and 7:00 a.m., or weekend work without prior written permission from the SFHA, the City, and all permitting agencies. Contractor shall provide a minimum of 3 working days advance written notice of such night or weekend work so that arrangements can be made for City inspectors to be present and local residents and businesses can be notified or required permits can be obtained.

- B. Night and weekend work shall be at no additional cost to the City.
- C. Contractor shall comply with the requirements of Article 29 of the Police Code, Regulation of Noise.

1.10 HAULING OF MATERIAL

- A. All excavated and demolished material and construction debris shall be disposed off site, unless needed for fill or otherwise approved by the City Representative.
- B. The Contractor will be responsible for cleanup of soil or other debris spilled from trucks and the affected streets shall be cleaned daily with wet type sweepers. Flushing of soil or other debris into storm drains is prohibited.

1.11 DEMOLITION REQUIREMENTS

- A. Demolition of Existing boilers and associated equipment and material
 - 1. At the request of the SFHA facilities engineering staff, existing boilers and associated equipment shall be offered to them before the equipment is removed from the premises to be recycled and/or disposed. If the SFHA facilities engineering staff decline to accept such equipment, the contractor shall be responsible for the proper disposal of such equipment
 - 2. Landscape and Hardscape Restoration Work:
 - a. To match existing conditions, furnish and install landscape, concrete pathway, curb, landscape grading, and irrigation systems, as a result from excavation and trenching work.

1.12 HAZARDOUS MATERIALS MANAGEMENT

- A. Contractor shall fully comply with all applicable hazmat removal requirements set forth in Section 01 35 43.13 – Building Related Hazardous Materials.

1.13 ELECTRONIC CERTIFIED PAYROLL REQUIREMENTS

- A. Contractor shall fully comply with the submittal requirements for electronic certified payrolls as outlined in Article 9.3.M of the Section 00 72 00 General Conditions.

1.14 PROJECT-SPECIFIC SAFETY AND HEALTH REQUIREMENTS

- A. SITE-SPECIFIC CONTRACTOR HEALTH AND SAFETY PLAN (HASP)
 - 1. CONTRACTOR shall be responsible for developing, implementing, and enforcing a site-specific CONTRACTOR HASP consistent with all CCR Title 8 or other applicable regulations, depending upon their scope of work.

2. The CONTRACTOR shall prepare a site-specific CONTRACTOR Health and Safety Plan (HASP). CONTRACTOR HASP shall establish, in detail, the protocols necessary for the recognition, evaluation, and control of all hazards associated with each task performed by the CONTRACTOR and lower tier subcontractors. The CONTRACTOR HASP shall be site specific and cover all work to be performed under this Contract.
3. The CONTRACTOR HASP must be reviewed, and approved by signature, by the CONTRACTOR's Project Manager and the SSR, and submitted to the City Representative Submission of the HASP to the City, or any review of the HASP by the City, shall not be construed as approval of the adequacy of the Contractor's SSR, the Contractor's HASP or any safety measures taken in or near the construction site.
4. The CONTRACTOR HASP shall address site-specific safety and health requirements and procedures based upon site-specific project conditions.
5. CONTRACTOR will develop a HASP that complies with requirements as set forth in this document.
6. The CONTRACTOR's HASP shall describe the emergency and first aid equipment to be provided by each CONTRACTOR and utilized for the project.
7. An Example project safety inspection form will be provided in CONTRACTOR's HASP and shall include date, work area checked, employees present in the work area, PPE, work equipment being used in each area, safety and health issues, notes, and signature of inspector.
8. A sample Hot-Work Permit will be included in the CONTRACTOR's HASP and made available to the CITY REPRESENTATIVE when requested.
9. The formats for all safety forms and reports shall be developed by the CONTRACTOR and submitted as part of the CONTRACTOR HASP.
10. The CONTRACTOR shall include an organizational structure in the HASP that sets forth lines of authority, responsibility, and communication, including a description of this organization and responsibilities of each key personnel.
11. Names and qualifications (resumes including education, training, experience, and certifications) of all site safety and health personnel designated to perform work on this project will be provided in the HASP when submitted to the CITY REPRESENTATIVE. Submissions will include the designated Site Safety Representative and other competent and qualified personnel to be used on the project in support of job site safety requirements.

12. CONTRACTOR shall develop Emergency Response and Contingency Planning procedures that will be included in the CONTRACTOR HASP to address potential emergencies that may occur during a task, relative to the CONTRACTOR's scope of work.
13. CONTRACTOR will include the following information in the HASP, as applicable:
 - a. Confined Space Entry Plan (If applicable)
 - b. Crane Critical Lift Plan (If applicable)
 - c. Fall Protection and Prevention (FP&P) Plan (If applicable)
 - d. Activity Hazard Analysis (AHA) /Job Hazard Analysis (JHA)
 - e. Written Hazard Communication Plan for work place chemicals brought to the site must be established. CONTRACTOR shall also maintain a Material Safety Data Sheet (MSDS) for all products/chemicals brought to the project site.
 - f. Emergency Response Plan.
14. Any changes or modifications to the CONTRACTOR's HASP must be signed by the CONTRACTOR's Project Manager and SSR and submitted to the CITY REPRESENTATIVE. The modification shall be appended to the CONTRACTOR HASP. All on-site personnel shall be fully informed of the modifications, changes and required actions prior to conducting any additional work activities.
15. The Contractor's HASP shall describe the Contractor's plan for compliance with the Substance Abuse Policy as outlined in Section 7 of 00814. The Contractor's plan for compliance with the Substance Abuse Policy will include but not be limited to the following:
 - a. Contractor's method for ensuring that all employees working on the Project comply with the Drug and alcohol restrictions on the job site
 - b. The name and telephone number of the Contractor's Designated Employer Representative for the Substance Abuse Policy.

PART 2 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 14 13

ACCESS TO SITE

PART 1 – GENERAL

1.01 SUMMARY

- A. Section includes requirements for site access.
- B. Related Documents:
 - 1. Section 00 72 00 – General Conditions
 - 2. Section 00 73 63 – Site Security

1.02 SUBMITTALS

- A. Submit to the City Representative written acknowledgement of Contractor Deliveries requirements as indicated in Article 1.05 of this Section prior to allowing deliveries to the site. The Site Security Monitor will be responsible for allowing and monitoring deliveries on site.

1.03 DAILY SITE ACCESS

- A. All contractor's employees will be required to obtain and wear security badges at all San Francisco Housing Authority (SFHA) sites. The badges can be obtained from the Human Resources Department at 440 Turk Street, San Francisco, CA 94124. The SFHA will charge a minimal fee of \$5.00 per badge. Badges must be obtained prior to commencing work on any SFHA site.
- B. Contractor shall observe all street parking laws.
- C. Contractors will be working in a multifamily housing development. Contractors to observe the rights of the tenants and SFHA staff and management. Contractors to limit interaction with SFHA tenants as necessary. Any hostile incidents shall be reported to the SFHA and SFPUC Project Managers.
- D. The project requires a manned established security/controlled access checkpoint as shown on the drawings, which is to be manned between the hours of (24 Hours a day to include weekdays, weekends, and holidays) by the Contractor at the Contractor's expense.

1.04 DAILY SITE ACCESS POINTS OF ENTRY

A. General:

1. All personnel shall take the most direct route to and from the Work Area, as defined on the Drawings. Work crew will remain in established work area, barricaded areas, or designated haul routes.

1.05 CONTRACTOR DELIVERIES

A. United States Postal Service, Federal Express, UPS, or similar mail and parcel deliveries may be addressed to the site to the Contractor, any subcontractor or suppliers of the Contractor or subcontractor, or other offsite point established by Contractor.

B. All deliveries shall be made during regular working hours as defined in Section 00 72 00.

C. Contractor shall follow the guidelines in U.S. Postal Inspection Service Publication 166, Mail Center Security Guidelines. A copy of these guidelines can be found at: <https://about.usps.com/publications/pub166.pdf>

D. Mail and Packages:

1. Contractor shall either:
 - a. Take delivery in a separate processing “shed” on site but separated from main facility areas at a location approved by the City Representative. This site can be the Contractor’s separate temporary field office facility, or
 - b. Set up off-site package processing center with a separate address and then bring deliveries to the site with its own vehicles.
2. All mail and packages whether delivered to the Contractor’s onsite or off-site facility shall not be allowed into the Work Area until such time as they have been screened by Contractor’s Site Security Monitor in accordance with the US Postal Inspection Service Publication 166 mail and package screening guidelines.

E. Freight and Bulk Deliveries:

1. Truck drivers will be subject to the identification requirements as specified in Article 1.06 in Section 00 73 63.
2. Deliveries of freight and bulk (larger packages, crates, equipment, or materials) are permitted to enter the site only after:

- a. The vehicle is met at the San Francisco Housing Authority, Potrero Terrace, Building G-6: 918-946 Connecticut Street, San Francisco, CA by Contractor's Site Security Monitor.
 - b. The source and contents of the packages, crates, equipment, or materials are verified by the Contractor's Site Security Monitor, and
 - c. The driver and others provide the Site Security Monitor with sign-in information, and badge(s) are issued to the driver (and others as required).
- F. All freight and bulk deliveries made to the site may be subject to search and inspection regardless of the final delivery destination. The Contractor shall inform all delivery companies and drivers in advance that all freight entering the site is subject to search. Contractor shall submit written acknowledgment that all freight and bulk delivery companies have been informed of and consent to such searches.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1 – GENERAL

1.01 SUMMARY

- A. This Specification Section covers requirements and procedures for preparation and submittal of Contractor Progress Payment Requests.
- B. Related Documents and Sections include:
 - 1. Section 00 41 10 – Schedule of Bid Prices
 - 2. Section 00 72 00 – General Conditions
 - 3. Section 01 29 73 – Schedule of Values
 - 4. Section 01 32 16 – Construction Progress Schedule

1.02 DEFINITIONS

- A. Unit Price Work
 - 1. The City will determine the quantities of work to be paid for any item for which a unit price is fixed in the Contract. The foregoing shall also apply to Bid Items for which the unit of measurement is designated as “Each.”
 - 2. Unless otherwise provided, determination of the number of units of work so completed will be based, so far as practicable, on the actual measurement or count made by the City Representative of the work satisfactorily completed within the prescribed limits.
- B. Lump Sum Work:
 - 1. When the estimated quantity for specific portions of work is not indicated on the Schedule of Bid Prices and unit is designated as lump sum, payment will be on a lump sum basis in accordance with the approved Schedule of Values for work satisfactorily completed.
- C. Allowance Bid Items:
 - 1. Contingency Allowances are individually set aside, fixed dollar amounts available on a contingent basis for selected items of work and/or materials that may be performed and/or procured only when and as directed in writing by the City, and shall be limited to items of work properly inferable

from the description of the allowance. Contingency Allowances cover work or other cost items that are not anticipated or foreseen and may or may not ultimately be required during the performance of this Contract. Payment under a Contingency Allowance will include Contractor's mark-up for overhead and profit and will be paid under the Change Order provisions of Article 6 of the General Conditions, Section 00 72 00.

2. Cash Allowances are used for an item of work or other cost item which is known to be required, or likely to be required, in the performance of this Contract. Payment under a Cash Allowance will be made only for the actual invoice amount of items purchased or direct costs incurred. Contractor's other costs, which may include, but not be limited to, equipment handling, unloading, cleaning, storage, installation labor, administration, supervision, overhead and profit, shall be considered by the City to be included in Contractor's Base Bid outside of the Cash Allowance and will not be reimbursed.
3. Work under specific allowances in this Contract may be implemented or deleted partially or in its entirety. Upon bid submittal, the Contractor shall not claim credit for any Local Business Enterprise ("LBE") subcontract work described as allowance work items. Since it is possible that some, all, or none of the amounts provided for in these Bid Items may be used, the provisions of Section 00 72 00 – General Conditions for deleting the Bid Item Work entirely shall not apply for these Bid Items. Claims for loss of anticipated profit due to the City's decision not to use some or all of allowance bid items will not be considered.
4. If an allowance item is not expended or is only partially expended, the contract sum will be reduced to reflect the difference between the amount provided in the original contract sum and the cost of the actual allowance work.
5. The dollar amount given in the Schedule of Bid Prices for each allowance item shall be the amount of funds set aside for each allowance. Said amounts shall be included in Contractor's Total Bid on the Schedule of Bid Prices.

D. Alternate Bid Items:

1. Alternate Bid Items, which may be either additive or deductive, are specific in nature (e.g., additional pavement or overexcavation) and are designated in the Schedule of Bid Prices.
2. If an Alternate Bid Item is selected by the City and should no work be performed on that Bid Item, the amount of credit to the City shall be the entire amount Bid for that Alternate Bid Item.

3. Should Work be performed for a Bid Item indicated as Alternate (additive/deductive) on the Schedule of Bid Prices and the City Representative directs that no further work under said Bid Item be performed, the City will pay Contractor for the actual costs incurred only. The Contractor shall not make claims for loss of anticipated profit due to the City's decision not to use some or all of the Alternate Bid Items.

1.03 BASIS OF PAYMENT

- A. Quantities of Work to be paid for under any item for which a unit price is fixed in the Contract shall be the number, as determined by the City Representative, of units of Work satisfactorily completed in accordance with the requirements of the Contract Documents.
- B. Unless otherwise provided, determination of the number of units of Work so completed will be based, so far as practicable, on the actual measurement or count within prescribed or ordered limits, and no payment will be made for work done outside of limits.
- C. Measurements and computations will be as determined by Contract requirements, or if not otherwise prescribed, made by methods as the City Representative may consider appropriate for the class of work measured.
- D. The description for each of the Bid Items in this Section provides a general description of the work to be covered under each item. It is not the intent of each Bid Item Description to provide in detail all work and costs required. The Contractor shall allocate or assign the costs of all contract work as it sees best to the individual Bid Items in accordance with the Contract. Each Extension dollar amount for each Bid Item shall be full compensation for furnishing all labor, material, equipment, and tools necessary for the Work; for performance and completing all Work in accordance with the Contract; and for all expenses and markups incurred by the Contractor for any purpose incidental to performing and completing the Work. The Contractor's failure or omission to include any costs for the contract work in its bid shall not be justification for additional compensation. Any allowance or extra work to be performed under this Contract shall either be performed under the Allowance Bid Items listed in Section 00 41 10 or performed through change orders as authorized by the City Representative.

1.04 PROGRESS ESTIMATES AND PAYMENTS

- A. Progress payments for the Work performed under this Contract will be made in the manner described in the General Conditions.
 1. Progress payments will be based upon progress estimates by Contractor and verified by the City Representative of the actual physical progress of the work. The Contractor shall be responsible for the measurements and surveys required to establish the progress estimate and shall, upon request

- by the City Representative, make available for checking all surveying and measurement notes and logbooks complete with benchmarks and monuments used.
2. Progress payments will be made on a monthly basis and no mid-monthly payments will be made regardless of the value of the work and material incorporated prior thereto.
 3. The Contractor shall submit a monthly CPM schedule update with each Application for Payment.
 4. Contractor shall certify its estimate of the quantities of the work completed, contained in the monthly progress payment estimate, by signing each such estimate prior to its submission.
 5. The City will make final determination if agreement cannot be reached on Contractor's progress payment request.
- B. The application for payment shall identify, as a subtotal, the amount of the Contractor total earnings to date; plus the specified percentage of the value of any unique materials or equipment stored on or off the Site and not yet been incorporated in the Work which have been authorized by the City for advance payment per Article 9 of the General Conditions; and less a deductive adjustment for materials or equipment installed which were not previously incorporated in the Work, but for which advance payment was allowed under Article 9 of the General Conditions.
- C. The net payment due the Contractor shall be the above-mentioned subtotal from which shall be deducted the amount of any applicable retainage and the total amount of all previous payments made to the Contractor. The Contractor shall make adjustments for any withholdings from the payment due, such as for Stop Payment Notices, at that time. Withholdings for defective work, as per prior notifications to the Contractor, will also be made.

1.05 PROJECT-SPECIFIC REQUIREMENTS (NOT USED)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 SCHEDULE OF BID PRICES (ALL ITEMS INCLUDE ALL NECESSARY LABOR, MATERIALS – EXCEPT AS OTHERWISE SPECIFIED – AND INCIDENTAL WORK TO COMPLETE THE ITEM):



CORNELY COMPANY

Mechanical Equipment Contractors & Distributors

Lic. No. 171203

SFPUC – Power Services
Energy Efficiency Services
525 Golden Gate Avenue, 7th Floor
San Francisco California, 94103
Attention, Matthew Greco

July 29, 2014 Page 1 of 3

Regarding, San Francisco Housing Authority Potrero Terrace Boiler Replacement Project

Cornely Company is pleased to quote the following services,

Provide labor and material to replace the hydronic heating boiler system, domestic hot water boiler system, and the associated equipment and distribution piping serving these two systems to two multifamily housing buildings located within the San Francisco Housing Authority (SFHA) Potrero Terrace: Building E-4 (900-914 Connecticut Street) and Building G-6 (918-946 Connecticut Street). In summary, the Scope of Work shall be in compliance with the contract drawings by ACIES Engineering titled "Cal 1-2, Potrero Terrace 1095 Connecticut Street San Francisco, CA 94107 Building Energy Improvement" to include but not limited to the following:

1. Provide a Payment and Performance Bond.
2. Provide all applicable permits as required by all local, state, and federal agencies.
3. Provide Permits to Operate (PTO) as required by the SFDBI for the new boilers and water heaters as applicable for one year of service.
4. Certify Backflow Preventer with the San Francisco cross-connection control program.
5. Comply with all regulatory requirements by the Bay Area Air Quality Management District (BAAQMD).
6. Comply with the Hazardous Materials Abatement Specifications prepared by SCA Environmental, Inc.
7. Comply with the codes enforced by the San Francisco Department of Building Inspection (SFDBI) to include but not limited to the California Code of Regulations Title 24.
8. Comply with the San Francisco Housing Authority Resident Hiring goals. Provide certified payroll reports (hard copies only) for resident hire personnel.

9. Comply with the City and County of San Francisco Office of Labor Standards Enforcement as it pertains to prevailing wages. Provide certified payroll reports through Elations Systems.
10. Provide security to prevent theft and unauthorized access to work zone.
11. Replace six waste stack sewer drain pipes in Building G-6 crawl space.
12. Maintain domestic hot water services throughout the project except for pre-scheduled shut-downs not exceeding 8 hours.
13. Mechanically and electrically disconnect and demolish two (2) existing hydronic heating boilers, one (1) domestic hot water boiler, one (1) domestic hot water storage tank, expansion tanks, pumps, air separator, and all associated equipment, piping, and materials.
14. Supply and install one (1) new hydronic heating boiler, three (3) domestic hot water heaters, and the associated equipment, piping, flue stacks, and materials in the Building G-6 boiler room for a fully operational system.
15. Install new hydronic heating supply/return and domestic hot water supply/return pre-insulated copper pipes underground to interconnect hydronic heating and domestic hot water to Building E-4 served by the Building G-6 boiler room. Pipe product to be Perma-Pipe or an approved equal. Installation of pipe product to be in accordance with Perma-Pipe installation manuals or other pre-approved installation manuals. Provide all excavation and trenching services for underground pipes. Provide all hardscaping and landscaping services to match existing conditions. Existing pipe lines to be capped and abandoned in place. Excavation and trenching work to comply with USA North's California Excavation Manual, California Business and Professions Code Section 7110, California Government Code 4216, and the California Code of Regulations Title 8 Article 6. Excavations.
16. Install new hydronic heating and domestic hot water horizontal distribution pipe runs under Building E-4 and Building G-6 crawl spaces. Connect new distribution piping to underground piping and boiler room heating systems. Cap the existing underground piping at points of disconnection.
17. Insulate all new piping per the 2013 Title 24 Part 6 California Energy Code specifications.
18. Hydrostatic Test all new underground piping, above ground piping, and equipment. Provide Hydrostatic Test Reports signed and witnessed.
19. Install hydronic heating controls per the San Francisco Housing Code chapter 7, Mechanical Requirements, Section 701, Heating and Ventilation, in compliance with the City and County of San Francisco's Heat Ordinance for Apartments and Residential Hotels in San Francisco.

20. Switch over both buildings to new heating systems.
21. Provide equipment and system start-up services for fully operational systems.
22. Provide combustion analyzer print-outs showing that gas burning equipment is in compliance with the BAAQMD and performing at optimum efficiency.
23. Provide training to SFHA facilities engineering staff.
24. Provide all operation and maintenance (O&M) manuals, warranties, and associated close-out documents per the contract documents.

Lump Sum Price for this service would be \$398,800.00 good for 60 days from today, Cornely Companies standard insurance applies.

Thank you,

Kevin J. Cornely
Cornely Company

END OF SECTION

SECTION 01 21 50
MOBILIZATION ITEM

PART 1 – GENERAL

1.01 SUMMARY

- A. This Specification Section outlines those responsibilities of the Contractor that are scheduled to be performed for both mobilization and demobilization.
- B. The Contractor shall be fully compensated in the fixed amounts indicated in Section 00 41 10 for “Mobilization” and “Demobilization” upon completion of the applicable items listed in Articles 1.02.C and 1.02.D of this Section, respectively.
- C. Related Document and Sections:
 - 1. Section 00 41 10 – Schedule of Bid Prices
 - 2. Section 00 72 00 – General Conditions
 - 3. Section 01 11 00 – Summary of Work
 - 4. Section 01 31 00 – Project Management and Coordination
 - 5. Section 01 33 00 – Submittal Procedures
 - 6. Section 01 32 16 – Construction Progress Schedule
 - 7. Section 01 71 33 – Protection of Adjacent Construction
 - 8. Section 01 77 00 – Closeout Procedures

1.02 CONTRACTOR’S RESPONSIBILITIES

- A. Mobilization shall include the obtaining of permits (exclusive of actual permit fee payments), preparing and furnishing specified submittals, moving onto the Site all equipment necessary for the Work; furnishing and erecting plants, temporary buildings, and other construction facilities; and implementing security requirements; all as required for the proper performance and completion of Work.
- B. Prior to the mobilization of all plant, equipment, offices or temporary facilities to the Site, the Contractor and City Representative shall jointly perform a site survey of the existing conditions per the requirements of Section 01 71 33.

1. The survey shall include but not be limited to:
 - a. Photographs duly annotated
 - b. Sketches, measurements and notes
 - c. A guided tour to be performed by the City's Bureau of Environmental Management Project Manager to identify sensitive habitat as defined in the Contract Documents and in the Environmental Impact Report
 - d. Areas which are to be disturbed and restored
 - e. Adjacent properties
 - f. Condition of streets and access route to the site
 - g. Trees, shrubs, lawns, walks, pavement, roadways, structures or signs, and utilities not indicated to be removed, relocated and replaced
 - h. Mobilization items requiring physical work at the construction site shall not proceed until the site survey has been completed

- C. Mobilization shall include, but not be limited to, the following principal work items:
 1. Attending pre-construction meeting
 2. Signing all Contract Documents necessary to proceed
 3. Submitting pre-construction submittals, including construction schedule, CPM schedule, submittal schedule, joint survey to establish authenticity of possible claims, schedule of values, and others as specified
 4. Mobilizing and moving onto site the Contractor's plant, equipment, tools, materials and labor required for the first sixty days of work
 5. Assigning the Contractor's Project Manager and/or Project Superintendent, and the Contractor's Site Safety Representative to be present at the Project site full time, following Notice to Proceed
 6. Obtaining and paying for all required insurance and bonds
 7. Installing temporary construction power, wiring, and lighting facilities
 8. Developing and installing construction water supply, including fire protection system, and paying any required deposit
 9. Providing on-site sanitary facilities and potable water facilities

10. Arranging for and erection of any Contractor's work and storage yard and off-site parking
 11. Posting all OSHA-required notices and establishing safety programs as defined in Contractor's Cal-OSHA approved Safety Program
 12. Performing and documenting joint survey of existing conditions, if required by portions of the Contract Documents other than Section 01 71 33
 13. Fabricating and erecting project signs, construction area signs, traffic handling and detour signs, and temporary traffic control devices
 14. Providing submittal of the Contractor's Site Specific Health and Safety Plan.
 15. Preparing all plans and training required by Section 01 41 00 that are required prior to Work beginning on the site
 16. Providing Contractor's field office(s) and, if required, provide and maintain City Representative's field office(s)
 17. Providing on-site communication facilities, including telephones
 18. Constructing and implementing safety and security features and requirements complying with SFPUC and Contractor safety and security programs
 19. Installing any exclusion fencing required by the Documents and the Environmental Impact Report
 20. Time and labor associated with obtaining of permits, exclusive of actual permit fee payments
- D. Demobilization shall include, but not be limited to, the following principal items:
1. Demobilizing and removal of the Contractor's facilities and equipment
 2. Removing all project signs from project site, and removing all construction area signs, traffic handling and detour signs, and temporary traffic control devices from project vicinity
 3. Removing all temporary construction facilities including Contractor's and City Representative's field offices and other equipment and utilities from the site as Contractor's property within 14 calendar days after the date of Final Completion; cleanup of all debris and restoring the site as specified

4. Furnishing all required equipment installation certification forms, warranty documents and Operations and Maintenance (“O&M”) data and manuals and spare parts, special tools, and keys
5. Performing all required training sessions
6. Performing and submitting all manufacturer installation checkouts
7. Furnishing all information and completing all formalities required by the San Francisco Contract Monitoring Division (“CMD”)
8. Preparing and submitting all final documents, including certified payroll, and other records of payments to suppliers and subcontractors, and lien releases/claims waivers needed to close the contract within the time requirements
9. Furnishing the Contractor Final Updated Construction Drawings (Record Drawings)
10. Furnishing to the City post-construction pipeline TV tapes and logs (pipeline projects only)
11. Providing signoffs from affected property owners and permitting agencies confirming that their requirements have been met
12. Completing all specified closeout requirements
13. Requesting final payment

1.03 PAYMENT PROCEDURES

- A. The retention of funds provisions of Article 9 of the General Conditions shall apply to the sum of all the Contract Work completed, including that under the Bid Item “Mobilization”, and the Bid Item “Demobilization.”
- B. Any extension of the Contract Time that may be granted shall not of itself constitute grounds for a claim for additional payment under the Bid Item “Mobilization.”
- C. Payment for “Mobilization” shall be the fixed amount shown in the Schedule of Bid Prices.
- D. Items of Demobilization work not completed by the Contractor or not satisfactorily completed will have one and one half times their value (as determined by the City Representative) withheld from the final payment.

1.04 PROJECT-SPECIFIC REQUIREMENTS (NOT USED)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 25 13

PRODUCT SUBSTITUTION PROCEDURES

PART 1 – GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for processing Contractor's Requests for Substitution of products or equipment made after the Award of the Contract.
- B. Related Documents and Sections:
 - 1. Section 00 49 18 – Request for Substitution
 - 2. Section 00 72 00 – General Conditions, Article 3.11
 - 3. Section 01 42 00 – References
 - 4. Section 01 33 00 – Submittal Procedures

1.02 DEFINITIONS

- A. Substitution: The proposed change by the Contractor after the Award of the Contract of a product, equipment, or service required by the Contract Documents is considered to be a Request for Substitution. The following are not considered to be Requests for Substitution:
 - 1. Substitutions requested during the Bid period, and accepted by Addendum prior to Award of the Contract.
 - 2. Revisions to the Contract Documents requested by the City Representative.
 - 3. Specified options of products and construction methods included in the Contract Documents.
 - 4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.
- B. Where the terms "or equal," "or approved equal," or similar references are used, submittal of a Request for Substitution Section 00 49 18 is required for products or manufacturers not specifically indicated in the Specifications.

1.03 REQUIREMENTS

- A. The Contractor's Total Bid Price for the Work of this Contract shall be based on products, equipment and services listed by manufacturer's or supplier's name in the Technical Specifications.
- B. Substitution requests shall not be the basis for extra charges above the Contractor's Bid Price for the Work, nor shall they be the basis for an increase in Contract time.
- C. The Contractor shall bear the cost of making all mechanical, electrical, structural, utility, or other changes required to accommodate the proposed substitution, including the City Representative's costs required to review the substitution.
- D. Substitutions described in this Section shall not be construed as submittals as described in Section 01 33 00.
- E. 50 percent of any cost savings resulting from an accepted Substitution Request shall be credited to the City. The total cost savings shall be less any design costs required for substitution implementation.

1.04 SUBMITTALS

- A. The City Representative will consider Requests for Substitution if received within thirty-five (35) calendar days after the date of the Award of the Contract.
 - 1. Requests received more than 35 days after Award of the Contract may be considered or rejected at the sole discretion of the City.
 - 2. The Contractor shall submit Requests for Substitution to the City Representative, on the City's approved Request for Substitution Form.
- B. The Contractor shall provide complete supporting data identical to that required for the product, equipment, or service originally specified, including drawings, samples, literature or detailed information sufficient to demonstrate that the proposed substitution is equal, or greater, in quality and utility to the product, equipment, or service originally specified. The following additional information shall also be submitted:
 - 1. Information regarding the effect of the substitution, if any, on the Construction Schedule.
 - 2. Name and address and Licensed Professional Engineer contact information of similar projects on which the substituted product, equipment, or service has been used, and date of installation.
 - 3. Signed statement that the proposed substitution is in full compliance with the Contract Documents; or, written direction of the City.

4. List of other work, if any, which may be affected by the substitution.
 - a. Provide complete details regarding changes in requirements for power or other support facilities, auxiliary equipment or structural modifications.
 - b. The Contractor shall be responsible for the effect of a substitution upon related work, and pay the additional costs generated thereby to implement the substitution, including the engineering design services associated therewith.
 5. Information on availability of maintenance service and source of replacement materials.
 6. Sample of manufacturer's standard form of warranty or guarantee for the proposed substitution.
 7. Itemized comparison of proposed substitution with product, equipment, or service specified with significant variations identified.
 8. Include accurate cost data comparing proposed substitution with product, equipment, or service specified and amount of net change in Contract Sum.
 - a. Include costs to other contractors and subcontractors and costs for revisions to Drawings, Details or Specifications.
 - b. Indicate amount to be deducted from Contract Price if Substitution Request is accepted.
- C. **Manufacturer's Product Modifications:** The Contractor may submit a Request for Substitution in accordance with this Section if the specified product, equipment, or service has been modified or improved by the manufacturer. If approved, the substitution shall be at no additional cost to the City and shall be subject to the cost savings provisions specified herein.
- D. The City will receive and consider Contractor's Requests for Substitution only under the following conditions as determined by the City. If the following conditions are not satisfied, the City Representative will return the request without action except to record noncompliance with the requirements.
1. The burden of proof as to the type, function, and quality of proposed substitutions shall be upon the Contractor.
 2. The City will determine the quality and utility of the Contractor's proposed substitutions. The City's decision shall be final.
 3. The City may require the Contractor to furnish at the Contractor's own expense, a special performance guarantee or other surety with respect to any substituted product, equipment, or service.

4. Extensive revisions to the Contract Documents are not required.
 5. The substitution requested is consistent with the general intent of the Contract Documents.
 6. The request is timely, fully documented, and properly submitted.
- E. Substitutions will not be considered for acceptance when:
1. They are indicated or implied on submittals without a formal request from the Contractor, regardless of whether or not the said submittal is approved by the City.
 2. They are requested directly by a subcontractor or supplier.
- F. Substitutions required by inability to obtain products, equipment, or services specified will not be acceptable grounds for increase in Contract Sum or Contract Time.
- G. Substitute products, equipment or services shall not be ordered or released for fabrication without written acceptance by the City.

1.05 QUALITY ASSURANCE

- A. The Contractor shall certify with each Request for Substitution that it:
1. Has investigated the proposed substitution and determined that it is equal to, or superior to the product, equipment, or service specified;
 2. Will furnish the same warranty/guarantee or bond for the proposed substitution as for the product, equipment, or service specified;
 3. Will coordinate the installation of an accepted substitution into the Work and make such other changes as required to complete the Work in accordance with the Contract Documents and applicable regulatory requirements;
 4. Waives claims for additional costs and/or time extensions associated with the substitution, which may subsequently become apparent; and
 5. Will pay costs of changes to Contract Documents required by accepted substitutions.

1.06 CITY'S ACTION

- A. All substitutions shall require written approval by the City.

- B. The City's approval of any substitution shall not relieve the Contractor from compliance with all other requirements of the Contract Documents and for adequacy of the substituted items.
- C. The City will review Requests for Substitution and notify the Contractor in writing within 30 days of receipt of a substitution request of acceptance or rejection of proposed substitutions. The following provisions shall apply:
 - 1. The City will determine whether or not a product, equipment, or service is equal for the purpose intended in quality and utility to that specified.
 - 2. The decision of the City on all such questions of equality and acceptability of proposed substitutions shall be final.
 - 3. No claim of any sort shall be made or allowed against the City as a result of any final decision to accept or reject any proposed substitute product, equipment, or service.

1.07 PROJECT-SPECIFIC REQUIREMENTS (NOT USED)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 29 73
SCHEDULE OF VALUES

PART 1 – GENERAL

1.01 SUMMARY

- A. Section includes: Submittal requirements, coordination, review and acceptance of the schedule of values for evaluating progress payment applications.
- B. Related Documents and Sections:
 - 1. Section 01 20 00 – Price and Payment Procedures
 - 2. Section 01 31 19 – Project Meetings
 - 3. Section 01 33 00 – Submittal Procedures
 - 4. Section 01 32 16 – Construction Progress Schedule

1.02 SUBMITTAL REQUIREMENTS

- A. Submit within 30 consecutive calendar days after Notice to Proceed.

1.03 COORDINATION

- A. Coordinate the preparation of the schedule of values with Contractor's progress schedule.
 - 1. The Schedule of Values shall be developed from the resource loading function of the Baseline CPM Progress Schedule as specified in Section 01 32 16 – Construction Progress Schedule.
 - 2. The Contractor shall prepare and submit a detailed Schedule of Values to the City Representative coordinated with the Baseline CPM Progress Schedule submittal.
 - 3. An unbalanced Schedule of Values providing for early overpayment to Contractor on lump sum work will not be accepted.
- B. Coordinate the preparation of the Schedule of Values with Contractor's Application for Payment.
 - 1. The Schedule of Values shall be coded to the Schedule of Bid Prices in sufficient detail to facilitate continued evaluation of progress payment

applications and submitted to the City Representative for approval prior to the first Application for Payment.

2. In addition to construction work items that have definable quantity scope values, the Schedule of Values shall include other discrete items of work including but not limited to mobilization, administration, material procurement, final cleaning, operations and maintenance manuals, start-up, and adjusting and testing. The Schedule of Values shall indicate each item's relationship to activities in the Baseline CPM Progress Schedule.
- C. The Schedule of Values shall be coded such that the sum of the Schedule of Values roll up to, and be in balance with, each lump sum bid item.
 - D. The Schedule of Values shall be updated to reflect all approved Change Orders prior to the next scheduled submission of the Monthly Schedule update and Application for Payment.

1.04 REVIEW AND ACCEPTANCE

- A. The City Representative shall review and return Contractor's Schedule of Values with comments within 10 working days of its receipt. Contractor shall make corrections requested by the City Representative and resubmit for approval within 5 working days.
- B. Final acceptance by the City Representative shall indicate only consent to the Schedule of Values as a basis for preparation of applications for progress payments and shall not constitute an agreement as to the value of each indicated item.
- C. No payments for any bid item other than the Mobilization shall be made nor shall the City Representative accept any change order requests until the detailed Schedule of Values is submitted and accepted as required herein.

1.05 PROJECT-SPECIFIC REQUIREMENTS (NOT USED)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 – GENERAL

1.01 SUMMARY

- A. This Specification Section establishes the Contractor’s Project Management and Coordination responsibilities.
- B. Related Documents and Sections include:
 - 1. Section 01 31 19 – Project Meetings
 - 2. Section 01 33 00 – Submittal Procedures
 - 3. Section 01 32 16 – Construction Progress Schedule
 - 4. Section 01 75 60 – Testing Coordination and Start-Up Testing
 - 5. Section 01 78 39 – Project Record Documents

1.02 PROJECT MANAGEMENT

- A. During the term of this Contract the Contractor shall maintain a management team which consists, as a minimum, of a Project Manager and Project Superintendent.
- B. The Contractor’s Project Manager shall be the duly authorized representative of the Contractor on the Project. The Project Manager shall be authorized to sign all project documents. The Contractor shall provide a description of the role and responsibilities of the Project Manager.
- C. The Contractors Superintendent shall be responsible for the daily management of the project activities and shall be full time at the Project site. The Contractor shall provide a description of the role and responsibilities of the Project Superintendent.
- D. Depending on the size and complexity of the project the Contractor shall maintain a management team including the following functions:
 - 1. Quality Control
 - 2. Site Safety
 - 3. Testing Coordination
 - 4. Scheduling

- E. The Contractor shall demonstrate to the City the qualifications and relative experience for each person charged with the above responsibilities. Refer to the appropriate specification sections for a description of the roles, responsibilities, and minimum qualifications for these individuals.

1.03 GENERAL COORDINATION

- A. Contractor shall be responsible for all project coordination. The Contractor shall coordinate the work to complete it in accordance with the Contract requirements including:
 - 1. Coordinate the work of Contractor's employees and subcontractors to assure compliance with the schedule.
 - 2. Coordinate the work with the City Representative to minimize impact on City's operations.
 - 3. Coordinate work with utility companies and other contractors on site and adjacent to site through the City Representative.
 - 4. Coordinate work with the oversight of the appropriate regulatory or permitting agencies. Discuss coordination plans with the City Representative prior to execution to determine if coordination will be performed through the City Representative.
- B. Coordinate scheduling, submittals, and work of various sections to assure efficient and orderly sequence of installation of interdependent construction elements.
- C. Verify that utility requirement characteristics of operation equipment are compatible with building utilities. Coordinate work of various specification sections, subcontractors, suppliers, and trades having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

1.04 DUTIES OF CONTRACTORS MANAGEMENT TEAM

- A. Contractor's Project Management responsibilities extend to the completion of the Project in accordance with the Contract but shall include, but not be limited to the following:
- B. Communications with the City Representative, including:
 - 1. Notices of Delay
 - 2. Notices of differing site conditions
 - 3. System Outage requests

4. Contract changes
- C. Maintain approved Construction CPM Schedule as required by the Contract.
 1. Provide “Three weeks look ahead” schedules
 - a. The schedule shall be prepared in the form of a bar chart breaking down activities on the CPM schedule into detailed subtasks. Subtasks shall identify related activity on the construction schedule and responsibility for completion of the subtask.
 - b. Notify the City Representative in writing of any deviation from the plan, within 24 hours of said deviation.
 - c. Indicate inspections by the Contractor Quality Control, City Representative, or regulatory agencies.
 2. Update CPM Baseline Schedule
 - a. Identify potential variances between schedule and probable dates for each activity.
 - b. Take corrective action to meet the required completion dates.
 - c. Document changes in schedule and submit these changes to the City Representative and to subcontractors and suppliers involved. Contractor should submit any changes in the CPM Baseline schedule to the City Representative for review.
 - d. Verify that labor and equipment are adequate to complete work within the time allowed.
 - e. Verify that product procurement is adequate to complete work in time allowed.
 - f. Report problems with recommendations for correction to the City Representative.
 - D. Coordinate shop work with site work
 - E. Maintain site safety including public safety and control of traffic.
 1. Secure from the general public all construction areas which could endanger their safety.
 2. Maintain safe access to public areas.
 - F. Daily monitor site clean-up and security.
 - G. Obtain all necessary permits
 - H. Maintain reports and records at the jobsite and make them available to the City Representative

- I. Daily Log of progress of the work.
- J. Implement a Quality Control Plan as required by the Contract
- K. Records to include but not be limited to:
 - 1. Correspondence to and from the City Representative
 - 2. Request for Information
 - 3. Monthly Updated Construction Drawings
 - 4. Contracts, subcontracts and Purchase Orders
 - 5. Permits
 - 6. Materials and Equipment records.
 - 7. Submittals
 - 8. Manufacturers instructions
 - 9. Certificates of Compliance
 - 10. Test procedures, records, and reports
 - 11. Obtain information from subcontractors and maintain a file of record documents
- L. Conduct Safety Meetings in accordance with Section 00 73 19.
- M. Maintain at the place of fabrication or manufacture, and make available to the City Representative, record copies of all submittals, including shop drawings and product data, certificates of compliance, and shop test reports pertaining to the manufacture and fabrication.
- N. Coordinate and arrange for locating and identifying unknown utilities and providing protection of utility facilities, and relocation, connection and installation of utilities. If during the course of the work, an unexpected or unidentified utility interference is discovered, the Contractor shall immediately call this fact to the attention of the City Representative.
- O. Contractor shall coordinate with the City Representative to minimize conflict with and to facilitate ongoing system operations.
- P. Mobilize and direct workers and equipment as needed for emergency work.
- Q. Maintain cost accounting records for work authorized under unit cost force account or other approved basis requiring accounting records.

- R. The Superintendent shall have the responsibilities and perform the duties of a supervisor as defined by the San Francisco Public Utilities Lockout/Tagout program

1.05 COORDINATION DRAWINGS AND SUBMISSION

- A. Prepare coordination drawings before beginning fabrication or delivery of materials and equipment to the job site.
- B. Coordination drawings shall clearly indicate coordination of mechanical, plumbing, electrical, lighting, communication, life safety, instrumentation and controls, conveying systems, equipment installations, structural, architectural, and finish work.
- C. Coordination drawings shall generally be plan view, but three dimensional and elevation views shall be developed as necessary to further investigate conflicts and to coordinate work. Provide dimensions and elevations data.
- D. Coordination drawings shall show layout of work for all trades for purposes of showing overlays, utility services provided to equipment, spatial requirement and availability, spatial clearances, potential conflicts, and coordination of work. The layout shall including existing facilities and planned new work.
- E. Routing shown for pipes, ducts, and conduits on Contract Drawings are shown by graphic symbols only; make runs parallel with lines of building.
- F. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- G. Conceal pipes, ducts, conduits, and wiring in finished areas, unless otherwise indicated. Coordinate locations of fixtures and outlets with finish elements. Keep copies of coordination drawings at the job site.
- H. Update coordination drawings as necessary.
- I. Provide the City Representative with a record copy of initial coordination drawings, and with revisions to coordination drawings, within 2 working days of completion of each drawing or revised drawing. The City Representative will verify that coordination drawings have been made, but no approval review of these drawings will be made. Include in submission of drawings the names of coordination staff.
- J. When requested by City Representative Concrete Lift drawings shall be provided.

1.06 REQUEST FOR INFORMATION (RFI)

- A. The Contractor shall review Contract Documents a minimum of 30 calendar days in advance of the work to be executed, and to request information so that the City

will have sufficient time to respond to RFIs prior to the start of actual construction of that part of the work to which the RFI relates, as well as any consequential work affected by the information requested.

B. RFI Submittal Requirements:

1. Separate submittals of RFIs should be used for separate topics.
2. All information required by the RFI transmittal form shall be provided by the Contractor.
3. If the City requires more than 10 working days to review an RFI, the City Representative will inform Contractor and request additional time to prepare the reply. Contractor shall cooperate and agree to a reasonable time extension.
4. An RFI shall be rejected if the City Representative determines it is not in compliance with the requirements of the Contract.
5. The City's response to an RFI may be in the form of a Clarification or Field Order.
6. The completed transmittal form with all attachments shall be the written record of each RFI.

C. Additional Electronic-only RFI Submittal Requirements:

1. The Contractor shall submit RFIs to the City Representative electronically.
 - a. All attachments to the RFI transmittal form shall be in PDF format using latest version of Adobe Acrobat.
 - b. Resolution shall be such that finest detail must be legible at full scale on a monitor.
 - c. Attachments that cannot be submitted electronically shall be listed in the RFI transmittal and delivered to the City Representative on the same day as the transmittal is made. Any hardcopy or physical attachments shall be submitted with a hardcopy of the RFI transmittal.
2. The City Representative shall provide a response to all RFIs electronically within 10 working days of receipt in accordance with the General Conditions.

D. Uses of RFIs:

1. The RFI shall be used for interpretation or clarification of the Contract Documents only.

2. The RFI form shall not be used for the following. The City will not reply and will reject the RFI:
 - a. Substitution of, or deviation/variance from, contract work.
 - b. Questions relating to construction means, methods, techniques, sequences, procedures, or safety precautions.
 - c. Questions relating to construction schedule, coordination between trades, or division of work among subcontractors.
 - d. Questions on contract administration procedural matters, unless they require interpretation or clarification of the Contract Documents.
 - e. Dimensions or quantities which are shown on the Contract Documents, or which can be measured from the building, or calculated from the information contained in the Contract Documents.
 - f. Confirmation of interpretations or clarifications previously provided by the City
 - g. Interpretations or clarifications of the Contract Documents, which can reasonably be derived from a review of the Contract Documents

1.07 PROJECT-SPECIFIC REQUIREMENTS (NOT USED)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 31 19
PROJECT MEETINGS

PART 1 – GENERAL

1.01 SUMMARY

The City Representative will arrange project meetings after consultation with Contractor and will inform the Contractor of the meeting time and location. The Contractor's attendance is required at all meetings.

A. Section includes the following topics with their respective Article Nos. listed alongside:

- | | | |
|----|-------------------------------|-----|
| 1. | Pre-Construction Conference | 1.2 |
| 2. | Site Mobilization Conference | 1.3 |
| 3. | Progress Meetings | 1.4 |
| 4. | Pre-Installation Conferences | 1.5 |
| 5. | Project-Specific Requirements | 1.6 |

B. Related Documents and Sections:

1. Section 00 73 19 – Health and Safety Requirements
2. Section 01 75 60 – Testing Coordination and Start-Up Testing
3. Section 01 77 00 – Closeout Procedures

1.02 PRE-CONSTRUCTION CONFERENCE

A. After award of the Contract and after the Notice to Proceed Date, but prior to commencement of work, the City Representative will schedule and conduct a pre-construction conference at a time and location selected and arranged with the Contractor.

B. Contractor shall be prepared to review and discuss the Baseline construction schedule and sequence of the Contractor's operations.

1. The conference shall be attended by:
 - a. Contractor and its General Superintendent

- b. All authorized representatives of subcontractors or suppliers whom Contractor may desire to invite or whom the City Representative may request
 2. The City Representative may invite representatives from the following agencies to attend:
 - a. The Project Team, Operations Representatives, Safety Officer and Contract Compliance Officers.
 - b. The City's Environmental Consultants, as appropriate.
 - c. Utility Companies
 - d. Regulatory agencies
 - e. Other interested agencies.
- C. Agenda may include:
 1. Key personnel and organizations involved: Relationships, roles, responsibilities and authorities.
 2. Interface with Operations: Coordination of system outages (shutdowns), security, site access, test and start-up activities, and training, among others.
 3. Contractor's presentation: Contractor's plans, methods and schedules for accomplishing the contract work.
 4. Contract technical requirements: Technical concerns and considerations, including test and start-up requirements, inspection and observations requirements, and requests for substitutions, among others.
 5. Safety requirements and considerations including the submittal of the Contractor's Health and Safety Plan ("HASP").
 6. Contract compliance requirements: Wage rates, labor reporting and certified payroll records.
 7. Contract administration requirements and procedures:
 - a. Correspondence
 - b. Weekly progress meetings
 - c. Progress schedule
 - d. Submittals and Requests for Information
 - e. Requests for Deviation
 - f. Inspections and materials testing
 - g. Environmental monitoring

- h. Permits
 - i. Progress payments
 - j. Modifications and change order work
 - k. Time extension
 - l. Delay
 - m. Record drawings
 - n. Operation and maintenance manuals
 - o. Training
 - p. Warranty
 - q. Contract closeout
- 8. Community relations.
 - 9. Distribution of Contract Documents
- D. Minutes of the meeting shall be prepared and distributed by the City Representative within 5 workdays after the conference.

1.03 SITE MOBILIZATION CONFERENCE

- A. The City Representative will schedule the Site Mobilization Conference at the Project site prior to Contractor mobilization.
- B. Attendance Required: Contractor's Project Manager, superintendent, and major subcontractors.
- C. Agenda may include:
 - 1. Use of premises by City and Contractor
 - 2. City's requirements and partial occupancy
 - 3. Construction facilities and controls provided by City and Contractor
 - 4. Temporary utilities provided by Contractor
 - 5. Preconstruction site survey and building layout
 - 6. Security and housekeeping procedures.
 - 7. Schedules
- D. Minutes of the meeting shall be prepared and distributed by the City Representative within 5 workdays after the conference.

1.04 PROGRESS MEETINGS

- A. The City Representative will schedule, prepare agenda, and record / distribute minutes of progress meetings at weekly intervals.
- B. Attendance Required: Contractor's Project Manager, superintendent, major Subcontractors and suppliers, as appropriate to agenda topics for each meeting.
- C. Location: To be announced by City Representative
- D. Typical Agenda:
 - 1. Review and approval of minutes of previous meeting
 - 2. Review of work progress since previous meeting
 - 3. Contractor's Schedule, including "Look Ahead" Schedule:
 - a. Review of off-site fabrication and delivery schedules
 - b. Problems which may affect Contractor's Schedule
 - c. Corrective measures to regain Contractor's Baseline schedule
 - d. Revisions to Contractor's Baseline Schedule
 - 4. Coordination Schedules
 - 5. Interface with Operations
 - 6. Safety and Security
 - 7. Review of submittals schedule
 - 8. Review status of Request for Information
 - 9. Review proposed changes for the following:
 - a. Effect on Contractor's construction schedule and completion date
 - b. General status of proposed changes
 - 10. Field observations, problems and conflicts
 - 11. Maintenance of quality standards and field corrections
 - 12. Public affairs
 - 13. Contract compliance
 - 14. Environmental issues

15. Housekeeping
 16. Status of current progress payment
 17. Other business
- E. Minutes of the meeting shall be prepared and distributed by the City Representative expeditiously after the meeting.

1.05 PRE-INSTALLATION CONFERENCES

- A. When required in individual Specification Sections, the Contractor shall convene a pre-installation conference at work site prior to commencing work of the Section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific Specification Section.
- C. Provide prior notice to City Representative of meeting date per the Specification Section's advance notification period requirement. Notify City Representative a minimum of 5 workdays in advance of meeting date where notification period is not defined.
- D. The Contractor shall prepare agenda, preside at conference, record minutes, and distribute copies within 5 working days after conference to participants, with one copy to the City Representative.
- E. Review conditions of installation, preparation and installation procedures, and coordination with related work.

1.06 PROJECT-SPECIFIC REQUIREMENTS (NOT USED)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 32 16
CONSTRUCTION PROGRESS SCHEDULE

PART 1 – GENERAL

1.01 SUMMARY

- A. This Specification Section covers scheduling requirements including the requirement for the Contractor to prepare and submit the following:
1. Initial 60 Day bar chart type Plan of Operation
 2. Baseline Critical Path method (“CPM”) schedule
 3. Summary Schedule
 4. Monthly CPM schedule updates and associated reports
 5. Weekly four week look-ahead schedule updates and associated reports
- B. Related Documents and Sections include the following:
1. Section 00 73 02 – Contract Time and Liquidated Damages
 2. Section 01 11 00 – Summary of Work
 3. Section 01 29 73 – Schedule of Values
 4. Section 01 31 00 – Project Management and Coordination
 5. Section 01 31 19 – Project Meetings
 6. Section 01 33 00 – Submittal Procedures
 7. Section 01 75 60 – Testing Coordination and Start-Up Testing
- C. For those progress schedule related issues which are not specifically addressed herein, the applicable requirements of General Conditions Section 00 72 00 shall be followed.

1.02 REQUIREMENTS

- A. At the project Pre-Construction Conference, the Contractor shall submit for the City Representative’s review and acceptance a 60 day bar chart type Plan of Operation (an interim bar chart schedule showing all activities during the first two months of the project); this schedule shall serve the project schedule needs until

the Contractor has prepared and submitted the CPM schedule; see below. Sufficient details shall be included for the identification of subdivisions of major components into work subactivities or by construction discipline (civil, structural, mechanical, electrical, instrumentation and control, and architectural). The City Representative will provide review comments within 14 calendar days after receipt.

- B. The Contractor shall use the services of Scheduler who has verifiable training and credentials in preparing and maintaining a computerized Baseline CPM Construction Schedule using Primavera P6 (P6.2) software as specified herein. The scheduler must qualify prior to submission of the Baseline CPM progress schedule.
- C. Required Experience for the Contractor's Scheduler: Performed CPM scheduling on at least 2 completed construction projects of at least as large as the **San Francisco Housing Authority Potrero Terrace Emergency Boiler and Distribution Piping Replacement** and having at least as many schedule activities as the **San Francisco Housing Authority Potrero Terrace Emergency Boiler and Distribution Piping Replacement**. Scheduling of both projects shall have been done using Primavera P6 (P6.2). Within 7 days after the Pre-Construction Conference, the Contractor shall submit the Project Scheduler's resume to the City Representative, including personal references from at least two owner-representatives familiar with the Project Scheduler's work on previous similar type projects. The City reserves the right to reject the proposed scheduler based on the lack of qualifications as defined in this section.
- D. Within 14 days after the Notice To Proceed ("NTP"), the Contractor shall furnish a complete Baseline CPM Schedule and Summary Schedule utilizing Primavera P6 (P6.2) Project Planner showing in detail the proposed sequence of activities.
- E. To facilitate the City Representative's understanding of the schedule and subsequent review the Contractor shall present the schedule and resource allocation to the City Representative at a schedule workshop to be held on-site. Depending on the size and complexity of the project this schedule workshop may require up to a full day of participation.
- F. The Contractor shall include input from its subcontractors and suppliers in the preparation of the schedule.
- G. The schedule shall include proper logic and adequate durations for all activities including mobilization, submittals, procurement/fabrication, installation, system shutdowns, key milestones, testing and start-up, closeout and demobilization.
- H. No activity duration shall be in excess of 15 working days or \$50,000 in value unless it is approved by the City Representative. Each activity shall be for a definable scope of work. The foregoing includes addressing all Contract specifications milestones and scheduling constraints. Procurement activities and

other construction activities may be waived from requirement of the next subparagraph upon approval of the City Representative.

- I. The City Representative's review and comment or acceptance shall occur within 10 working days after the scheduling workshop. If resubmittal is required, the Contractor shall resubmit within 5 working days. When accepted the schedule shall become the "Accepted Baseline CPM Schedule" for the project and shall be the basis for monthly updated schedules, for progressing the activities, for updating the schedule of values and for measuring any impacts or delays to the project.
- J. The City will not process any Applications for Payment beyond month two of the project until the required CPM schedule is submitted and accepted. Delay in submitting any of the required Schedules will be cause for withholding all progress payments otherwise due under the Contract.
- K. The construction schedule package shall consist of a critical path method ("CPM") network, schedule reports, and a written analysis of the Contractor's sequence of work.
- L. The initial schedule submittal and any revised schedule submittals shall be accompanied by a basis of schedule narrative describing the logic reasoning of the schedule.
- M. The Contractor's schedule shall begin with the date the City issues the NTP and conclude with the date of Final Completion of the Contract. The schedule shall use the full contract time. If the critical path work is shown to be completed before the expiration of the Contract, refer to 1.12 Early Completion Schedule.
- N. All costs for the preparation and submittal of the required Schedules as well as updated schedules and requested revisions shall be borne by the Contractor.

1.03 BASELINE CPM SCHEDULE

- A. The Baseline CPM Schedule shall utilize the precedence diagramming method ("PDM") of network analysis and show a single critical path. The schedule and network diagram(s) shall show activities for:
 - 1. Submittal and review of alternative construction methods or designs including all supporting data thereto, if applicable
 - 2. Adequate time to receive permits and agency approvals. Each permit and approval shall be identified in the construction schedule.
 - 3. Order, shop drawing review, fabrication, and delivery of materials and equipment
 - 4. Coordination of staging areas, fencing, and traffic concerns

5. Traffic maintenance
 6. Detailed construction items
 7. Milestones and construction and scheduling constraints specified in Section 00 73 02
 8. All submittals required in the contract and their review by the City Representative within the time limits noted in Section 01 33 00. The submittals should allow a minimum of one resubmittal in the activity duration.
 9. Delivery of operation and maintenance manuals to the City
 10. Adequate time for system shutdowns, acceptance testing, and start-up of major systems and equipment
 11. Adequate time for punch list work completion and closeout activities
 12. Training of City personnel
 13. Cleaning, flushing, and disinfection
- B. All schedule activity time durations shall specify what calendar the Contractor is using for each activity. All non-workdays shall be explained for each calendar used and its application of each shall be annotated.
- C. The Baseline CPM Schedule shall reflect any limitations on work hours required by the Contract and any permit restrictions and conditions that are required.
- D. Each Baseline CPM Schedule activity shall include (in detail) all activities' ID numbers, WBS breakdowns, descriptions, predecessors, successors, start/finish dates, calendars, duration, remaining duration, percent complete, actual dates, resource assignments, constraints, major equipment, materials float, and other grouping codes such as location and responsibility.
- E. Each Baseline CPM Schedule activity shall include resource values for: cost, equipment, manpower, manhours by craft, and estimated quantity information.
- F. Each item in the Schedule of Bid Prices whether unit price or lump sum shall correspond to an activity in the Baseline CPM Schedule. Each activity may be subdivided into such activities as required for proper planning and monitoring. Activities corresponding to lump sum items shall be subdivided based on their Schedule of Values.
- G. Activities by City and other agencies that could impact progress shall be shown. These activities include but are not limited to: approvals, inspections, utility tie-in, City-furnished equipment/material.

- H. All activities shall be identified in the Baseline CPM Schedule by the party responsible for performing the work. Responsibility includes but is not limited to a subcontracting firm, contractor workforce: electrical, mechanical, civil, architectural, landscape, or City performing a given task. Activities shall not belong to more than one responsible party. The responsible party shall be identified by a responsible code.
- I. All activities shall be identified in the project schedule by the work area in which the activity occurs. Activities shall not be allowed to cover more than one work area. The work area of each activity shall be identified by the work area code.
- J. The schedule should include all key milestones such as installation of an equipment / completion of tasks leading up to shutdowns, etc.
- K. Any activity that is added or changed by contract modification or change order or is used to justify claimed time shall be identified by reference to the changed document.
- L. The Baseline CPM Schedule shall represent the Contractor's plan of operation performed within the specified Contract Completion Time and within the Contract Bid Price.
- M. A schedule extending beyond the Contract completion time will not be accepted.
- N. An activity shall not contain work in more than one payment Item. The payment Item for each appropriate activity shall be identified by a payment Item code. The sum of the monetary values of all the activities in the latest approved baseline schedule shall total the latest approved contract amount. The sum of the monetary values of all activities associated with a payment item shall total the payment item amount.
- O. All activities shall be identified in the project schedule according to the category of work which best describes this activity. Category of work refers, but is not limited to, submittals, approvals, procurement, fabrication, delivery installation, shutdown, start-up and testing, and close out. The category of work for each activity shall be identified by a category of work code.
- P. Schedules exhibiting front-loaded costs are unacceptable.
- Q. The use of float suppression techniques, such as: preferential sequencing (arranging critical path through activities more susceptible to City-caused delay), special lead / lag logic restraints, zero total or free float constraints, extended activity times, or imposing constraint dates or work calendars other than required by Contract, shall be cause for rejection of the Progress Schedule(s). The use of Resource Leveling (or similar software features) used for the purpose of artificially adjusting activity durations to consume float and influence the critical path shall also be cause for rejection.

- R. Acceptance of the schedule by the City Representative is of general nature only. The acceptance shall not relieve the Contractor from responsibility to do all work as specified by the Drawings and Specifications. The Contractor has sole responsibility for means and methods of executing the Work. Items missing from the schedule are assumed to be incidental work and not critical activities. If activities are found to be missing from the schedule after the City Representative's acceptance, the Contractor may submit a revised schedule including these items. A revised schedule is subject to the review and acceptance of the City Representative as described below in paragraph 1.04. No time-extensions will be granted because of errors or omissions on the schedule. It is the Contractor's responsibility to incorporate all necessary activities to cover the entire work scope.
- S. An electronic copy containing all data comprising the schedule shall be submitted with every submittal of the progress schedule in CD format.

1.04 REVISED SCHEDULE

- A. If the Contractor during the course of the construction desires to make any changes in methods of operating or scheduling, or make any changes to the logic or durations of any activities, the Contractor shall notify the City Representative in writing stating the reasons for the change. Any change to the Schedule in logic, order or sequence of work, duration of activities, etc., shall be discussed in the schedule narrative before it is implemented as a Revised Schedule (“Recovery Schedule”). A Revised Schedule will not become effective until accepted by the City Representative.
- B. The Contractor shall submit to the City Representative a revised critical path analysis with the Contractor's evaluation of the Contractor's proposed Revised Schedule whenever a Schedule revision is requested or any of the following occur:
 - 1. A change order affects the completion date or the sequence of activities.
 - 2. Progress of any critical activity falls significantly behind schedule (critical path activity is 2 weeks or more late) as determined by the City Representative. Regardless of the reason(s) for falling behind schedule, within 14 days of work falling behind schedule, the Contractor shall submit a proposed Revised Schedule including narrative demonstrating how the Contract Times will be achieved.
 - 3. Delay on a non-critical activity changes the course of the critical path.
 - 4. The Contractor elects to change any sequence of activities affecting the critical path or the project completion date.
- C. All revisions to the schedule shall be submitted in writing to the City Representative for review and acceptance.

- D. All completed activities shall be represented with their actual start and finish dates. Activities that are in progress shall be included with their actual start date and the percentage completed.
- E. The numbering of the activities shall be the same as in the accepted Baseline CPM Schedule. Numbers of deleted activities shall not be used on the Revised Baseline CPM Schedule and new numbers (not used in the Accepted Baseline Schedule) shall be used for new activities.
- F. A revised narrative describing the remaining work as reflected in the revised schedule shall be included.
- G. A separate listing of all activities deleted, changed, or added shall accompany the Revised Baseline CPM Schedule.
- H. A revised schedule shall be submitted for acceptance as the Revised Baseline CPM Schedule, along with all the items listed above in paragraph 1.03.

1.05 MONTHLY SCHEDULE UPDATE

- A. The Baseline CPM Schedule shall be updated monthly by the Contractor and submitted to the City Representative for review. These updates shall be referred to as the “Monthly Schedule Update.”
- B. Actual start and finish dates and work in progress shall not be automatically updated by default mechanisms that may be included in CPM scheduling software systems. Actual start and finish dates shall be updated manually and shall match daily reports.
- C. Computer calculations of the Monthly Schedule Update will be made starting from the current status or data date to the completion of the project. Work completed shall be shown with the actual start and finish dates for each activity. Work in progress shall be shown with the actual start date and the percentage completed for each activity.
- D. The CPM network diagram shall at all times represent the actual history of accomplishment of all activities as well as the Contractor's current projected plan for orderly completion of the work. The Contractor shall, at monthly intervals, evaluate work progress with the City Representative by reviewing actual accomplishments since the previous update.
- E. The Contractor's monthly evaluation of the critical path analysis shall include all the following:
 - 1. Actual start and completion dates for each activity
 - 2. Critical path

3. Percentage complete for each activity
 4. Anticipated completion time of individual activities and for the entire work effort
 5. Description of problem area and proposed resolutions
 6. Current and anticipated delaying factors and their impact and proposed resolutions
 7. Schedule narrative including explanation of corrective action taken or proposed
 8. Resources expended for each activity
- F. The Monthly Schedule Update, along with the updated Schedule of Values and Summary Schedule, shall be submitted with the request for monthly Application for Payment on the 25th of each month showing all work in progress and completed as of this status date.

1.06 SUMMARY SCHEDULE

- A. Contractor shall submit a Summary Schedule with the initial CPM Schedule, all updates and revisions, and Monthly Schedule Updates.
- B. The Summary Schedule shall be derived directly from the CPM Schedule, and it is a rollup of the activities grouped by the work area code submitted in the CPM Schedule. All coding structure of the CPM Schedule should directly roll up to the Summary Schedule.
- C. The Contractor will coordinate the development of the Summary Schedule with the City Representative in determining the number of summary activities and milestones. The Summary Schedule should contain approximately 15 to 40 summary activities.
- D. In addition to the summary rollup activities, the Summary Schedule should contain all system shutdowns; contractual milestones such as substantial and final completion dates; other key milestones as determined by City Representatives including dates City-furnished material and/or equipment is required; and testing and startup summary activities.
- E. The Summary Schedule should be cost-loaded, consistent with the detail of the CPM Schedule. The total value must equal the total value of the contract. The cost-loaded value of progress shown in the Summary Schedule shall equal the value of the Schedule of Values that is submitted with the Application for Payment. The % complete and Actual Costs shall also be shown for each activity in the Monthly Update Summary Schedule.

1.07 SUBMITTALS

- A. General: Any delay in submitting any of the required Construction Progress Schedules will be considered cause for withholding any progress payments otherwise due under the contract and will trigger liquidated damages as described in paragraph 1.08 of this Section.
- B. Progress Schedules: Unless directed otherwise by the City Representative, the following shall be included in the required submittals of the accepted Baseline Schedule and each Monthly Schedule Update:
1. A graphic network diagram with legible letters in a size not to exceed 36"x60". Each activity shall include the number, description and its duration in working days. This diagram shall be plotted using early dates and include early start and early finish dates and total float.
 2. The computerized schedule reporting information shall include the following:
 - a. Listing of all activities sorted by total float including early start ("ES"), late start ("LS"), early finish ("EF"), late finish ("LF") and Total Float duration for each activity. Each activity or work item will not take more than two lines.
 - b. List of all activities sorted numerically including ES, LS, EF, LF, Total Float, and Predecessor/Successor information of precedence network.
 - c. List of all activities sorted numerically including resource requirements for each activity as defined in Section 1.03 above.
 - d. Histogram and 'S' curve graphs showing projected early, late and actual earnings, as-bid vs. actual cash flow, percent complete, total manpower, manpower by craft, total manhours, and manhours by craft. These graphs shall cover the entire Contract Time on the horizontal scale.
 - e. An executive summary schedule showing progress for the major disciplines of work and all contract completion milestones.
 3. A detailed narrative describing the basis of the schedule and the Contractor's sequence of work.
 4. A response to all comments from the most previous schedule review, including an itemized response to any itemized comments made.
- C. Revised Schedule: The submittal(s) of a Revised Schedule shall include all the items listed above for the Construction Progress Schedule.

- D. Monthly Schedule Updates: The Monthly Schedule Update shall consist of subparagraph 1.07.B requirements listed above for the Construction Progress Schedule and shall include the following:
1. Calculations of the schedule starting from the date specified below and ending at project completion. Completed activities shall be listed with their actual start and finish dates.
 2. The updated schedule shall be submitted along with the Application for Payment. The data date of schedule update will be used the 25th day of the month.
 3. Schedule narrative describing conformance or nonconformance to the schedule, reasons for schedule slippage, and proposed corrective actions.
 4. Time impact analyses and “fragnets” analyzing change order time impacts which might be used to support Contract time extension requests.
 5. Approved Contract time extensions properly incorporated into schedule updates.

1.08 PROGRESS MEETINGS AND FOUR WEEK SCHEDULES

- A. For weekly progress meetings, the Contractor shall submit a Look-Ahead Schedule. This schedule will cover four weeks: the immediate past week, the current week, and the forthcoming two weeks. This schedule will include all activities which are complete, started, are incomplete or underway, or scheduled to be worked during this three week time frame. The schedule shall list all activities from the accepted Baseline CPM Construction Schedule which are complete, are scheduled for work during this period, are currently planned to be worked, even if out of sequence, and Work which is unfinished but scheduled to be finished. Actual start and completion dates shall be provided for the Work that has been completed the prior week; forecast early start and early finish dates shall be provided for the Work that is in-process or upcoming.
- B. Each activity noted above shall be identified by activity number corresponding to the accepted CPM Construction Schedule and detailed description of the activity.
- C. The Look-Ahead Schedule shall be delivered to the City Representative 24 hours prior to the weekly progress meeting.
- D. The Look-Ahead Schedule shall be in a bar-chart format and extracted from the monthly schedule update submittal to ensure uniformity with the monthly updated schedules.
- E. Tabular reports for manpower and equipment resources shall be provided for and with each Look-Ahead Schedule.

1.09 LIQUIDATED DAMAGES

- A. Liquidated damages will be assessed at any time that the required Schedules or updates are not submitted on time as following:
 - 1. For each calendar day of delay the amount of \$500.00 (Five Hundred Dollars) per schedule will be deducted from the Contract amount.

1.10 ADJUSTMENT OF THE CONTRACT TIME AND CHANGE ORDERS

- A. Adjustments of the Contract Time due to weather delays, extra work, or any other cause will only be issued through a Contract Change Order and only for causes specified in the Contract Documents. Negative float will not be a basis for requesting time extensions.
- B. In the event the Contractor submits a claim for an adjustment of the Contract Time, the Contractor shall furnish such schedule justification (fragnet analysis), as the City Representative may deem necessary for a determination as to whether or not the Contractor is entitled to an adjustment of time under the provisions of the Contract.
- C. The progress schedule shall clearly indicate that the Contractor has used, in full, all the float time available for the work involved in the request.
- D. The Contractor shall not be entitled to additional compensation due to schedule impacts for change order work that extends the Contract beyond the scheduled completion date, but not beyond the Contract Completion Date as specified in the Contract Documents.
- E. The City Representative's determination as to the adjustment of the Contract time will take into account the latest version of the progress schedule accepted at the time of the alleged delay, the Contractor's written time impact and associated fragnet analyses, and all other relevant information.
- F. Actual delays in activities, which according to the progress schedule, do not affect the critical path work, shall not be the basis for an adjustment to the Contract time.
- G. The Contractor shall submit, as part of each Change Order Request or Proposed quotation for a Change Order for which the Contractor is requesting an adjustment in the Contract time, a written time impact analysis and a subnetwork ("fragnet") showing activity logic revisions and duration changes for the work in question and its relationship to other activities on the construction schedule.
- H. The new progress schedule, if accepted by the City Representative, shall be in compliance with the requirements of paragraph 1.04 of this Section.

- I. Where the City Representative has not yet made a final determination as to the adjustment of the Contract Time, and the parties are unable to agree as to the amount of the adjustment to be reflected in the Progress Schedule, the current schedule will be in effect and be updated regularly every month until a Revised Schedule is agreed upon and accepted by the City Representative.

1.11 DEFINITION – TOTAL FLOAT

- A. Total Float: Total float or slack is defined as the minimum amount of time between the early start date and the late start date, or the early finish date and the late finish date, for any activity in the Schedule. Float or slack is not time for the exclusive use of or benefit of either the City or the Contractor, but is a resource available to both parties on a first needed basis. Efficiencies gained as a result of favorable weather within a calendar month, where the number of days of normally anticipated inclement weather is less than expected, will also contribute to the reserve of float. Extensions of time will not be granted unless the excusable delays affect the critical path in the Schedule and after all available float or slack has been used.

1.12 EARLY COMPLETION SCHEDULE

- A. The Contractor may provide a Progress Schedule, which includes a scheduled completion date earlier than the Contract Time allowed for substantial completion. The proposed early completion schedule shall conform to the requirements of this Section and shall properly include all special project constraints, and site access and City coordination requirements of the Contract Documents.
- B. If the Contractor submits an early completion schedule, it shall agree to and certify to the following:
 1. The time difference between the proposed early completion date and the date corresponding to the Contract Time for substantial completion is defined as total float.
 2. The total float is not for the exclusive use or benefit of either the City or the Contractor, but is a resource available to both parties on a first needed basis.
 3. The Contractor's original Bid shall include all costs for the full duration of the Contract from the date of the Notice to Proceed through the date of final completion corresponding to the Contract Time. Specifically, the Contractor has provided in its Bid the overhead, construction equipment, and facilities costs including field overhead, home office, other off-site yard, and extended overhead costs, for the duration of the Project Time.
 4. If the City requires additional work through a Proposed Change Order, which shall be done after the proposed early completion date, but prior to

the Contract Time completion date, then no additional money will be paid to the Contractor for extended overhead.

1.13 PROJECT-SPECIFIC REQUIREMENTS (NOT USED)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.01 SUMMARY

- A. This Specification Section covers the requirements for the processing and review of submittals including submittals schedule and log, presubmittal meetings, shop drawings, product data and samples, and use of submittals.
- B. Related Documents and Sections include the following:
 - 1. Section 00 72 00 – General Conditions
 - 2. Section 01 29 73 – Schedule of Values
 - 3. Section 01 31 00 – Project Management and Coordination
 - 4. Section 01 41 00 – Regulatory Requirements
 - 5. Section 01 32 16 – Construction Progress Schedule
 - 6. Section 01 60 00 – Product Requirements
 - 7. Section 01 25 13 – Product Substitution Procedures
 - 8. Section 01 77 00 – Closeout Procedures
 - 9. Section 01 78 39 – Project Record Documents
 - 10. Section 01 78 36 – Warranties
- C. For those submittal procedures related issues which are not specifically addressed herein, the applicable requirements of General Conditions Section 00 72 00 shall be followed.

1.02 GENERAL

- A. Whenever called for in the Contract Documents or where required by the City Representative, the Contractor's submittals shall include but not be limited to schedules, shop drawings, fabrication, layout, installation and erection drawings, catalog cuts, samples, design calculations, vendor operation and maintenance manuals, equipment installation certification forms, data sheets, warranties and similar items. The costs for preparation and submittal of all of the foregoing shall be included in the Contractor's bid.

1. Submittals, except samples and oversize drawings, shall be transmitted electronically.
 2. Submittals are to be in PDF format using latest version of Adobe Acrobat. Obtain procedure for submittal of electronic submittals from City Representative.
 3. Resolution shall be such that the finest detail must be legible at full scale on a monitor without zooming in, i.e., 1 inch width on 11x17 inch sheet is 1 inch on the monitor.
- B. All Contractor Submittals of professional engineering plans, shop drawings of Contractor-designed components, calculations, and documents prepared by the Contractor or the Contractor's sub-contractor and submitted to the City Representative under the terms of this Contract shall be stamped and signed with the date of signing clearly indicated by a Professional Engineer currently licensed in California. This includes, but is not limited to, Contractor-designed piping appurtenances, micropiles, drilled piers, foundations, and retaining walls in addition to Contractor-designed temporary engineered shoring and scaffolding. With the exception of "interim documents" as described in Section 6735 of the California Business and Professions Code, all submittals of all revisions of Submittals for construction shall include the signatures and seals of those California licensed engineers designated by the Contractor as representing each branch of engineering applicable to the component designed. The Contractor's submittal of interim documents shall include the name and license number of each California licensed engineer employed or subcontracted by the Contractor and that engineer so designated and identified by Contractor as exercising responsible charge during the performance of all engineering services related to the preparation of such Submittals. The required signatures, dates of signing, and seals of such licensed engineers shall be affixed to all Submittals submitted for construction, including the final as-built drawings produced by the Contractor. In addition, the Contractor shall include the required Professional Engineer seal, signature and date of signing on each page of the Contractor's design documents with multiple sheets or pages. The Contractor's Submittals without the required inclusion of clearly legible signatures and California Professional Engineer seals and dates of signing may result in the City's withholding all or a portion of any applicable Progress Payment. As-built drawings and shop drawings for Contractor-designed components submitted without the required inclusion of clearly legible signatures and California Professional Engineer seals and dates of signing may result in the City's withholding of the retention release.
- C. A single City-provided standard submittal transmittal form shall be used for each technical specification section or item or class of materials or equipment for which a submittal is required. A single submittal covering multiple sections or items will not be acceptable.

- D. The Transmittal Form shall index the components of the submittal and the submittal shall be tabbed to match the components. The index shall prominently indicate the electronic file name and instructions on accessing the file. Submittal components shall be related to specification paragraph and subparagraph, drawing number, and detail number, as applicable. Unless indicated otherwise, terminology and equipment names and numbers used in submittals shall match those used in the Contract Documents.
- E. Every page in the submittal, including title pages, tables of contents, appendices and attachments, shall be sequentially numbered at the center of the page footer. Each submittal shall be assigned a unique number comprised of sequential numbers, i.e., 1 through x, shall be sequentially numbered. Resubmittals shall receive the same number as the original, but with a lettered suffix, i.e., "Rev. 1" for the initial submittal, "Rev. 2" for the first resubmittal, "Rev. 3" for the second resubmittal and so on. Every page shall bear the submittal number, revision number, and date at the right side of the page footer. The minimum and maximum size sheet of hard copy submittals shall be 8.5 inches by 11 inches and 24 inches by 36 inches, respectively.
- F. Submittals of product data from a manufacturer shall be clearly marked to identify the proposed model and all pertinent data including materials of construction, capacities, dimensions, clearances, diagrams, controls, connections, appurtenances, anchorage and supports.
- G. Submittals that are combined, incomplete, or disorganized submittals or otherwise unsuitable for review by the City Representative, not listed in the Contractor's Submittal Log, or are from sources other than the Contractor will be marked as "REJECTED" and will be returned to the Contractor without review.

1.03 DEFINITIONS

- A. "Shop drawings" are drawings, diagrams, schedules, and other data specially prepared for the work by the Contractor or a subcontractor, sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the work.
- B. "Product data" are illustrations, specifications, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the work.
- C. "Samples" are physical examples which illustrate materials, equipment or workmanship and establish standards by which the work will be judged.
- D. Shop drawings, product data, samples, and similar submittals are not Contract Documents. Their submittal provides details of materials and equipment necessary to conform to the requirements of the Contract Documents.
- E. Shop drawings shall establish the actual detail of manufactured or fabricated items, indicate proper relation to adjoining work, and amplify design details of

mechanical and electrical equipment in proper relations to physical spaces in the structure.

- F. The term "manufactured" applies to standard units usually mass-produced. The term "fabricated" means items specifically assembled or made out of selected materials to meet individual design requirements.
- G. "Manufacturer's instructions" shall mean the manufacturer's written instructions on the use or application of the product under conditions similar to those at the job site.
- H. "Work description" is a detailed description of the means, methods, tools, equipment, materials, sequence, and any other pertinent information about performance of work.
- I. "Subcontractor qualifications" is a detailed statement of the sub-contracting entity or personnel scheduled to perform work including general description of qualifications, representative list of applicable projects, number of years experience, and references complete with contact persons and their telephone numbers. Refer to General Conditions Section 00 72 00 for requirements regarding submittal of subcontractor qualifications.
- J. "Field sample" is a sample made available at the Contract site to demonstrate the final technique, finish, and construction quality by which the work will be judged.

1.04 REQUIREMENTS

- A. The Contractor shall submit a Submittal Log to the City Representative as specified in Article 1.05, herein.
- B. The Contractor shall make submittals other than schedules far enough in advance of scheduled installation dates to allow time for review and possible revision. The log shall allow the City Representative 21 calendar days for each submittal review, or revision review.
 - 1. To ensure a compliant and complete submittal package, the Contractor shall review and coordinate each submittal with other submittals, the Baseline CPM schedule, testing, procurement, fabrication, delivery and similar sequential activities. All submittals shall be included as activities in the Contractor's Baseline CPM schedule and Submittal Log.
 - 2. The Contractor shall be responsible for changes made necessary by the Contractor's failure to coordinate submittals in a complete and timely manner.
- C. Only Submittals made by the Contractor will be reviewed.

- D. The Contractor shall make submittals in groups containing all associated items as complete packages of information for review. The City Representative will reject partial submittals.
 - 1. The Contractor shall provide coherent and organized submittal packages in a three-ring binder with table of contents and tab sheet for each system. Tab sheet shall include a list of material and equipment furnished and shall provide ample space for the City's review stamp and comments.
 - 2. The City Representative reserves the right to withhold action on submittals requiring coordination with other submittals until related submittals are furnished.

- E. All submittals shall be reviewed, stamped, and approved by the Contractor prior to forwarding them for City Representative's review.
 - 1. By approving, stamping and submitting shop drawings, product data, and samples, the Contractor represents that it has determined and verified dimensions, materials, field measurements, and related field construction criteria, and that it has checked and coordinated the information contained within such submittals with the requirements of the work and of the Contract Documents.
 - 2. When professional certification of performance criteria of materials, systems or equipment is submitted, submittal shall be stamped and signed by the responsible design professional with California license number and date of signing, representing that the City could rely upon the accuracy and completeness of such calculations and certifications.
 - 3. The stamped and signed pages shall be scanned and included in the submittal, and the Contractor shall retain the original stamped and signed documents and be prepared to furnish them at the request of the City Representative.

- F. No portion of the work requiring submission of a shop drawing, product data, work description, subcontractor qualification or sample shall commence until the submittal has been reviewed and accepted by the City Representative. All such portions of the work shall be executed in accordance with accepted submittals.

- G. No change shall be made by the Contractor in any submittal after it has been accepted by the City Representative. If such a change should be necessitated by changed conditions or a Contract Change Order after a submittal has been accepted by the City Representative, the original submittal shall be void and the Contractor shall submit a new submittal which will provide for the conditions of the change.

- H. If the submittal shows any variation from the Contract requirements because of standard shop practice or other reasons, the Contractor shall make specific mention of each variation in its submittal.
- I. The City Representative will review the Contractor's submittals only for general conformance with the design concept of the Project and general compliance with the requirements of the Contract Documents. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents.
- J. The City Representative's review of Contractor's submittals shall not relieve the Contractor of the obligations to comply with the requirements of the Contract Documents. The City Representative's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences or procedures. The City Representative's acceptance of a specific item shall not indicate acceptance of an assembly of which the item is a component.
- K. If the Contractor makes a submittal which is not required to be submitted, the City Representative will not review such submittal. The Contractor shall execute the work in accordance with the Contract Documents.
- L. The Contractor shall submit a minimum of 8 copies of each submittal for the City Representative's review. A total of 3 copies will be returned to the Contractor for its use and for the use of its subcontractors, suppliers, and vendors. If the Contractor requires additional copies it shall reproduce them at its own cost.

1.05 SUBMITTAL SCHEDULE AND SUBMITTAL LOG

- A. The Contractor shall prepare a Submittal Log in a format acceptable to the City Representative, integrating it with or as a by-product of the Contractor's Baseline CPM Schedule, and shall submit it to the City Representative simultaneously with the Baseline CPM Schedule, whichever is earlier. The Submittal Log shall list each submittal required by the Contract, the specification section number and the planned submittal date.
- B. The Contractor shall include all submittals in the Baseline CPM Schedule.
- C. In preparing the Submittal Log, the Contractor shall first determine from the Baseline CPM Construction Schedule the date the particular item related to a particular system is needed for the work. The Contractor shall schedule the submittal to provide sufficient time to process the submittal and one re-submittal, as well as procurement, fabrication, factory testing, shipment, and similar items.
 - 1. The Contractor shall anticipate and allow 21 calendar days for the City Representative's review of the submittal and anticipate that an incomplete, inadequate, or incorrect submittal will require resubmission.

2. If more than one resubmittal is required, the costs of reviewing the extra resubmittals will be deducted from progress payments due to the Contractor. Such costs shall include the City's costs and the City's consultant fees.
- D. The Contractor shall submit the Submittal Log, with current status information, monthly with the Baseline CPM Schedule update and at any time the Baseline CPM Schedule is revised. Contractor shall provide two copies of the Submittal Log.
- E. The Contractor shall be solely responsible for scheduling of submittals. No extension of Contract time will be granted for untimely submittals or required re-submittals.
- F. Delays in the work caused by the need for re-submittal or by submission of incorrect or insufficient data will not constitute reason for an extension of Contract time or cost.
- G. For weekly progress meetings, the Contractor shall submit a stand-alone, Look-Ahead Submittal Schedule. This submittal schedule will cover four weeks: the immediate past week, the current week, and the forthcoming two weeks. The Look-Ahead Submittal Schedule shall be delivered to the City Representative 24 hours prior to the weekly progress meeting.

1.06 PRE-SUBMITTAL MEETINGS

- A. For complex and/or long lead time mechanical and electrical equipment the Contractor shall plan for and schedule pre-submittal meetings with the City Representative. The purpose of the meetings is to review the contractual requirements and to respond to questions prior to making the submittal so that the initial submittal has a greater likelihood of being approved without need for resubmittal.
- B. The meetings shall be attended by the City Representative, Contractor, pertinent subcontractors and the vendor/supplier/manufacturer. In the case of vendors/suppliers/manufacturers who are located remotely from the job site, these parties may participate in the meeting by conference call.
- C. Minutes of Meeting documenting resolution of issues and action items shall be included with the submittal.

1.07 PROCEDURES

- A. With the exception of samples and oversized documents such as drawings, all submittal packages shall be delivered using the Transmittal Form. Six copies of each sample or oversized document shall be submitted on the same day the transmittal is sent, along with a hardcopy of the transmittal form.

1. The Contractor shall coordinate with the City Representative regarding media, file format, operating system and other issues prior to the first transmittal of electronic submittals.
 2. All electronic submittals will be in the most current version of Adobe Acrobat (PDF), using bookmarks in addition to a table of contents and hyperlinks to referenced documents. Acrobat files shall be saved with such security measures as to protect them against modification without tracking, but to allow comment. Alternative electronic formats (e.g., JPEG, Microsoft Word, or Excel) may be used only with the City Representative's approval of a written request. The City Representative may request a submittal to be made in the original application (e.g., calculations in Microsoft Excel) or in hardcopy in addition to Adobe Acrobat to facilitate review and approval. The Acrobat file shall take precedence over the formats and its submission date shall be recorded as the date of the submission of the submittal.
 3. In the event that the submittal's electronic file is corrupt or is inaccessible for any other reason, the submittal shall be considered delayed by the Contractor. All elements of the submittal, enumerated below, shall be capable of being downloaded and printed in the format described in the applicable paragraph.
 4. External electronic documents such as drawings and calculations shall be listed in the attachments field of the Transmittal Form and shall be attached.
 5. E-mail: Submittals shall not be transmitted via e-mail.
 6. Any document bearing an embossed stamp, original signature, or other marking determined to be of legal status shall be scanned showing the marking for inclusion in the electronic submittal. The Contractor shall retain the original and provide it at the request of the City Representative.
- B. Identification: Identify submittals with the following information (material submittals will be physically marked with indelible ink):
1. Project name and location
 2. Submittal Number.
 3. Product identification or shop drawing title, number, revision, and date as applicable. Where product data contain more than one product, model, selection, etc., clearly mark and identify the information intended to be reviewed by City Representative.
 4. Contractor's stamp, signed or initialed, certifying that review, verification of products required, field dimensions, adjacent construction work, and

coordination of information are in accordance with the requirements of the work and Contract Documents. Indicate any items that do not conform to the Contract requirements.

5. Where multiple Specification sections govern any portion of the work or where multiple trades are involved in any portion of the work (e.g., steel, mechanical and electrical items embedded in concrete), indicate all pertinent Specification sections in its submittal identification.
 6. Reference to [Contract] Drawing or Specification section as applicable.
 7. Revise any resubmittals as required and identify all changes made since previous submittal.
 8. No submittal will be processed unless all requested information is completed.
- C. Packaging of Non-Electronic Submittals:
1. Submittals shall be wrapped or packaged to prevent damage during delivery.
 2. Reproducible drawings shall be rolled and not folded.

1.08 SHOP DRAWINGS

- A. Each shop drawing submitted shall be sized for printing as follows:
1. Maximum sheet size: 34" x 22" (D size) with a 1" border and a 2" binding edge to the left of the border on the short side of the sheet.
 2. Minimum sheet size: 8-1/2" x 11" with 1/4" border on three sides and 1/2" binding edge on the long side.
- B. The City Representative will scan and return the appropriately stamped drawings to the Contractor after review and approval.
- C. If the shop drawings are not accepted, the marked-up copy will be scanned and returned to the Contractor with the City Representative's review comments included on the Transmittal Form or attached as a separate electronic document.
- D. The Contractor shall clearly identify and provide explanation of changes made by Contractor on the resubmitted shop drawings.

1.09 PRODUCT DATA

- A. In order to submit product data electronically, the Contractor shall use Adobe Acrobat to create or edit an electronic file for submittal. Adobe Acrobat markup

tools may be used to identify pertinent information by highlighting the information or marking out inapplicable information.

- B. Product data and manufacturer's standard drawings submitted for review shall show only the pertinent information.
 - 1. Identify the pertinent information by circling it with black ink pen or by crossing out the inapplicable information with black ink pen.
 - 2. Any submittal which contains information not clearly identified for review will be rejected and returned to Contractor for resubmission.
- C. The Contractor shall submit instrument data sheet to be used for programming, testing and calibration.

1.10 SAMPLES

- A. Submit three samples unless otherwise specified; after review, one sample will be returned to Contractor.
- B. Furnish samples in the following sizes, unless otherwise specified:
 - 1. Flat or Sheet Products: Minimum 6 inches square, maximum 12 inches square.
 - 2. Linear Products: Minimum 6 inches long, maximum 12 inches long.
 - 3. Bulk Products: Minimum 1 pint, maximum 1 gallon for liquids; minimum 1 pound, maximum 3 pounds or minimum 1 cubic foot, maximum 1 cubic yard, as applicable for solids.
- C. Submit samples to illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- D. Submit samples of finishes in custom colors selected, textures, and patterns for the City Representative's selection.
- E. Include identification on each sample, with full Contract information.

1.11 MANUFACTURER'S INSTRUCTIONS

- A. When required by the Specifications or by the City Representative during submittal reviews, the Contractor shall submit in scanned electronic format as specified the manufacturer's printed instructions for delivery, storage, assembly, installation, start-up adjusting, field testing and finishing.
- B. The Contractor shall identify conflicts between manufacturer's instructions and Contract Documents.

- C. The Contractor shall maintain copies of manufacturer's installation instructions and recommendations in Contractor's field office for review, regardless of whether such submittals are requested.

1.12 MANUFACTURER'S CERTIFICATES

- A. The Contractor shall submit Manufacturer's Certificates (also known as Equipment Installation Certification Forms) in the scanned electronic format specified in this specification.
- B. The City Representative will retain certificates; no approval reply is intended.
- C. The certificate shall state that:
 - 1. The equipment or system has been:
 - a. installed in accordance with the manufacturer's recommendations,
 - b. inspected by a manufacturer's authorized representative, and
 - c. serviced with the proper initial lubricants.
 - 2. Applicable safety equipment has been properly installed.
 - 3. The equipment has been properly anchored and proper electrical and mechanical connections have been made.
 - 4. The equipment is ready for startup.
 - 5. Proper adjustments have been made and that the equipment or system is ready for plant startup and operation.
 - 6. The form shall be signed by the Contractor and the duly authorized equipment vendor or representative.
- D. Manufacturer's certificates may be submitted electronically as scanned Adobe Acrobat documents.

1.13 ACTION AND DISTRIBUTION

- A. After review of the submittal, the City Representative will return the submittals indicated as "NO ACTION TAKEN," "NO EXCEPTIONS TAKEN," "MAKE CORRECTIONS NOTED," "REJECTED," or "REVISE AND RESUBMIT."
 - 1. When "NO ACTION TAKEN" or "NO EXCEPTIONS TAKEN" is indicated, the Contractor is advised that fabrication, manufacturer, or construction may proceed, providing it complies with the Contract Documents.

2. When “MAKE CORRECTIONS NOTED” is indicated, the Contractor is advised that fabrication, manufacture, or construction may proceed, providing it complies with the City's notations and the Contract Documents.
 3. When “REJECTED” or “REVISE AND RESUBMIT,” is indicated no work shall be fabricated, manufactured, or constructed until the submittal is acceptable. The Contractor shall make a new submission in accordance with the specified procedures.
- B. The Contractor shall make additional copies of the accepted submittals and shall within 3 calendar days from date of receipt distribute one copy to its subcontractors, vendors, or manufacturers as applicable. Copies shall be made from the accepted copy bearing the City Representative’s stamp of acceptance.

1.14 USE OF SUBMITTALS

- A. Work shall be fabricated, constructed, and furnished in accordance with the acceptable submittals. One copy of such acceptable submittals shall be kept at the job site.
- B. The Contractor shall not use submittals or submittal materials in the work.

1.15 PROJECT-SPECIFIC REQUIREMENTS (NOT USED)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 35 43.13

BUILDING-RELATED HAZARDOUS MATERIALS

3.01 HAZARDOUS MATERIALS MANAGEMENT

- A. Contractor shall fully comply with all applicable hazmat requirements set forth in Section 01 35 43.13 – Building Related Hazardous Materials:
1. SCA Environmental, Inc. Reports Titled: “Hazardous Materials Abatement Specifications San Francisco Housing Authority Potrero Terrace Housing Development San Francisco, California; SCA Project No.: B-10796, October 11, 2012”
 2. SCA Environmental, Inc. Reports Titled: “Hazardous Materials Abatement Specifications San Francisco Housing Authority Potrero Terrace Housing Development San Francisco, California; SCA Project No.: B-10645, March 24, 2014”

END OF SECTION

SECTION 01 41 00
REGULATORY REQUIREMENTS

PART 1 – GENERAL

1.01 SUMMARY

- A. This Section includes requirements for: Codes, Seismic Loading Design Provisions, and Trench Support Design Provisions.
- B. Related Documents and Sections include:
 - 1. Section 00 73 00 – Supplementary Conditions
 - 2. Section 01 33 00 – Submittal Procedures

1.02 CODES:

- A. Contractor shall conform all work of the Contract to meet or exceed the applicable requirements of the latest editions of the applicable codes, laws, ordinances, standards, rules and regulations, including, but not limited to the following:
 - 1. CCR Title 8, Industrial Relations
 - 2. CCR Title 17, Public Health
 - 3. CCR Title 19, Public Safety
 - 4. CCR Title 24, Building Standards
 - a. Part 1, California Building Standards Administrative Code
 - b. Part 2, California Building Code
 - c. Part 3, California Electrical Code
 - d. Part 4, California Mechanical Code
 - e. Part 5, California Plumbing Code
 - f. Part 6, California Energy Code
 - g. Part 7, NOT USED
 - h. Part 8, California Historic Building Code
 - i. Part 9, California Fire Code
 - j. Part 10, California Existing Building Code
 - k. Part 11, California Green Building Standard Code

1. Part 12, California Reference Standards Code
 5. Americans with Disabilities Act Guidelines
 6. AWWA C651-92, Standard for Disinfecting Water Mains
- B. Except where noted, the most recent editions of Codes, Standards, and Regulations at the time of the Contract shall apply. Whenever reference is made to “Caltrans Standard Specifications,” it shall be understood to be the most recent edition of the State of California, Department of Transportation, Standard Specifications.
- C. Other Applicable Laws and Regulations: All applicable federal, state, and local laws, and the latest rules and regulations of governing utility districts and the various other authorities having jurisdiction over construction and completion of the work, including but not limited to Cal-OSHA and California Labor Code, shall apply to the Contract throughout, and they shall be deemed to be incorporated by reference.
- D. Obtain copies of codes and reference standards when required by the Contract Documents.
- E. The codes referred to shall have full force and effect as though printed in these Specifications. Nothing in the Contract Documents shall be construed to permit work not conforming to the governing code requirements.

1.03 PROJECT-SPECIFIC REQUIREMENTS

- A. Contractor shall conform all work of the Contract to meet or exceed the applicable requirements of the latest editions of the applicable codes, laws, ordinances, standards, rules and regulations, including, but not limited to the following:
1. Bay Area Air Quality District (BAAQMD)
 2. San Francisco Housing Code, Chapter 7, Mechanical Requirements, Section 701, Heating and Ventilation
 3. Excavation and trenching work to comply with USA North’s California Excavation Manual; California Business and Professions Code Section 7110, California Government Code 4216, and the California Code of Regulations Title 8 Article 6. Excavations.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 41 15

EXCAVATION PERMIT REQUIREMENTS

PART 1 – GENERAL

1.01 SUMMARY

- A. This Specification Section covers the following:
 - 1. The requirement for the Contractor to obtain and abide by an excavation permit for Work in San Francisco
 - 2. Subsurface and pavement repair requirements during the warranty period
- B. Related Documents and Sections include:
 - 1. Section 00 72 00

1.02 APPLICABLE CODES AND STANDARDS

- A. Article 2.4 of the Public Works Code, “Excavation in the Public Right-of-Way”
- B. SFDPW ORDER No. 178,940, “Regulations for Excavating and Restoring Streets in San Francisco”
- C. Cal/OSHA regulations
- D. Requirements of applicable permitting agencies having jurisdiction in the area of the Work (e.g., fill and grading permits, encroachment permits, etc.)

1.03 PROJECT-SPECIFIC REQUIREMENTS

- A. Contractor to comply with the following Applicable Codes, Standards and agencies:
 - 1. Underground Service Alert (USA) North’s California Excavation Manual
 - a. Website: www.usanorth811.org
 - b. Phone: 811 and/or 1-800-227-2600
 - 2. California Business and Professions Code Section 7110
 - 3. California Government Code 4216
 - 4. California Code of Regulations, Title 8, Subchapter 4. Construction Safety Orders, Article 6. Excavations

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 EXCAVATION PERMIT – APPLICATION AND APPROVAL

A. Contractor is responsible for obtaining, paying for and abiding by the excavation permit for the contract.

B. For Work in San Francisco, submit the application for Excavation Permit to:

Bureau of Street Use & Mapping (“BSM”),
Dept. of Public Works, Street Construction Coordination Center
1155 Market Street
San Francisco, CA 94103
Phone (415) 554-6201 Fax (415) 554-5843

Contractor shall contact BSM for status of approval of the application for the Excavation Permit.

C. For emergency Excavation, the Contractor can start construction work prior to receiving an approved Excavation Permit as directed by the City Representative, but the Contractor shall apply for the excavation permit concurrently during the first working day of construction or as soon as possible.

3.02 POST-EXCAVATION REPAIR AND MAINTENANCE OBLIGATION OF CONTRACTOR (WARRANTY PERIOD)

A. Contractor shall be responsible for maintaining, repairing or reconstructing the site of the Excavation so as to sustain a condition acceptable to the City for a period of 3 years following the date of acceptance of the work.

3.03 SUBSURFACE OR PAVEMENT FAILURES

A. In the event that subsurface material or pavement over or adjacent to any excavation should become depressed, broken, or fail in any way within the warranty period after the Excavation has been completed, the Contractor will be responsible for the failure in the subsurface or surface of the Public Right-of-Way. The Contractor will be notified by the City of the condition, its location, and the required remedy; the Contractor shall repair or restore, or cause to be repaired or restored, to original or better condition to the satisfaction of the City Representative within 72 hours of the notification with no additional costs to the City. The time allowed for the Contractor to repair or restore the affected Public

Right-of-Way may be extended by the City at the request of the Contractor and as approved by the City Representative.

3.04 REPAIR BY THE CITY

- A. In the event that the Contractor fails, neglects, or refuses to repair or restore any condition pursuant to the City's notice as set forth in Section 2.4.71 of the Public Works Code, the City may repair or restore, or cause to be repaired or restored, such condition in such manner as deemed expedient and appropriate. The Contractor shall compensate the City for any costs associated with the administration, construction, consultants, equipment, inspection, notification, remediation, repair, restoration, or any other actual costs incurred by the City that were made necessary by reason of the repair or restoration undertaken by the Department. The City's determination as to the cost of the repair or restoration performed shall be final. In addition, the Contractor may be subject to those enforcement actions set forth in Sub-article VII of the Public Works Code.
- B. Subject to the limitation set forth in Section 2.4.70 of the Public Works Code, repair or restoration by the City in accordance with this Section shall not relieve the Contractor from liability for future pavement failures at the site of the repair or restoration.

3.05 REGULATORY AGENCY AND PERMIT COMPLIANCE

- A. Contractor shall comply with excavation, fill and grading requirements of all permits and as described in Division 02 of the Contract Specifications. All excavation work shall be performed in accordance with Federal and Cal/OSHA requirements.

END OF SECTION

SECTION 01 42 00

REFERENCES

PART 1 – GENERAL

1.01 SUMMARY

- A. This section covers the following:
 - 1. Applicable publications, reference specifications, codes, standards, abbreviations
 - 2. How these documents relate to the Work described in the Contract Documents

1.02 APPLICABLE PUBLICATIONS

- A. Unless a specific release or publication date is provided in reference to a published specification, code, standard, or other requirement in these Specifications, it shall be understood that the latest published version shall apply.

1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Contractor shall maintain copies of the codes and reference standards with the Contract Documents at the jobsite at all times.
- B. All conflicts between codes, reference standards, drawings, and the other Contract Documents shall be brought to the attention of the City Representative for clarification prior to ordering or providing any materials or furnishing labor.
- C. References to "OSHA Regulations for Construction" shall mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations ("OSHA"), including all changes and amendments thereto.
- D. References to "OSHA Standards" shall mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations ("OSHA"), including all changes and amendments thereto.
- E. Applicable Safety Standards – References to "Cal-OSHA" shall mean State of California, Department of Industrial Relations, Construction Safety Orders, as amended to date, and all changes and amendments thereto. Where codes and standards conflict with provisions of the Contract Documents, it is intended that the more stringent criteria shall apply, subject to preceding requirements of this paragraph.

- F. Where codes and standards conflict with the provisions of the Contract Documents, the more stringent criteria shall apply, subject to the preceding requirements.

1.04 ABBREVIATIONS

- A. Abbreviations: Whenever the following abbreviations are used in these Contract Documents, the intent and meaning shall be interpreted as follows:
- | | |
|--------|--|
| AA | Aluminum Association |
| AAMA | American Architectural Manufacturers Association |
| AASHTO | American Association of State Highway and Transportation Officials |
| AATCC | American Association of Textile Chemists and Colorists |
| ABMA | American Bearing Manufacturer's Association – ABMA |
| ACGIH | American Conference of Governmental Industrial Hygienists |
| ACI | American Concrete Institute |
| AF&PA | American Forest and Paper Association |
| AGA | American Gas Association |
| AGMA | American Gear Manufacturers Association |
| AHA | American Hardboard Association |
| AHAM | Association of Home Appliance Manufacturers |
| AI | The Asphalt Institute |
| AIA | American Institute of Architects |
| AIHA | American Industrial Hygiene Association |
| AIIM | Association for Information and Image Management |
| AISC | American Institute of Steel Construction |
| AISI | American Iron and Steel Institute |
| AITC | American Institute of Timber Construction |
| AMCA | Air Movement and Control Association International, Inc |
| ANS | American Nuclear Society |
| ANSI | American National Standards Institute, Inc. |
| APA | The Engineered Wood Association |
| API | American Petroleum Institute |
| APWA | American Public Works Association |
| ARI | Air-Conditioning and Refrigeration Institute |
| ASA | Acoustical Society of America |
| ASAE | American Society of Agricultural Engineers |
| ASCE | American Society of Civil Engineers |
| ASHRAE | American Society of Heating, Refrigerating, and Air Conditioning Engineers |
| ASME | American Society of Mechanical Engineers |
| ASNT | American Society of Nondestructive Testing |

ASQ	American Society for Quality
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWCI	American Wire Cloth Institute
AWI	Architectural Woodwork Institute
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturer's Association
BAAQMD	Bay Area Air Quality Management District
CABO	Council of American Building Officials
CDA	Copper Development Association
CEMA	Conveyors Equipment Manufacturer's Association
CGA	Compressed Gas Association
CLFMI	Chain Link Fence Manufacturer's Institute
CLPCA	California Lathing and Plastering Contractors Association
CMAA	A division/section of the Material Handling Industry of America
CRSI	Concrete Reinforcing Steel Institute
DCDMA	Diamond Core Drilling Manufacturer's Association
DHI	Door and Hardware Institute
DHW	Domestic Hot Water
DIPRA	Ductile Iron Pipe Research Association
EI	Energy Institute
EIA	Electronic Industries Alliance
EPA	Environmental Protection Agency
ETL	Electrical Test Laboratories
FCC	Federal Communications Commission
FCI	Fluid Controls Institute
FEMA	Federal Emergency Management Association
FHWA	Federal Highway Administration
FM	Factory Mutual System
FPL	Forest Products Laboratory
HI	Hydronics Institute, Hydraulic Institute
HSWA	Federal Hazardous and Solid Waste Amendments
IAPMO	International Association of Plumbing and Mechanical Officials
ICBO	International Conference of Building Officials
IBC	International Building and Fire Code
ICC	International Code Council
ICEA	Insulated Cable Engineers Association

ICCEC	Electrical Code
ICC-ES	International Code Council Evaluation Service
IEEE	Institute of Electrical and Electronics Engineers
IESNA	Illuminating Engineering Society of North America
IFC	International Fire Code
IFGC	International Fuel Gas Code
IMC	International Mechanical Code
IME	Institute of Makers of Explosives
IPC	International Plumbing Code, and/or IPC-Association Connecting Electronic Industries (formerly Institute for Printed Circuits)
IRC	International Residential Code
ISA	Instrument Society of America
ISDI	Insulated Steel Door Institute
ISEA	Industrial Safety Equipment Association
ISO	International Organization for Standardization
ITE	Institute of Traffic Engineers
ITU-T	Telecommunications Standardization Sector of the International Telecommunications Union
LPI	Lightning Protection Institute
LRQA	Lloyd's Register Quality Assurance
MBMA	Metal Building Manufacturer's Association
MIL	Military Standards (DoD)
MPTA	Mechanical Power Transmission Association
MSS	Manufacturers Standardization Society
NAAMM	National Association of Architectural Metal Manufacturer's
NACE	National Association of Corrosion Engineers
DASMA	Door and Access Systems Manufacturers Association International
NAPF	National Association of Pipe Fabricators
NBBPVI	National Board of Boiler and Pressure Vessel Inspectors
NCCLS	National Committee for Clinical Laboratory Standards
NCMA	National Concrete Masonry Association
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NETA	International Electrical Testing Association
NFPA	National Fire Protection Association or National Fluid Power Association
NISO	National Information Standards Organization
NIST	National Institute of Standards and Technology
NLGI	National Lubricating Grease Institute
NRCA	National Roofing Contractors Association

NSF	National Sanitation Foundation
NWWDA	National Wood Window and Door Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Precast/Prestressed Concrete Institute
PPI	Plastic Pipe Institute
RCRA	Resource Conservation and Recovery Act
RIS	Redwood Inspection Service, a division of the California Redwood Association, CRA
RMA	Rubber Manufacturers Association
RVIA	Recreational Vehicle Industry Association
RWMA	Resistance Welder Manufacturer's Association
SAE	Society of Automotive Engineers
SDI	Steel Door Institute, Steel Deck Institute
SFHA	San Francisco Housing Authority
SFPUC	San Francisco Public Utilities Commission
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPFA	Steel Plate Fabricator's Association
SPIB	Southern Pine Inspection Bureau
SSBC	Southern Standard Building Code, Southern Building Code Congress
SSPC	Society for Protective Coating
SSPWC	Standard Specifications for Public Works Construction
STLE	Society of Tribologists and Lubricating Engineers
TAPPI	Technical Association of the Worldwide Pulp, Paper, and Converting Industry
TFI	The Fertilizer Institute
TIA	Telecommunications Industries Association
TPI	Truss Plate Institute
UBC	Uniform Building Code
UL	Underwriters Laboratories, Inc.
WCLIB	West Coast Lumber Inspection Bureau
WDMA	National Window and Door Manufacturers Association
WEF	Water Environment Federation
WI	Woodwork Institute
WRI	Wire Reinforcement Institute, Inc.
WWPA	Western Wood Products Association

1.05 PROJECT-SPECIFIC REQUIREMENTS (NOT USED)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 45 00
QUALITY CONTROL

PART 1 – GENERAL

1.01 SUMMARY

- A. This Specification Section describes the Contractor’s responsibility to establish and maintain an effective Quality Control (“QC”) program. The Contractor’s QC Program shall include QC Plan prepared and submitted by the Contractor to a level of detail acceptable to the City Representative, which shall define specific standards, methods and procedures to be used for QC inspection and testing of the work of this Contract.
- B. The Contractor’s QC Plan shall define procedures to manage and control the Contractor’s equipment, materials, and personnel so that the completed project will comply with the Contract Documents.
- C. Related Documents and Sections include:
 - 1. Section 00 72 00 – General Conditions, Article 8
 - 2. Section 00 73 19 – Health and Safety Requirements
 - 3. Section 01 31 00 – Project Management and Coordination
 - 4. Section 01 41 00 – Regulatory Requirements
 - 5. Section 01 33 00 – Submittal Procedures
 - 6. Section 01 32 16 – Construction Progress Schedule
 - 7. Section 01 60 00 – Product Requirements
 - 8. Section 01 75 60 – Testing Coordination and Start-Up Testing
 - 9. Section 01 77 00 – Closeout Procedures
 - 10. Section 01 78 39 – Project Record Documents
 - 11. Latest California Building Code – Structural Tests and Special Inspections
- D. Description of Contractor’s QC Program
 - 1. The Contractor’s QC program shall consist of plans, procedures, and Contractor’s staffing assignments as necessary to ensure that the

Contractor's performance of the work will meet the requirements of the Contract Documents. The program shall cover all construction activities, including Contractor's submittals, Contractor-furnished design, Contractor's shop drawings and the like, and shall also cover quality control of construction activities on-site, and shall be keyed to the proposed construction sequence and schedule.

- E. Notwithstanding the requirements of the specifications, all Contract work is subject to inspections and tests as determined by the City Representative. Inspections may be conducted by the City Representative and his/her staff at any time, or by the SFPUC Quality Assurance Group staff by prior arrangement with the City Representative. The City's inspections and tests are for the sole benefit of the City and do not:
1. relieve the Contractor of responsibility for providing adequate quality control measures;
 2. relieve the Contractor of responsibility for damage to or loss of the material before acceptance;
 3. constitute or imply acceptance of the work; or
 4. affect the continuing rights of the City after acceptance of the completed work.

1.02 DEFINITIONS

- A. Contractor Quality Control is the successful execution of a realistic plan which ensures that the required standards of quality construction are met and which will preclude problems resulting from poor quality or lack of quality.
- B. Non-Compliance Notice ("NCN") – a written notice to the Contractor from the City to the effect that a deficiency has been found in the work such that that portion of the work is considered to be defective or "non-conforming" as defined in the General Conditions of the Contract.
- C. Corrective Action Report ("CAR") – a written notice given by the Contractor to the City that defective or non-conforming work has been corrected or will be corrected within a mutually acceptable time frame.

1.03 PAYMENT PROCEDURE

- A. Separate payment will not be made for providing and maintaining a Contractor's Quality Control program. All costs associated with the Contractor's Quality Control Program shall be included in the applicable unit prices or lump-sum prices contained in the Schedule of Bid Prices (Section 00 41 10).

- B. The Schedule of Bid Prices (Section 00 41 10) may contain line items which cover specific and independent instances of equipment testing or system testing and for which separate payment will be made.

1.04 SUBMITTALS

- A. Not later than 14 calendar days following Notice to Proceed, the Contractor shall submit:
 - 1. The Contractor's Quality Control Plan as described in Article 1.05 below.
 - 2. The qualifications of all proposed independent inspection and testing laboratories/agencies as required under paragraph 1.07.B of this Section.
- B. Contractor shall maintain complete records of all letters, material submittals, shop drawing submittals, schedules and all other project documentation. The Contractor shall be responsible for maintenance of these documents and records at the site at all times, and shall make copies available to the City Representative on request.

1.05 CONTRACTOR QC PLAN

- A. The Contractor QC Plan shall include, as a minimum, the items listed below:
 - 1. The Contractor shall issue letters of direction to all other Contractor QC staff outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the City Representative.
 - 2. Contractor's procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, off-site fabricators, suppliers, and purchasing agents.
 - 3. The Contractor's QC Plan shall provide a mechanism for the Contractor to respond to Non-Compliance Notices ("NCNs") which may be issued by the City Representative.

The Contractor's QC Plan shall contain procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish a tracking method to ensure that deficiencies, i.e., non-conforming items of work, have been identified (documented in Non-Compliance Notices) and corrected (documented by Corrective Action Reports). See Appendix "A" to this Section for a suggested "Non-Conforming" reporting and tracking form.

- 4. Provide a sample of Quality Control forms applicable for the project considered. The Contractor QC Plan's forms may include, but not be limited to the following:

- a. QC Inspection Reports
 - b. Non-Compliance Notice. (Refer to Appendix “A” of this Section.)
 - c. Equipment Calibration Log
 - d. Receiving and Storage Inspection Report
 - e. Concrete Placement Checklist Form
 - f. Source (factory) Inspection Report
 - g. Welding Report
 - h. Soil Tracking Report (excavation, disposal, backfill materials)
 - i. Additional forms as required by the Contractor QC staff or by the City Representative
5. A list of the major elements of work and the quality control tasks, measurements, tests and inspections associated with each major element.
 6. Qualifications and resumes of independent testing laboratories and principal laboratory personnel to be used in the work by the Contractor. Identify which laboratory is to be used for each of the various types of testing and analysis found in the Contract Documents.
 - a. The City Representative may require that specific testing be performed by an independent certified testing and inspection agency under direct contract with the City.
 - b. In the event that the City Representative deems it necessary that a specific laboratory test or field test is to be arranged and paid by the City, and if that activity appears in the Contract Documents as a responsibility of the Contractor, then the Contractor shall be directed to prepare a Contract Modification, under which the City will receive an appropriate monetary credit for the specific testing activity.
 7. Quality control requirements for operational testing and start-up testing as specified in Sections 01 75 60 and 01 75 61 (if applicable) shall be incorporated into the Contractor QC Plan.
- B. Acceptance of the Contractor QC Plan by the City Representative is required prior to the start of construction. Acceptance of the Plan is conditioned upon satisfactory performance by the Contractor QC team during construction. The City reserves the right to require the Contractor to make immediate changes in its Contractor QC Plan and operations, including removal of personnel, as necessary, to obtain the quality specified.

1.06 CONTRACTOR QC COORDINATION CONFERENCE

- A. Following the Pre-construction Meeting, and before start of construction, the Contractor shall convene a Contractor QC Coordination Conference with the City Representative.
- B. The following topics shall be addressed at the Contractor QC Coordination Conference:
 - 1. Status of the Contractor's Quality Control Plan.
 - 2. Discussion of the adequacy of the Contractor QC forms contained in the Contractor QC Plan.
 - 3. Administration of the Contractor's QC Plan for both onsite and off-site work,
 - 4. Scheduling of subsequent Contractor QC follow-up meetings

1.07 COORDINATION OF INSPECTIONS AND TESTING

- A. The Contractor shall perform specified or required tests per the Contract Documents. Upon request, the Contractor shall furnish to the City Representative duplicate samples of test specimens for possible testing by the City. Testing includes both materials testing as well as operational and/or acceptance tests when specified. If specified, operational and acceptance testing shall be performed by a City-approved testing agency. The Contractor shall perform the following activities and record and provide the following data:
 - 1. Verify that testing procedures comply with contract requirements.
 - 2. Verify that facilities and testing equipment are available and comply with testing standards.
 - 3. Check test instrument calibration data against certified standards.
 - 4. Verify that recording forms and test identification control number systems, identified in Contractor QC plan, including all of the test documentation requirements, have been prepared.
 - 5. Unless otherwise approved by the City Representative, actual test reports must be submitted within 5 working days following a test. An information copy of tests performed by an off-site or commercial test facility shall be provided directly to the City Representative. Failure of a testing or laboratory facility to submit timely test reports as required may result in withholding of payment for work performed and subsequent rejection of the test facility's services for the remainder of this Contract's work.

- B. The Contractor may need to hire various independent inspection and testing agencies/laboratories to cover all work. These may include, but are not limited to the following:
1. Independent Certified Testing Laboratory for soil testings (e.g., compaction testing for soil, evaluation of soil for landscaping).
 2. Independent Certified Testing Laboratory analyzing chemical constituents of the soil to determine whether or not the soil is hazardous.
 3. Independent Certified Inspection and Testing Agencies for conducting specialized inspections and testing related to architectural, mechanical and electrical work as required in the various sections of the Specifications.
 4. As appropriate for materials or fabrications constructed within CALTRANS corridors, an Independent Certified Testing laboratory approved by CALTRANS.

None of the Independent Certified Inspection and Testing Agencies or Laboratories proposed and retained by the Contractor shall be associated with or affiliated with the Contractor or any of its subcontractors. Agencies or Laboratories charged with the responsibility of performing Structural Tests and Special Inspections as defined in the latest California Building Code shall be employed by the City Representative.

- C. Where the required inspections and testing vary from the approved inspections and testing schedule, the Independent Inspection and Testing Agencies/Laboratories shall provide at least a 5 working day advance notice to the Contractor and to the City Representative prior to the date of the inspection and testing for approval.
- D. Within 5 working days after the completion of the inspections or tests performed, the Independent Inspection and Testing Agencies/Laboratories shall submit to the City Representative, in duplicate copies, the results of the inspections and tests with a copy to the Contractor, indicating observations and the results of tests and indicating compliance or non-compliance with the Contract. The forms used shall be those in the sample template from the Contractor QC Plan, as noted in Article 1.05 of this Section.
- E. In addition, the City Representative may choose to verify the Contractor QC testing and inspections with his/her own testing. The Contractor shall cooperate fully with the City's own inspection and testing agencies/laboratories and shall furnish samples of materials, design mix, equipment, tools, storage, and assistance as requested.
- F. Re-testing or re-inspection required (including re-inspections by officials having jurisdiction, if applicable) because of non-conformance to specified requirements

shall be performed by the same independent agency/laboratory on instructions by City Representative.

- G. Contractor is responsible to coordinate all required inspections, tests, including any re-tests, by all independent inspection and testing laboratories/agencies so as to avoid unnecessary delays in the construction schedule. Re-test and/or re-inspection requests by the City Representative shall not be construed as construction delays.

1.08 QC REPORTS

- A. The Contractor and his/her staff shall maintain current records, providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form as listed in the Contractor QC Plan. The records shall include, as a minimum, the following information:
1. Contractor/subcontractor and their area of responsibility.
 2. Test and/or control activities performed with results and references to specifications/drawings requirements.
 3. Provide a list of Non-Conforming Notices and Corrective Action Reports (“NCNs” and “CARs”) issued each day. Contractor shall compile daily data so that a trend log of Non-Conforming Notices can be published at the end of each month during construction.
 4. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.
 5. Off-site activities, including actions taken.
 6. Instances of conflicts in plans and/or specifications noted on a daily basis.
 7. Contractor's verification statement stating that each report is a complete, true and accurate account of the reported construction activity.
- B. The original and one copy of these records in report form shall be furnished to the City Representative and within 24 hours after the date covered by the report. As a minimum, one report shall be prepared and submitted for every 7 calendar days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. Reports shall be signed and dated by the Contractor, and shall include copies of reports prepared by all subordinate quality control personnel.

1.09 RECORDS OF CONSTRUCTION INSPECTION

- A. The Contractor shall maintain complete inspection and testing records and make them available to the City Representative in both hard copy and electronic form, as requested.

1.10 NOTIFICATION OF NON-COMPLIANCE

- A. The City Representative may issue a Non-Compliance Notice (“NCN”) to the Contractor for any apparent non-conformance in the work or portion thereof that has not been performed in accordance with the Contract Documents. Such Notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.
- B. The Contractor shall take immediate corrective action after receipt of such Notice, and shall provide a written Response to Non-Compliance within 5 working days after receipt of the Notice. The Contractor’s response shall detail either (a) why they believe that the work was performed in accordance with the Contract Documents or (b) what corrective action they intend to take, at their sole expense, to correct the non-conforming work initiated as a Corrective Action Report (“CAR”).
- C. If the Contractor disputes issuance of the Notice, the City Representative will respond within 5 working days after receipt of dispute by either (a) withdrawing the Non-Compliance Notice or (b) directing the Contractor to correct the work. If the City Representative directs the Contractor to correct the work, the Contractor shall do so within 5 working days after receipt of such direction from the City Representative, or such other time as may be agreed to with the City Representative.
- D. Payment shall not be made for any portion of the work which is the subject of a Non-Compliance Notice until the Non-Conforming condition has been corrected.
- E. If the Contractor fails or refuses to comply promptly, the City Representative may issue an order stopping that portion of the work related directly to the NCN as well as work which may be consequentially affected by the NCN until satisfactory corrective action has been taken. No extension of Contract time will be granted as a consequence of such a stop order.

1.11 MONTHLY CAR/NCN STATUS LOG

- A. The Contractor shall submit with its monthly application for payment, a complete log of all NCN’s and CARs issued to date indicating the status of resolution, corrections undertaken, and the date of close out of the NCN/CAR. This log shall be signed by the Contractor.

1.12 PROJECT SPECIFIC REQUIREMENTS (NOT USED)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

PART 0 –

APPENDIX 'A' – SFPUC NON-CONFORMING CONSTRUCTION REPORT

1 Report # _____ Date: _____ Job # _____ Job Name _____ To: Contractor _____ Sub Contractor(s) _____ Sub-Contractor(s) _____
2 Non-Conforming Condition: Relevant Specification Section(s) _____ Relevant Drawing Number(s) _____ Description of non-conforming condition: _____ _____ _____ Contractor's Quality Control Plan Reference: _____
3 Received by: Signed (Contractor's Representative): _____
4 Contractor Tracking: Non-Conforming condition tracked through: Ready for re-inspection/Review: _____
5 SFPUC Follow-Up: Corrections accepted by SFPUC Yes _____ No _____ Further Action Required: _____ Signed (City Representative): _____ Date: _____

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.01 SUMMARY

- A. This Section describes the requirements for:
 - 1. Temporary utilities to be provided by the Contractor, and
 - 2. Site control measures to be followed by the Contractor during construction.
- B. Related Documents and Sections:
 - 1. Section 01 21 50 – Mobilization Item
 - 2. Section 01 14 13 – Access to Site
 - 3. Section 01 71 33 – Protection of Adjacent Construction
 - 4. Section 01 77 00 – Closeout Procedures

1.02 TEMPORARY ELECTRICITY

- A. Electrical Power: SFHA will provide 120 V electrical power.

1.03 TEMPORARY LIGHTING

- A. Construction Lighting: Work conducted at night or under conditions of deficient daylight shall be suitably lighted to ensure proper performance and to afford adequate facilities for inspection and safe working conditions. Lighting shall be directed to ensure safe illuminated working areas, but also to minimize nuisance to surrounding property owners and users.
- B. Temporary Lighting: The Contractor shall provide a general, weatherproof, grounded temporary lighting system in every area of construction as soon as overhead floor/roof deck structure has been installed to provide sufficient illumination for safe working and traffic conditions. Run circuit wiring generally overhead, and rise vertically in locations where it will be least exposed to possible damage from construction operations on grade, floors, decks, or other areas of possible damage or abuse.

1.04 TELEPHONE SERVICE

- A. The Contactor shall arrange for, provide, and pay for telephone service to Contractor's Field Office.
- B. The Contractor shall also arrange for, provide and pay for local and domestic long distance telephone service to the City Representatives Field Offices.

1.05 PARKING & CONTRACTOR'S STAGING/STORAGE AREAS

- A. The Contractor's staging/storage areas shall be as shown or as determined during the pre-construction meeting. The City may designate and arrange for the Contractor's use, a portion of the property for its exclusive use during the term of the Contract as a storage and/or shop area for its construction operations on the Work. If no such area is shown or provided, the Contractor shall make its own arrangements with adjacent property owners for staging/storage areas. The costs for the foregoing shall be included in the Contractor's bid. At completion of Work, the Contractor shall return all staging/storage areas to their original condition, including grading and landscaping, as applicable.
- B. The Contractor shall make its own arrangements for any necessary off-site storage or shop areas necessary for the proper execution of the Work.
- C. The Contractor shall construct and use a separate storage area for hazardous materials used in constructing the Work.
 - 1. For the purpose of this paragraph, hazardous materials to be stored in the separate area are products labeled with any of the following terms: Warning, Caution, Poisonous, Toxic, Flammable, Corrosive, Reactive, or Explosive. In addition, whether or not so labeled, the following materials shall be stored in the separate area: diesel fuel, gasoline, new and used motor oil, hydraulic fluid, cement, paints and paint thinners, 2 part epoxy coatings, sealants, asphaltic products, glues, solvents, wood preservatives, sand blast materials, and spill absorbent.
 - 2. Hazardous materials shall be stored in groupings according to the Material Safety Data Sheets.
 - 3. The Contractor shall develop and submit to the City Representative a plan for storing and disposing of the materials above.
 - 4. The Contractor shall obtain and submit to the City Representative a single EPA number for wastes generated at the Site.
 - 5. The separate storage area shall meet the requirements of authorities having jurisdiction over the storage of hazardous materials.

6. The separate storage area shall be inspected by the City of San Francisco Hazardous Materials Management Division prior to construction of the area, upon completion of construction of the area, and upon cleanup and removal of the area.
 7. Hazardous materials that are delivered in containers shall be stored in the original containers until use. Hazardous materials delivered in bulk shall be stored in containers which meet the requirements of authorities having jurisdiction.
- D. Maintain traffic and parking areas in a sound condition, free of excavated material, construction equipment, mud, and construction materials. The Contractor shall repair breaks, potholes, low areas which collect standing water, and other deficiencies.
1. Contractor's vehicles and equipment shall not be permitted to block fire lanes, building entrances or employee parking areas.

1.06 TEMPORARY WATER SERVICE

- A. General: The Contractor shall provide an adequate supply of water of a quality suitable for all domestic and construction purposes.
- B. Potable Water: The Contractor shall make arrangement with the applicable water utility to provide potable water. The Contractor shall bear all the costs associated with supplying water.
- C. Reclaimed Water: The Contractor shall comply with any applicable federal, state, and local laws, restricting the use of potable water for soil compaction and dust control activities.
- D. The Contractor shall provide and maintain distribution piping, water tankers, hoses, and all appurtenances necessary to supply water at the job site.
1. The Contractor shall not make connection to or draw water from any fire hydrant or pipeline without first obtaining permission of the authority having jurisdiction over the use of said fire hydrant or pipeline and from the agency owning the affected water system. For each such connection made, the Contractor shall first attach to the fire hydrant or pipeline a valve and a meter, if required by the said authority, of a size and type acceptable to said authority and agency. The Contractor shall pay permit and water charges.
 2. Pipe crossing traveled roadways shall be buried beneath the roadway. Ramp shall be used over temporary piping on roadway surfaces.

1.07 TEMPORARY HEATING OR COOLING

- A. The Contractor shall provide adequate fixed temporary heating, and/or cooling of enclosed construction Work, construction offices, toilets, fabrication shops, and similar temporary facilities requiring climate control.

1.08 TEMPORARY FIRE PROTECTION

- A. The construction plant and the Work shall be connected with the Contractor's temporary water supply system and shall be adequately protected against damage by fire. Hose connections and hose, water casks, chemical equipment, or other sufficient means shall be provided for fighting fires in the temporary structures and other portions of the Work, and responsible persons shall be designated and instructed in the operation of such fire apparatus so as to prevent or minimize the hazard of fire. The Contractor's fire protection program shall conform to the requirements of Cal-OSHA.

1.09 TEMPORARY SANITARY FACILITIES

- A. Fixed or portable chemical toilets shall be provided wherever needed for the use of Contractor's employees. Toilets at construction sites shall conform to the requirements of the OSHA Standards for Construction. Provide separate City and City Representative Field Office facilities. The Contractor shall maintain neat and clean sanitary conditions with adequate supplies.
- B. The Contractor shall establish a regular daily collection of sanitary and organic wastes. Wastes and refuse from sanitary facilities provided by the Contractor or organic material wastes from any other source related to the Contractor's operations shall be disposed of away from the Site in accordance with laws and regulations pertaining thereto.

1.10 BARRIERS

- A. The Contractor shall provide barriers as needed to prevent unsafe entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. The Contractor shall protect vehicular traffic, stored materials, site, and structures from damage.

1.11 PROTECTION OF SEWAGE SYSTEM

- A. The Contractor shall coordinate with the applicable Utilities Department for obtaining sewer connection and shall pay permit and sewer usage charges. Within the City and County of San Francisco, the sewer capacity charges will be paid by the City.

- B. The Contractor shall take adequate measures to prevent the impairment of the operation of the sewer system. Contractor shall prevent construction material, pavement, concrete, earth, or other debris from entering a sewer, sewer structure, catch basin or stormwater inlet.

1.12 TEMPORARY FENCING

- A. The Contractor shall provide temporary, 6 feet high commercial grade, chain link construction fences to protect the Contractor's property.
 - 1. Fabric: high utility type fencing consisting of 2 inch wood lath woven between seven strands of galvanized wire. Space between laths shall not exceed 2 inches.
 - 2. Posts: metal or wood, as approved by the City Representative.

1.13 MAINTENANCE OF THE WORK AREA

- A. The Contractor shall:
 - 1. Maintain the work areas in a safe condition. Remove all accumulations of rubbish and surplus materials at the end of each working day. Restore the work areas to a condition equal to that which existed prior to the start of work, and leave them at completion of the contract in a clean, orderly fashion.
 - 2. Control accumulation of waste materials and rubbish. Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. This task includes but is not limited to the following:
 - a. Cleaning interior spaces prior to the start of finish work and maintain areas free of dust and other contaminants during finishing operations
 - b. Handling hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly and disposing of material off-site in a lawful manner
 - c. Sweeping all pedestrian walkways and dispose of debris around the site perimeter on a daily basis
 - d. Providing a dumpster or other suitable means of disposing of all construction debris and trash generated by the Contractor's forces during the course of construction
 - 3. Remove all graffiti from any real property owned or leased by Contractor in the City and County of San Francisco within 48 hours of the earlier of Contractor's (a) discovery or notification of the graffiti or (b) receipt of notification of the graffiti from the Department of Public Works. This

section is not intended to require a Contractor to breach any lease or other agreement that it may have concerning its use of the real property. The term “graffiti” means any inscription, word, figure, marking, or design that is affixed, marked, etched, scratched, drawn, or painted on any building, structure, fixture, or other improvement, whether permanent or temporary, including by way of example only and without limitation, signs, banners, billboards, and fencing surrounding construction sites, whether public or private, without the consent of the owner of the property or the owner’s authorized agent, and which is visible from the public right-of-way. “Graffiti” shall not include: (1) any sign or banner that is authorized by, and in compliance with, the applicable requirements of the San Francisco Public Works Code, the San Francisco Planning Code or the San Francisco Building Code; or (2) any mural or other painting or marking on the property that is protected as a work of fine art under the California Art Preservation Act (California Civil Code Sections 987 et seq.) or as a work of visual art under the Federal Visual Artists Rights Act of 1990 (17 U.S.C. §§ 101 et seq.).

1.14 DUST CONTROL

- A. The Contractor shall practice care to minimize dust generation. The Contractor shall furnish all labor, equipment, and means required to carry out effective measures whenever and as often as necessary to prevent its operation from producing dust in amounts damaging to property or cultivated vegetation, or causing a nuisance to local residents. The Contractor shall be responsible for any damage resulting from dust originating from its operations.
- B. At a minimum, the Contractor shall observe all of the following specific dust control measures:
 - 1. Wash the tires of excavation and spoils trucks before they re-enter city streets to minimize deposition of dust-causing materials.
 - 2. Minimize the amount of excavated material or demolition wastes stored at the site. All dust-generating stockpiled construction materials shall be covered to prevent dust generation.
 - 3. Mist all exposed soil surfaces twice daily during dry weather and additionally if dust is blowing or if required by the City Representative.
 - 4. Load haul trucks carrying excavated materials so that the material does not extend above the truck body. The material hauled shall be covered as needed for dust suppression.
 - 5. Cover all trucks containing dust-generating excavated material or demolition waste prior to their leaving the construction sites.

6. Use reclaimed water for dust control as mentioned above. Any exceptions shall be approved by the City Representative.
7. Sidewalks, paths and street areas affected by the Contractor's operations shall be mechanically swept and washed down before starting work each day, at the end of each work shift, or as often as needed. Avoid over-watering areas and generating mud.
8. Dust enclosures and dust collectors shall be used as necessary to control dust in the excavation area.
9. Any excavated materials and soil stockpiles shall be kept moist or covered with securely taped 10 mil polyethylene plastic or equivalent tarping as needed for dust suppression.
10. Comply with:
 - a. The requirements of the pertinent Air Quality Management District ("AQMD") for particulate matter and visible emissions; Odorous Substances; and Hazardous Pollutants.
 - b. The California Health and Safety Code, Division 26 (Air Resources), Chapter 3 (Emission Limitations) Section 41700 (Prohibited Conduct), and related regulations
11. Perform and pay for cleanup of all spillage (including clean soils) on streets, directly or indirectly caused by actions of employees or equipment of Contractor or its subcontractors.
12. If the Contractor fails to provide adequate dust control as determined by the City Representative, the City reserves the right to have the necessary work performed by others and to deduct or withhold money required therefor.

1.15 NOISE CONTROL

- A. General: The Contractor shall furnish and install acoustical barriers including acoustical treatment of the facades of buildings, so that no noise emanating from the process or any related tool or equipment will exceed noise levels specified in the Contract Documents or required by the permitting agency, whichever is more stringent. Contractor, therefore, shall:
 1. Enclose equipment such as large compressors, generators, and large dewatering pumps in enclosures as necessary so as to not exceed applicable noise limits.
 2. Provide advance notice to residences and affected businesses in the area of construction as specifically as possible in terms of times, dates and location of construction activities.

- B. Construction Noise Control Plan: The Contractor shall submit plans for the City's approval, within 30 calendar days following award of the Contract, to mitigate the construction noise impacts and to comply with the noise criteria specified herein, including the method of construction, the equipment to be used, and acoustical treatments if necessary.

1.16 DRAINAGE CONTROL

- A. The Contractor shall:
 - 1. Grade site to drain water. Maintain excavations free of accumulated water.
 - 2. Provide, operate, and maintain pumping equipment as needed to control water at the site.
 - 3. Protect site from erosion caused by flowing water.

1.17 PROJECT SIGNS

- A. The Contractor shall provide and install project signs facing traffic at the entrance of facility, where directed by the City Representative, at the job site prior to the start of any work.
- B. The design of the Contractor-furnished project signs shall be in strict accordance with the 'ONESF' Guidelines established by the City and described at the following web address: <http://onesanfrancisco.org/staff-resources/signage-and-style-guide/>.
 - 1. For linear assets, (e.g., streets and sewers), project signage shall comply with City Street Construction Guidelines: http://onesanfrancisco.org/wp-content/uploads/ONESF_4x6_Guide_CityStreetConstSign-1.4.pdf.
 - 2. For fixed assets (e.g., buildings, treatment facilities, and pump stations), project signage shall comply with City Site and Building Construction Guidelines: http://onesanfrancisco.org/wp-content/uploads/ONESF_4x8_Guide_SiteBldgConstSign1.5.pdf.
- C. The graphics and content of the sign will be provided by the City Representative at the pre-construction meeting.
- D. The City Representative shall approve locations and mounting details of the project signs.
- E. The Contractor shall maintain the signs in good condition for the duration of the Contract, and, if needed, shall promptly clean graffiti and other defacement from the project signs.

- F. The Contractor shall remove project signs from the site as the Contractor's property at the completion of the Work.
- G. For paving and utility construction projects, project signs shall not obstruct or interfere with the operation of all traffic control devices. Project signs shall be placed as directed by the City Representative and shall follow these general guidelines:
 - 1. Where the location of a pipe alignment does not exceed five adjacent blocks, place one sign at either end of the block facing oncoming traffic, or facing away from the limit of work on one-way streets.
 - 2. Where the location of a pipe alignment exceeds five adjacent blocks, place one sign at either end of the limit of work facing oncoming traffic, and at intermediate locations not to exceed five block intervals with one sign placed on either side of the street facing oncoming traffic, or at opposite directions on one-way streets.

1.18 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. When need for a temporary utility service or a substantial portion thereof has ended, or when its service has been replaced by use of permanent services, or not later than time of substantial completion, the Contractor shall promptly remove installation unless requested by City Representative to retain it for a longer period. The Contractor shall complete and restore Work which may have been delayed or affected by installation and use of temporary utility, including repairs to construction and grades and restoration and cleaning of exposed surfaces.
- B. Before final acceptance of the Work on the project, temporary connections and piping installed by the Contractor shall be entirely removed, and affected improvements shall be restored to original condition or better, to the satisfaction of the City Representative and to the agency owning the affected utility.

1.19 PAYMENT PROCEDURE

- A. All work of this section shall be considered incidental and no separate payment will be made therefor, except that project signs will be paid under the "Mobilization" bid item.

1.20 PROJECT –SPECIFIC REQUIREMENTS

- A. Contractor shall provide proper signage indicating that the work area is a Construction Zone and is for Authorized Personnel Only and to Keep Out and any other signage that would protect the public and local residents from any harm or injury.
- B. Domestic hot water service shall remain in service during the course of the project except for scheduled shut-downs to cross connect the new system. Interruption in

domestic hot water service shall not exceed 8 hours per shut down. Two consecutive scheduled shut-downs will not be permitted.

- C. Scheduled shut-down of domestic hot water shall be reported no later than 48 hours (weekday) to the SFHA Project Manager and the SFPUC Project Manager. Contractor shall proceed with shut-down only upon approval.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 56 55

TEMPORARY NOISE AND VIBRATION CONTROLS

PART 1 – GENERAL

1.01 SUMMARY

- A. This section provides the noise and vibration limits for the project and describes the work required to control and monitor noise and vibration.
- B. Related Documents and Sections include:
 - 1. Section 00 73 73 – Statutory and Other Requirements
 - 2. Section 00 73 73/APA – Noise Control Ordinance (applicable only to projects located in San Francisco)

1.02 REQUIREMENTS

- A. Noise levels during construction shall not exceed the following thresholds:
 - 1. Contractor shall implement appropriate noise controls such that daytime construction noise levels do not exceed 70 dBA to avoid speech interference at sensitive receptors, including schools, residences (excepting SFPUC watershed keeper's residence), childcare centers, churches, hospitals and nursing homes within 500 feet of the project.
 - 2. Contractor shall implement appropriate noise controls such that nighttime construction noise levels do not exceed any applicable ordinance nighttime limits or 50 dBA to avoid nighttime sleep interference at adjacent sensitive receptors, including schools, residences (excepting SFPUC watershed keeper's residence), childcare centers, churches, hospitals and nursing homes within 3,000 feet of the project.
 - 3. Contractor shall neither resume operations before correcting conditions that cause excessive noise as deemed acceptable by the City nor be entitled to additional compensation or extension of contract time for suspended operations because of its failure to perform noise controls as specified.
 - 4. Contractor shall pay all fines for violations pertaining to noise thresholds specified herein, at no cost to the City.
 - 5. Contractor shall implement the following noise control measures, as necessary, if activities are expected to exceed the above noise thresholds.

Contractor shall be responsible for ensuring that all implemented noise control measures are installed and used correctly.

- a. Best available controls techniques including mufflers, intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds for all construction-noise equipment and trucks.
- b. Contractor shall use quieter procedures, such as sonic or vibratory pile drivers drilling rather than impact equipment whenever feasible. If impact equipment is required, Contractor shall use hydraulic- or electric- powered impact equipment (e.g., jack hammers, pavement breakers and rock drills) instead of pneumatically-powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed-air exhaust shall be used (a muffler can lower noise levels from the exhaust by up to about 10 dBA). External jackets on the tools themselves shall be used, where feasible to achieve a reduction of 5dBA.
- c. Pile holes will be pre-drilled wherever feasible to reduce potential noise and vibration impacts.
- d. Pile driving activities shall be prohibited during the evening and nighttime hours (7 p.m. to 7 a.m.).
- e. Operation of equipment requiring the use of back up beepers will be avoided near sensitive receptors to the extent feasible during nighttime construction work hours between 10 p.m. to 7 a.m.
- f. Stationary noise sources shall be located as far from sensitive receptors as feasible. If they must be located near receptors, adequate muffling (with enclosures where feasible and appropriate) shall be installed to ensure noise thresholds specified herein are not exceeded. Enclosure openings shall be faced away from sensitive receptors.
- g. Materials stockpiles as well as staging and parking areas shall be located as far as feasible from sensitive receptors.
- h. If construction is within 100 feet of school classrooms or childcare facilities, Contractor shall schedule construction activities (or at least the noisier phases of construction) on weekend or school vacation days to the extent feasible, avoiding weekday hours when schools are in session. If construction must occur within the school session hours, interior noise levels in the classroom shall not exceed 60 dBA speech interference level criterion which would allow for a maximum exterior noise level of 70 to 80 dBA depending on whether windows are open or closed.
- i. Construct temporary or permanent noise barriers to maintain construction noise levels at or below the 70 dBA daytime speech interference criterion and the 50 dBA nighttime sleep interference criterion.

- j. Contractor shall use local residential streets for haul and delivery truck routes and follow local designated truck routes to the extent feasible. Total project-related haul and delivery truck volumes on any particular haul truck route shall not exceed 80 trucks per hour.
 - k. Contractor shall prohibit haul and delivery trucks from operating within 200 feet of any residential uses during nighttime hours (10 p.m. to 7 a.m.). If there are receptors, but they are beyond 200 feet from the haul route, truck operations are allowed but noise generated by these operations shall not exceed 50 dBA at the closest receptors.
- 6. In the event monitoring results indicated thresholds are exceeded, the Contractor shall immediately notify the City of the exceedance, identify the source of the exceedance (e.g., unusually noisy method, broken muffler, emergency repair), implement corrective actions, and provide documentation to the City that noise levels are returned to acceptable levels.
- 7. City will inform Contractor of noise complaints received and the Contractor, in coordination with the City, shall modify any construction activities that generated the excessive noise levels.
- 8. If Contractor receives noise complaint directly, Contractor shall immediately notify City.
- 9. Vibration during construction shall not exceed the following thresholds:
 - a. 0.2 inches per second, peak particle velocity (in/sec PPV) for continuous vibration (e.g., vibratory equipment and impact pile drivers)
 - b. 0.50-in/sec PPV for controlled detonations at the closest receptors
 - c. 0.012 in/sec PPV (vibration perception threshold) at adjacent properties (or in accordance to local ordinances) to the extent possible for nighttime construction activities.
- 10. The City may require the Contractor to suspend operations when vibration complaints are received, damage or disturbance to adjoining property or occupants has been reported, or vibration exceeds the above-specified limits, such as restricting use of equipment causing vibration disturbances during nighttime hours or slowing the pace of its operations.
- 11. Contractor shall monitor vibration at the construction site and adjoining buildings using equipment and methods as deemed appropriate by the City to measure potential building damage and effect on occupants, property and sensitive equipment.

12. City will inform Contractor of vibration complaints received and the Contractor, in coordination with the City, shall modify any construction activities that generated the excessive noise levels.
13. If Contractor receives vibration complaint directly, Contractor shall immediately notify City.
14. The Contractor will neither resume operations before correcting conditions that cause excessive vibration nor be entitled to additional compensation or extension of contract time for suspended operations because of its failure to perform vibration controls as specified.

1.03 PROJECT-SPECIFIC REQUIREMENTS (NOT USED)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.01 SUMMARY

- A. This Section describes the requirements for the proper handling, storage and protection of project materials and equipment.
- B. Information related to the purchase of equipment to achieve LBE subcontracting goals, if applicable, is also presented in this Section.
- C. Related Documents and Sections
 - 1. Section 01 33 00 – Submittal Procedures

1.02 PRODUCTS

- A. Material and equipment incorporated in the Work shall be new, unless otherwise specified or indicated; in a condition acceptable to the City Representative; and suitable for the use intended.
- B. No material or equipment shall be used for any purpose other than that for which it is designed, specified or indicated.

1.03 QUALITY CONTROL

- A. Include within the Contractor's quality control program procedures for full protection of materials and equipment in accordance with manufacturer's recommendations.

1.04 QUALITY ASSURANCE

- A. The City Representative may perform quality assurance sampling and testing on materials to be incorporated into the work. The City Representative may use test results from the Contractor's quality control efforts to determine acceptability of materials, rather than perform additional and separate testing of materials and equipment. Sampling and testing performed at the City Representative's discretion may not be used by the Contractor as part of the Contractor's responsibility for quality control.
- B. When requested by the City Representative, the Contractor shall furnish, without charge, samples of materials entering the work. No material shall be used prior to approval of the City Representative. Samples shall be taken in the presence of the

City Representative. The number of the samples and test specimens required shall be entirely at the discretion of the City Representative.

- C. Reports and records of inspections made and tests performed by the city, when available at the site of the work, may be examined by the Contractor.
- D. The City Representative shall have access to materials and free entry to any parts of any manufacturing plant producing materials and/or equipment for the work.

1.05 MANUFACTURER'S SERVICES

- A. The Contractor shall require material suppliers and product manufacturers to provide site representation on the request of the City Representative for qualifying and verifying the use of their materials for the project purpose and conditions.

1.06 MANUFACTURER'S RECOMMENDATIONS

- A. Except as otherwise approved by the City Representative, the Contractor shall comply with manufacturer's recommendations on product handling, storage, and protection.

1.07 TRANSPORTATION AND DELIVERY

- A. The Contractor shall transport and handle products, including spare parts and special tools, in accordance with manufacturer's instructions.
- B. The Contractor shall transport and deliver manufactured products, undamaged, in manufacturer's original, unbroken containers or packaging, clearly identified with manufacturer's name, product name, and instructions.
- C. The Contractor shall handle products to avoid soiling and damaging the products and their packaging.
- D. Immediately upon delivery, the Contractor shall inspect shipments to assure compliance with the Contract Documents and reviewed submittals, and to verify that products are undamaged and properly protected from potential damage.
 - 1. The Contractor shall maintain packaged materials with seals unbroken and labels intact until time of use.
 - 2. The Contractor shall promptly remove damaged material and unsuitable items from the job site, and promptly replace with material meeting the specified requirements at no increase in Contract Sum.
 - 3. Unsuitable materials and products not removed promptly from the job site by the Contractor may be removed by the City. Removal costs shall be paid by the Contractor.

- E. The transfer of spare parts for an equipment system shall be completed before Functional Testing begins. The Contractor shall designate and provide one or more persons to be responsible for the inventory of spare parts to be provided under the Contract and as specified in the Technical Specifications. After completion of the Manufacturer's Certificate of Installation for an equipment system, this person or persons shall deliver the specified spare parts (with each item securely tagged / identified) on that equipment or system to a storage site designated by the City. The Contractor, in the presence of the manufacturer's representative and the City, shall physically inventory, and document each spare part and shall transfer responsibility for storage of the spare parts to the City.
- F. The City Representative may reject as non-complying such material and products that do not bear identification satisfactory to the City Representative as to manufacturer, grade, quality, and other pertinent information.

1.08 STORAGE

- A. The Contractor shall:
 - 1. Store and protect products, including spare parts and special tools, in accordance with manufacturer's instructions, with seals and labels intact and legible. Spare parts and special tools shall remain with the equipment to which they belong until they are officially transferred to the City Representative.
 - 2. Store sensitive products in weather tight, climate controlled enclosures.
 - 3. Store fabricated products above the ground, on blocking or skids, to prevent soiling and staining of the products.
 - 4. Provide off-site storage and protection when site does not permit on-site storage or protection.
 - 5. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation or potential degradation of product.
 - 6. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
 - 7. Arrange storage to facilitate inspection of products. Periodically inspect stored products to assure that products are maintained under specified conditions and free from damage and deterioration.
 - 8. Store products subject to damage from the elements in weather tight enclosures, maintaining temperature and humidity within the ranges specified by the manufacturers. Electrical and instrumentation and control equipment shall have space heaters energized or be provided with a suitable

- temporary heat source such as light bulbs in order to prevent condensation/moisture damage.
9. Mechanical equipment shall be properly lubricated and periodically rotated to prevent seizing or binding, as recommended by the manufacturer.
 10. Equipment having bare metal or only shop applied primer shall receive special attention to ensure that it is adequately covered/protected to prevent rust.
 11. Provide coverings as necessary to protect installed products from damage from traffic and construction operations including due to dust and moisture. Remove coverings when no longer needed.
 - a. Use protective covering and blocking materials that do not soil, stain, or damage materials and equipment being protected.
 12. Contractor shall maintain a preventive maintenance record for all material and equipment requiring preventive maintenance by the manufacturer. A monthly report of all maintenance performed shall be submitted to the City Representative to certify maintenance has been performed as recommended by the manufacturer.

1.09 HANDLING

- A. The Contractor shall use means necessary to protect the materials and equipment of this Section before, during and after installation and to protect the installed work and materials and equipment of other trades.
 1. Protect finished surfaces, including jambs and soffits of openings used as passageways, through which equipment and materials are handled.
 2. Provide protection for finished floor surfaces in traffic areas prior to allowing equipment or material to be moved over such surfaces.
 3. Maintain finished surfaces clean, unmarred, and suitably protected until accepted by the City.
- B. The Contractor shall clean exposed materials and equipment at the time of acceptance of the installation for Substantial Completion.

1.10 REPAIRS AND REPLACEMENTS

- A. The Contractor shall promptly replace lost or damaged materials and equipment with replacements of like kind and quality or repair them at no additional cost to the City.
- B. Damage to any of the Work and/or existing premises prior to acceptance by the City is the responsibility of the Contractor. Should any new materials and

equipment become damaged, the Contractor shall restore it to its original condition and finish before final acceptance.

- C. Additional time or costs required to secure replacements and to make repairs will not justify an extension in the Contract Time nor an increase in the Contract Sum.
- D. All materials which the City Representative has determined are not in conformance with the requirements of the plans and specifications will be rejected whether in place or not. The rejected materials shall be removed immediately from the site of the work, unless otherwise permitted by the City Representative. No rejected material, the defects of which have been subsequently corrected, shall be used in the work, unless approval in writing has been given by the City Representative.
- E. Should the Contractor fail to promptly comply with any order by the City Representative to remove and replace rejected material or equipment, the City Representative may deduct the cost for removal or replacement from any moneys due or to become due to the Contractor.

1.11 SPECIALLY MANUFACTURED ITEMS AND CALCULATING THE APPLICABLE LBE CREDIT TOWARDS THE LBE SUBCONTRACTING GOAL

- A. The following is a list of material, articles, equipment or other manufactured items that the Department has designated as “Specially Manufactured Items”:
 - 1. (NOT USED)
- B. Contractor shall refer to CMD Attachment 1 or 6 (Section 00 49 01 or 00 49 06), Part III, Section 3.01.B, for further instructions on the applicable LBE credit for Specially Manufactured Items.

1.12 INSPECTION, QUALITY SURVEILLANCE, REJECTION OF MATERIALS AND WORKMANSHIP

- A. All materials and equipment furnished and Work performed shall be satisfactorily inspected by the Contractor at its expense. The City and its authorized representatives or other persons deemed necessary by any of them acting within the scope of the duties entrusted to them (collectively, “City”) may, at any time conduct quality surveillance or quality audit of materials and equipment furnished and Work performed.
- B. Contractor shall provide the City with full and free access to worksites, shops, factories, storage facilities and other places of business of Contractor and its Subcontractors and Suppliers and Manufacturers, and major component sub-vendors, for such quality surveillance or audit. Contractor shall provide safe and adequate facilities, drawings, documents, un-priced purchase orders, schedules, supplier or manufacturer contact information, and samples as requested, and provide assistance and cooperation including stoppage of Work to perform such

examination as may be necessary to determine compliance with the requirements of the Contract.

- C. Any Work covered prior to any quality surveillance or test by the City shall be uncovered and, after such surveillance or test, recovered at the expense of Contractor. Failure by the City to conduct such quality surveillance or to discover defective design, materials, or workmanship shall not relieve Contractor of its obligation under the Contract nor prejudice the rights of the City thereafter to reject or require the correction of defective Work in accordance with the provisions of the Contract.
- D. If any Work is determined to be defective or not in conformance with the Contract, Contractor will be notified in writing and shall, at Contractor's expense, immediately remove and replace or correct such defective Work.

1.13 EXPEDITING

- A. Contractor is solely responsible for completing all Work in accordance with the Construction Schedule. As provided in the General Conditions, any material and equipment furnished and Work performed by Contractor under the Contract will also be subject to expediting by the City.
- B. Contractor shall provide the City with full and free access to worksites, shops, factories, storage facilities and other places of business of Contractor and its Subcontractors and Suppliers for expediting purposes.
- C. As requested by City, Contractor shall promptly provide un-priced copies of all purchase orders, detailed schedules and progress reports for use in expediting and shall cooperate with City in expediting activities.

1.14 PROJECT-SPECIFIC REQUIREMENTS (NOT USED)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 71 33

PROTECTION OF ADJACENT CONSTRUCTION

PART 1 – GENERAL

1.01 SUMMARY

- A. Section includes the following topics:
 - 1. Related Sections
 - 2. Existing Utilities and Improvements
 - 3. Rights-of-Way
 - 4. Restoration of Pavement
 - 5. Trees within Project Limits
 - 6. Joint Survey to Establish Authenticity of Possible Claims
 - 7. Protection of Existing Buildings and Improvements Adjacent to Excavation
 - 8. Project-Specific Requirements
- B. Related Sections:
 - 1. Section 00 72 00 – General Conditions
 - 2. Section 00 73 20 – Existing Utility Facilities
 - 3. Section 01 11 00 – Summary of Work
 - 4. Section 01 50 00 – Temporary Facilities and Controls

1.02 RIGHTS-OF-WAY

- A. Contractor shall not do any work that would affect any oil, gas, sewer, or water pipeline; any telephone, telegraph, or electric transmission line; any fence; or any other structure, nor shall Contractor enter upon the rights-of-way involved until the owner of the structure or facility has been properly notified and authority has been secured therefore.
- B. After receiving authorization, Contractor shall give said party due notice of intention to begin work, and shall give said party convenient access for removing, shoring, supporting, or otherwise protecting such facility or structure.

1.03 PAVEMENT AFFECTED BY WORK

- A. General: All paved areas cut or damaged during construction shall be replaced with similar materials and of equal thickness to match the existing undisturbed areas, except where specific resurfacing requirements are called for in the Contract Documents or in the permit requirements of the agency issuing the permit. All pavements that are subject to partial removal shall be neatly saw cut in straight lines. The Contractor shall contain all debris generated by sawcutting operations and dispose of properly. Sawcutting debris shall not be allowed to flow in gutters or enter into any stormwater collection basin.
- B. Temporary Resurfacing: Whenever required by the public authorities having jurisdiction, place temporary surfacing promptly after backfilling and maintain such surfacing in a satisfactory condition for the required period of time before proceeding with the final restoration.
- C. Permanent Resurfacing: Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in neat straight lines. All pavement restoration shall be constructed to finished grades compatible with undisturbed adjacent pavement.
- D. Restoration of Sidewalks or Driveways: Wherever sidewalks, curbs and gutters, or driveways have been removed for construction purposes, place suitable temporary sidewalks, curbs and gutters, or driveways promptly after backfilling and maintain them in satisfactory condition for the period of time before the final restoration has been made.

1.04 TREES WITHIN PROJECT LIMITS

- A. General: Exercise all necessary precautions so as not to damage or destroy any trees or shrubs, including those lying within the Contract limits. Immediately notify the City Representative if any tree is damaged by Contractor's operations. If, in the opinion of the City Representative, the damage is such that replacement is necessary, replace the tree at the direction of the City Representative and at no cost to the City.

1.05 JOINT SURVEY TO ESTABLISH AUTHENTICITY OF POSSIBLE CLAIMS AND ENVIRONMENTAL PROTECTION

- A. The Contractor shall use reasonable methods and shall take adequate precautions to prevent damage to existing buildings, structures, and other improvements during the prosecution of the Work.
- B. The Contractor shall retain a photographer experienced in performing preconstruction and post-construction documentation of all existing nearby structures. The survey shall be made using still photographs and digital video.

- C. After the Contract is awarded and before the commencement of Work, the City Representative will arrange for a joint examination of existing buildings, structures, other improvements, and environmental conditions in the vicinity of the Work, as applicable, which might be damaged or affected by the Contractor's operations.
- D. The examination of the exterior of existing buildings, structures, and other improvements located within 25 feet of the construction excavation will be made jointly by authorized representatives of the Contractor, the City, and property owners under the supervision of the City Representative. The scope of each examination shall include, but is not limited to, recording of cracks in structures, settlement, leakage, and any other physical features that may be appropriate. If vibration monitoring is also included in the contract, the information in this article shall complement, not supersede, the requirements of the vibration monitoring section.
- E. Records in triplicate of all still photographs and video will be prepared by the photographer. One copy shall be delivered to the Contractor, one copy will be kept on file at the office of the City Representative, and the third copy will be retained by the City. The photographer may be required to attest to the fact that he/she took the subject photographs or video on certain dates in the presence of the individuals named above; however, in no case, will he/she offer an opinion as to the cause of cracks, settlement, leakage, or other physical conditions.
- F. The above records and photographs are intended for use as indisputable evidence in ascertaining the extent of any damage which may occur as a result of the Contractor's operations and are for the protection of the adjacent property owners, the Contractor, and the City, and will be a means of determining whether and to what extent damage, resulting from the Contractor operations, occurred during the Contract Work.
- G. The photographic survey records shall have a vicinity map showing general location of buildings, a map showing the location of each picture with reference to the general layout of the building, and photograph log by number and description of observation. The still photographs shall be in color, medium format, and contact print. Each photograph shall have a sequential photo number for each property, date, address, and true scale. Photographs may be taken as close as 2 feet and as far as 20 feet.
- H. The work of this Article will be paid for under the "Mobilization" Bid Item.

1.06 PROTECTION OF EXISTING BUILDINGS AND IMPROVEMENTS ADJACENT TO EXCAVATION

- A. The Contractor shall submit to the City Representative for review, calculations prepared by a Contractor-employed civil or structural engineer, registered in California, showing the method and details of support of excavations in order to

prevent lateral movement and settlement of adjacent buildings and improvements. The excavation support system shall conform to the requirements of Sections 6705 and 6707 of the California Labor Code. Do not construct any such shoring or excavation support system prior to City approval of required Submittals.

- B. The responsibility for the method of excavation and for the design of the support system will remain with the Contractor, and he/she will be responsible for, and shall repair any damage caused by lateral movement and/or settlement to the adjacent buildings and to any other improvements.
- C. Any lagging or other support members that are to remain in place shall be treated wood or steel. The plans submitted by the Contractor shall show the method of installing and removing any wood supports that may be used.
- D. The Contractor shall be wholly responsible for supporting all adjacent buildings and improvements. Materials and work related thereto as well as all engineering and design described in paragraph "A" of this Article shall be considered as incidental work and no separate payment will be made by the City therefore.
- E. Dewatering related to the requirements of this Article shall be considered incidental work and no separate payment will be made by the City therefor.
- F. NOTE: Some municipalities/local governments may require a discharge permit for dewatering. Consult with your EPM or confirm with the local authority having jurisdiction that a permit is not required. Also note that Article 4 of Section 00 73 73 includes specific references to various ordinances governing Water Discharges.

1.07 PROJECT SPECIFIC REQUIREMENTS (NOT USED)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 73 25

SEISMIC REQUIREMENTS FOR MECHANICAL AND ELECTRICAL EQUIPMENT

PART 1 – GENERAL

1.01 SUMMARY

This section applies to all mechanical and electrical equipment specified in Divisions 11, 13, 21, 22, 23, 26, and 46. All mechanical and electrical equipment including supports and anchorages shall be selected to withstand the earthquake loads as described in the latest editions of the ASCE Standard (ASCE/SEI 7-05), International Building Code, and California Building Code, even if older editions are listed.

1.02 RELATED SECTIONS

- A. Specification Section 01 33 00 – Submittal Procedures
- B. Specification Section 22 04 00 – General Requirements for Plumbing
- C. Specification Section 23 04 00 – General Requirements for Heating Ventilating and Air Conditioning
- D. Specification Section 26 04 00 – General Requirements for Electrical

1.03 CODES AND STANDARDS

- A. Equipment including its support and anchorages, vibration isolation and seismic restraint work shall conform to the latest edition of all applicable codes and standards; including, but not limited to, the following:
 - 1. ASCE Standard (ASCE/SEI 7-10)
 - 2. Seismic Restraint Manual: Guidelines for Mechanical Systems, 3rd edition 2008, ANSI/SMACNA 001-2008
 - 3. California Building Code, Latest Edition
 - 4. International Building Code, Latest Edition

1.04 SUBMITTALS

- A. The structural integrity of equipment assemblies, manufactured devices and field-fabricated devices and anchorage elements shall be certified by calculations or testing laboratory data or experience data to demonstrate its adequacy of the equipment and the anchorage system to withstand seismic forces and compliant with the code requirements. These calculations may be based on principles of

structural analysis and engineering mechanics, or based on similarity to approved shake table tests, or based on experience data.

- B. Contractor shall submit for review and approval, special certification documents, test data or calculations stamped and signed by a Civil or Structural Engineer registered in the State of California to show compliance with the above requirements.
- C. For general submittal procedures, see Section 01 33 00: Submittal Procedures.

1.05 SEISMIC LOADS

- A. Seismic loads shall be determined by Section 1613 of CBC13/IBC12 and Sections 11.4, 13.3, and 13.4 of ASCE/SEI 7-10, but calculations in accordance with the latest editions of these documents shall govern.
- B. Seismic load shall be determined based on the site-specific response spectra in the project seismic design criteria or geotechnical report, if available.
- C. Alternatively, the design/test spectrum can be based upon a 5% minimum damping factor, a peak of 2.57g (3.2-11Hz), and a ZPA of 1.0g at the base of the equipment. The design or tests shall fully envelop this response spectrum for all equipment natural frequencies up to at least 35 Hz.

1.06 SEISMIC QUALIFICATION OF EQUIPMENT

- A. Special certification for mechanical and electrical equipment is required. The certification can be obtained by one of the following three methods outlined in Section 13.2.2, ASCE/SEI 7-10:
 - 1. Shaking table test
 - 2. Experience data
 - 3. Calculations
- B. Alternatively, Contractor may submit OSHPD Special Seismic Certification Preapproval (OSP) number for the equipment that will be installed.

1.07 PROJECT-SPECIFIC REQUIREMENTS (NOT USED)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 75 60

TESTING COORDINATION AND START-UP TESTING

PART 1 – GENERAL

1.01 SUMMARY

- A. This Specification Section establishes the Contractor’s responsibilities for developing and conducting the functional, performance, pre-start-up and start-up tests for the entire pump station and all peripheral systems for the **San Francisco Housing Authority Potrero Terrace Emergency Boiler and Distribution Piping Replacement** Project.
- B. Related Sections include:
 - 1. Section 01 33 00 – Submittal Procedures
- C. Start-up testing involving conveyance of potable water into the distribution system shall be conducted following successful completion of the facility and associated pipe disinfection activities.
- D. Satisfactory completion of the start-up testing shall be required in order to achieve Substantial Completion of this Contract.
- E. The Contractor shall provide a Testing Coordinator who will be responsible for developing and administering the functional, performance, and start-up testing program for this project.
- F. The work of this Section shall be considered incidental and no separate payment will be made therefore.

1.02 DEFINITIONS

- A. Control Systems Functional Acceptance Test (“FAT”): The control systems functional acceptance testing demonstrates the proper interaction of the Facility PLC and the related equipment individual control system. The Systems Integrator will be responsible for this test. The Testing Coordinator shall coordinate tests and activities to support the control systems FAT.
- B. Electrical Testing (“ET”) firm: The testing entity responsible for performing functional and performance tests on all Division 16 Electrical equipment, components and materials. The Electrical Testing firm shall coordinate scheduling work, testing, training of City personnel, and documentation with the Testing Coordinator.

- C. Field Tests: Denotes all field testing including functional, performance, pre-start-up and start-up tests.
- D. Functional Test: The field testing required to determine if installed equipment or system will operate in a satisfactory manner and as specified. The functional test is a point-by-point test to confirm that all components associated with the equipment or systems are operating properly. All non-operating adjustments, cold alignment checks, and cleaning shall be completed prior to functional test.
- E. Performance Test: The field testing required to demonstrate the individual equipment or system meets all of the contract performance requirements.
- F. Pre-Start-Up Test: A pre-start-up test of all systems operating together to demonstrate satisfactory performance of the facility as a whole, as it performs connected to the City system, for the specified pre-start-up test period without failure and to the satisfaction of the Contractor and the City. The test procedures for both the pre-start-up test and start-up test shall be the same. Any start-up test requirement applies to the pre-start-up test. The pre-start-up phase allows the Contractor to make final adjustments and troubleshooting before start-up testing. Successful completion of pre-start-up test shall ensure that the Contractor is ready to demonstrate satisfactory operational performance of the facility as a whole.
- G. Start-Up Test: A final commissioning test of all systems operating together to demonstrate satisfactory performance of the facility as a whole, as it performs connected to the City system, for the specified start-up test period, without failure and to the satisfaction of the City.
- H. System Integrator (“SI”): SI is the responsible party for interfacing the facility PLC and Controls to the LOI and the City’s established SFWD SCADA system. The SI duties include, but are not limited to, performing all work necessary to design, select, furnish, customize, debug, supervise installation, connect, calibrate, field modify existing control and instrumentation wirings and place into operation all hardware, communication lines and equipment, and coordinate the programming of all software. The SFWD SCADA will be programmed by the City. The System Integrator shall coordinate scheduling of work, testing, training of City personnel, and documentation with the Testing Coordinator.
- I. Testing Coordinator (“TC”): TC is a testing and commissioning superintendent responsible for overseeing, organizing, compiling, and administering all field testing for the overall project.

1.03 SUBMITTALS

Submittals shall be made as required in Section 01 33 00. In addition, the following specific information shall be provided:

- A. Submit the following a minimum of one 120 calendar days prior to the first functional test:

1. A list of all field tests with reference to appropriate specification sections and submittal dates.
 2. Testing Coordinator's qualifications & past project experience including contact names, addresses, and current telephone numbers that can be used to verify the accuracy of the provided information.
 3. Manufacturer's representatives' resumes demonstrating their qualifications and ability to perform the specified services.
- B. Submit the following a minimum of 90 calendar days prior to the first functional test:
1. Test Procedures for All Field Tests
 - a. All test procedures shall be comprehensive, neatly organized, type written, and numbered step-by-step.
 - b. Detailed test methods, including sample calculations and reference to standards as required or applicable.
 - c. Pre-test checklist to ensure readiness and any safety measures are in-place.
 - d. Details of all necessary adjustments, balancing, required equipment isolation or configuration, test equipment and instruments, calibration, and personnel needed.
 - e. Acceptance Criteria: For each test phase, specifically indicate what is considered an acceptable test result.
 - f. Data Forms: Include the test name, equipment (with tag numbers as applicable) or system name, specification section and paragraph number, test instrument tag numbers, test date, space for testing personnel names, test data names, and units, reference equations for all calculated values, and signature lines for manufacturer's representative, Contractor and City witness.
 2. Start-up Plan
 - a. In addition to submitting a start-up test procedure, the Contractor shall develop and submit a start-up plan. The start-up plan shall systematically describe the details of preparing for and starting each system at the facility at the beginning of the start-up test. The start-up plan shall also include detail procedures for the systematic shutdown of all systems at the facility.
 - b. The Contractor shall coordinate with the City Representative, as necessary to develop the start-up plan.
 - c. At a minimum, the start-up plan shall include the proposed chronological sequence of activities and detailed procedures for

starting or shutting down facilities and systems. In addition, provide the following detailed information:

- 1) A list of new and existing facilities, equipment, and systems with applicable references to device name and City tag number that must be in operation before the startup test can begin
- 2) CAD drawings and schematics highlighting the facilities, systems, and equipment included in the start-up testing
- 3) Diesel fuel and other expendables required for the start-up test
- 4) The chronological sequence of activities clearly divided into activities to be completed in preparation for start-up test versus activities completed during the start-up test
- 5) Expected durations of each test activity
- 6) Details of completion of system disinfection activities in preparations for the start-up test

3. Comprehensive Testing Schedule

- a. List all equipment testing by specification section number and name. Include the following for each equipment/system:
 - 1) Specification section and paragraph number
 - 2) Test type (functional, performance, start-up)
 - 3) Test procedure submittal dates
 - 4) Testing and start-up dates
 - 5) Test report submittal dates
- b. After initial submittal, update and provide test schedules on a weekly basis at project progress meetings and/or test coordination meetings.
- c. All communication systems and systems designed for control through PLC or SCADA will require testing and coordination with the project Systems Integrator (“SI”). The Contractor shall make scheduling allowances for these tests and incorporate this information into the construction schedule.

C. Daily Test Reports

1. Submit daily test report describing equipment being tested, referenced test procedure, test methods, test strategies actually used or implemented during the test, and any problems and deficiencies found during testing. If there was troubleshooting done, the daily test report shall describe the troubleshooting methods and strategy.

2. At the end of each test day, Contractor shall download all pertinent data from graphic data recorder and attach to the daily test report.

D. Final Field Test Reports

1. Upon successful completion of testing for each equipment item or system, the Contractor shall submit complete typewritten test report including data forms.
2. Upon substantial completion, all factory, functional and performance test reports shall be inserted by the Contractor into the applicable O&M manuals.

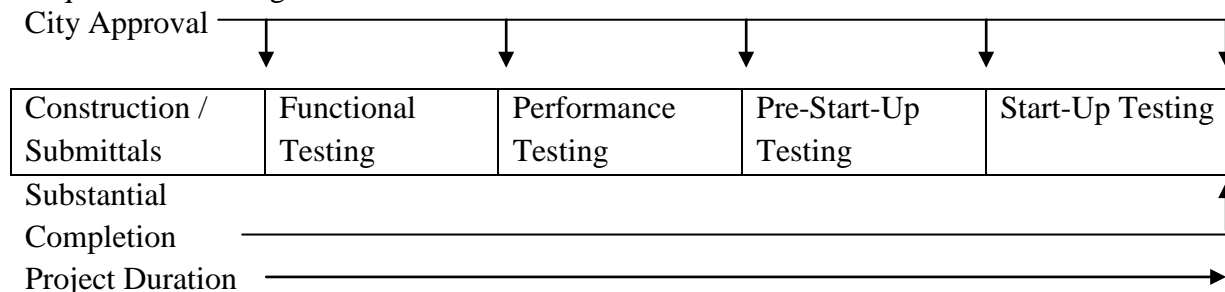
- E. Device Settings: Submit all final device settings for all field adjustable devices. These settings shall be incorporated into the final O&M manuals for each piece of equipment supplied.

F. Field Test Manual

1. When all field testing is complete, submit all test documents in bound form. This consolidated submittal is in addition to the individual submittal of test procedures and test results. Format requirement for this field testing manual shall be the same as for the O&M manuals, including section dividers by system or equipment. Note: Electrical Equipment data shall be provided on approved NETA forms and Instrumentation and Control data shall be provided on ISA forms.

1.04 FIELD TEST REQUIREMENTS – GENERAL

Sequence of Testing:



1.05 FUNCTIONAL TEST REQUIREMENTS

- A. Functional tests shall not proceed until the City has received and approved the items listed below:
1. Interconnection and Loop diagrams
 2. All factory test reports

3. Manufacturer's Certificate of Proper Installation (where required)
4. Equipment or system test submittal
5. All specified spare parts and special tools
6. Draft O&M Manuals (Final O&M Manuals to have test results and data forms incorporated into them)

B. Functional tests include:

1. Communication System Functional Test, see below.
2. Device Calibrations, Loop Checks, and Electrical Commissioning:
 - a. Calibration Check: Verify that all devices have been properly field calibrated and that field calibration tags have been completed and installed in accordance with Section 23 0500 – Common Work Results for HVAC.
 - b. Loop Checks: Refer to Division 13 for Instrumentation and Control.
 - c. Electrical Commissioning: Refer to Division 16.
 - d. All device calibrations, loop checks and electrical systems commissioning shall be completed and accepted by the City prior to starting the remaining functional test elements specified hereinafter.
3. Installation Check: Check for proper rotation, adjustment, alignment, balancing, mechanical and electrical connections, proper lubrication, and any other conditions that may damage or impair equipment from functioning properly.
4. Operations Check: Check for proper operation of all system components.
5. Controls Check: Demonstrate proper function of all local and remote controls, instrumentation, and other equipment functions.
6. Alarms Check: Simulate alarm conditions and verify the proper operation of each alarm at the specified set point. Simulations shall be by means of direct element stimulation whenever possible or by other means when direct element stimulation is not practical as determined by the City Representative.
7. Run Check: Each system or equipment item shall be operated continuously for a minimum of 1 hour unless noted otherwise.
8. Additional Test Requirements: The individual technical specifications or the equipment manufacturer may specify additional functional test requirements for each component system.

1.06 COMMUNICATION SYSTEM FUNCTIONAL TEST

- A. This test is required for any project that includes input or output to the City SCADA system.
- B. The instrumentation and control communications testing shall be coordinated by the System Integrator (“SI”) specified in Division 13. City operations and Information Technology System (“ITS”) Staff will verify proper installation of all communication systems between and within the City facilities and sites.
- C. The instrumentation and control communications testing shall not proceed until all related systems have been completely installed and tested (including loop checks, leased telephone (ADN) data communication tests, spread spectrum and MAS radio, and VSAT) as required by the respective technical sections, and all systems are ready for operation.
- D. Refer to the each respective specification section for additional communication system performance testing requirements.
- E. If the project scope is limited to new input to (E) SCADA facility this test is limited to electrical subcontractor coordinating with City ITS staff to verify signal reception to (E) SCADA.

1.07 PERFORMANCE TEST REQUIREMENTS

- A. The performance test shall not proceed until the functional test has been successfully completed and accepted by the City.
- B. Copies of all prior test results (factory and field functional tests) shall be available on-site, prior to proceeding with the performance tests.
- C. Performance Tests shall demonstrate that the equipment or system meets all specified performance requirements described in the individual technical specifications.

1.08 CONTROL SYSTEM FUNCTIONAL ACCEPTANCE TEST (“FAT” – SOMETIMES REFERRED TO AS INSTALLED TEST

- A. The Control System FAT is classified as a performance test for the purposes of these testing requirements.
- B. The control system functional acceptance tests will demonstrate the proper performance of each process sub-system control modes (local manual/automatic, remote manual/automatic) from all interface locations (local and remote).
- C. The control system functional acceptance tests shall not proceed until all systems have been completely installed and tested (including loop checks and the instrumentation and control communication system tests) as required by this

section and the respective technical sections, and all systems are ready for operation.

- D. Control systems functional acceptance tests will be completed by the System Integrator, in coordination with City staff, the Testing Coordinator, and a California State Certified electrician provided by the Contractor. The Contractor furnished electrician shall assist the System Integrator, the Testing Coordinator and City staff in resolving potential conflicts between the control systems and other equipment or systems installed under the Contract. The Contractor furnished electrician shall be made available within 30 minutes of notification (at any time during normal working hours), and shall then be dedicated only to those activities identified by the System Integrator. The cost associated with providing the electrician shall be considered incidental and no separate payment will be made therefore.

1.09 PRE-START-UP AND START-UP TEST – REQUIREMENT AND SCOPE

- A. The pre-start-up test shall use the approved start-up test procedure for the purposes of the pre-start-up test. These two tests verify that the facility is completely installed, that all systems are correctly set up and that the facility will reliably function over time in real world conditions.
- B. The start-up test shall not proceed until all of the following have been completed:
 - 1. All factory, functional and performance test record have been approved. Copies of these test records shall be available on-site as well.
 - 2. All draft O&M manuals have been approved.
 - 3. City personnel have been trained in accordance with the individual technical specifications
 - 4. All tagging and labeling including but not limited to piping, conduit, panels, and equipment, have been completed.
 - 5. All near final Contractor Record Drawings (not CAD set), that are still subject to further updating for incomplete work, have been submitted to the City Representative and approved.
 - 6. Start-up test procedure has been approved.
- C. The Contractor shall coordinate with the City to start-up the facility equipment and systems as outlined in the Contractor's start-up plan.
- D. Only Contractor's personnel approved by the City shall operate the equipment and systems during the startup test. When the Contractor requires the use of potable water for testing, City Operators will be present at all times.

- E. It is the intent of this section that the performance of any and all: pumps, valves, surge tanks, compressed air system, diesel generators, mechanical systems, electrical sub-systems and systems, and communication and SCADA systems be tested as a complete, operational, and integrated system conforming to the performance and design parameters outlined in this Contract. The entire facility shall be tested in the normal operational sequence in all control modes described in the Control Description specification, and individual equipment Specification Sections.

- F. The system start-up test procedure is intended to demonstrate satisfactory operation and integration of the control system and all the mechanical and electrical sub-systems and systems, and accessory equipment including but not be limited to:
 - 1. Refer to Division 13 Specifications - Control Description. Demonstrate all control sequences described using actual flow demand under operating conditions.
 - 2. Repeat control sequences as required in order to test each subsystem. Check and record all system flows, levels and pressures.
 - 3. The standby generators performance power test shall be conducted on a separate day from the main system start-up testing. The generator system shall be capable of successfully demonstrating the transfer from normal power to emergency power and complete all possible load configurations with facility start/stop run cycles. Refer to relevant Electrical Sections and Control Description Sections. The Contractor shall be responsible for providing diesel fuel for operation of the diesel generator. Diesel generator testing shall be completed between the hours of 9:00 a.m. to 3:00 p.m. on weekdays.

- G. The pre-start-up and start-up test requires that all new work of this Contract shall operate as designed and function in an uninterrupted and trouble-free manner with no mechanical or electrical failures for an extended time period. The standby power system shall be tested for actual operation (not simulated) with all possible facility load configurations with equipment start/stop run cycles.

- H. Pre-start-up and start-up test durations shall be as follows:

Start-Up Test Duration Requirement	
Pre-Start-Up Test	Start-Up Test
5 consecutive working days without failures starting on a Monday	7 consecutive calendar days without failures.

During these test periods the Facility shall be run as close to normal function as possible with exceptions to demonstrate non-normal functioning

- I. The start-up test shall be conducted at a time and date to be mutually agreed upon by the Contractor and the City.
- J. The Contractor shall provide the services of all-technical and craft personnel required to support the work covered under the Contract during the entire pre-start-up and start-up testing. Additionally, the Contractor shall arrange for on-call services of these personnel as needed to respond to emergencies.
- K. Contractor shall maintain the appropriate staff (either on-site or on call) to be able to respond immediately (24-hours per day) to system or equipment related questions and to correct deficiencies.
- L. At the satisfactory conclusion of the start-up test, dismantle, and remove all temporary valving, hoses, and other equipment used during the test.
- M. All deficiencies found during pre-start-up and start-up testing, and subsequent correction thereof, must be inspected and approved by the City.

1.10 TESTING COORDINATOR RESPONSIBILITIES AND QUALIFICATIONS

- A. The Contractor shall provide a test and commissioning superintendent responsible for developing and administering the functional, performance, pre-start-up, and start-up test program for this project. The Testing Coordinator's responsibilities shall include, but are not limited to, the following activities:
 - 1. Overall responsibility and coordination for all field testing.
 - 2. Liaison between the Contractor and the City for all field testing and start-up activities.
 - 3. The Testing Coordinator shall timely develop, compile, review for completeness and compliance to the specifications, and submit all required test submittals.
 - 4. Develop a comprehensive schedule for all field testing and startup activities, and provide regular schedule updates.
 - 5. Schedule and lead field test planning meetings.
 - 6. Oversee and administer all field testing activities, including either direct participation in the field testing, and/or oversight and monitoring of all field testing. It shall be the Testing Coordinator's responsibility to assure that all field tests have been completed in accordance with approved testing procedures.
 - 7. Conduct or oversee pre-test checks to ensure readiness for testing.

8. Verify all piping hydrostatic testing and applicable disinfection activities have been completed prior to field testing connected equipment.
 9. Safety: Develop safe work practice procedures (e.g., lockout/tagout procedures) and personnel protective equipment policies that will be followed during all field testing activities. At a minimum the Contractor must comply with CalOSHA and the City's established safety guidelines. It shall be the Testing Coordinator's responsibility to assure all safety procedures are followed at all times.
 10. Training: Prior to submittal to the City, review, and approve the content of all equipment training session to assure that the training includes all applicable operation, maintenance, safety, and functional, performance, and start-up testing information.
- B. Testing Coordinator's Statement of Qualifications
1. State certified electrician or a mechanical or electrical degreed engineer with the required experience.
 2. Minimum 5 years of experience in testing and commissioning of pump systems and other related electrical, mechanical and instrumentation systems.

1.11 MANUFACTURER'S SERVICES

- A. A manufacturer's authorized representative shall perform all services when manufacturer's services are specified in the technical specifications. The authorized representative shall be factory trained and experienced in the technical applications, installation, operation and maintenance of the equipment, subsystem or system. Additional qualifications may be specified elsewhere.
- B. Manufacturer's representatives shall be subject to the acceptance of the City. The Contractor shall submit the qualifications of the manufacturer's representative to the City Representative for review and approval. No substitute representatives will be allowed without prior written approval by the City.

1.12 EQUIPMENT AND MATERIALS REQUIRED FOR SYSTEM TESTING

- A. It shall be the Contractor's responsibility to ensure that all required material and test and repair equipment are on hand during all testing.
- B. All instruments used to measure equipment performance shall be calibrated. Certificates of calibration shall be current, and shall be at the job site during testing and provided upon request or when specified. Copies of the calibration records shall be submitted to the City Representative for review and approval prior to the start of testing.

- C. Contractor is required to provide all expendables during testing, including but not limited to, diesel fuel, oil and filters (e.g., air, fuel, oil, etc) required for testing. Upon completion of testing, all expendables shall be replaced with new ones and primed ready for operation.

1.13 PROJECT-SPECIFIC REQUIREMENTS (NOT USED)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 GENERAL

- A. The Contractor shall perform all functional, performance, pre-start-up and start-up testing of all installed equipment or system(s).
- B. The Contractor shall complete all testing following the approved test procedures.
- C. All testing of any equipment that may affect the operation of the existing City facilities shall be coordinated with the City Representative.
- D. The Contractor shall coordinate with the City to determine the operating requirements for adjacent or related systems that may be required to complete the start-up test.
- E. Table 1 is a summary of equipment/systems that require functional and performance tests, in addition to pre-start-up and start-up testing. Functional and performance tests shall be completed and accepted by the City prior to the pre-start-up and start-up tests. Additional testing may be required when specified elsewhere. Not all listed equipment may be in this Contract.

TABLE 1

System/Equipment Type	Spec Ref.	Factory Test Reports	Training of City Personnel	Manufacturer's Cert of Instl	O&M Manuals	Equip Ident.	Functional Test Required	Performance Test Required
Hydronic Heating Boiler	Drawing M-1							
Water Heaters	Drawing P-1							
Primary Hot Water Supply Pumps	Drawing M-1							

Secondary Hot Water Supply Pumps	Drawing M-1							
Hydronic Heating Expansion Tank	Drawing M-1							
Domestic Hot Water Expansion Tank	Drawing M-1							
Air Separator	Drawing M-1							
On Demand Enovative Group Controller and DHW Recirculation Pump	Drawings P-1, P-2							
Hydronic Heating Controls	Drawing M-1							
DHW Controls	Drawings P-1, P-2							
General Requirements for Heating, Ventilation & Air Conditioning	Drawings P-1 through P-5; M-1 through M-6							
General Requirements for Electrical	Drawings E-1 through E-3							

3.02 FIELD TESTING COORDINATION MEETINGS

- A. Weekly meetings shall be scheduled and conducted by the Contractor to discuss overall test scheduling, procedures, strategy, and preparations for the forthcoming testing. The first meeting shall be conducted 60 calendar days prior to the first scheduled functional tests.
- B. The weekly planning meetings shall continue until all field tests are completed and approved by the City Representative.
- C. The Contractor’s Testing Coordinator shall attend all meetings, and the Contractor shall provide suitable representation from each subcontractor having testing responsibilities so that informed decisions can be made during the meetings.

3.03 RETEST

- A. If any portion of a test does not pass, the Contractor shall correct the problem in a timely manner and repeat the test until it passes to the satisfaction of the City.
- B. If any failure of any component or system occurs during the pre-start-up or start-up testing, then the **entire** test shall be re-started. If the TC determines that the failure is minor and recommends continuation of the test rather than re-starting, then the City Representative may permit continuation of testing at his/her sole discretion.

- C. If a failure of any component should occur during the start-up test, the Contractor shall be responsible for the actual cost of any idle time due to such failure. Such costs of idle time shall include personnel costs of City personnel who are assigned to coordinate, assist and witness the start-up test, personnel costs of the City's duly authorized representatives, rental of equipment and any other incidental costs of the delay.

3.04 AFTER TEST

- A. Once testing has been completed, all machines shall be rechecked for proper alignment, realigned, if necessary, and dowelled in place. All equipment shall be checked for loose connections, unusual movement, or other indications of improper operating characteristics. Any deficiencies shall be corrected to the satisfaction of the City Representative. All machines or devices which exhibit unusual or unacceptable operating characteristics shall be disassembled and inspected. They shall then be repaired or removed from the site and replaced at no cost to the City.

END OF SECTION

SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.01 SUMMARY

- A. This Specification Section describes the closeout procedures for this project, including the following items:
 - 1. Close-out Meeting
 - 2. Inspection for Substantial Completion and Final Inspection
 - 3. Final Payment
 - 4. Final Cleaning
 - 5. Project As-Built Documents
 - 6. Release of Liens or Claims
 - 7. Agency and Private Property Owner Signoffs

- B. Related Documents and Sections include:
 - 1. Section 00 72 00 – General Conditions
 - 2. Section 01 50 00 – Temporary Facilities and Controls
 - 3. Section 01 78 39 – Project Record Documents
 - 4. Section 01 78 36 – Warranties

1.02 PROCEDURES

- A. Close-out Meeting:
 - 1. When the Work is 90% complete, the City Representative will arrange a close-out meeting with the Contractor, to determine the status of completion. The City Representative will provide a list of items and work required for Substantial Completion for discussion of current status and Contractor's plans for completion. The purpose of the close-out meeting is to plan for an orderly completion of the project within the Baseline CPM schedule.

2. Immediately following the close-out meeting, the City Representative will prepare a list of actions, which are still open, or pending that need to be resolved prior to the Contractor requesting Substantial Completion. Such actions may include, but are not necessarily limited to, equipment and system testing, operator training, operations and maintenance data and manuals, interim Contractors as-built documents, outstanding quality CARs and NCNs, administrative activities and reporting, and documentation of final quantities and force account Work.
- B. Substantial Completion Inspection
1. Inspection for Substantial Completion shall be performed in accordance with the General Conditions and may generate a Punch List / Substantial Completion.
- C. Punch List / Final Completion
1. When the City Representative determines that Substantial Completion can be granted to the Contractor, the Punch List / Final Completion will be transmitted to the Contractor electronically.
- D. Final Inspection:
1. Inspection for Final Completion shall be performed in accordance with Article 9 of the General Conditions.
 2. The Contractor's written notice described in Article 9 of the General Conditions shall certify the following:
 - a. Work has been completed in accordance with the Contract Documents
 - b. All Punch List / Final Completion items have been completed
 - c. Demobilization and cleanup of the site has been completed
 - d. Work is ready for final inspection
- E. Prior to the final payment recommendation by the City Representative, the Contractor shall furnish to the City Representative the following administrative close-out submittals:
1. Notice of Final Completion including, if applicable, Certificate of Occupancy as evidence of compliance with the requirements of governmental agencies or local authority having jurisdiction; and
 2. Evidence of payment and final release of liens.
- F. The Contractor shall submit the following to the City Representative requesting final adjustment of accounts:

1. Request for Final Payment
 2. Final statement of accounting, certified payroll records, and final Change Order, if required, showing adjustments to the Contract Sum for all force account Work and allowance items.
 3. Other contractual documentation required by the City.
- G. All prior estimates and payments shall be subject to correction by the City in the final estimate and payment per the General Conditions.

1.03 FINAL CLEANING

- A. Final acceptance of the Work by the City will be withheld and the Contractor subjected to remedies as provided in General Conditions until the Contractor has satisfactorily complied with the requirements herein for final cleanup of the project site.
1. Should the City elect to partially occupy or use portions of the Work prior to completion, the Contractor shall perform final cleaning for those portions of the Work prior to their being so occupied or used.
- B. "Clean," as used in this Section, shall mean the level of cleanliness generally provided by skilled cleaners. For interior areas, this involves using commercial quality building maintenance equipment and materials. For exterior areas this means broom cleaning, removal of temporary construction materials and equipment and disposal of all debris and rubbish.
- C. The Contractor shall comply with applicable regulatory requirements during cleaning and disposal operations, and use cleaning materials, which will not create hazards to health or property or cause damage to products or Work.
- D. The Contractor shall use only cleaning materials and methods, which are compatible with the surface being cleaned, as recommended by the manufacturer of the products to be cleaned.
- E. The Contractor shall completely clean structures inside and out and adjacent sidewalks and street to curb. The Contractor shall also perform the following cleaning operations as applicable to the Work:
1. Remove dust, dirt, grease, stains, labels, spilled or spattered materials, and other foreign matter from surfaces exposed to view in the completed Work.
- F. The Contractor shall schedule final cleaning operations to prevent resulting dust and other contaminants from adhering to wet or newly finished surfaces and to enable the City Representative to accept a completely clean Work.
- G. See additional cleaning requirements specified in Section 01 50 00.

1.04 PROJECT RECORD DOCUMENTS

- A. The Project Record Documents per Section 01 78 39 shall be signed and dated by Contractor and submitted to the City Representative prior to issuance of a Notice of Substantial Completion by the City.

1.05 RELEASE OF CLAIMS

- A. Contractor and each assignee under any assignment in effect at the time of final payment shall, if required by the City, complete, execute and deliver at the time of final payment, as a condition precedent to final payment, a release using the form attached as Exhibit A to this Section.

1.06 AGENCY AND PRIVATE PROPERTY OWNER SIGN-OFFS

- A. The Contractor shall provide a written signed release from each permitting agency that issued an encroachment, fill and grading, or other permit during the course of the project that each permit condition including restoration has been satisfactorily completed.
- B. The Contractor shall provide a written signed release from each private property owner for lands used by the Contractor for staging areas, spoils disposal, or other purposes during the course of the project that the lands have been satisfactorily restored to their pre-construction condition.

1.07 CLOSE-OUT DOCUMENTS REQUIRED BY CONTRACTOR

- A. Unless otherwise specified, the contractor shall provide a minimum of two (2) hard copies and two (2) electronic copies of the following close-out documents, as applicable, to include:
 - 1. As-Built Drawings
 - 2. Commissioning Reports and/or Forms (primarily mechanical and electrical systems)
 - 3. Functional Testing Reports and Original Blank Copies of Forms
 - 4. Operation and Maintenance (O&M) Manuals
 - 5. Passwords and/or Entry Codes (e.g., controls software)
 - 6. Permits – Final signed off by SFDBI
 - 7. Permit to Operate Boiler
 - 8. Sequence of Operations (primarily mechanical systems)
 - 9. Start-up Reports

10. System Test Reports (e.g., hazmat reports, hydrostatic test reports, anchor pull test reports, third party inspections and/or test reports, etc.)
11. Submittals – Final Approved
12. Testing, Adjusting, Balancing (TAB) Reports
13. Training Documents and/or Guide
14. Warranties by Contractor and Manufacturer
15. Notice of Construction Completion and Warranty Period Form

B. Time of Issuance

1. Contractor shall submit the required close-out documents for approval as a precedent to final acceptance and final application for payment.
2. Contractor is responsible for submitting their sub-contractors close-out documentation in both hard copy and electronic copy formats.

C. Close-out documents shall be enclosed in an organized binder using the following format:

1. Binders: Commercial quality, 8-1/2 x 11 inch three ring binders with hardback, cleanable, plastic covers. If multiple binders are used, correlate data into related consistent groupings.
2. Cover: Identify each binder with typed or printed title of project, site address, contractor name, address, phone number, contractor contact, contract/task order number, date, and other pertinent information as applicable.
3. Table of Contents: Organize close out documentation in a Table of Contents under section numbers and sequence using the categories listed in SECTION 1.07 B.
4. Provide tabbed fly leaf for each separate set of document category per the Table of Contents.
5. Drawings: Provide with reinforced punched binder tab. Fold larger drawings to size of text pages.

D. Close-Out Documentation in Electronic Format

1. Contractor shall provide electronic copies of close-out documentation listed in SECTION 10.08 A as applicable.
2. Files shall be stored on CD-ROM. The CD-ROM shall be clearly labeled with the project title and date.
3. Each binder containing hardcopies shall include one copy in electronic format. The CD-ROM shall be attached to the binder in a CD holder for a standard three ring binder.
4. All electronic files shall be organized in folders following the Table of Contents in the binder with a description for easy file retrieval following the close-out document categories listed in SECTION 01 77 00 1.07 A. Each electronic file within the folders shall be identified in name with a description for easy file retrieval.
5. Electronic documents shall be provided in Adobe Acrobat (PDF) format unless otherwise specified or approved.
6. Copies of all working files (e.g., CAD drawings, reports, spreadsheets, etc.) shall be provided in editable format (e.g., *.DWG, *.DOC, *.XLS) .

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

**EXHIBIT A: FINAL SETTLEMENT AND RELEASE OF CLAIMS
CONTRACT NO. PW-005(E)**

**SAN FRANCISCO HOUSING AUTHORITY POTRERO TERRACE EMERGENCY
BOILER AND DISTRIBUTION PIPING REPLACEMENT**

This agreement and release of claims (“Agreement and Release”) is made and entered into this ____ day of _____, 201__, in the City and County of San Francisco, State of California, by and between _____, (hereinafter referred to as "Contractor"), whose principal place of business is _____, and the City and County of San Francisco, a municipal corporation, (hereinafter referred to as “City”), acting by and through the San Francisco Public Utilities Commission.

RECITALS

1. WHEREAS, City and Contractor entered into Contract No. PW-005(E), San Francisco Housing Authority Potrero Terrace Emergency Boiler and Distribution Piping Replacement, (hereinafter referred to as "Contract"); and
2. WHEREAS, The Work under the Contract has been completed and the City has issued a certificate of acceptance for the Work per Administrative Code Section 6.22(K); and
3. WHEEREAS, Contractor has submitted its final application for payment.

Now, therefore, it is mutually agreed between Contractor and City as follows:

AGREEMENT

1. Contractor and the City agree as follows:

Original Contract Sum:	\$ _____
Change Orders (1 through ____ and Final Quantity Adjustment):	\$ _____
Modified Contract Sum:	\$ _____
Payments to Date (direct payments to Contractor and releases of retention):	\$ _____
Retention Remaining in Escrow Account:	\$ _____
Amount Due before Adjustments for Offsets & Stop Notices:	\$ _____
Offsets (e.g., OLSE forfeiture, non-conforming work, liquidated damages, etc.):	(\$ _____)
Outstanding Stop Notices (withheld @ 125% of Stop Notice amounts):	(\$ _____)
FINAL PAYMENT DUE CONTRACTOR:	\$ _____
Retention Release to Contractor from Escrow:	\$ _____
Return of Funds to City from Escrow:	\$ _____

2. Subject to the provisions of this Agreement and Release, City shall forthwith pay to Contractor the sum of \$_____ under the Contract, less any amounts represented by Notices to Withhold Funds on file with the Controller as of the date of such payment.
3. Contractor acknowledges and hereby agrees that there are no unresolved or outstanding claims in dispute against the City arising from the performance of Work under the Contract, except for (i) the Disputed Claims described in Paragraph 4, below, and (ii) continuing obligations described in Paragraph 6, below. It is the intention of the parties in executing this Agreement and Release that, upon Contractor's receipt of the final payment and escrow release amounts identified in Paragraph 1, above, this Agreement and Release shall be effective as a final accord and satisfaction and a full, final and general release of all claims, demands, actions, causes of action, obligations, costs, expenses, damages, losses and liabilities of Contractor against City, its boards and commissions, and all of its officers, agents, members, employees, authorized representatives, assignees and transferees except for the Disputed Claims set forth in Paragraph 4, below, and continuing obligations described in Paragraph 6, below.
4. The following claims are disputed (the "Disputed Claims") and are specifically excluded from the operation of this Agreement and Release:

Contract Claim No.	Date Submitted	Description of Claim	Amount of Claim

Nothing herein shall operate to toll, waive, or excuse Contractor's compliance with the Government Code Claim requirements under California Government Code Section 900, et seq., and San Francisco Administrative Code Chapter 10 as to the Disputed Claims. Refer to Article 13 of Contract Section 00 72 00 (General Conditions).

5. Consistent with California Public Contract Code Section 7100, Contractor hereby agrees that, in consideration of the payment set forth in Paragraph 2, above, Contractor hereby releases and forever discharges the City, its boards and commissions, and all of its officers, agents, members, employees, authorized representatives, assignees and transferees from any and all liability, claims, demands, actions or causes of action of whatever kind or nature arising out of or in any way concerned with the Work under the Contract, except for the Disputed Claims.

- 6. Guarantees and warranties for Work, and any other continuing obligation of Contractor, shall remain in full force and effect as specified in the Contract Documents.
- 7. Contractor shall indemnify, hold harmless and defend City, its boards and commissions, and all of its officers, agents, members, employees, authorized representatives, assignees and transferees from any and all claims, demands, actions, causes of action, obligations, costs, expenses, damages, losses and liabilities that may be asserted against them by any of Contractor's Suppliers and/or Subcontractors of any tier and/or suppliers to them for any and all labor, materials, supplies, and equipment used, or contemplated to be used, in the performance of the Contract.
- 8. Contractor hereby waives the provisions of California Civil Code Section 1542, which provides as follows:

A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR.

- 9. The provisions of this Agreement are contractual in nature and not mere recitals and shall be considered independent and severable, and if any such provision or any part thereof shall be at any time held invalid in whole or in part under any federal, state, county, municipal or other law, ruling or regulations, then such provision, or part thereof, shall remain in force and effect to the extent permitted by law, and the remaining provisions of this Agreement and Release shall also remain in full force and effect, and shall be enforceable.
- 10. All rights of City shall survive completion of the Work or termination of Contract, and execution of this Release.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement and Release on the day first mentioned above.

*****CAUTION: THIS IS A RELEASE – READ BEFORE EXECUTING*****

CONTRACTOR

CITY

By: _____

By: _____

Title: _____

Title: _____

Date: _____

Date: _____

*(Include the following if Contractor identifies one or more Disputed Claims in Paragraph 4,
above.)*

APPROVED AS TO FORM:

Dennis J. Herrera, City Attorney

By: _____

Deputy City Attorney

END OF SECTION

SECTION 01 78 36

WARRANTIES

PART 1 – GENERAL

1.01 SUMMARY

- A. This Section includes the following topics:
 - 1. Requirements
 - 2. Submittal Requirements
 - 3. Quality Assurance
 - 4. Warranty Conditions
 - 5. Project Specific Requirements
 - 6. Forms for Certificates of Guarantee/Warranty
- B. Related Documents and Sections:
 - 1. Section 00 72 00 – General Conditions, Paragraphs 3.17, 8.03, 9.07, and 9.08.
 - 2. Section 01 77 00 – Closeout Procedures
 - 3. Individual Technical Specifications Sections (Division 02 through 48) in which Manufacturers’ or Suppliers’ Warranties are required for specific products or work.

1.02 REQUIREMENTS

- A. Prior to performing any corrective warranty work, the Contractor shall furnish the City with proof of insurance. Insurance coverage shall be equivalent to that specified in Section 00 73 16.
- B. Contractor shall identify the entity (“Guarantor”) that is providing each equipment warranty and each equipment system warranty, whether the entity is a supplier (which assembles various manufactured parts and then provides a warranty for the equipment system); a manufacturer (which may subcontract a certain part(s) but provides a warranty for the entire equipment system furnished or which provides a warranty for each individual piece of equipment furnished); or the Contractor itself.

- C. The Contractor shall comply with all quality and performance requirements for guarantees/warranties specified in the individual Specification Sections (Divisions 02 through 48).
- D. The Contractor shall include a copy of each equipment and each equipment system Warranty in the appropriate chapter of the Operation and Maintenance Manual. Each of these equipment and equipment system Warranties shall be accompanied by documentation of quality control tests performed by the entity identified in Subparagraph B., above, and all such other tests as required under this Contract.
- E. These equipment and equipment system warranties shall be in addition to and not a limitation of other rights the City may have under the Contract and which may be prescribed by law, irrespective of the wording of supplier's / manufacturer's standard warranty.

1.03 SUBMITTAL REQUIREMENTS

- A. Contractor shall submit guarantees/warranties (as specified in Sections 02 through 48) within 7 days following either:
 - 1. The date of the City's determination that the Contractor has achieved Substantial Completion (for Work not described as incomplete in the Punch List / Final Completion).

OR

 - 2. The Partial Utilization date (specified in the Notice of Partial Utilization) for a particular item of work, piece of equipment, or system. Refer to subparagraph 9.07.F of the General Conditions for further details regarding Partial Utilization
 - 3. For Work described as incomplete in the Punch List / Final Completion, Contractor shall submit guarantees/warranties prior to and as a condition precedent to Final Completion.

- B. Submit three copies of each guarantee/warranty form as shown in the Article, below, entitled "FORM OF GUARANTEE/WARRANTY FOR GUARANTEE TO REPAIR PERIOD" of this Section.
- C. Submit all Warranty material bound in commercial quality, 8-1/2 inch x 11 inch three-ring side binders with hardback, cleanable, plastic covers.
- D. The Contractor shall label the cover of each binder with typed or printed title WARRANTIES, with title of Contract; name, address and telephone number of Contractor and entity identified in Article 1.02.B, above; and name of Contractor's responsible principal employee.

- E. The Contractor shall provide a neatly typed Warranty Table of Contents as shown in the sample form provided in Article 1.06.A. of this Section.
- F. The Contractor shall separate each warranty with index tab sheets keyed to the Table of Contents listing and shall provide full information, using separate typed sheets as necessary. The Contractor shall provide a list of subcontractors, suppliers, and manufacturers, with names, addresses, and telephone numbers of responsible principals for each entity identified in Article 1.02B, above.

1.04 QUALITY ASSURANCE

- A. The required guarantees/warranties executed by the Contractor and subcontractor, installer, supplier, or manufacturer (if applicable) responsible for that portion of the work are subject to the City's verification that the documents are in proper form and contain complete information. Contractor shall correct and resubmit deficient guarantees/warranties before Final Completion.
- B. Acceptance of supplier's / manufacturer's guarantees/warranties by the City shall not be construed to limit the City's recourse to the Contractor for correction of defects under the law and in accordance with the General Conditions.

1.05 WARRANTY CONDITIONS; GUARANTEE TO REPAIR PERIOD

- A. The Contractor shall warrant that Work performed under this Contract conforms to the Contract Documents and is free of any defect of equipment, equipment system, material, installation, design furnished, or workmanship furnished by Contractor, and/or its subcontractors, suppliers, manufacturers and design professionals.
- B. Term of the Guarantee to Repair Period. Except as otherwise required in the individual Specification Sections, the Contractor guarantees/warrants the Work against defects for 24 months following the date of the Notice of Substantial Completion certificate issued by the City, or, for portions of the Work which are used or occupied by the City prior to the date of Substantial Completion, for 24 months following the date specified in the Notice of Partial Utilization. This paragraph modifies the term of the Guarantee to Repair Period specified in Paragraph 8.03.B of the General Conditions. All other provisions set forth in Paragraph 8.03 shall apply during the Guarantee to Repair Period, as amended by this Section.
- C. Promptly after receipt of written notice from the City, the Contractor shall remove, replace, or correct Work, or portion thereof, which is damaged or found to be defective and not in accordance with the Contract.
 - 1. If the Contractor fails to undertake and complete such remedial work in a timely manner, the City may perform the remedial work with its own forces or under a separate Contract, and the Contractor agrees to reimburse the City for all costs incurred.

2. The City reserves the right to remove and store or dispose of defective equipment or material at the Contractor's expense.
3. If the Contractor does not pay the costs of such removal and storage within 10 days thereafter, the City may, upon 10 additional days written notice, sell such defective items and shall account for the net proceeds after deducting all the costs that have been borne by the City, including compensation for City Representative's additional services.
4. If the proceeds from the sale are insufficient to cover all amounts chargeable to the Contractor, the Contractor shall pay the difference to the City.

1.06 WARRANTY TABLE OF CONTENTS SAMPLE FORM / PROJECT-SPECIFIC REQUIREMENTS (NOT USED)

1.07 FORM OF GUARANTEE/WARRANTY FOR GUARANTEE TO REPAIR PERIOD

- A. For the Entire Contract, the Contractor shall submit a certificate covering the Guarantee to Repair Period as follows:

<p>GUARANTEE/WARRANTY FOR SFPUC PW-005(E) San Francisco Housing Authority Potrero Terrace Emergency Boiler and Distribution Piping Replacement</p> <p>We hereby guarantee/warrant that the work of this Contract has been completed in accordance with the requirements of all applicable Contract Documents.</p> <p>We agree to repair or replace any or all of our Work that may prove to be defective in its workmanship, material, or Contractor-furnished design within a period of twenty-four (24) months from the date of issuance of the Notice of Substantial Completion of the above named Project. We also agree to repair or replace any adjacent work which may be damaged as a result of the defective work or as a result of repairing or replacing defective work. We agree to repair any and all damages resulting from defective work without any expense to the City, ordinary wear and tear and unusual abuse or neglect excepted.</p> <p>In the event of our failure to comply with the above mentioned conditions within ten (10) days after being notified in writing by the City, we collectively or separately do hereby authorize the City to proceed to have such defective work repaired or replaced and made good at our expense, and we will honor and pay the costs and charges therefore upon demand.</p> <p>Signed _____ Date _____</p> <p>Contractor Name: _____</p> <p>Address: _____</p> <p>License No. _____</p> <p>Substantial Completion of the work was granted by the City on _____ (date)</p> <p>Signed: _____ Date: _____ (City Representative)</p>

- B. Supplier/Manufacturer/Contractor Guarantees/Warranties for Specific Items of Equipment or Equipment Systems in accordance with the quality and performance standards detailed in Division 02 through 48 of the Technical Specifications
Submit separate Guarantee/Warranty certificates for each mechanical and

electrical piece of equipment and equipment system and submit separate certificates for each equipment / equipment system with specific Division 02 through 48 Guarantee/Warranty requirements:

(Supplier/Manufacturer/Contractor Letterhead)

**GUARANTEE/WARRANTY FOR EQUIPMENT / EQUIPMENT SYSTEM
INSTALLED BY CONTRACTOR OR SUBCONTRACTOR**

_____ *(Name of Supplier or Manufacturer or Contractor)*, agrees to repair defects in or furnish and install replacement of the following equipment / equipment system if found to be defective.

Owner: San Francisco Public Utilities Commission, City and County of San Francisco
Description of Equipment / Equipment System:

(Include Manufacturer name, model number, serial number, and such other information as needed to positively identify the equipment / equipment system.)
Location of Equipment / Equipment System: _____
Installed under: **PW-005(E)** San Francisco Housing Authority Potrero Terrace Emergency Boiler and Distribution Piping Replacement
Date Installed: _____
Partial Utilization Date: _____
Date of Contract Substantial Completion: _____
This guarantee/warranty is effective upon date shown herein under, and shall remain effective for _____ years thereafter. The Supplier/Manufacturer/Contractor agrees to the warranty conditions as specified in the hereinabove referenced Contract.
Name and address of Supplier/Manufacturer (if Contractor is Guarantor, skip 4 lines):

Signed by Supplier's / Manufacturer's Agent: _____
Date: _____
Title _____
Name of Contractor: _____
Signed By: _____ Title: _____ Date: _____
Acknowledged by City Representative: _____ Date: _____

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.01 SUMMARY

- A. This Section sets forth requirements and procedures for the Contractor to maintain updated Project Record Documents required under the Contract and to submit updated record documents to the City Representative.
- B. Related Documents and Sections include:
 - 1. Section 01 33 00 – Submittal Procedures
 - 2. Section 01 77 00 – Closeout Procedures

1.02 GENERAL REQUIREMENTS

- A. The Contractor is responsible for maintaining up-to-date project record documentation. The Contractor shall make the up-to-date record documentation available for monthly inspection by the City Representative, and at any other time requested by the City Representative.
- B. The Contractor is responsible for maintaining two sets of Project Record Documents: one on-site working set and another one in a secure, off-site location, so that in the event of loss of the Project Record Documents at the jobsite, these can be accurately reconstructed and replaced.
- C. Following completion of the Contract work, the Contractor is responsible for submitting Project Record Documents meeting the requirements of the Specifications.
- D. The Contractor shall maintain an ordered, clean, completed, indexed and easily accessible filing system for all Project Record Documents.
- E. Definitions:
 - 1. **Contract Drawings:** Drawings issued for bid and drawings issued by addenda during the bid period.
 - 2. **Project Record Documents:** Interim Contractor Record Documents, Record Shop Drawings and Final Record Documents, which include, but are not limited to: Drawings, Specifications, Addenda, Change Orders, Requests For Information (“RFIs”), Equipment Data Sheets, clarifications,

Field Orders, approved shop drawings, samples and other submittals, clearly marked to record accurately the Work as actually constructed (“record documents”), including changes, adjustments, and other information relative to the Work.

3. **Interim Contractor Record Documents:** Documents which the Contractor updates throughout construction to show all changes or variations between designed and as-constructed facilities.
4. **Record Shop Drawings:** Approved Contractor’s proposed installation and equipment details based on field conditions and requirements and considered and/or acknowledged as record documents, provided the Contractor has stamped them “record documents” and submitted them as such.
5. **Final Record Documents:** Final submittal by the Contractor of the Record Documents reflecting all the changes from the Contract Drawings and specifications, shop drawings, etc. made and actually constructed. The Final Record Documents are certified by the Contractor and the City Representative as marked-up construction documents representing facilities as constructed.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 REQUIREMENTS

- A. The Contractor shall maintain at the Contractor’s jobsite office an accurately marked, up-to-date set of Project Record Documents to document work actually installed and conditions encountered. The Contractor shall accurately indicate on the Interim Contractor Record Documents all site conditions, measurements, dimensions, locations of utilities, all changes made by clarifications, RFIs, Change Orders, and other modifications to the Contract Documents and details as specified herein and as approved by the City Representative.
- B. The Contractor shall have a designated person to be responsible for updating and maintaining the Interim Contractor Record Documents.
- C. The on-site set of Interim Contractor Record Documents shall be kept in a safe place and protected from damage by weather and manhandling. The Contractor shall store Project Record Documents apart from other documents used for performing the work and shall keep them in a dry and legible condition in good order.

- D. The Contractor shall keep Interim Contractor Record Documents up to date during the entire progress of the work, and make them available to the City Representative at any time. Updates are to occur no more than 5 working days after changes in the work are made.

3.02 PROCEDURES

- A. After the Notice to Proceed, the City Representative will provide the Contractor two dedicated sets of full-size unmarked Contract Drawings specifically for the incorporation of detailed record documents changes and subsequent approval of those changes by the City Representative. The Contractor is to use one set for maintaining the up-to-date Interim Contractor Record Documents at the field office. All information in the Interim Contractor Record Documents is to be transferred to the second, off-site set of drawings monthly.
- B. All lines and notations on the up-to-date Interim Contractor Record Documents shall be neat, accurate, legible, and capable of being scanned into PDF format (or other electronic media file format as specified) such that copies made from the scanned files are as legible as the original.
- C. The Contractor shall record all changes on the Interim Contractor Record Documents. The updated Interim Contractor Record Documents shall include but not be limited to the following:
 - 1. Field changes or adjustments in the final location or in the final dimensions or details of the Contract work relative to actual existing site conditions.
 - 2. Changes resulting from RFIs
 - 3. Changes made by Change Order work
 - 4. Changes made by Field Order work
 - 5. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to visible and accessible features of the Work
 - 6. Details not included on the original Contract Drawings but incorporated into the work by reference to approved shop drawings, product data, samples, calculations or other submittals
 - 7. Location of items embedded in concrete such as conduits, cables, junction boxes, piping, reinforcing steel, etc.
 - 8. Measured depths of foundations in relation to finish main floor datum.
 - 9. Measured locations of internal utilities and appurtenances, referenced to visible and accessible locations or features of the Work

10. Location (to within 1-inch) of the centerline of each run of conduits, circuits, piping, ducts, and similar items which are shown schematically on the drawings, but where the final physical arrangement is determined by field conditions
 11. Other applicable technical information.
- D. The Interim Contractor Record Documents shall be prepared as follows:
1. Make mark-ups using a dark red pencil or pen so that the mark-ups can be clearly seen when photocopied or scanned. Mark-up corresponding details and sections in addition to the mark-ups in plan view.
 2. Clearly mark changes on drawings adding notes as required. Changes made in narrative or reference to a Change Order or RFI without marking the actual drawing are not acceptable.
 3. Date all entries, calling attention to the entry by a “cloud” drawn around the area or areas affected. If mark-ups are a result of an approved change such as a Change Order or RFI, write the reference to these documents in the clouded area.
 4. For each piece of equipment incorporated into the Work, record the manufacturer, trade name, catalog number, model number, serial number, date of installation, supplier of each product and equipment item.
 5. No paper shall be affixed to the back of the drawings. Do not include papers for explanations or comments since all mark-ups are to be complete and self-explanatory.
 6. Permanent papers affixed to drawings, which modify the drawings, shall be securely stapled to the drawings and shall not obstruct information unless intentional. Tape or glue is acceptable only where stapling is not possible.
 7. Drawings which are revised and issued as a result of a Change Order or RFI shall be inserted into the Interim Contractor Record documents and all marks on the old sheet shall be transferred to the new sheet.
 8. If permanent additions to a drawing cannot fit on the drawing, the original drawing shall be labeled “Sheet 1 of 2,” and the additions shall be placed on a new drawing sheet with an identical title block as the original drawing except that the title block shall be labeled “Sheet 2 of 2”.
- E. Contractor shall arrange for the City Representative to examine the up to date marked Interim Contractor Record Documents on a monthly basis at a time mutually acceptable to the Contractor and the City Representative.

- F. Failure to maintain updated Interim Contractor Record Documents acceptable to the City Representative will result in retention of a portion of the monthly progress payment as specified in the General Conditions.

3.03 PROJECT COMPLETION

- A. Updated Interim Contractor Record Documents showing all required information up through substantial completion shall be submitted to and accepted by the City Representative as a condition precedent to the contract being deemed as substantially complete.
- B. Before Final Completion, the Contractor shall prepare and submit "Final Record Documents" to the City Representative as specified in Article 3.03.D of this Section. The Contractor shall submit "Final Record Documents" that are neat, clean, and accurately reflect work as constructed. Following review, if the Final Record Documents are acceptable to the City Representative, the Contractor shall certify each sheet of the Final Record Documents using the stamp provided by the City Representative stating "Certified that these Final Contractor Record Documents represent the facilities as constructed." The Contractor shall certify the stamp in the appropriate place and then the City Representative will certify the stamp.
- C. In the event that the Final Record documents do not meet the approval of the City, or the condition of the drawings is deteriorated so that they are no longer suitable for use as record documents documentation, the Contractor may request replacement contract drawings upon which to post record documents documentation. Such drawings will be furnished to the Contractor by the City Representative. The Contractor shall reimburse the City for the actual cost of providing said replacement drawings.
- D. The Contractor shall furnish:
 - 1. Full size original set of "Final Record Documents" including certification by the Contractor and the City Representative.
 - 2. Electronically scanned files of the certified "Final Record Documents" in color PDF format at 300 dpi minimum resolution with one PDF file per drawing on DVDs.
- E. The City will require 15 working days to perform certification of the Final Record Documents.
- F. Furnish certificates and documentation of test results required in Technical Specifications.

3.04 PROJECT SPECIFIC REQUIREMENTS (NOT USED)

END OF SECTION

FOR THE SOLE USE OF THE DOCUMENT RECIPIENT – DO NOT CITE, COPY,
OR CIRCULATE WITHOUT THE EXPRESS PERMISSION OF THE SFPUC