SECTION 01 11 00
SUMMARY OF WORK

PART 1—GENERAL

1.01 DESCRIPTION

The City is constructing the Central Subway, Third Street Light Rail – Phase 2 Project, which will extend the existing SFMTA Light Rail System T-Line service from Fourth and King Streets, north along and under Fourth Street to Market Street, under the BART and Muni Metro tunnels adjacent to Powell Station, and then north along and under Stockton Street to Chinatown Station terminating with two tail tracks north of Chinatown Station.

North of Chinatown Station the TBMs will continue another 1,710 route feet to a TBM retrieval shaft on Columbus Avenue near Washington Square. This later segment of tunnel north of Chinatown Station is referred to as the North Beach Construction Variant and serves to facilitate TBM retrieval and the adopted tunnel first construction sequence as well as extension of the line at some future date.

The Work under this Contract 1277 will includes the demolition of the structure also referred to as the Pagoda Palace Demolition (PPD), at 1731-1741 Powell Street (Assessor's Block 107, Lot 102) and the installation of infrastructure for future compensation grouting.

The following is the description of the contract elements in greater detail:

A. This Section 01 11 00 summarizes the Work under this Contract 1277 and other known work in the vicinity of the Contract Work.

B. The designs and information represented in the attached documents, which that were prepared by Arup on behalf of Barnard Impregilo Healy, Joint Venture (BIH), are preliminary and conceptual only. The SFMTA provides these documents only as information for bidders. These documents are not design documents, contract documents, or reference documents on which any person may rely. The City, BIH and Arup and any person or entity employed by any of them in the preparation of these documents shall not be liable for any error or omission in the preparation or content of these documents. A bidder awarded a contract to perform the work must prepare its own designs and plan and execute the work based on its own measurements, calculations, and investigation of the site.

C. The Work to be performed under this Contract 1277 includes furnishing all tools, equipment, materials, supplies, and manufactured articles; furnishing all labor, transportation, and services, including fuel, power, water, and essential communications; and performing all Work or other operations required for the fulfillment of the Contract, in strict accordance with the Contract Documents. As Incidental Work, Contractor shall also provide all Work, Materials, and

services not expressly indicated in the Contract Documents which may be necessary for the complete and proper construction of the Work and administration of the Contract.

D. The Contractor is responsible for retaining a California-Licensed Engineer with experience in design and construction in California and with preparation of demolition plans. Contractor's Engineer will be responsible for preparation of work sequence and phasing plans to meet Engineer's and Permitting requirements. Plans developed by Contractor's Engineer shall be sufficient to receive approvals and permitting as required.

E. Contractor and Contractor's Engineer are responsible for means and methods of demolition and temporary systems and temporary structural reinforcing during demolition. Contractor shall submit to Engineer to Engineer temporary systems and shoring prior to approval.

F. Contractor's Engineer shall monitor surrounding buildings/structures during demolition process and report to Engineer. Contractor to mitigate any procedures that may cause damage to existing properties.

G. The Work to be performed under this Contract 1277 includes obtaining necessary permits and maintaining traffic in accordance with applicable Traffic Regulations and regulatory codes and standards.

1.02 LOCATION OF WORK

The Site for the Work to be done under this Contract is located on an off-street parcel within the City of San Francisco on an irregularly-shaped block bounded by Powell Street on the east, Columbus Avenue on the northeast, Filbert Street on the north, Mason Street to the west, and Union Street to the south. The Site is also west of the existing triangular park – Marini Plaza – across Powell Street.

1.03 DESCRIPTION OF WORK

A. The Work under contract includes:

~~1. Structural and geotechnical instrumentation and monitoring of Project structures and adjacent existing utilities, buildings.~~

2. Demolition of 1731-1741 Powell Street building– a former theatre comprised of four levels and roof.

   a. Prevent movement or settlement of adjacent structures and landscaping.

   b. Provide bracing and shoring as required.

   c. Adjacent to the Site Work is the historic Filbert Garage brick garage located at 721 - 725 Filbert Street.

3. Perform all hazardous abatement work for 1731-1741 Powell Street building.

    a. Scope of Work is based on the following hazardous materials survey reports:

        1) Phase I Environmental Site Assessment, Theatre Building, 1731-1741 Powell Street, San Francisco, CA, Ceres Associates, May 30, 2001.

        2) Asbestos and Lead Survey, 1731 Powel Street, San Francisco, CA, EnviroNova, June 19, 2009.

        3) Abatement Work to be performed includes, but is not limited to identification, removal and disposal of debris and materials containing: lead paint, lead containing ceramic tiles, asbestos containing materials (rough plaster ceiling, putty, vinyl floor tiling, vinyl floor mastic, built-up roofing, roof flashing, transite panels, flue pipe chases, PCB ballasts, and mercury-containing thermostat)

4. Disposal of demolished materials.

5. Installation of compensation grout pipes under this contract for subsequent compensation grouting for protection of adjacent buildings by follow on contracts.

6. Ancillary surface work including but not limited to:

    a. Temporary traffic routing.

7. Ancillary sub-surface work including, but not limited to:

    a. Point-of-entry building utility service connections to be capped or relocated as indicated on Drawings.

8. Demobilization and site restoration.

9. Perform final street restoration work as necessary.

B. The above description is not intended to be complete. The Work to be completed is specified in the Contract Documents. The listing above shall not relieve the Contractor of its obligations to read and understand the Contract Documents.

1.04 DEMOLITION WORK

A. Survey Reference Points

1. Locate and preserve horizontal coordinates and vertical elevations of San Francisco survey monument points during construction. Notify the County Surveyor at (415) 554-5833 to report any monuments in danger of disturbance, destruction or removal. All City monuments must be

protected in conformance with the State Land Surveyors Act and Section 01 76 29, Protection of Existing Property.

2. Do not disturb, destroy or remove any survey monuments without the approval from the County Surveyor. Contractor shall salvage any monuments removed during construction and deliver these monuments to the survey department on the 4th floor at 875 Stevenson Street, San Francisco.

B. Schedule of Building Demolition Activities

1. Submit demolition and removal procedures, shop drawings indicating demolition sequence and schedule in accordance with SFBC Chapter 33, Section 3303 "Demolition".

2. Submit Demolition and Removal Procedures; Design of Temporary Shoring, Bracing and the like; and Shop Drawings in accordance with Section 01 33 00, Submittal Procedures, prepared by a Professional Engineer licensed in the State of California. In addition, submit demolition work sequence and schedule.

3. Submittals shall include details of excavation, protection, temporary shoring, bracing, framing and/or supports, and instrumentation as required. For all work components to be dismantled, Contractor shall mark components to be dismantled and shall submit those for the Engineer's approval along with suggested staging of the work. Contractor shall not commence work prior to obtaining the Engineer's approval.

4. Documentation for Proposed Protection and Control Measures including measures for Environmental Protection, Dust Control and Noise Control.

5. Permits from appropriate agencies for the demolition work including permits for transport and disposal of debris.

6. Traffic Control procedures including street traffic and traffic internal to the structures being subjected to and/or affected by the building demolition work.

C. Point of Entry Utility Services - Removals

1. Notify all affected utility companies before the commencement of demolition and comply with their requirements.

2. Where existing abandoned underground utilities are encountered and are in conflict with contract work, notify the Engineer, confirm abandonment, and then remove these utilities as needed. Dispose of the material according to latest OSHA and City and County of San Francisco requirements.

3. Coordinate all demolition and construction staging among all adjacent projects and tasks, including but not limited to traffic handling, curb returns, utilities, traffic signals and drainage.

4. Provide excavation, shoring, backfill, and pavement restoration as required.
5. Disconnect, remove and/or cap designated utility lines within demolition areas per utility agency requirements. Abandon storm and sanitary sewers in accordance with Section 302 of the SSDPWSF.
6. Mark location of disconnected utilities. Identify utilities and indicate capping location on as-built drawings.

D. Building Demolition

1. Protect existing landscaping, utilities, appurtenances, structures, surface improvements and other adjacent elements that are not to be demolished.
2. Report differing or questionable conditions to the Engineer in writing. Do not proceed with work until the Engineer has provided further instructions.
3. Provide continuous noise and dust abatement to prevent disturbance to the public and to the occupants of the adjacent premises. Dampen areas affected by demolition operations as necessary to prevent dust from rising. Provide hoses and water main or hydrant connections for this purpose.
4. Control noise from demolition operations to levels that are in compliance with local noise control ordinances and OSHA standards.
5. Demolish indicated structures and appurtenances in an orderly and careful manner. Cease operation and notify the Engineer immediately if adjacent structures appear to be endangered. Do not resume operations until corrective measures have been taken.
6. Except where noted otherwise, immediately dispose of demolished material away from the site.
7. Do not burn or bury materials on the site.
8. Use of explosives is not permitted.
9. Contractor's Professional Engineer shall be on site at all times during the demolition work for Union Square Garage and shall supervise and inspect the installation of permanent and temporary shoring, bracing and the like and shall also supervise and inspect the demolition work.
10. Remove walls, ramps, stairs, foundation walls and footings completely as shown on the Contract Drawings.
11. Keep work sprinkled to minimize dust. Provide hoses and water main or hydrant connections for this purpose.

12. Supports: Provide supports or reinforcement for existing construction that becomes temporarily weakened by the work until the work is completed.
13. Remove demolished materials from site as work progresses in accordance with the approved debris recovery program and regulatory requirements for legal disposal of materials.
14. All damage to existing structures and facilities, which are to remain in place, shall be repaired to a condition equal to that existing prior to the beginning of demolition and removal operations. The cost of repairing existing structures and facilities damaged by the Contractor's operations shall be at the Contractor's expense.
15. Clean adjacent structures and improvements of dust, dirt and debris caused by structure demolition operations. Return adjacent areas to condition existing before structure demolition operations began.

E. Site Access and Temporary Controls

1. Conduct demolition to minimize interference with adjacent structures.
2. Conduct operations with minimum interference to travel ways. Maintain and protect egress and access at all times.
3. Provide trained flaggers when vehicular traffic is affected by demolition operations.
4. Do not close or obstruct, roadways, parking areas, driveways, sidewalks except as permitted by permits obtained from the City and County of San Francisco.

1.05 WORK BY OTHERS

A. There will be future follow on contracts and Work of Central Subway in the northern alignment of the project:

1. Construction of the future retrieval shaft for the extraction of the tunnel boring machine (TBM).
2. Retrieval of the TBM in the future from the retrieval shaft constructed at the PPD site.

B. SFMTA Contract 1252 – Central Subway Tunneling construction is currently in-progress.

1.06 SPECIAL INSTRUCTIONS

A. The Contractor shall, for the duration of this Contract, have adequate numbers of workers and have all necessary equipment available on short notice to protect adjoining property and utilities, maintain the Work, or to make any emergency repairs. Contractor shall furnish the Engineer with names and telephone numbers of at least three persons to call should any such emergency arise, and these three persons shall be authorized to perform any work as the

Engineer deems necessary to perform emergency repairs or work to prevent damage to adjacent property and utilities.

B. The Contractor shall perform the following Work prior to starting Work on the Site:

1. Participate in the pre-construction meeting in accordance with Section 01 31 19, Project Meetings.
2. Obtain approval of the Baseline Schedule in accordance with Section 01 32 13, Scheduling of Work.
3. Obtain approval of the Schedule of Values in accordance with Section 01 32 13, Scheduling of Work.
4. Obtain approval of the Submittal Register of Section 01 33 00, Submittal Procedures.
5. Thoroughly inspect the Site and Contract Documents and submit Requests for Information.
6. Establish Traffic Controls in accordance with specifications herein.
7. ~~Issue 30 Day Notification per Section 01 31 13, Article 1.04.B, Coordination with the Public.~~
8. ~~Issue 10 Day Notification per Special Provision Section SP-6 Special Instructions to the Contractor, sub-section B.4.~~
9. Submit Contractor's Injury Illness Prevention Program (IIPP) plan per Section 01 35 29.10 Article1.06.A.
10. Submit the final Contractor's Quality Program plan per Section 01 45 00, Article 1.04.C.

C. The Site and Construction Area in which Work under this Contract 1277 will be performed is located in a commercial business district adjoining residential communities. Work performed under this package shall be performed in a manner that creates minimal impact or disturbance to the residents and commercial businesses adjacent to the Site and in the Construction Area.

D. Contractor's Work under this Contract 1277 performed are:

a. Work other than with hand tools shall not begin prior to 7:00 a.m. any weekday and shall cease at 3:30 p.m.
b. No work shall be permitted on weekend.
c. No equipment shall be started, warmed up, run, or repaired prior to 7:00 a.m. on weekdays or after 3:30 p.m. on any Day.
d. Temporary street and traffic lighting, when required, shall be placed in a manner that provides minimal intrusion to all local businesses. The Engineer shall approve placement of all temporary street and traffic lighting prior to beginning the Work.

e. Refer to Section 01 31 13 – Project Coordination, for Contract 1277 coordination requirements with others.

1) Weekly on Sunday: North Beach Farmer's Market occupies Powell Street between Union Street and Columbus Street.

E. Public Relations

1. Contractor and all subcontractors and suppliers shall be courteous and cooperative with the local businesses, residents, and the public.

2. Any request for assistance from a resident and business in the Construction Area to which Contractor cannot promptly respond shall be referred immediately to the Engineer or the Central Subway External Affairs Manager.

3. When requested by the Engineer, the Contractor shall attend meetings with the local public, residents, and businesses.

4. Communications between the Contractor and members of the community and businesses in the Construction Area shall be performed under the direction of and supervision of the Engineer or the Central Subway External Affairs Manager. Verbal agreements or other communications between the Contractor and local community members and businesses shall be immediately disclosed to the Engineer and Central Subway External Affairs Manager.

~~F. The Contractor shall provide notice (via written flyer) to all residents, businesses, and schools within 300 feet of the Site for a period of 10 Days in advance of the following:~~

~~1. The beginning of construction Work at the Site.~~

~~2. Changes in parking restrictions.~~

~~3. Other activities as determined by the Engineer.~~

1.07 ACCESS AND WORK IN AND ADJACENT TO MUNI FACILITIES

A. The Contractor is advised that Muni Overhead Contact System (OCS) is a HIGH VOLTAGE SYSTEM operating in excess of 600 volts DC and its trolley wires have an 18-foot plus or minus vertical clearance from the roadway pavement. The Market Street trolley services, including motor coach services, are critical operations for Muni. Contractor's attention is directed to California Code of Regulations, Title 8, Subchapter 5, Article 37, that requires boom type equipment that moves vertically must maintain a 10-foot radial clearance and other equipment must maintain a 6-foot clearance from overhead electric wires. The Contractor shall strictly observe these regulations.

B. To facilitate the Work, and unless otherwise specified in the Contract, the Contractor may propose to temporarily relocate the existing trolley wires and associated OCS.

1. Request to temporarily relocate the trolley wires and associated OCS shall be subject to the Engineer's approval of the Contractor's application at the locations and for time duration requested.
2. The Contractor shall submit Drawings made to a scale of 1:20, showing the location, duration, existing and proposed alignment of the trolley wires, methods of doing the Work, including all temporary supports, and the sequence of construction. The submittal shall be made at least 8 weeks prior to performing that Work, to allow adequate time for review and coordination with the SFMTA Operating Division. Contractor shall not proceed with Work until submittals and clearances have been approved.
3. The Contractor's proposed temporary trolley wires alignment shall be subject to the Engineer's approval and shall provide a reliable and safe condition for Muni's normal revenue service operation. The temporary trolley wires alignment shall not interfere with the trolley coaches' ability to travel at normal revenue speed and lane of travel.
4. All trolley wires relocation and restoration Work shall be performed by qualified Contractor personnel during Muni's non-revenue hours or the allowable shutdown hours specified in this Section. Interruption to Muni's revenue service is not permitted.
5. All temporary located trolley wires and associated OCS shall comply with the applicable codes, orders, and regulations.
6. The Contractor is responsible for maintaining the temporary relocated trolley wires and associated OCS until its restoration to the original alignment. The Contractor shall restore the relocated trolley wires and associated OCS to their original alignment after completion of the Work that necessitated their relocation or as directed by the Engineer, in a "like new" or better condition acceptable to the Engineer.
7. All costs associated with the Contractor's temporary relocation and restoration of trolley wires and associated OCS are Incidental Work.

C. Access to the Site may be restricted by other routine SFMTA and scheduled Municipal Railway activities. Contractor shall expect delay and limitations on access and shall coordinate daily and cooperate with the Engineer. Access delays and limitations that are a result of the Contractor's lack of coordination and cooperation are not compensable.

1.08 MAINTENANCE OF MUNI SERVICE AND MUNI SHUTDOWNS

A. Contractor, Subcontractors, and all personnel must review and become familiar with Muni–SFMTA requirements and clearances, and must perform work in accordance with the SFMTA's Contractor Safety Procedures, Lockout/Tagout Procedure, Rules and Instruction Handbook and other applicable SFMTA procedures. The Contractor, Subcontractors, and all Contractor personnel shall complete the required training, including

Contractor Safety Orientation prior to beginning work. All cost associated with the Contractor's training shall be considered incidental cost to the Contract 1277, which shall be included in its Total Bid Price.

B. The Contractor shall not interfere with the movement of Muni trolley coaches or motor coaches at any time.

C. The Contractor is advised that multiple Muni trolley and diesel coach lines operate in the Construction Area. Information on Muni lines and transit schedules can be found at www.transit.511.org.

D. The Contractor shall provide qualified flag personnel and request from SFMTA a Muni Inspector as required to assist transit vehicles operating around or through the Construction Area in accordance with the Contract Documents and Muni's Traffic Control Procedures, Contractor Safety Procedures, and Rules and Instruction Handbook. Provide signs for temporary transit stops, as requested by the Engineer, all as incidental work.

E. The lanes made available for traffic shall be located so as to include an adequate and allowable travel path for the coach lines. The extreme touring range of the centerline of a trolley coach is 10 feet from the centerline of the trolley wires. A 50-foot turning radius for motor and trolley coaches shall be provided by the Contractor.

F. Allowed Muni Shutdowns.

1. Permission to de-energize trolley wires will be granted by the Engineer, during the non-revenue hours, or at the locations and for durations as specified in the Contract Documents, pursuant to the Engineer's approval of the Contractor's application. Separate application/clearance shall be required for each allowed shutdown specified herein, and for each Day of such action.

2. Contractor shall submit a separate application for each allowed shutdown in accordance with the following restrictions and conditions:

   a. At least 30 Working Days in advance of work requiring shutdowns, the Contractor shall meet with the Engineer to discuss and schedule clearances regarding de-energization of the Overhead Contact System, re-routing of trolley coaches or diesel coach substitution.

   b. At least 15 Working Days prior to the effective date of the shutdown, a shutdown request must be submitted to the Engineer for approval. Each submitted request shall include information such as, but not limited to, day and hours of shutdown, location, detailed work plans, approved traffic control plans, and affected circuits for de-energization of the overhead contract system.

   c. After the City has approved a shutdown request, Contractor may cancel the shutdown by so requesting in writing no less than 5 Working Days prior to the effective date of the approved shutdown. The Contractor will be assessed $5,000 as liquidated

damages for City's expenses for each approved shutdown cancelled less than 5 Working Days prior to the effective date of the approved shutdown.

3. All requests for shutdowns shall be subject to the approval of Muni through the Engineer. Approval of dates for shutdowns shall be subject to Muni's capability to provide bus substitution or to re-route coaches to fulfill the request. SFMTA reserves the right to reject requests that are not feasible. Shutdowns will not be allowed during San Francisco events and parades or on dates on which other similar events are scheduled.

4. The Contractor shall not shut down more than one location at the same time, unless otherwise approved by the Engineer.

5. The Contractor shall provide, at no cost to the City, personnel, and equipment to move Muni vehicles promptly through the Construction Area if requested by the Engineer. That assistance includes personnel to pull the trolley poles off the de-energized wires and re-contact the poles with the energized wires, and any other traffic control, which may be necessary.

6. The SFMTA shall provide diesel bus substitution or coach re-route for the shutdowns specified in the Contract Documents at no cost to the Contractor. If the Contractor requests shutdowns in addition to those specified, for each such approved request the Contractor will be assessed $10,000 per shutdown for each location and duration as specified above.

G. All OCS de-energization will be by localized isolation only using temporary insulators (nobos), temporary disconnect of existing jumpers, and temporary disconnect of feed taps and other means. Localized isolation shall be performed by qualified Contractor personnel, under the direction of the Contractor, in a manner consistent with standard Muni procedures. The installation of localized isolation, de-energizing, and re-energizing of the wire is Incidental Work.

H. The Contractor's localized de-energization shall not interrupt Muni's normal revenue operations. Permission to de-energize the OCS that would interrupt Muni's normal revenue operations or energizing any new facilities will be granted by the Engineer only during the allowable revenue shutdowns duration and locations specified, pursuant to the Engineer's approval of the Contractor's application. The Contractor shall submit its proposed de-energization and re-energization plans to the Engineer for approval as provided in subsection F.2, above.

I. For each and every shift of work, the Contractor shall take necessary action to ensure that the Overhead Contact System and all other systems and components disturbed by the Work are in a reliable and safe operational condition for Muni to resume normal revenue services. The City may assess liquidated damages for delay in restoring the Overhead Contact System to full operation as specified in the Special Provisions.

J. The Contractor shall request the Engineer to make arrangements with Muni to perform testing after temporary relocation or restoration of existing OCS, or after installation of new switches, inductive control system and other hardware that is needed for Muni to resume normal revenue operations at the end of Contractor's work shift. The Contractor shall schedule testing of the OCS to within the non-revenue hours or the allowable revenue shutdown specified in this Section. The testing request must be made at least 15 Working Days in advance of the Contractor's work. The Contractor shall remain on site for the first hour of revenue service after these installations and testing, and be prepared to make all necessary emergency repair or adjustment.

K. Complete testing within the scheduled testing period. Testing that is not completed by the Contractor within the scheduled testing period, or where the Contractor fails to make the OCS operational after the testing period, the Engineer may summon the assistance of the Muni, Overhead Lines Department to make any necessary OCS adjustments, or Central Control to reroute trolley coaches, or provide motor coach substitution, to temporarily restore service until the Contractor has permanently fixed the defective OCS. In addition to liquidated damages, all costs associated with the temporary restoration of service, including materials and labor provided by City personnel and cost of service rerouting, shall be at the Contractor's expense. Such process shall neither relieve the Contractor of any of its responsibilities under the Contract, nor act as a waiver by the City of any of the conditions thereof.

1.09 USE OF AREAS AVAILABLE TO CONTRACTOR

A. The Contractor shall not limit the use, access, and parking for the public, residents, and commercial users along streets and sidewalks unless allowed by the SFMTA Sustainable Streets Division and the Engineer.

B. The Contractor shall keep the Site and the Construction Area clean and free of loose dirt or other debris. All areas shall be cleaned at the completion of each Work Day. In addition, the Contractor shall remove all excavated materials from the site no later than the end of each Work Day.

C. The Contractor shall not park or stage equipment in non-designated areas.

1.10 TRAFFIC REGULATIONS

A. Contractor shall adhere to all the requirements specified in the "Regulations for Working in San Francisco Streets", also known as the Blue Book, published by SFMTA, dated January 2012, 8th edition.

B. No traffic lane closures will be allowed on Columbus Avenue between Powell Street and Filbert Street at all times without an approval from the Engineer. Sidewalk along Columbus Avenue shall be maintained open at all times.

C. Contractor shall provide one traffic lane (1@12') on Powell Street between Columbus Avenue and Union Street at all times. Any sidewalk closure along Powell Street shall be in accordance with the Blue Book requirements.

D. Contractor shall schedule the work on weekdays only (Monday-Friday); parking lane and pedestrian sidewalk (permanent or temporary sidewalk) shall be available during weekend.

E. Traffic control plan shall be submitted to the Engineer for approval prior to start of demolition. The traffic control plan shall include the hours of operation, ADA compliance, sidewalk and traffic lane closures and any pedestrian detour including necessary construction traffic signs and equipment such as changeable message boards and flashing arrow boards.

1.11 SCHEDULE CONSTRAINTS

A. Contractor shall complete all Work under this Contract within the time specified under the section "Time Allowance of Completion of Work" of the Special Provisions.

B. Contractor shall provide sufficient resources to meet any Intermediate Milestones listed in the Special Provisions to demonstrate timely progress of Work towards total completion of all Work.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

NOT USED

END OF SECTION

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SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1—GENERAL

1.01 DESCRIPTION

A. This Section specifies the manner in which payments will be made for the Work performed under this Contract 1277.

B. As required by and in accordance with Chapter 6 of the San Francisco Administrative Code, the SFMTA pays only for Work that is completed and incorporated into the Project as required by the Contract, as determined by the Engineer.

1.02 INSTRUCTION ON BID ITEMS

A. Bidders shall provide prices for the Bid Items described in Article 1.04 of this Section with the Bid Proposal.

B. Except as otherwise specified, the measurement and payment provisions in this Section 01 20 00 take precedence over those set forth in the General Provisions.

1.03 MEASUREMENT STANDARDS

A. General: Measure quantities in accordance with standard industry practice, as specified in the General Provisions and as specified herein. The Engineer will verify measurements. Except for time, measure quantities to the nearest whole number of units. Round down fractional units less than one-half; round up fractional units one-half or greater. Quantities measured in units of time shall be measured to the nearest tenth of the measuring unit (i.e., increments of 6 minutes).

B. Measurement by Weight: If the manufacturer prints the weight on the package, the printed weight may be used. For steel, theoretical handbook weights shall be used. For bulk goods, and for package goods without printed weight, the weight may be determined by weighing upon approved scales.

C. Linear Measurement: Linear measurement shall be by the linear dimension indicated on the Schedule of Bid Prices. Unless otherwise indicated, items, components, or work to be measured shall be measured at the centerline of the item in place.

D. Volume Measurement: Volume measurement shall be by the volumetric dimension indicated on the Schedule of Bid Prices.

E. Time Measurement: Time measurement shall be by the unit of time indicated on the Schedule of Bid Prices. Time shall be as determined by the Engineer.

F. Measurement by the Lump Sum:

1. Refer to the General Provisions and Section 01 32 13 Scheduling of Work. Lump Sum Items shall be individually segregated into a Schedule of Values. The Schedule of Values shall show the value of each kind of Work and shall be in a form acceptable to the Engineer and agreed to by both parties.

2. Overhead and profit shall not be listed as separate items, but are included within the Lump Sum price of each Item.

3. An unbalanced Schedule of Values (that provides for overpayment or early payment of Contractor on Items of Work), will not be accepted. The Schedule of Values is subject to the review and approval of the Engineer, and Contractor shall revise and resubmit revised Schedule of Values until acceptable to the Engineer. Final acceptance by the Engineer 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 Item or portion of Work listed therein.

4. No payments for Bid Items will be made nor will the City accept construction submittals or change order requests until the Schedule of Values is submitted as required herein.

G. Measurement under Allowance Items: As specified herein and in Section 01 21 00 Allowances.

H. Field Measurement:

1. Compute quantities of Work performed for payment purposes and submit to the Engineer for approval. Assist the Engineer in the taking of measurements by providing equipment, workers, and survey crews as required to verify quantities in accordance with the provisions for measurement specified herein and as specified.

2. Comply with the requirements of the General Provisions.

I. Rejected, Excess, and Wasted Materials: The following will not be measured for payment:

1. Quantities of Material wasted or disposed of in a manner contrary to Contract requirements or as a consequence of the construction method used to perform the Work.

2. Rejected loads of Material, including Material rejected after it has been incorporated into the Work for non-compliance with Contract requirements.

3. Material placed outside the lines indicated or specified, or established by the Engineer.

4. Material not incorporated into the Work or remaining on hand upon completion of the Work.

1.04 SCHEDULE OF BID PRICES ITEMS (CONTRACT 1277)—MEASUREMENT AND PAYMENT

Bidders shall provide prices for the following Contract 1277 Bid Items, with the Bid Proposal.

A. General

1. **BID ITEM 1 - FIELD MOBILIZATION & DEMOBILIZATION**

a. The Lump Sum amount bid under this Item shall be full compensation for the Contract 1277 Field Mobilization & Demolition Work.

b. The Lump Sum amount bid under this Item shall not exceed 5.0 percent of the total Bid, excluding allowance bid items, for all Work. Any amount in excess of 5.0 percent of the total Bid, excluding allowance Bid Items included in an Allowance, shall be included in the final payment to the Contractor.

c. The Lump Sum price for this Bid Item shall be full compensation for Mobilization and Demobilization, including but not limited to:

1) Locating and supplying Contractor facilities including field offices, sanitary facilities, storage areas, parking and other Contractor installations.

2) Obtaining permits and approvals for performing the Work.

3) Furnishing plant, equipment, Materials and supplies not paid separately that are required to commence work.

4) Coordinating work with City agencies and utility companies.

5) Furnishing and installing Project identification signs.

6) Furnishing and distributing notices to the local community prior to commencing with construction.

~~7) Escrow bid documentation storage costs.~~

8) Preparing the Baseline Schedule.

9) Placement on and removal from the Site of field offices and Contractor's temporary facilities, materials and supplies.

10) Cleanup and removal of debris from the Site.

11) Contract closeout item Record Documents.

d. Payment for mobilization and demobilization shall be paid in increments spread (amortized) over the course of the Project, based on estimates for progress payment purposes as follows:

1) When the Engineer's estimate of the total Contract Work completed (based on the original total Contract Sum/scope), is 2 percent or more of the original total Contract Sum, less the Bid Item 1 and the Allowance Bid Items original Contract sums, then 25 percent of the Bid Item 1 total amount shall be included in said estimate.

2) When the Engineer's estimate of the total Contract Work completed (based on the original total Contract Sum/scope), is 5 percent or more of the original total Contract Sum, less the Bid Item 1 and the Allowance Bid Items original Contract sums, 50 percent of the Bid Item 1 total amount, less prior amounts paid, shall be included in said estimate.

3) When the Engineer's estimate of the total Contract Work completed (based on the original total Contract Sum/scope), is 10 percent or more of the original total Contract Sum, less the Bid Item 1 and the Allowance Bid Items original Contract sums, 75 percent of the Bid Item 1 total amount, less prior amounts paid, shall be included in said estimate.

4) When all required Work, including furnishing record documents is completed, 95 percent of the Bid Item 1 total amount, less prior amounts paid, shall be included in said estimate.

5) The remaining amount under this bid Item shall be included in the final payment made pursuant to the General Provisions.

e. Estimates for progress payment purposes for this Bid Item will be measured under Bid Prices Breakdown.

2. **BID ITEM 2 – NOT USED**

3. **BID ITEM 3 – ALL WORK EXCEPT FOR WORK INCLUDED IN BID ITEMS BI-1, ALLOWANCE ITEMS; and OPTION(S).**

a. The Lump Sum price for this Bid Item shall be full compensation for all labor, Materials, tools and equipment necessary for performing all Contract 1277 Work, except for Work included in Bid Items BI-1, Allowance Items; and Optional Bid Items.

B. Allowance Items

1. **ALLOWANCE ITEM 1 - TRAFFIC CONTROL - CITY PERSONNEL REIMBURSEMENT ALLOWANCE**

a. Provide Traffic Control City Personnel as required by the Engineer to supplement the Contractor's traffic control work. Traffic control duty by City Personnel officers is not a substitute for the overall traffic control responsibility of the Contractor. The Engineer will determine if and where the City Personnel officers are required in addition to the Flaggers provided by the Contractor. Refer to the SFMTA Blue Book, Section 10 San Francisco Police Department Officers.

b. The Contractor shall be reimbursed for the payment of invoices for controlling traffic by City Personnel (Parking Control Officers and Uniformed Off-Duty San Francisco Police Officers) without markup for administrative overhead.

c. The quantity indicated in the Schedule of Bid Prices is an estimated quantity, and is not subject to the - *variation of quantities may vary by more than 25 percent* - clause of the Contract, Article 9.04 of the General Provisions.

d. The costs for all other traffic control requirements in Section 01 11 00 is incidental Work.

2. **ALLOWANCE ITEM 2 - DISPOSAL OF UNKNOWN EXCAVATED HAZARDOUS WASTE MATERIAL ALLOWANCE**

a. An allowance has been established to pay for disposal of excavated materials found to contain hazardous material, but not identified as hazardous waste material in the Contract Documents, (i.e., that are unexpected Site conditions that Contractor could not have reasonably foreseen based on reasonable inspection and investigation of the Site), to a permitted landfill, as specified in Section 02 81 00 Transportation and Disposal of Excavated Materials.

b. Estimates for progress payment purposes shall be based on the following:

1) The additional cost of Hazardous Waste disposal shall be calculated as (A + B) - (C+ D) where:

a) A is the cost to haul material found to contain hazardous material from the worksite to a landfill certified to receive such material.

b) B is the dump fee charged for material found to contain hazardous materials.

c) C is the cost to haul uncontaminated material from the worksite to the Contractor's regular dump site.

d) D is any fee for uncontaminated material charged by the Contractor's regular disposal site.

2) Payment shall not be made for:

a) Hauling and disposing of contaminated materials that became contaminated for reasons within the control or through the action of the Contractor.

b) Handling and segregating excavated material until sampling and testing have been performed, and the results of testing are known.

c) Hauling and disposing of materials that can be legally disposed of at an unregulated dump site.

d) All other Work associated with hazardous or non-hazardous material Work identified in Sections 01 35 00 (as applicable) and 02 81 00 and the Drawings, including items such as pre-excavation profiling and reports are Incidental to the Work.

e) The amount paid under this item shall exclude markups of any kind.

3. ALLOWANCE ITEM 3 - ADDITIONAL UNKNOWN HAZARDOUS WASTES MITIGATION MEASURES ALLOWANCE

a. An allowance has been established to pay for mitigation and disposal of materials, other than excavated materials, found to contain hazardous material that were not identified in the Contract Documents (i.e., that are unexpected Site conditions that Contractor could not have reasonably foreseen based on reasonable inspection and investigation of the Site), to a permitted landfill.

b. Work shall be as specified in Sections 01 35 00 Hazardous Materials Procedures (as applicable) and 02 13 00 Hazardous Materials Abatement and Controls.

c. Payment for disposal of additional unknown hazardous wastes to a permitted landfill shall be paid under this Bid Item.

d. Payment shall not be made for:

1) Work associated with known hazardous material abatement as identified in Reference Documents which is covered under Bid Item BI-2.

2) Work identified as containing hazardous materials in Section 01 35 00 Hazardous Materials Procedures (as applicable).

3) All other hazardous materials requirements under Sections 01 35 00 Hazardous Materials Procedures (as applicable)

and 02 13 00 Hazardous Materials Abatement and Controls, including preparation of the Hazardous Materials Management Plan, which are Incidental Work.

4) Hauling and disposing of materials that can be legally disposed of at an unregulated dump site.

5) Abatement of contaminated materials that became contaminated for reasons within the control or through the action of the Contractor.

4. **ALLOWANCE ITEM 4 – ARCHAEOLOGICAL DISCOVERIES -MITIGATION MEASURES ALLOWANCE**

a. Full compensation for Archaeological-related Work prior to and immediately at the time of discovery of an Archaeological Find, including accommodating the Archaeological Monitor; immediately notifying the Engineer in writing upon discovery of Archaeological materials; and immediately leaving the Archaeological materials undisturbed and in-place; shall be Incidental Work, included in the Contract, and no additional compensation will be allowed except as noted in Sub-Article 7.b below.

b. An allowance has been established to pay for costs of required mitigation measures following the discovery of Archaeological materials, as directed by the Archaeological Monitor and as required in Section 01 35 40**.**

5. **ALLOWANCE ITEM 5 – UNFORESEEN OR DIFFERING CONDITIONS ALLOWANCE FOR OBSTRUCTIONS ENCOUNTERED**

a. An allowance has been established for obstructions encountered that are unforeseen or differing conditions as described in General Provisions GP-3.04 Unforeseen or Differing Conditions, Sub-Articles A.2 and A.3, as approved by the Engineer.

b. Payment shall not be made for:

1) Items described in General Provisions GP-3.04 Unforeseen or Differing Conditions, Sub-Articles C.1 through C.4. Items included in Sub-Articles C.1 through C.4 are not considered differing site conditions, and shall be incidental to the Work.

2) Any known or unknown abandoned utility facilities encountered are considered normal to the Work and are not considered a differing site condition, and shall be incidental to the Work.

C. Optional Bid Items

Refer to the Special Provisions regarding award of the Contract and Optional Bid Items. Optional Bid Items shall be priced by the Contractor per the requirements below.

1. **OPTION 1 INSTALLATION OF TUBE-A-MANCHETTES**

   The unit price for this bid item shall include installation of tube-a-manchettes (TAM) measured linearly along TAM for payment by the number of each linear foot satisfactorily constructed complete, in place, as specified in Sections 31 43 14-"Compensation Grouting". TAM will be installed from within the limits of the project site. Approximately fifty-five (55) TAM's are anticipated.

1.05 ESTIMATE OF THE AMOUNT OF WORK TO BE PERFORMED

A. The following shall supersede the relevant General Provisions:

1. The quantities stated in the Contractor's Schedule of Bid Prices are estimates used as a basis for comparison of Proposals (Bids) prior to Award.

2. Contractor shall inform the Engineer in writing immediately if after Award the Contractor discovers a probable change in quantities from those provided in the Schedule of Bid Prices.

3. The City does not expressly or by implication agree that the actual amount of Work shall correspond with the amount so shown or estimated in the approved Schedule of Bid Prices, but reserves the right to increase or decrease the amount of any class or portion of the Work, to leave out entire Bid Item or items, or to add Work of a class not included in the Proposal, but necessary to affect the Work or complete the Project when in its judgment such change is in the best interest of the City. No such change in the Work shall be considered as a waiver of any other condition of the Contract.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

NOT USED

END OF SECTION

SECTION 01 21 00

ALLOWANCES

PART 1—GENERAL

1.01 DESCRIPTION

A. Allowances provide payment for additional Work required under the Contract or Work specified under Section 01 20 00 Price and Payment Procedures to be paid as an allowance.

B. Unexpended allowances remaining at the time that Final Payment is to be made shall be subject to a Change Order crediting that amount to the City.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

3.01 GENERAL

A. Work not provided for under the Contract will be ordered in writing by the Engineer by means of a written Change Order. No such work shall be performed or expenses incurred that have not been authorized by a written change order. Work that has not been so authorized will not be paid for.

B. Change Order work shall be performed in accordance with the General Provisions.

C. Reimbursable expenses will be paid as specified under Section 01 20 00 Price and Payment Procedures for the type of reimbursable expense incurred, or in the case of Change Order Work, at the actual direct cost thereof without markup for profit, overhead, supervision, or other such costs.

D. The Contractor shall furnish detailed itemized cost receipts, records, and complete documentation of such costs prior to requesting payment therefor.

END OF SECTION

SECTION 01 31 13
PROJECT COORDINATION

1.01 DESCRIPTION

A. This Section specifies the Contractors' responsibilities concerning coordination of its Work and coordination with the public, utility companies, SFMTA, and others.

B. Nothing in this Section shall be construed as relieving the Contractor of its obligations to other jurisdictions and to other City departments with respect to obtaining required permits and approvals.

1.02 SUBMITTALS

A. List of contact personnel with addresses, phone numbers and email addresses for all agencies, utility companies and the public affected by the Work. List shall be updated and kept current and submitted on a monthly basis.

B. Copies of Notifications as specified.

C. Working Drawings.

1.03 COORDINATION WITH OTHERS – GENERAL

A. The Contractor's attention is directed to the general conditions of the Site and Construction Area. Owners of adjacent properties, City agencies, tenants, other contractors, and utilities and public agencies may need access to or be working simultaneously within the vicinity of the Work under this Contract. Contractor shall make all commercially reasonable efforts to coordinate its Work with those persons and entities to reduce the impact of the Work on them.

B. As may be further directed by the Engineer, it shall be the responsibility of the Contractor to notify within 30 days of the Notice to Proceed affected property owners, tenants, contractors, utilities and agencies including, but not limited to the:

1. San Francisco Fire Department,
2. San Francisco Police Department,
3. San Francisco Department of Public Works,
4. San Francisco Municipal Transportation Agency MUNI Operations,
5. San Francisco Municipal Transportation Agency Sustainable Streets,
6. San Francisco Department of Building Inspections,
7. San Francisco Department of Public Health
8. San Francisco Public Utilities Commission
9. San Francisco Public Library – New North Beach Library

10. San Francisco Department of Recreation and Park – New North Beach Library Construction,

11. Bay Area Air Quality Management District

of the Work, the construction schedule, and the names and contact information of the Contractor's representatives and of the SFMTA's Public Information Office.

It also shall be the responsibility of the Contractor to follow up, assist, and facilitate actions to be taken by owners, tenants, contractors, utilities (public and private), and agencies as required by the Work and schedule demands of this Contract; and to cooperate and coordinate their operations with owners, tenants, other contractors, utilities, and public agencies.

C. The Contractor's attention is directed to the annual special events in the City in the Construction Area. Contractor shall coordinate its Work to avoid conflicts with the planned special events. Contractor shall contact SFMTA Division of Sustainable Streets - Temporary Street Closures for Special Events for the annual listing and schedules.

D. Contractor shall coordinate with North Beach commercial business district representatives for the various planned events adjacent to the Work Site for access and staging during demolition. Following events include, but are not limited to the following:

1. 59th Annual North Beach Festival in June 2013
   a) North Beach Business Association:
   www.Northbeachbusinessassociation.com

   b) Steven Restivo Event Services, LLC
   P.O. Box 151017
   San Rafael, CA 94915
   Tel: (800) 310-6563 or visit http://SRESProductions.com

2. North Beach Farmers' Market
   Powell Street (between Union Street and Columbus Avenue)
   San Francisco, California
   Website: info@urbantable.org
   Sundays: 10:00 am to 2:00 pm

3. 145th ANNUAL ITALIAN HERITAGE PARADE
   Sunday, October 13, 2013
   http://www.sfcolumbusday.org/parade/

1.04 COORDINATION WITH THE PUBLIC

A. The Contractor shall post and maintain notice at the surface access points and work sites for the Work. The notice shall include the name, telephone number, and address of Central Subway's External Affairs Manager and the Contractor, a description of the Work to be performed, and the duration of the Work. The notice shall be posted at least every 100 feet along all blocks where the Work is to take place at least 72 hours prior to commencement of work in a block.

B. At least 30 calendar days prior to commencement of Work, the Contractor shall provide written notice delivered by United States mail to each property owner located within 300 feet of the Work, and each affected neighborhood and merchant organization that is listed in the City Planning Department's Directory of Neighborhood Organizations and Service Agencies. The latest City-wide CCSF Assessor's roll for names and addresses of property owners shall be used for the mailed notice. This notice shall include the same information that is required for the posted notice of Article 1.04A above and the name, address, email address, and 24-hour telephone number of the SFMTA's Public Information Office.

1.05 COORDINATION WITH EXISTING FACILITIES

A. The Contractor shall have full responsibility for field locating all existing facilities, identifying and determining ownership of the encountered facilities, coordinating the Work with the owner of such facilities during construction, coordinating the safety and protection thereof, and repairing damage thereto resulting from the Work, the cost of all of which shall be Incidental Work.

B. The Contractor shall coordinate with utilities and public agencies and allow in its schedule sufficient time for the lowering, raising, relocating and any required shutdowns by utilities of existing facilities, which are in conflict with the Work to be constructed under the Contract.

C. If, during the course of the Work, an unexpected or unidentified interference is discovered, the Contractor shall immediately call this fact to the attention of the SFPUC, SFWD, DPW, SFMTA, PG&E, AT&T, Comcast, and other known utilities and public agencies that own facilities in the Construction Area. A period of two Working Days, beginning after the receipt of such notice, will be allowed for said utilities and public agencies to determine ownership.

D. Unidentified abandoned facilities, not shown on the contract drawings or specified for removal, that conflict with the Work shall be removed in accordance with SFDPW Standard Specification Section 700.09.

E. Active facilities that require removal, adjustment, or relocation to avoid direct physical conflict with the facilities to be constructed under the Work shall be relocated by the Contractor in accordance with the Drawings and Specifications.

F. The Contractor shall allow reasonable time for the planning, procurement and mobilization of utilities and public agencies required in connection with the Work.

1.06 MASS TRANSIT

A. The Contractor shall not prevent or delay the operation of Muni or other mass transit vehicles at any time.

B. The Contractor shall familiarize itself with the routes and the locations of mass transit vehicles, including corporate shuttles and tour buses that operate within the Construction Area. The lanes made available for traffic shall be located so as to provide an adequate travel path for the mass transit vehicles and shall be adequate to provide 1-1/2 feet clearance each side of the swept path of transit vehicles operating in the lanes. A minimum 50-foot turning radius shall be provided at all times by the Contractor for mass transit vehicles.

C. The Contractor shall provide flag personnel as required to assist transit vehicles operating through the Construction Area and provide signs for temporary transit stops, as requested by the Engineer.

D. The Contractor shall obtain SFMTA's written permission for any actions that impact SFMTA operations and facilities.

E. The Contractor shall notify the Engineer at least 10 Working Days in advance of doing work near an existing SFMTA passenger loading area, where such work might interfere with passenger loading and unloading.

1.07 RESTORING PAVEMENTS AND RELATED IMPROVEMENTS

A. The Contractor shall restore pavement and related improvements in accordance with SFDPW Standard Specification and Article 2.4 of the San Francisco Public Works Code, except as modified by the requirements of the Drawings and Specifications.

1. Each excavation shall be backfilled and compacted within 72 hours from the time the construction related to the excavation is completed.

2. Replacement of the pavement base shall be completed within 72 hours from the time the excavation is backfilled.

3. Finished pavement restoration shall be completed within 72 hours of replacement of the pavement base and 144 hours from the time the excavation is backfilled.

B. Facilities that become damaged due to the Work shall be completely repaired, restored, and cleaned up to the Engineer's satisfaction no later than seven Days after completion of Work in the area where the damaged property is located. As directed by the Engineer, Contractor shall repair such damage and provide temporary repairs until Work in that area is completed and permanent repairs can be made.

C. Existing castings, pull boxes, vaults, and meter boxes to remain shall be adjusted to conform to the final grades of adjacent construction.

D. The Contractor shall identify each street opening in accordance with the current Department of Public Works Order entitled "Street Opening and Pavement Restoration for all City Streets".

1.08 EMERGENCY WORK

A. If during the progress of this Contract, the Contractor is unavailable, cannot or refuses to perform Work at a time when any condition requires emergency action in the public interest, SFMTA shall have the right to have repairs or corrections made, as required, at the Contractor's expense.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

NOT USED

END OF SECTION

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SECTION 01 31 19
PROJECT MEETINGS

PART 1—GENERAL

1.01 DESCRIPTION

A. The Engineer will schedule, chair, and attend all meetings with the Contractor, and will decide time and location of each meeting. The Engineer will prepare the minutes of the meeting. Contractor shall submit exceptions or corrections to meeting minutes in writing within three (3) Working Days of receipt.

B. The Contractor shall attend all meetings, which shall include pre-construction meetings, weekly progress meetings, monthly schedule review meetings, periodic meetings with residents and/or local businesses, and other meetings as directed by the Engineer.

1. All meetings shall be attended by the Contractor's Project Manager, Superintendent, Subcontractors, and Suppliers as requested by the Contractor or directed by the Engineer, and by others as invited by the Engineer.

2. Representatives of the Contractor, Subcontractors, and Suppliers attending meeting shall be qualified and authorized to act on behalf of the entity that they represent.

1.02 PRECONSTRUCTION MEETING

A. The preconstruction meeting will be held prior to the commencement of fieldwork, i.e., work at the Site.

B. Contractor shall be prepared to discuss any and all of the following subjects and Contract requirements at the preconstruction meeting:

1. Distribution and discussion of the construction schedule.

2. Critical work sequencing.

3. Major equipment deliveries and priorities.

4. Project coordination and designation of Key Personnel and other responsible personnel, including:

   a. Project Manager.

   b. Superintendent.

   c. Contractor's Engineer.

5. Procedures and processing of:

   a. Submittals.

   b. Requests for changes and substitutions.

   c. Requests for information.

d. Field instructions.

e. Monthly progress payment.

f. Proposed contract changes.

g. Contract modifications.

h. Disputes.

i. Partnering.

j. Contract compliance.

6. Construction facilities and temporary controls.

7. Safety – site safety and protection of the public.

8. Project Record Documents.

9. Compliance with ADA regulations – barriers and ramps.

10. Traffic Controls.

11. Quality Control/Quality Assurance.

12. Community Relations and Procedures.

13. Private Property & Commercial Business Access.

    a. Delivery access

    b. Garbage pick-up access

    c. Emergency access

14. Environmental Controls.

15. Hazardous Waste Management.

16. Sustainability.

1.03 PROGRESS MEETINGS

Throughout the term of the Contract, Contractor shall attend Progress Meetings as directed by the Engineer and required below.

A. Attendees:

1. Project Manager, Superintendent, Contractor's Lead Scheduler, and Contractor's Engineer.

2. Subcontractors and/or Suppliers performing Work the following week.

3. Others required for coordination of the Work.

B. The Engineer will prepare an agenda. The Contractor shall be prepared to discuss all of the, but not limited to, the following:

1. Review and approval of minutes of previous meeting.

2. Review Contractor submittal register.

3. Review Contractor record of pending requests for information.

4. Review Contractor record of pending requests for changes and substitutions.

~~5. Review of work progress and adherence to the 6 week look-ahead schedule since previous meeting.~~

6. ~~Analysis of all work performed since previous meeting, schedule slippages, if any, proposed changes to work scope and other circumstances that may affect progress of the work. The Contractor shall have an updated schedule based on the "Approved Current Schedule". This weekly update must show all activities started, completed, and ongoing during the previous week and activities scheduled for the following 5 weeks.~~

7. Discussion of sequence of work on the critical path, and schedule of progress using the "Current Schedule". Each activity shall have current status and forecasted completion. The Contractor shall report on all activities that are forecasted to be completed beyond the approved schedule date(s), and shall identify a means of maintaining the approved schedule.

8. Schedules and corrective measures and procedures to regain or maintain the approved schedule dates.

9. Schedule during succeeding work period.

10. Field observations, problems, and conflicts.

11. Notice of Potential Claims (NOPCs)

12. Coordination with Muni and others.

13. Field engineering.

14. Safety, security, and traffic regulation.

15. Quality control, testing, defective work, non-compliance report status, proposed corrective actions and Punch List.

16. Agenda for next meeting.

17. Other business as determined by the Engineer or requested by Contractor.

1.04 SAFETY MEETINGS

A. The Superintendent is responsible to ensure the safety meeting is conducted before the initial start of work as required by Cal/OSHA, and shall schedule monthly safety meetings. See Section 01 45 13 Bidders Qualifications - Safety.

B. The Contractor shall hold meetings at least once each month with supervisory personnel and foremen for a discussion of safety problems and accidents that have occurred. A record of such meetings shall be kept, stating the meeting

date, time, place, supervisory personnel present, subjects discussed and corrective action taken, if any, and maintained for inspection by the Division.

C. Contractor's supervisory personnel shall conduct "toolbox" or "tailgate" safety meetings with their crews at least weekly on the job Site to emphasize safety. Records of all meetings shall be kept, stating the meeting date, time, personnel present, subjects discussed, and corrective actions taken if any, and maintained for inspection by the Engineer.

1.05 OTHER MEETINGS

A. Refer to Section 01 32 13, Scheduling of Work for requirements of schedule meetings.

B. Refer to Section 01 31 13, Project Coordination for requirements of construction coordination meetings.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

NOT USED

END OF SECTION

SECTION 01 31 25

WEB-BASED PROJECT CONTROL SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. This project will utilize a web-based Project Control System (PCS) known as Primavera Contract Management (Version 13)

B. CONTRACTOR shall participate and use the PCS as a means of memorializing progress of the Work and communication with ENGINEER.

C. Submittals in electronic format shall be in accordance with this Section.

D. For forms, CONTRACTOR shall use only those forms prepared for the Project.

E. No separate payment will be made for Work covered under this specification. The Work associated with this specification is considered Incidental Work in which it pertains. The cost of this Work shall be accounted for in accordance with the General Provisions.

1.02 RELATED SECTION

A. Section 01 20 00 Price and Payment Procedures

B. Section 01 31 19 Project Meetings

C. Section 01 32 33 Photographic Documentation

D. Section 01 33 00 Submittal Procedures

E. Section 01 45 00 Quality Control

F. Section 01 78 39 Project Record Documents

1.03 WEB-BASED PROJECT CONTROL SYSTEM

A. Submit via the PCS, all correspondence and deliverables required on the project, including, but not limited to:

1. Monthly pay requests (Section 01 20 00).
2. Requests for Information (RFIs) (Section 01 33 00).
3. Photographs / videos (Section 01 32 33).
4. Shop Drawings and all submittals (Section 01 33 00).
5. Coordination drawings (Section 01 33 00).

6. Quality Control (QC) manual: daily and monthly reports (Section 01 45 00).

7. As-built documents (Section 01 78 39).

8. Submittals required in individual technical sections such as certificates, test results, field or shop test reports.

9. All other deliverables and correspondence required in the Contract Documents.

B. CONTRACTOR Usage and Procedure:

1. CONTRACTOR will be assigned a maximum of two (2) usernames and passwords per contract

2. Only those two (2) CONTRACTOR personnel approved for access by ENGINEER will be allowed to access the PCS.

3. Termination of any of those two (2) CONTRACTOR personnel shall be reported immediately to the ENGINEER.

4. CONTRACTOR's staff of PCS participants shall be responsible for frequent monitoring of the documents and the submittal process status.

5. CONTRACTOR shall provide original hard record copies within 48 hours after electronic submission, complete with all signatures, forms, and contents to match the electronic submittal.

6. Submit a total of six (6) hard copies.

1.04 ELECTRONIC FILES

A. Electronic Files:

1. Files transferred via the PCS shall be compiled or scanned into PDF file format using the full version of Adobe Acrobat.

a. Files collated from existing PDF documents containing certificate or password encryption shall allow for commenting and signatures/ certification.

b. Files in excess of 20 Megabytes shall be reduced.

c. Files shall be bookmarked to match the number and description in the PCS.

d. All PDF files shall be OCR'ed so as to be searchable by word recognition.

2. Drawing files transferred via the PCS shall also be in PDF file format.

3. Where size or volume of drawings prohibit the timely transfer of electronic files, the CONTRACTOR will document within the PCS the successful physical transfer of hard copy and a plan for electronic file transfer if required by the ENGINEER.

4. When specifically requested by ENGINEER, AutoCAD 2004 (or higher) files shall be made available to ENGINEER in DWG file format, transmitted on CD.

B. Project Forms:

1. ENGINEER has developed electronic and hard copy forms that shall be necessary for the Project.

2. CONTRACTOR shall utilize all of the required forms that have been created in conjunction with the PCS.

3. File naming conventions shall be determined by ENGINEER.

1.05 PCS ACCESS RESTRICTIONS

A. OWNER will maintain the PCS for the duration of the Project.

1. CONTRACTOR will have continuous access to the PCS as available through OWNER network.

2. OWNER may perform routine maintenance to the PCS server when necessary, and at such times, CONTRACTOR's access to the PCS will be restricted or unavailable.

3. Submittals received after noon at OWNER's offices shall be logged as received on the following business day, excluding weekends and holidays.

B. CONTRACTOR shall provide the necessary computer and other peripheral equipment in the CONTRACTOR's Site field trailer as required to utilize the PCS system.

PART 2 - PRODUCTS

2.01 PCS EQUIPMENT REQUIREMENTS

A. CONTRACTOR shall provide all the necessary computers and other peripheral equipment required in CONTRACTOR's on-site field trailer to utilize the PCS System.

B. Software:

1. Primavera Contract Management (Version 13 as provided by ENGINEER):

2. Adobe Acrobat 9 Pro, or latest per SFMTA IT.

3. Internet Explorer 7.0 (allowing pop-ups and utilizing JAVA Version JRE 6.24 thru 6.31), or latest per SFMTA IT.

4. Microsoft Office 2010, or latest per SFMTA IT.

5. Other software may be utilized if compatible with the required standards and approved by ENGINEER in advance of utilization.

C. CONTRACTOR shall be required to obtain login approval and access to the PCS internet system between Notice of Award and Notice to Proceed.

PART 3 - EXECUTION

3.01 TRAINING

A. OWNER will provide a onetime training session of up to 2 hours to train up to 4 of CONTRACTOR's designated staff per Contract on OWNER's format and procedures, general requirements of the PCS.

1. CONTRACTOR is responsible for training all PCS staff and any replacement personnel.

2. ENGINEER will communicate the location, date, and time of training to CONTRACTOR during the time period between the Contract Award and the Notice to Proceed.

3. A complete training manual and guide to procedures for the PCS System will be distributed for informational purposes to illustrate how OWNER's ENGINEER's process complements CONTRACTOR's process.

B. CONTRACTOR shall be required to train CONTRACTOR's PCS participants on the principles and operation of Primavera Contract Management and Adobe Acrobat Professional prior to Notice to Proceed.

END OF SECTION

SECTION 01 32 13
SCHEDULING OF WORK

PART 1—GENERAL

1.01 DESCRIPTION

A. The Work specified in this Section consists of developing and maintaining an accurate cost/schedule integration system in sufficient detail to show a logical sequence in which Contractor proposes to carry out all Work required under this Contract. It is Contractor's responsibility to effectively plan, schedule, manage, and execute the Work in accordance with the Contract Documents.

B. ~~Contractor shall employ a Professional Scheduler/Project Control Engineer ("Scheduler") with critical path method scheduling expertise and experience in Primavera P6 Project Management, and a minimum of five (5) years' experience using automated scheduling systems involving one or more projects of similar scope, time, and cost of the Work under this Contract. The Scheduler will be dedicated full time to this project and shall prepare and maintain all schedules and associated submittals. Within ten (10) Days of Award, Contractor shall submit to the Engineer the proposed Scheduler's resume and professional references. The Engineer may reject Contractor's proposed Scheduler, if the Engineer determines that the person proposed does not meet the requirements of this Section. If the Engineer rejects the proposed Scheduler, Contractor shall propose for Engineer's review another Professional Scheduler/Project Control Engineer who meets the requirements described herein.~~

C. Failure of Contractor to comply with any requirement of this Section shall be grounds for SFMTA to withhold progress payments, in part or in total, until Contractor is in compliance.

1.02 REQUIREMENTS

A. Schedule Submittals shall have the following structure:

1. Schedule File Naming

a. ~~The One Hundred Twenty Day (120) Look Ahead shall be named as follows:~~

~~CSP-1277-120-Cycle001~~

~~If a resubmission is required, it shall include –Cycle 002, etc.~~

b. The Baseline Schedule shall be named as follows:

CSP-1277-BL**-Cycle001**

Subsequent revisions of the Baseline schedule shall be named

-Cycle002, **-Cycle003**, etc.

c. ~~The monthly schedule updates shall be named as follows:~~

~~CSP-1277-YYMM-~~**~~Cycle001~~**

~~CSP-1277-YYMM-~~**~~Cycle002~~** ~~(example of resubmission)~~

~~Where YY is the year and MM is the month. If a re-submission of any monthly schedule update is required, it shall include -~~ **~~Cycle002~~**~~,~~ **~~-Cycle003~~**~~, etc. after YYMM.~~

2. Activities shall be discrete items of Work accomplished under Contract that provide measurable and recognizable parts of Work.

3. ~~Activity ID Coding shall provide an indication of the location of the Work. Numbering shall be sequential and reflect of the order in which the Work has been and will be performed (e.g. PPD-10-1000).~~

4. Activity Descriptions: Each Activity shall have a narrative description consisting of a verb or work function (e.g.; form, pour, excavate, etc.), and object (e.g.; slab, footing, roof beam, etc.) and an area (e.g.; Surface, Mezzanine, etc.). Each Activity shall have a unique Work description.

5. For the purposes of scheduling, a work day is any day in which Work is performed. No on-Site Activity shall have duration of over fifteen (15) working days, except non-construction Activities such as submittals, submittal reviews, procurement and delivery of Materials or equipment, and concrete curing. Durations shall be the result of definitive manpower planning by Contractor to perform Work in consideration of Site conditions as described in the Contract and that can be observed at the Site.

6. ~~Use separate calendars in the schedule to identify Activities that occur on days other than a normal Working Day such as weekends, holidays, City-specific events, and multiple shifts per day or extended hours (more than a normally scheduled work shift). Calendar naming conventions should be indicative of the working days and/or shifts.~~

7. ~~Contractor shall disclose in detail how weather delays, as specified in the General Provisions of the Contract, will be incorporated into the Baseline Schedule. Contractor must keep a current "weather delay registry" that would be reviewed and agreed to by both parties during the Monthly Schedule Update submittal process.~~

8. All Activities shall have succeeding Activities except Work completion. At least one successor shall be a FF or FS relationship.

9. Each Activity shall be assigned a responsibility code indicating Contractor or Subcontractor responsible for performing the Work.

10. The highest level of the Work Breakdown Structure (WBS) shall be grouped by the following:

a. CN-1277 Milestone

11. Basic WBS - The highest level of the structure is the contract milestones. ~~Within the work package will be a further breakdown of work package specific milestones, general conditions, and construction locations/area.~~ The Contractor is to expand and develop the WBS according to their plan.

12. ~~Cost Account shall consist of twelve digits:~~

~~a. First eight digits are tied to the Work Package - as defined in sample format below.~~

~~b. Last four digits are tied to the FTA's Standard Cost Categories (SCC) see Attachment 1.~~

~~Sample Format: (1.3.084.03.0) (40.01) (CN1277) (SCC)~~

B. Float is not for exclusive use or benefit of either SFMTA or Contractor, but is an expiring resource available to both parties to be used on an as-needed, first-come basis to maintain Project and Work schedules and ensure completion of the Work within applicable Milestone dates and the Contract Time. Time extensions will be granted only to the extent that delays or disruptions to affected Work paths exceed total float along those paths of the Monthly Schedule Update in effect at the time of the delay or disruption. The delays or disruptions must cause the actual completion date of Work to exceed the Contract completion date (or Milestone date, if applicable). The delays or disruptions must have been outside of the control and not due to the fault or negligence of Contractor or any subcontractor at any tier.

~~C. If Contractor utilizes float suppression techniques such as preferential sequencing or logic, special lead/lag logic restraints, or extended Activity times or durations, Contractor shall submit a written explanation justifying the use of such measures to the Engineer for review and approval. Unless approved by the Engineer float suppression techniques shall be cause for rejection of the schedule(s).~~

1.03 RELATED SECTIONS

A. Section 01 20 00, Price and Payment Procedures

B. Section 01 33 00, Submittal Procedures

1.04 SUBMITTALS

A. Contractor shall submit for the Engineer's review the schedules and submittals as described in this section 1.04 and in Part 3 of this document, including but not limited to:

1. Schedule of Values

2. ~~One Hundred and Twenty (120) Day Look Ahead Schedule~~

3. Baseline Schedule
4. ~~Monthly Schedule Updates~~
5. ~~Look Ahead Schedule~~
6. Daily Work Plan
7. Schedule Changes
    a. Early Completion Schedule
    b. Recovery Schedule
    c. Time Impact Analysis
8. As-Built Schedule

B. Submittal Schedule: Contractor shall prepare a Submittal Schedule per Section 01 33 00, Submittal Procedures.

C. ~~Scheduler's Resume: Contractor shall submit the resume and references of the Professional Scheduler/Project Controls Engineer, as required by Article 1.01.B of this Section.~~

D. Contractor shall provide ~~both~~ printed copies ~~and an electronic file~~ of the schedule and other submittals described in this Section ~~The electronic file shall be made directly from Primavera P6 Project Management, and shall contain all files of the schedule to enable the SFMTA restore the files for evaluation and analysis. Contractor shall ensure that the electronic files match the printed reports.~~

E. Schedule Reviews: Unless otherwise stated, the Engineer will review and respond to scheduling submittals within fifteen (15) Working Days after submittal. Submit a revised schedule within five (5) Working Days after receipt of Engineer's response if the Engineer requires changes or additional information.

PART 2—PRODUCTS

~~2.01 CONTRACTOR COMPUTER SOFTWARE~~

~~A. Use the Primavera P6 Project Management software (version 7.0 or later version if required by the Engineer) for all computer generated tabular reports and logic network graphics.~~

PART 3—EXECUTION

3.01 SCHEDULE OF VALUES

A. No later than five (5) Days after NTP, Contractor shall submit a Schedule of Values ~~that breaks down and assigns prices for Items and Tasks into Activities detailed by Contractor in the Baseline Schedule. Each Activity cost shall be associated with the appropriate bid item and cost account. Cost information will be allocated to Activities using the 'Resources' tab in Primavera P6~~

~~(Version 7.0 or version specified by the Engineer), under the cost account columns in the 'Resources' tab. Bid items will be assigned to an activity as resources with a relative cost account. Cumulative amount of cost loaded Work Activities shall equal total Contract Award price..~~ See Specification Section 01 20 00, Price and Payment Procedures.

~~3.02 ONE HUNDRED AND TWENTY DAY LOOK AHEAD SCHEDULE~~

~~A. At the Pre-Construction Conference, the Contractor shall submit for the Engineer's review, a plan of operation for the first one hundred and twenty (120) Days of work in Primavera P6 (Version 7.0 or version specified by the Engineer). This schedule shall adhere to all requirements of Section 1.02 above, represent the first one hundred and twenty (120) Days of the Baseline Schedule and serve the project schedule needs until the Baseline Schedule has been accepted. Sufficient detail shall be included for the identification of submittals, permits, equipment procurement, and construction activities.~~

3.03 BASELINE SCHEDULE

A. No later than five (5) Days after NTP, Contractor shall submit to the Engineer a satisfactory Baseline Schedule that conforms to the requirements of this Section. Contractor is responsible for any additional costs and delays to the Work arising from or related to Contractor's delay in or failure to provide a satisfactory Baseline Schedule.

B. If requested by the Engineer, Contractor shall meet with the Engineer discuss Contractor's construction logic, durations, cost loading, and to resolve questions or disagreements.

C. The Engineer will review and respond to the Baseline Schedule Submittal within fifteen (15) Working Days of receipt. If the Baseline Schedule is not accepted, Contractor shall re-submit the Baseline Schedule within five (5) Working Days for the Engineer's review and response. This review and re-submittal cycle will repeat until the Baseline Schedule has been accepted by the Engineer.

D. The Baseline Schedule shall provide practical plan of operation to complete the Work within the specified Contract completion time and within the Contract bid price. The Baseline Schedule shall provide the SFMTA with a means to monitor and follow Contractor's progress in all phases of the Work and Contractor's compliance with limits imposed by scope of Work. The Baseline Schedule level of detail shall include but not be limited to the following:

1. Master list of submittals and all other requirements as referenced in Section 01 33 00 Submittal Procedures;

2. ~~Purchases, manufacture, tests, delivery, and installation Activities for major Materials and equipment, and a separate list of major Material items of equipment for which Contractor intends to seek payment before installation;~~

3. ~~Order and delivery of Long Lead Items~~

4. ~~Deliveries of SFMTA furnished goods and/or materials, if any, in accordance with dates or schedule windows of such times set forth in the Contract~~

5. Approvals and permits required by regulatory agencies or other third parties

6. Schedules for Subcontractor's Work, including engineering and design services

7. Actual tests, submission of test reports, and approval of test results

8. Testing, training, and assistance required under the Contract

9. Punchlist and final cleanup

E. Contractor shall amend the Baseline Schedule to include additional detail if required by the Engineer.

F. Contractor shall incorporate all Milestones into the Baseline Schedule. These include, but are not limited to Substantial Completion, and Contract Milestones described in Specification Section 01 12 17 Work Sequence and Constraints. ~~These are unique zero (0) duration Activities containing corresponding dates and logic ties. Designate these Activities as start or finish Milestones. If necessary, utilize constraints of "start on or after" or "finish on or before" for Contract requirements. The use of float suppressing date constraints including "start on", "finish on", "mandatory start", and "mandatory finish" are not allowed.~~

G. In preparing the Baseline Schedule, Contractor shall consider the nature and complexity of each submittal and shall allow ample time for review, revisions or corrections. Under no circumstances will an extension of time be given for any submittal for which a re-submittal is required and re-submittal time was not included in the Baseline Schedule.

H. Time impacts resulting from submittals and re-submittals of shop drawing are Contractor's responsibility.

I. Failure by Contractor to include any element of Work required for the performance of this Contract shall not excuse it from completing all Work required by any applicable completion date. Items missing from the schedule are assumed to be Incidental Work and not critical Activities. No extension of Time will be granted because of errors or omissions on the Schedule. Contractor shall be responsible to incorporate all necessary Activities to cover the Work required by the Contract.

J. The CPM schedule and analysis accepted by the Engineer shall constitute the official Baseline Schedule for the Work. No alteration of the logic or duration of Activities will be allowed without the approval of the Engineer.

K. ~~Cost load Activities with associated bid item and cost accounts. Cost information will be allocated to Activities using the 'Resources' tab in~~

~~Primavera P6, under the cost account columns in the 'Resources' tab. Cumulative amount of cost loaded Work Activities shall equal total Contract Award price.~~

L. Schedules exhibiting front loaded costs are unacceptable.

M. The Baseline Schedule must contain a Critical Path which shall not exceed fifteen (15) percent of the number of Activities in the schedule.

N. Submit a written narrative with the Baseline Schedule that discusses basic assumptions, productivity and installation rates, construction staging plans, maintenance of traffic, quantities, manpower and crew development, construction equipment planned, and other element related to developing the schedule.

1. Explain Activity durations and describe Contractor's approach for meeting Contract Milestone dates. Include as a minimum: basis and assumptions used in preparing the schedules, including crew sizes, equipment requirements, and anticipated delivery dates; restraints; critical path Activities; production rates; Activities requiring overtime or additional shifts; holidays, City-specific events; potential problem areas; permits; coordination required with SFMTA, railroads, utilities and other parties; and long lead delivery items requiring more than thirty (30) Days from order to delivery. Identify Work items that may be expedited by use of overtime or additional shifts. Identify and explain sequencing and other constraints such as manpower, material, and equipment.

2. All constraints, dates, and lags will require the Engineer's approval and shall be clearly identified and explained in the narrative.

3. Description and analysis of the Critical Path.

~~O. Schedule Layouts: Submit a Summary Level, Critical Path, and All Activities Schedule Layouts with the Baseline Schedule. See Attachment 2- CPM Schedule Submittal.~~

~~P. Submit cash flow Progress curves with the Baseline Schedule. Plot curves to show expected monthly progress payments broken out by Work package or as otherwise directed by the Engineer. Plot curves using costs assigned to Activities in the Baseline Schedule. Show planned monthly cost, cumulative cost, monthly percent complete and cumulative monthly percent complete from NTP to Contract completion.~~

~~3.04 MONTHLY SCHEDULE UPDATE~~

~~A. Monthly Schedule Update is the updated logic network and supporting reports indicating actual history accomplished of all Activities, as well as, Contractor's current projected plan for orderly completion of the work. Establish the first Monthly Schedule Update from the accepted Baseline Schedule. Thereafter, update the Monthly Schedule with a Data Date~~

designated by the Engineer and must be based on the submitted Schedule Update from the previous month.

B. Contractor shall submit the Monthly Schedule Update with the Schedule of Values as back-up for Application for Progress Payments.

C. A preliminary, but complete draft of the Monthly Schedule Update, shall be submitted to the Engineer by the 25th Day of each month and no later than (3) Working Days prior to the Schedule Review Meeting. Meetings will be held between the Engineer and Contractor to review the progress shown within the update. The Monthly Schedule Update shall be submitted no later than the 5th Day of the month succeeding the month for which progress is being reported. The Engineer may reject a Monthly Schedule Update that does not abide by or meet Contract requirements. If the Engineer rejects a Monthly Schedule Update, it will inform Contractor the reasons of rejection and request a re-submittal. Even if Contractor disagrees with the Engineer's reasons for rejection, it shall resubmit the Monthly Schedule Update, revised as requested by the Engineer, and explain the disagreements in written narratives.

D. Actual start and finish date 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 represent actual history and match daily reports. Work in progress shall be shown with the actual start date, the remaining duration will represent the current expected completion date, and the physical percent completed for each activity. The remaining Activities should represent Contractor's current projected plan for orderly completion of the work.

E. Only after an executed Change Order has been approved for the Additional Work can it be added it to the schedule. Change Orders added to the schedule shall be cost loaded with corresponding cost account, Activity description, and costs. The Activity ID identifies the number of the change. Time extensions may not be incorporated into schedule for changes or delays without an accepted Time Impact Analysis.

F. Contractor shall submit a "stand-alone" narrative of sufficient detail to explain basis of Contractor's submittal with each Monthly Schedule Update. Include the following minimum information:

1. A Critical path analysis

2. Progress on Contract Milestones

3. By WBS identify significant schedule progress during the reporting period. Include Activity ID and description. Explain any significant schedule variances from the Baseline Schedule or past Monthly Schedule Updates. Explain any schedule changes, including changes to the logic sequence or Activity durations and the impacts to the overall Contract.

4. Discuss the incorporation of any approved Change Order, or TIAs. Also identify any proposed schedule Change Order, or TIAs submitted during the last reporting period.

5. Description of problem areas, potential impacts, and proposed resolutions. Include explanation of corrective action taken or proposed.

G. Schedule Layouts: Submit a Summary Level, Critical Path, and All Activities Schedule Layouts with the Monthly Schedule Update. See Attachment 2 - CPM Schedule Submittal.

H. Update Cash Flow Progress Curves with each Monthly Schedule Update. Include actuals and forecasted costs against the fields in the curves submitted with the baseline.

3.05 LOOK AHEAD SCHEDULE

A. Look Ahead Schedule: Contractor shall each week following NTP submit a manpower/construction report and progress Look Ahead Schedule listing Activities completed and in progress for the previous week and the Activities scheduled for the succeeding three (3) weeks that correlates to the most recent Monthly Schedule Update. The Look Ahead Schedule must include a bar chart of all Activities scheduled including: Activity ID, description, start and finish, duration, responsible party performing the Work and pertinent remarks as to Activity status.

B. Contractor shall present and discuss the Look Ahead Schedule at the weekly progress meeting or as directed by the Engineer.

C. Prepare the Look Ahead Schedule on an 8-1/2-inch by 11-inch white paper or 11-inch by 17-inch, or as otherwise directed by the Engineer. The Look Ahead Schedule plan shall be in full color to identify critical Activities in red unless otherwise directed by the Engineer.

3.06 DAILY WORK PLAN

A. Provide daily Work plans to the Engineer with the work crew categorized by trade including Subcontractors, the Activity code for Work being done, a description of the Work being performed, the alignment station where the Work is being done, and list force account, PCC or COR numbers that will be worked on. Send the daily work plan to Engineer's field office for each subsequent Work Day by 7:00 pm of the previous Work Day or as approved by the Engineer. Failure to provide this information may prevent the Engineer from accepting work without the required notification.

3.07 SCHEDULE CHANGES

A. EARLY COMPLETION SCHEDULE

1. Contractor may submit a Monthly Schedule Update that contains Milestone or Substantial Completion dates earlier than the dates

specified in the Contract. Contractor agrees to and certify to the following:

a. The time difference between the proposed early substantial completion date and the date corresponding to the Contract Time is considered float.

b. The float is not for the exclusive use or benefit of either the SFMTA or Contractor, but is a resource available to both parties on a first needed basis.

c. Contractor's original Bid shall include all costs for the full duration of the Contract from the date of the NTP through the date of Substantial Completion corresponding to the Contract Time. Specifically, Contractor has provided in its Bid the overhead, construction equipment and facilities cost including overhead, home office, other off-site yard, and extended overhead, and cost for the duration of the Project Time.

d. If the Engineer requires additional work through a Change Order , which shall be done after the early proposed substantial completion Date, but prior to the Contract Time Substantial Completion Date, then no additional money will be paid to Contractor for extended overhead.

e. Contractor waives any and all claims or right of action against SFMTA for damages, loss of profit or other additional compensation based on the Engineer's rejection or approval of a proposed Early Completion Schedule.

B. RECOVERY SCHEDULE

1. Submit a Recovery Schedule within seven (7) Days, if the Monthly Schedule Update, reflects negative float of minus fourteen (-14) Days or more for a Contract Milestone Activity.

2. Use a fragnet showing Activities that delayed the Contract Milestones Date. Submit a similar fragnet showing Contractor's plan to mitigate delay or disruption and subsequent impacts to schedule. Provide the electric schedule files, as well as, hard copies of the analysis. Provide a written narrative describing circumstances, extent of delay or disruption, and the methodology used to determine extent of delay or disruption. Submission of such fragnet does not constitute permission to proceed with plan.

3. Addition of equipment or construction forces, increasing Work hours or other methods, manner, or procedures to return to the Contract completion date shall not be justification for a Change Order, nor shall it be treated as compensable acceleration where the need for a recovery schedule is due to or arises from any action of Contractor and/or its Subcontractors or Suppliers, at any tier.

4. Contractor shall implement the Recovery Schedule after acceptance from the Engineer without additional cost to SFMTA and provide for completion of the Work in accordance with the remaining Milestone dates without a time extension. Should the logic and/or durations of the Recovery Schedule not receive acceptance of the Engineer, Contractor is responsible to use concurrent operations, additional manpower, additional shifts, overtime, etc., as required to put the Project back on schedule at no additional cost to the SFMTA.

C. TIME IMPACT ANALYSIS SCHEDULE— (TIA)

1. Prepare a Time Impact Analysis (TIA) Schedule: When unforeseen conditions or delays are experienced by Contractor and a time extension is requested. Contractor shall submit a written TIA illustrating the influence of each change or delay on the Contract Milestone completion date to the level of detail as the Engineer may require to determine whether Contractor is entitled to an extension of time. (See GP 7.02, regarding extension of Contract Time).

2. Actual delays in activities, which according to the Monthly Schedule Update, do not affect the Critical Path work, shall not be the basis for an adjustment to the contract time.

3. To prepare the TIA, Contractor shall use the most recent version of the Monthly Schedule Update that has been accepted by Engineer at the time of the alleged delay. Contractor shall use a sub network or fragnet of the Activities current status before the delay along with a similar fragnet of the Activities with the proposed delay. The impacted fragnet will show new Activities for the work in question and its relationship to other activities in the schedule. Provide the electric schedule files as well as hard copies of the analysis. Provide a written narrative describing the time impact analysis and all other relevant information.

4. After the Engineer’s review and acceptance of the TIA, incorporate it into the Monthly Schedule Update or Revised Baseline Schedule submittal.

5. Because float within Monthly Schedule Update is jointly owned, delays to the Work that are outside the control of Contractor may be offset by time savings realized by the course of events, Contractor's own efforts and efficient performance of the Work, and City's actions (including, but not limited to: critical path submittals returned in less time than allowed for in the Contract, approval of substitution requests which result in a savings of time along the critical path for Contractor). Contractor shall not claim delay for any period in which float is available.

3.08 AS-BUILT SCHEDULE

A. The last ~~Monthly~~ Schedule Update with all dates actualized will be considered the As-Built Schedule. This schedule will have incorporated all actual start and finish dates and all the accepted Change Orders, Contract Modification, and TIAs. Submittal and approval of the Schedule will be a condition precedent to reduction/release of final Contract retention.

END OF SECTION

ATTACHMENT 1

SCC	Standard Cost Categories (SCC) for Capital Projects	Definitions Explanation of SCC Codes Utilized within CN1300
Cost accounts will consists of twelve digits, the last four are tied to the SCC for Federal reporting requirements. Further information of the SCC accounts can be found on the SCC workbook at http://www.fta.dot.gov/13070_2580.html		
	Format Sample:	**(1.3.084.03.0)(20.03)**
		(Work Package)(SCC)
SCC	10 - Guideway & Track Elements (route miles)	SCC*
10.02	Guideway: At-grade semi-exclusion (allows cross traffic)	
10.06	Guideway: Underground cut & cover	Include excavation, retaining walls, backfill, underground guideway structure and finishes.
10.07	Guideway: Underground tunnel	Include tunneling by means of a tunnel boring machine, drill blasting, mining, and immersed tube tunneling; tunnel structure and finishes.
10.09	Track: Direct fixation	Include rails, connectors.
10.10	Track: Embedded	Include rails, ties; ballast where applicable
10.12	Track: Special (switches, turnouts)	Include transitional curves.
	20 - Stations, Stops, Terminals & Intermodal (number)	As associated with stations, include costs for rough grading, excavation, station structures, enclosures, finishes, equipment; mechanical and electrical components including HVAC, ventilation shafts and equipment, station power, lighting, public address/customer information system, safety systems such as fire detection and prevention, security surveillance, access control, life safety systems, etc. Include all construction materials and labor regardless of whom is performing the work.
		Put guideway and track associated with stations in *10 Guideway & Track Elements* above.
20.01	At-grade station, stop, shelter, mall, terminal, platform	
20.03	Underground station, stop, shelter, mall, terminal, platform	Include retaining walls, backfill, structure.
20.07	Elevators, escalators	
	40 - Sitework & Special Conditions	Include all construction materials and labor regardless of whom is performing the work.
40.01	Demolition, Clearing, Earthwork	Include project-wide clearing, demolition and fine grading.
40.02	Site Utilities, Utility Relocation	Include all site utilities - storm, sewer, water, gas, electric.
40.03	Haz. mat;l, contam'd soil removal/mitigation, ground water treatment	Include underground storage tanks, fuel tanks, other hazardous materials and treatments, etc.
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	Include other environmental mitigation not listed.
40.06	Pedestrian / bike access and accommodation, landscaping	Include sidewalks, paths, plazas, landscape, site and station furniture, site lighting, signage, public artwork, bike facilities, permanent fencing.
40.07	Automobile, bus, van accessways including roads, parking lots	Include all on-grade paving.
40.08	Temporary facilities and other indirect costs during construction	As a general rule and to the extent possible, appropriately allocate indirect costs among the construction costs in Categories 10 through 50. Where that is not possible, include in *40.08 Temporary Facilities* costs for mobilization, demobilization, phasing; time and temporary construction associated with weather (heat, rain, freezing, etc.); temporary power and facilities; temporary construction, easements, and barriers for storm water pollution prevention, temporary access and to mitigate construction impacts; project and construction supervision; general conditions, overhead, profit. NOTE: Include contractor's general liability and other insurance related to construction such as builder's risk in Cats. 10 - 50, not in 80 Professional Services below.
	50 - Systems	Include all construction materials and labor regardless of whom is performing the work.
50.01	Train control and signals	
50.02	Traffic signals and crossing protection	Include signal prioritization at intersections.
50.03	Traction power supply: substations	
50.04	Traction power distribution: cantenary and third rail	
50.05	Communications	Include passenger information systems at stations and on vehicles (real time travel information; static maps and schedules). Include equipment to allow communications among vehicles and with central control.
50.06	Fare collection system and equipment	Include fare sales and swipe machines, fare counting equipment.
50.07	**Central control** [ADD. NO. 3]	

ATTACHMENTS TO SECTION 01 32 13 - SCHEDULING OF WORK

Attachment 2 - CPM Schedule Submittal

	Baseline Schedule	**Notes:**
1 copy	Disc with Electronic File	
4 copies	Narrative	Reference 3.03O
	Schedule reports	
4 copies	Summary Level	Milestones, Early Starts and Finish Dates
4 copies	Critical Path (longest path) sorted chronologically	List: ACT ID, Description, Duration, Early Start and Finish Dates, Total Float, Calendar
4 copies	All Activities sorted by WBS chronologically	List same as above
4 Pdf copies 1 Excel copy	Cash Flow Progress Curves	Planned Monthly Costs, Planned Cumulative Costs, Planned % monthly, Planned % cumulative
	Current Schedule Monthly Update	
1 copy	Electronic file	
4 copies	Narrative	Reference 3.04 F
	Schedule reports	
4 copies	Summary Level	Milestones, Early Starts, Finish Dates, and Baseline shadow in Gantt Chart
4 copies	Critical Path (longest path) sorted chronologically	List: ACT ID, Description, Duration, Early Start and Finish Dates, Total Float, Physical Percent Complete, Baseline shadow in Gantt Chart
4 copies	All Activities sorted by WBS chronologically	List same as above
4 Pdf copies 1 Excel copy	Progress and Cash Flow Progress Curves	Update Actuals and Forecasts against the Planned values

SECTION 01 32 33

PHOTOGRAPHIC DOCUMENTATION

PART 1—GENERAL

1.01 DESCRIPTION

A. This Section specifies the general requirements for printed photographs, digital photographs and video recordings to be provided prior to, during, and after demolition.

1.02 MEASUREMENT AND PAYMENT

A. Separate measurement or payment will not be made for Work required under this Section. All costs in connection to the Work specified herein will be included in the related Bid Item as Incidental Work.

1.03 RELATED SECTIONS AND SUBMITTALS

A. Related Sections

1. Section 01 33 00, Submittal Procedures, for submitting pre-demolition and periodic photographic documentations.
2. Section 01 76 29, Protection of Existing Properties.
3. Section 01 77 00, Closeout Procedures, for submitting post-construction photographic documentations.

B. Submittals

1. Qualification of photographer and videographer.
2. Preconstruction printed photographs and video survey.
3. Periodic construction photographs in digital format.
4. Post-construction printed photographs and video survey.
5. Photographs in digital format shall be submitted in DVDs along with each submittal.

1.04 GENERAL

A. The pre-demolition and post-demolition photographic documentation shall be prepared for all structures within 100 feet of the construction limits, and shall be measured from the CTL line stationing, aboveground Work perimeter at streets and sidewalks, as applicable. The documentation will be used for evaluation of the elements of structures around the construction limit perimeters to evaluate potential structural and/or architectural damage resulting from the construction activities.

B. Should disputes or litigation arise concerning damage caused by the Work, the photographic documentation may be used as evidence of pre-existing conditions and as a reference for restoration and repair.

1.05 IDENTIFICATION

A. Key plans shall be developed to identify the locations of the proposed photographs to be taken and the route of the video recordings.

B. Log sheets shall be developed for listing the views photographed, and shall include the information listed below.

C. The following information shall be provided via adhesive label and placed on the back of each printed photograph. This applies to all photographic documentation submittals:

1. Photograph Number corresponding to the key plan identification number.

2. Contract Number 1277.

3. Project Name: Pagoda Palace Demolition (PPD)

4. Photograph Numbering: A unique individual sequential number for each photograph, which shall begin with the Area of Work (PPD), and the date the photograph was taken (YYMMDD format).

   a. Example: PPD-130115-1

5. Stage of photographs – preconstruction, periodic construction, post construction.

6. Date picture was taken.

7. Name of Contractor.

8. Name of Photographer.

9. Location of photograph was taken: Building and street view photographs shall be annotated or marked by name of building/company (if available), street address, and direction of each photograph. All photographs shall be referenced to the CTL line stationing, and shall include the horizontal offset distance and direction from the CTL line and station or other construction/demolition areas. Include same label information as corresponding set of photographs.

10. Subject of photograph and any unique features.

11. Weather conditions at time of photograph taking.

12. Similar identification format shall be used for video and DVD.

1.06 QUALITY AND QUANTITY OF SUBMITTALS

A. Photograph prints:

1. Color photographic images shall be a true and correct representation of the item or surface pictured; photographs shall be made and stored as digital JPEG image files, and shall be submitted in printed format, in standard commercial quality, color prints, on single weight glossy

paper through either a conventional photographic printing process or a computer-based printing system with 300 dpi resolution printing.

2. Photographs shall be 5 by 7 inches in size.

3. Provide two prints of each photograph.

4. All prints shall be sleeved in transparent archival-polypropylene protective pages and bound into labeled and identified three-ring notebooks. A matching adhesive label matching the label on the back of each photograph shall be affixed to the sleeve next to the respective photograph. A copy of the original field log sheet and key plan shall be included with the binder.

B. Digital photographs:

1. Digital images shall be created using digital photographic equipment, with camera capabilities of 10 megapixels sensor capacity or greater, and should be capable of utilizing a moderate wide-angle lens system, and electronic flash capable of properly illuminating large interior spaces.

2. The camera shall produce original uncompressed JPEG format images that open to display at dimensions of 5x7 inches at 300 dpi resolution or larger, i.e. 1500 x 2100 pixels minimum.

3. All identification information mentioned in 1.05 above shall be embedded in the digital file in such a way that this information will always appear when the file is opened for viewing, and cannot be separated, edited or deleted. When printed, both the image and the information shall appear together. Information must be clear and positioned so as not to obscure important parts of the image. The image dimension on screen shall not exceed 8x10 inches.

4. Catalog on DVDs. Submit two DVDs for each submittal.

5. Proof sheets: Catalog color thumbnail views of digital photographs on DVDs. Each thumbnail shall be labeled with photo number.

C. Video Recordings – The audio/video system shall have the following capabilities/features:

1. Provide high-definition 1080p movies on DVD Disc for playback in a standard DVD player and viewing on a television or computer.

2. The system shall be capable of producing bright, sharp, clear visual images which render accurate colors, free from imperfections and distortions that might obscure recorded information during playback.

3. The DVD shall allow chapter-search capabilities to aid finding segments listed on the field log sheets. A copy of the original field log sheet shall be included in each DVD.

4. For each submittal, submit two copies of DVD.

5. Video recordings shall include a complete, clearly spoken narration of project name and number, name of contractor, name of videographer, date and time, and the recording shall begin with a visual display of this information. Continuous narrative updates of this information and other pertinent details such as direction of view, location, existing condition or description of activity shall be recorded.

6. Video recordings shall include an unobtrusive time and date indicator on screen, accurately showing the time and date when the recording was performed.

7. Submit DVD with printed label in protective sleeve or case with proper identification.

D. Internet accessibility of photograph submittals:

1. All digital photographs shall be maintained and posted to an unpublished internet web page, and notification shall be sent via email to a maximum of 10 recipients as designated by the Engineer. The online viewing notification shall be provided no later than twenty-four hours after the hard copy submittal is submitted to the Engineer. The size for online viewing images shall not exceed 2MB.

1.07 QUALITY ASSURANCE

A. Qualifications:

1. All photography and videos shall be handled by established commercial personnel who are trained and experienced in construction/demolition photographic documentation, and have been engaged in the business for at least five years. Upon request by the Engineer, examples of prior work and/or references shall be provided.

1.08 USAGE RIGHTS

A. If requested by the Engineer, obtain and transfer copyright of the photographs and videos to SFMTA for unlimited reproduction of photographic documentation and no extra cost to SFMTA.

1.09 EXTRA PRINTS

A. If requested by the Engineer, Contractor shall prepare extra copies of the photographs or videos and distribute to designated parties. The cost for this work will be reimbursed to the Contractor.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

3.01 GENERAL

A. Photo documentation shall include cracks or deformation greater than 5mm in width, whether previously repaired or not.

B. Photo documentation shall include cracks or deformation of the pre-demolition building condition and potential impact due to construction.

C. Under no circumstances shall demolition begin until the Engineer has received and approved the pre-demolition photographic documentation submittal.

D. Unless otherwise noted, the pre-demolition photographic documentation submittal must be submitted for review at a pre-established date that will be designated by the Engineer.

1. A representative of the Contractor and/or Engineer shall accompany the photographer and videographer to assist with locating the CTL line, adjacent areas of potential demolition activity, identification of items, utilities, surfaces, structures, and conditions which are to be recorded. The demolition limits shall be flagged, and excavation areas shall be physically marked with the CTL control line stationing numbers for reference to create the field log sheet and key plans.

E. Document all structures, sidewalks, curbs, vegetated areas, and paved areas located within 300 feet of the station demolition limits. Measurements shall be from the CTL line, station perimeter walls at each level, station headhouse excavation, and other structures, as applicable. These locations will be verified by the Engineer.

F. Photographer and videographer shall maintain key plans and log sheet in the field, and shall be signed by the photographer/videographer.

G. Take digital photographs at locations indicated in the key plans, and at any areas disturbed or likely to be affected by demolition and at locations designated by the Engineer.

H. Contractor shall not access private property without the written permission of the owner and approval of the Engineer. See Special Provisions SP-16 Private Property.

3.02 PRE-DEMOLITION PHOTOGRAPHS

A. Provide predemolition photographs prior to commencement of work around the station demolition limits.

B. All photographs shall contain sufficient detail, contrast and focused content to present the condition of pre-existing defects and damages, of all existing features of the property or item pictured. All buildings as required – interior and exterior, pavement, driveways, culverts, inlets, sidewalks, landscaping, vegetation, trees, structures, foundations, inside of culverts and utility boxes, poles, lamp posts, street fixtures, lighting, and other such items within 300

feet of the demolition limits, and in adjacent areas which might be affected by the demolition operations shall be surveyed and existing damage photographed.

C. For locations where demolition work will occur, take predemolition photographs between 10 – 30 days prior to any alterations of the area by the Contractor, and before commencing demolition work.

D.

3.03 PRE-DEMOLITION VIDEO SURVEY

A. Duration: 120 minutes minimum and as required to adequately document specific site conditions.

B. Perform pre-demolition video survey for the Site and Demolition Areas:

1. Videos shall be taken between 10 to 30 days prior to commencement of Work in any area part of the Demolition Area.

2. The videographer shall not use wheeled/motorized vehicles while producing the tape recording.

3. Record the existing condition of all structures, buildings as required - facades and interiors, sidewalks, curbs, and paved areas located within 300 feet of the demolition limits. Measurements shall be from the CTL line, and and other structures, as applicable). Record temporary demolition staging areas and contractor/equipment access routes to the Site.

3.04 PERIODIC DEMOLITION PHOTOGRAPHS

A. Unless otherwise indicated, provide demolition digital photographs during the progress of all demolition activities.

B. For periodic demolition submittals, take a minimum of 60 digital photographs for all demolition locations at the end of each month after Notice to Proceed (NTP). Provide photographs that represent the Work completed and Work in progress within the submittal period.

C. If directed by the Engineer, extra photographs for specific activities or locations shall be submitted at no extra cost to SFMTA.

D. If requested by the Engineer, the periodic demolition submittal shall be submitted in a printed format indicated as provided in Subsection 1.06 A at no extra cost to SFMTA.

3.05 POST-DEMOLITION PHOTOGRAPHS

A. All photographs taken for post-demolition submittal shall correspond to the photographs submitted for the pre-demolition stage submittal, with the same view, scope, angle and direction, so that accurate comparison can be made.

B. Additional photographs shall be taken to document the physical condition of the structures that the Contractor suspects may have been damaged by the Work.

C. If directed by the Engineer, additional photographs of specific locations or structures shall be submitted at no extra cost to SFMTA.

3.06 POST-DEMOLITION VIDEO SURVEY

A. Video survey taken for post-demolition submittal shall correspond to the video survey submitted for the predemolition stage submittal, with the same view, scope, angle, direction, and duration so that accurate comparison can be made.

END OF SECTION

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SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1—GENERAL

1.01 DESCRIPTION

A. This Section specifies general requirements and procedures for preparing, reviewing, and transmitting data to the Engineer for information and appropriate action.

1.02 SUBMITTALS

A. Submittals Schedule, as specified in Article 1.07 herein.

B. Submittal register, preliminary and updates specified in Article 1.04 herein.

C. Sustainability Product Information Form, as specified in Article 1.12 herein.

D. Sustainability Quarterly Report Form, as specified in Article 1.13 herein.

1.03 GENERAL REQUIREMENTS

Contractor shall meet the following requirements as to submittals.

A. Shop drawings, product data, samples, test reports, manufacturer's recommendations, and other data shall be provided as specified herein.

B. All written information on shop drawings, product data and samples shall be in the English language, and all numerical data shall use imperial units of measurement.

C. Clearly identify in the submittal and attach a written explanation of all deviations from the requirements of the Contract.

D. Submittals shall not be used to request approval of substitutions of Materials, equipment and or products specified in the Contract. Contractor shall strictly adhere to the procedures for approval of substitutions specified in Section 01 25 00, Substitution Procedures.

E. Submittals and RFI's shall conform to the requirements described herein in addition to Section 01 31 25, Web-Based Project Control System for the numbering and renumbering of RFI's and Submittals. Submittals shall be identified by the bid item number where applicable.

F. Submittals shall be transmitted using forms furnished by the Engineer and filled out by the Contractor, as directed by the Engineer.

G. Contractor shall use SFMTA's licensed web-based project management software by Oracle Primavera's Contract Management,as described in Section 01 31 25, Web Based Project Control System (PCS) for all submittals, requests for information (RFIs), request for approval of substitutions, submittal registers, RFI logs, meeting minutes and all documentation and

procedural requirements of the Work. Contractor shall submit all records electronically followed by a hard copy with ink signature.

1.04 CONTRACTOR'S RESPONSIBILITIES

A. Contractor shall provide a separate submittal, as required in these Specifications, and for each system and major piece of equipment. Submittals shall show information supplementary to the Contract Drawings and Specifications.

B. Contractor shall furnish all submittals (and resubmittals as required) to the Engineer in an orderly manner and shall avoid multiple submittals, which may hinder the Engineer's timely review. Submittals shall be made sufficiently in advance of associated scheduled Work to allow adequate time for City review, Contractor correction and resubmittal, and other necessary approvals prior to commencing said Work, as shown on the most recently approved Construction Schedule. Contractor shall rank in the PCS all submittals in order of priority.

C. Maintain Submittal Register

1. Maintain submittal register to show projected and actual submissions and response dates for Contractor submittals. Provide date and activity numbers if they are related to construction activities or product deliveries.

2. Provide a preliminary submittal register of all anticipated submittals within 30 calendar days after Notice to Proceed.

3. Update submittal register for review at progress meetings to reflect all submittals made and all remaining required submittals.

D. Before making submittals, ensure that the Materials will be available in the quantities needed and in time to complete the Work within the time allowed.

E. Review and approve submittals for conformance with the Contract Documents, including checking field conditions and verifying field measurements and compatibility of Work indicated with clearance requirements, available space and utilities, and work of other trades and adjoining work, prior to submitting to the Engineer.

F. Each submittal shall bear the Contractor's Field Engineer's approval stamp and signature to indicate Contractor's approval. Items without such stamp and signature will not be considered submitted and may be returned to the Contractor without review.

G. Where a submittal varies from the requirements of the Contract Documents, Contractor shall submit a request for Substitution and include with the request written description , and justification for the variation. A submittal that varies in any material way from applicable specifications must be submitted as a request for substitution.

H. Obtain written approval from Engineer on a Proposed Contract Change and substitution, as applicable, prior to submitting submittals, which involve alternative work methods or products.

I. Provide six copies and PDF of the submittal, unless specified otherwise herein.

J. Prepare submittal form as specified herein. Each submittal form shall contain the following information:

1. Contract number and title: Contract 1277 - XXX.
2. Contractor's name, address, and telephone number.
3. Submittal number, revision number / review cycle and date.
4. Subject identification, including applicable Specifications Section and Article numbers.
5. Field Engineer's approval stamp and signature.

K. Do not start Work for which submittals are required until the submittals are approved by the Engineer.

L. A reviewer's comments shall not be construed as a modification or waiver of any Contract requirement or Specification. If Contractor believes that a reviewer's comments do not accord with any Contract requirement or Specification, Contractor shall submit an RFI seeking clarification from the Engineer.

M. After a submittal reviewed by the Engineer has been returned to the Contractor, distribute reproductions of shop drawings, product data, and other submittals which show the Engineer's approval to:

1. Jobsite files.
2. Affected manufacturers, fabricators, Suppliers, Subcontractors, and construction superintendent, foremen, and Contractor's Project Manager.

N. Delays to the Work and any Milestone caused by incomplete or rejected submittals or resubmittals are Contractor-caused delays.

1.05 ENGINEER'S REVIEW

A. The Engineer will review submittals for conformance to Contract requirements. The Engineer will mark, sign, and stamp with the date of review. Approval of a submittal shall not relieve the Contractor from its responsibility for compliance with Contract requirements.

B. Approval of an Item shall not constitute approval of the assembly or system of which the Item is a component.

C. After review, the Engineer will return to Contractor one reproducible of each shop drawing, one copy of product data, and will retain samples.

D. The Engineer will diligently attempt to respond to all submittals , within 10 Working Days after receipt for product data and a Request for Information (RFI), and within 15 Working Days for shop drawings and samples. The City may require additional time to review complex or large submittals or when multiple submittals are under review. Submittals requiring no action by the Engineer, such as manufacturer's instructions, test reports and Certificates of Compliance will not be returned.

E. The Engineer's approval of submittals shall not constitute approval of substitute products or Work.

F. Approval of a submittal does not constitute approval of a Change Order or other request for amendment of the Contract Documents.

1.06 RESUBMITTALS

A. The Contractor shall:

1. Revise and resubmit a rejected submittal as required by the Engineer.
2. Identify resubmittals by adding a sequential decimal numeral to the original submittal number. Example: resubmittals of 01 33 00 shall be identified as, 01 33 00.1, and then 01 33 00.2 if submitted a second time.
3. Explain all changes made from the previous submittal that have been made in addition to those requested by the Engineer in an enclosed memo or by other readily identifiable means.

1.07 SUBMITTALS SCHEDULE

A. The Contractor shall prepare a schedule of submittals, listing shop drawings, product data, samples, test reports, permits, certificates of compliance, manufacturer's recommendations, and other submittals required by the Contract, and submit said schedule to the Engineer prior to the Pre-Construction meeting specified in Section 01 31 19, Project Meetings, and submittal of the Baseline Schedule as specified in Section 01 32 13, Scheduling of Work.

B. Contractor's submittals schedule shall show the scheduled dates for:

1. If applicable, submittal received by the Contractor from Subcontractor or Supplier.
2. Submittal reviewed and approved by the Contractor.
3. Submittal delivered to the Engineer.

C. The Contractor shall update the submittals schedule monthly to reflect the status of all submittals made to date and all remaining required submittals.

1.08 DRAWINGS (SUPPLEMENTING THE GENERAL PROVISIONS).

A. Drawing Types:

1. Shop Drawings: As specified in the General Provisions, Shop Drawings shall be defined as coordination and detail drawings, diagrams, schedules and other data specifically prepared for permanent portions of the Work by the Contractor or any subcontractor, manufacturer, supplier or distributor, to illustrate and detail such portion of the Work. Shop Drawings shall be presented in a clear and thorough manner. Identify details by reference to sheet and detail, schedule or location shown on Contract Drawings, or applicable Specification section.

2. Working Drawings and Calculations: Working Drawings shall be defined as drawings prepared by the Contractor, his subcontractor at any tier, supplier or distributor, illustrating Work required for construction, but which will not be an integral part of the completed Work. This includes, but is not limited to: drawings for temporary structures such as decking, temporary bulkheads, excavation supports, utility support, groundwater control, forming and falsework, and underpinning. Working drawings and calculations shall be prepared, stamped, and signed by an engineer of the appropriate discipline licensed in the State of California.

B. Identification Requirements: Mark each shop drawing, working drawing, and calculation with the following:

1. Contract title and number.

2. Date, revision date and revision number.

3. Names of Contractor, Subcontractor, manufacturer, or Supplier.

4. Identification of the product by generic description, manufacturer's name and model number, style number, serial number, or lot number.

5. Respective Contract Drawing and detail numbers.

6. Calculations: Stamped and signed by an appropriate professional licensed in the State of California.

C. Furnish one reproducible, four copies, and a PDF electronic copy of each drawing and calculation for City's review.

D. Preparation Requirements:

1. Outline and installation drawings shall include overall dimensions, arrangements, assembly, piping, wiring and controls for fabrications, and equipment furnished.

2. Include construction and installation details and materials and tolerances, foundations of structures; locations and size of lifting connections or lugs; anchor bolts, base plates, and other methods of installation.

3. Drawing sizes shall be ANSI size C, D, or E. Lettering shall be legibly readable when reduced to half size. Reproducible shall be both hard copy and PDF electronic format.

4. Show field dimensions and HOLD dimensions clearly identified as such.

5. Show relation to adjacent facilities or critical features of the Work or materials.

6. Clearly identify deviations from the Specifications.

7. Provide 5-inch by 5-inch blank space in the lower left corner for the Engineer's review comments and in the lower right corner for the Engineer's future use.

8. Include title block showing:

   a. Contract title and number.

   b. Drawing number, revision number, date, and revision date.

   c. Names of the Contractor, Subcontractor, manufacturer, or Supplier.

9. Identify products by manufacturer's name and model number, style number, serial number, or lot number.

10. Identify respective Contract Drawing and Detail numbers.

1.09 PRODUCT DATA

A. Product (Materials)data shall include the manufacturer's standard illustrations, schedules, performance charts, instructions, brochures, diagrams, qualification test reports, and other information furnished by the Contractor to illustrate a material, product, or system for some portion of the Work. Contractor shall modify data to delete information which is not applicable to the Contract.

1. Modify data, diagrams and catalog cuts to delete all information not applicable to the Work.

2. Supplement standard information with specific information applicable to the Work.

B. Identification Requirements:

1. Mark the product data with the following: Contract title and number, submittal number, and item number on each page.

2. Indicate on transmittal applicable Specifications Section and Article numbers, and Contract Drawing and detail number for each submittal item.

3. Product Information:

   a. Clearly mark to identify pertinent products or models.

b. Show performance characteristics and capacities.

c. Show dimensions and clearances required.

d. Show wiring and piping diagrams and controls.

e. Clearly identify deviations from the Contract.

C. Furnish four copies and four originals of the product data.

1.10 NOT USED

1.11 NOT USED

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

NOT USED

END OF SECTION

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SECTION 01 35 00

HAZARDOUS MATERIALS PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. Some materials encountered during demolition and excavations of non-native fill material have been identified or may contain constituent materials known to the State of California to be either carcinogenic or reproductive toxins. This Section includes hazardous materials precautions, general requirements and handling procedures as required due to the work and existing conditions at the Site. Materials encountered may include asbestos, lead containing paint, PCB ballasts, mercury containing lamps, mold and other biohazards.

B. Potential Hazardous materials and conditions at the Site remain the responsibility of the Contractor. All Work necessary to comply with the requirements of this Section is Incidental Work, unless otherwise stated.

C. The Contractor shall perform all hazardous materials abatement Work under this Contract as described herein.

1.02 SITE CONDITIONS

A. The following Site Conditions have been identified and are described in the survey reports referenced below:

1. Asbestos and Lead Survey, 1731 Powel Street, San Francisco CA – prepared by EnviroNova. Letter Report, June 19, 2009.

2. Phase 1 Environmental Site Assessment, Theatre Building, 1731-1741 Powell Street, San Francisco, CA – prepared by Ceres Associates, May 30, 2001.

B. The following materials have been identified and the Contractor is hereby notified that Work may involve:

1. Working around and handling building materials with lead–based paints or coatings.

2. Working around low levels of paint and asbestos-containing building materials with potential to release airborne emissions.

3. Removing and disposing asbestos-containing building materials (ACM).

4. Conducting remediation of building surfaces that may be affected by fungal growth.

5. Handling mercury fluorescent lights or equipments such transformers and light ballasts with potential PCB.

6. Handling other potentially hazardous materials present such as biohazard, chemical hazard, radioactive, or atmospheric hazard.

1.04 RELATED DOCUMENTS AND SECTIONS

A. Section 01 35 29 10- Health and Safety

B. Section 01 41 00 – Regulatory Requirements

C. Section 01 42 00 – References

1.05 DEFINITIONS

A. Abatement: Primary work involving the removal, containment, control or treatment of hazardous materials.

B. Asbestos: A generic name given to a number of naturally occurring hydrated mineral silicates that possess a unique crystalline structure, are incombustible in air, and are separate into fibers. Asbestos includes any material that contains greater than 0.1 percent by weight the asbestiform varieties of chrysotile (serpentine); crocidolite (riebecklite); amosite (cummingtonite-grunerite); anthophyllite; tremolite; and actinolite. For the purposes of determining respiratory protection and worker protection, both the asbestiform and non-asbestiform varieties of the above materials and any of these materials that have been chemically treated or altered shall be considered asbestos.

C. Asbestos-Containing Material (ACM): Any material which contains more than one percent (>1%) asbestos by weight for the purposes of abatement, waste disposal and fiber controls specified under this Contract.

D. Asbestos Containing Construction Materials (ACCM): Defined by Cal OSHA 8CCR§341.6 as any manufactured construction material which contains more than one tenth of one percent (0.1 %) asbestos by weight.

E. Asbestos Regulated Area: An area established where asbestos work is conducted and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos exceed, or there is reasonable possibility that may exceed the permissible exposure limit (PEL).

F. Deteriorated Lead-Based Paint Hazard: painted areas with any of the following characteristics:

1. More than two square feet of deteriorated lead paint on interior components with large surfaces such as walls, ceilings, floors, and doors.

2. More than ten square feet of deteriorated lead paint on exterior components with large surfaces such as outside walls.

3. Deteriorated lead paint on more than ten percent of the total surface area of interior or exterior components with small surface areas such as windowsills, baseboards, trim, etc.

G. Hazardous Materials Control: Incidental work procedures for control of releases of project- related hazardous materials, including containment, enclosure, wetting, controlled renovations and demolition procedures, and removal and disposal.

H. Hazardous Waste:

1. Waste material, including asbestos, loose and peeling lead-based paints, PCB ballasts, and any other material which requires management, handling transport, treatment, storage or disposal according to the requirements of the Federal Resource, Conservation and Recovery Act (RCRA) and associated regulation 42 U.S.C. 6901 et seq. and 40 CFR Part 260 et seq.) or the California Hazardous Waste Control Law and associated regulations (Health and Safety Code 25000 et seq. and 22 CCR 66260 et seq.)

2. References to hazardous material or contaminated material incorporate definitions of hazardous pollutants, hazardous contaminants, hazardous material, hazardous substance, hazardous waste, toxic pollutants and toxic substance applicable in accordance with Federal, State, and local statutes, laws, regulations and policies.

I. Lead: The federal Occupational Safety and Health Administration (OSHA)'s Lead Standard for the Construction Industry defines *lead* as elemental lead, all inorganic lead compounds, and a class of inorganic lead compounds called lead soaps. Other organic lead compounds are excluded from the definition.

J. Lead Action Level: 30 micrograms per cubic meter based on an eight-hour time-weighted average (8 hr TWA).

K. Lead-Containing Material: Any material, coating, substrate or product, which contains lead in accordance to OSHA's definition, see item H above.

L. Lead-Based Paint (LBP): Any paint, varnish, shellac, or other surface coating that contains lead equal to or greater than 1.0 mg/cm^2 as measured by X-ray Fluorescence (XRF) or laboratory analysis, or 0.5 percent by weight (5,000 µg/g, 5,000 ppm, or 5,000 mg/kg) as measured by laboratory analysis.

M. Lead-Based Paint Activities: EPA's Title IV of the Toxic Substances Control Act defines as Lead-Based Paint Activities the following, among others: In any public building constructed before 1978, commercial building, bridge, or other structure or superstructure: Identification of lead-based paint and materials containing lead-based paint, De-leading, Removal of lead from bridges, and Demolition.

N. Lead-Based Paint Debris: Any component, fixture, or portion of a building coated wholly or partly with LBP. LBP debris can also be any solid material coated wholly or partly with LBP resulting from a demolition. Examples among many others include ceilings, crown molding, walls, chair rails, doors, door trim, floors, fireplaces, shelves, and radiators and other heating units.

O. Lead-Based Paint Hazard: A condition in which exposure to lead from lead-contaminated dust, lead-contaminated soil, or deteriorated lead-based paint would have an adverse effect on human health (as established by the EPA Administrator under Title IV of the Toxic Substances Control Act). Lead-Based paint hazards include for example, deteriorated lead-based paint, leaded dust levels above applicable standards, and bare leaded soil above applicable standards.

P. Lead Hazard: Title 17, California Code of Regulations (CCR), Division 1, Chapter 8, sections 35000 -361000, the California Department of Public Health (CDPH) defines: lead hazard as deteriorated lead-based paint, lead contaminated dust, lead contaminated soil, disturbing lead-based paint or presumed lead based paint without containment, or any other nuisance which may result in persistent and quantifiable lead exposure.

Q. Lead-Based Paint Hazard Abatement: Any set of measures designed to permanently eliminate lead-based paint hazards according to standards established by the appropriate federal agencies. Abatement measures include the following activities:

1. Removal of lead-based paint and lead-contaminated dust,

2. Permanent containment or encapsulation of lead-based paint,

3. Replacement of lead-painted surfaces or fixtures, and

4. Removal or covering of lead-contaminated soil.

Abatement also includes all associated preparation, cleanup, disposal, and post-abatement clearance testing activities, record keeping, and monitoring.

R. Lead-Based Paint Hazard Control: Activities to control and eliminate lead-based paint hazards, including interim controls, abatement, and complete abatement.

S. Lead Related Construction Work: Any construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, including preparation and cleanup that, by using or disturbing lead-containing materials or soil, may result in significant exposure of adults and children to lead.

T. Lead-Contaminated Dust Hazard: Surface dust containing an area or mass concentration of lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. The recommended clearance and risk assessment standards for leaded dust are :

1. 40 micrograms/ft^2 for floors and interior horizontal surfaces
2. 250 micrograms/ft^2 for interior windowsills and stools
3. 400 micrograms/ft^2 for exterior horizontal surfaces

U. Lead Permissible Exposure Limit (PEL): 50 micrograms per cubic meter based on an eight-hour time-weighted average (8 hr TWA).

V. Site Safety Representative (SSR): Qualified person directly reporting to the Contractor's Project Engineer having the necessary training to be knowledgeable in the identification, control, and management of the hazardous materials on Site.

W. Transite Material: Non-friable cementitious asbestos-containing material. Asbestos procedures for the installation, repair, maintenance, or nondestructive removal of asbestos cement pipe used outside of buildings shall be followed if the work operations show employee exposures to asbestos in excess of 0.1 fibers per cubic centimeter of air (f/cc) as an 8-hour time-weighted average and the employees and supervisors involved in the work operations are not trained and certified by an asbestos cement pipe training program.

1.06 PROJECT REQUIREMENTS

A. Contractor is responsible for all hazardous materials activities, for the demolition and excavation work of this Contract. The Contractor shall coordinate the activities and trades required to perform the Work of this Contract that may have the potential to directly or indirectly impact hazardous materials. Work in particular that may typically impact hazardous materials includes, as applicable and is not limited to:

1. Demolition.
2. Disturbance to any paints or coatings.
3. Torch cutting.

4. Welding.
5. Excavation.
6. Dewatering.
7. Shoring and Underpinning Work.

B. The Contractor shall not create any condition that may endanger the safety of City employee's and its representatives, facility staff and the general public. If the City Representative observes such condition, then the City Representative has the authority to stop work until the Contractor corrects the condition. The Contractor is responsible for monitoring its employees and Sub-contractors employees for exposure to hazardous materials, either from Materials used in construction or otherwise uncovered or intrinsically present at the Site.

C. The Contractor shall maintain the Site and Construction Area free from environmental pollution, which would be in violation of any federal, state or local regulations. Conduct construction activities in strict compliance in this section and other related sections.

D. Minimize the generation of dust and the migration of hazardous and contaminated materials. Strictly adhere to the dust control measures as per mitigation controls required.

E. In the event that hazardous materials are disturbed, or an uncontrolled asbestos or lead based paint release occurs, Contractor shall notify the Engineer immediately. The City retains the right to clean up the spill or to remove the hazardous materials using other Contractor(s). The Contractor shall not be allowed to resume work in the contaminated area until clearance is declared. The City will not compensate delays and clean-up costs incurred due to the result of Contractor's negligent failure to notify the Engineer immediately in the event of a hazardous materials release or spills.

F. In the event that removal of asbestos pipe insulation, lead containing hazardous coatings or other building materials identified as hazardous require accessing areas or where torching, cutting and welding will be needed for, notify the Engineer immediately. The Contractor will not be allowed to remove hazardous materials unless is properly trained and certified for the handling of this particular hazardous material. (i.e. workers trained and certified for Class I Asbestos Work with accordance to Title 8 CCR Section 1529)

G. Prevent the mixing of hazardous and non-hazardous materials, so as to increase the cost and/or volume of materials requiring to be disposed of as hazardous or contaminated waste.

H. Contractor shall retain, and the City will not indemnify against, any liability of Contractor resulting from the activities or duties which are the responsibility of Contractor under the terms of this Contract, including but not limited to,

liability arising from the arrangement of transportation of any hazardous material or excavated material, whether on or off-site. Therefore, the City will not assume liability, present or future, incurred by Contractor by reason of these activities.

I. The City is the "Generator", as defined in Section 66260.10 of article 2, Chapter 10, Division 4.5 Title 22 of the California Code of Regulations (CCR) and in Title 40, Code of Federal Regulations, of any hazardous waste, and it will be responsible for such material to the extent required by law.

J. Packing, labeling, transporting, and disposing of hazardous waste shall comply with Cal/EPA regulations under 22 CFR, including providing and completing the Uniform Hazardous Waste Manifest Form (DTSC 8022A, 7/92, and EPA 8700-22).

K. The Contractor shall take the necessary precautions to prevent the release of lead in the form of dust, fumes or mists from lead-containing building materials into the air and into the surrounding environments during demolition. Contractor should be aware of the requirements to comply with Cal/OSHA construction Lead Standards, Title 8 California Code of Regulations (CCR) 1532.1.

L. The Contractor shall provide adequate security within the construction area during working hours. Maintain personnel on the site at all times when any portion of the construction area is open or not properly secured, including at hazardous waste transport vehicle. Secure work area(s) completely at the end of each working day.

M. The Contractor is hereby informed that the City Representative will coordinate site visits with the City's designated Health and Safety Officer to insure Work conforms to standards established by the specific Regulatory Agencies. In addition, the City Representative may confer with worker on site to verify training and health and safety measures meet regulations specific to the work performed.

1.07 QUALIFICATIONS

A. Abatement Contractor's Qualifications

1. Contractor may self-perform abatement Work if it is qualified and licensed or it may subcontract the Work. The Abatement Contractor shall have completed a minimum of 2 projects similar in scope and complexity or greater in the past 5 years.

2. Before commencing any Abatement Work, the Contractor shall submit to the Engineer, the Abatement Subcontractor's current licenses and certifications for the specific type of abatement Work to be performed

and a letter of confirming compliance to regulations, both current and as described herein.

3. The Abatement contractor shall submit copies of regulatory agencies notifications, abatement work plans and disposal documentation as required for the removal of the hazardous materials.

B. Site Safety Representative (SSR): In accordance to the requirements specific to this Section listed below, the Contractor shall assign a qualified person directly reporting to the Contractor's Project Engineer trained and knowledgeable in the identification, control, and management of the hazardous materials and conditions on-site. The SSR is responsible for the following:

1. Enforcing safe work and hygiene practices in compliance with the Contractor's Health and Safety Program
2. Advising subcontractors, vendors, and visitors to the site of potential hazards and minimum general requirements of the Contractor's Health and Safety Program
3. Coordinating subcontractor's work regarding hazardous material procedures and controls.
4. Establishing and maintaining restricted work areas.
5. Enforcing proper use of personal protective equipment.
6. Communicating approved modified safety requirements to site personnel as well as visitors to the site.
7. Notifying to and coordinating with the City for the immediate assessment and remediation work for unforeseen hazardous materials and/or conditions discovered in the course of the work.
8. Notifying and coordinating signing of waste manifests with the City in a timely manner. Contractor shall not conduct any sampling or analysis of suspected building materials without prior permission from the Engineer. In the event that sampling is authorized, only qualified AHERA certified building inspectors for asbestos sampling and the California Department of Public Health (CDPH) certified Project monitors for lead assessment will be allowed to conduct the sampling. The Contractor shall submit certification copies of the qualified person conducting the sampling.

C. Hazardous Materials Handlers: Only qualified persons shall engage in hazardous material- related work. Contractor and subcontractor personnel, who come into contact with, are exposed to, disturb, operate equipment or otherwise handle hazardous or contaminated material, or debris shall have

appropriate hazard communication and required training, personal and medical monitoring, and shall be certified to wear appropriate personal protective equipment as required by the applicable laws and regulations. Special qualifications which may be required depending on the Contractor's means and methods include, but are not limited to, the following:

1.08 HAZARDOUS MATERIALS HANDLERS QUALIFICATIONS

A. Asbestos-Related Work Involving Asbestos-Containing Materials exceeding 100 square feet or 100 linear feet:

1. Valid asbestos handling license issued by the California State Contractors Licensing Board (SCLB) and a valid current Certificate of Registration for Asbestos-Related Work as issued by the California Department of Industrial Relations – Division of Occupational Safety and Health (Cal/OSHA).

2. Work shall be completed under the on-site supervision of a Competent Person as defined by Federal OSHA under Regulation 29 CFR Part 1926.1101 and Cal/OSHA under 8 CCR 1529.

3. All abatement workers shall have AHERA training with current annual 8-hour refresher training, annual medical exams for the use of respiratory protection, and a fit test of appropriate respirators every 6 months.

B. Lead-Hazard Work: All affected workers assigned to perform the following Work or similar Work on a site shall have received lead awareness training, annual medical examinations and approval for the use of respiratory protection, and fit testing of respirators to comply with the California Occupational Safety and Health Administration (Cal/OSHA)'s Lead Standard for the Construction Industry, regulation 8 CCR 1532.1 when affecting lead paints and lead construction hazards including, but not limited to:

1. Demolishing or salvaging structural items where lead or material containing lead is present.

2. Removing or encapsulating materials containing lead.

3. Constructing, altering, repairing or renovating structures, substrates, or portions thereof, that contains lead or materials containing lead.

4. Scrape paint off windows, trim, etc. prior to repainting and the work is done as part of preparing the surface for repainting.

5. Cleaning-up of lead contamination.

6. Transporting, disposing, storing, or containing lead-based paint debris or lead-containing materials, as both defined in Subpart 1.2 above, on

the site or other locations where construction and renovation activities are performed.

C. All construction work that affects intact paint and materials containing any detectable level of lead will be performed by the Contractor or its subcontractors under the Cal/OSHA Lead in Construction Standard 8 CCR 1532.1, Federal/OSHA's Lead Standard for the Construction Industry, Title 29 Code of Federal Regulations 1926.62, as well as all applicable Federal, State, and local regulations. Lead in construction standard applies to all construction work where an employee may be exposed to lead, and covers lead in a variety of forms, including metallic lead, all inorganic and organic lead compounds.

D. The Contactor and its personnel shall have all the applicable hazard determination, exposure assessment, medical surveillance, engineering and work practice controls, respiratory protection, protective clothing and equipment, employee information and training, certifications, and monitoring program to perform work under the above standards and regulations. The Contractor should, as needed, consult a qualified safety and health professional to develop and implement an effective, site specific worker protection program.

E. No additional payment shall be made when such work is to be done under this Standard and applicable regulations.

F. The Contractor is to manage, and to include in its bid, the costs of managing, any of the above activities as OSHA Lead Trigger Tasks until the Contractor provides an Exposure Assessment that determines otherwise.

G. Lead Abatement Work: Only qualified persons with California Department of Public Health (CDPH)-approved Lead Workers training, annual medical examinations and approval for the use of respiratory protection, and semi-annual fit testing of respirators under the direct supervision of a DHS approved Lead Abatement Supervisor shall engage in work defined under Cal/OSHA regulation 8 CCR 1532.1 affecting lead-based paints and lead construction hazards, including but not limited to:

1. Working in an environment where lead exposures exceed 30 micrograms per cubic meter (mg/m^3).
2. Removing lead based paints including, but not limited to, abatement of loose and peeling lead-based paints, demolition and disposal of concrete-encased primed structural steel, and stripping of lead coatings from structural steel prior to torching or welding.

H. Polychlorinated Biphenyls (PCBs)-Containing Ballast-Related Work: Removal of non-leaking Polychlorinated Biphenyls (PCBs)-containing ballasts may be completed by workers with PCBs hazard awareness training as verified by the Contractor's Project Engineer or Superintendent. Removal

of leaking or damaged PCBs-containing ballasts from lighting fixtures shall be only completed by trained workers, wearing protective gloves and following safety procedures as outlined in the Hazardous Materials Management Plan (HMMP). Hazardous waste shall be handled according to the U.S. Environmental Protection Agency's Standards 40 CFR 761.60 and 761.65 (22 CCR Section 66699(b) in California).

I. Not Used.

J. Mercury-Containing-Lamp-Related Work: May be completed by workers with mercury hazard awareness training as verified by the Contractor's Project Engineer or Superintendent.

K. Other Hazardous Materials-Related Work: May be completed by workers with specific hazard awareness training of the material in question as verified by the Contractor's Project Engineer or Superintendent.

L. Biohazard Work: Work areas contaminated with fecal matter and human excretions, along with needles and syringes and other materials potentially contaminated with infectious blood borne pathogens or other biohazards shall comply with the health and safety requirements as approved in a Site-Specific Hazardous Materials Management Plan.

M. Mold and Fungi Remediation Work: May be completed by workers with mold hazard awareness training as verified by the Contractor's Project Engineer or Superintendent.

N. Hazardous Materials Haulers:

1. Possess during the hauling of hazardous material, applicable federal, state, and local vehicle insurance requirements, valid driver's license, vehicle registration and licenses, and a current Class 1 Certification of Compliance from the California Highway Patrol affixed to each vehicle or container.

2. Possess a Hazardous Substance Removal Certification granted by the State of California Department of Toxic Substances Control (510-540-3802) and other required certifications and insurance.

3. Contractor shall be responsible for informing drivers of hauling vehicles about:

   a. The nature of the material hauled.

   b. Any recommended or required routes to and from the site.

   c. Applicable city street use regulations and requirements, and State of California Department of Transportation (Caltrans) codes, regulations and requirements.

d. The City's requirements for proper handling and transportation of hazardous waste including mitigation controls and manifesting procedures.

e. The legal maximum loads for each vehicle.

1.09 SUBMITTALS

A. Upon issuance of Notice to Proceed the Contractor shall be allowed ten (10) calendar days for submittals of

1. Abatement Contractor's project experience documentation.

2. Copies of current certifications, notifications and/or letters of compliance according to the Regulatory Agencies governing the specific type of hazmat work.

3. The Hazardous Materials Management Plan (HMMP) in accordance with this Section and Section 02 13 00- Hazardous Materials Abatement and Controls.

B. The Contractor shall not start hazardous material abatement without approval of the HMMP and notification form the City Representative.

1.10 HAZARDOUS MATERIALS USED TO PERFORM WORK

A. The contractor shall minimize the use of hazardous materials to perform the work. Where materials, that contain hazardous substances or mixtures, are used to perform the work, material usage shall be in strict adherence to Cal/OSHA safety requirements and the manufacturer's warnings and application instructions listed on the Material Safety Data Sheet provided by the product manufacturer and on the product container label.

B. The Contractor is responsible for coordinating the exchange of MSDS or other hazard communication information with subcontractors and other Contractors at the site.

C. The Contractor shall notify the City when a specific product or equipment, or their intended usage, may be unsafe prior to ordering the product or equipment or prior to the product or equipment being incorporated in the Work. Known carcinogenic materials in any form or application shall not be used in the construction of this project.

D. Should hazardous substances be used, provide the City Representative with its information, and clearly indicating

1. Area or areas where the hazardous substances are to be stored and to be used.

2. The Contractor's preventative measures, means, and facilities to prevent spillage and contamination of soil, water and atmosphere by the discharge of noxious substance.

E. The City and County of San Francisco is not responsible for any such material brought to the site by the Contractor, subcontractor, suppliers, or anyone else for whom the Contractor is responsible.

F. The Contractor shall not use any building materials that contain Asbestos Containing Construction Materials (ACCM). ACCM is defined by Cal/OSHA, 8 CCR 1529 (q) and (r), as any manufactured construction material that contains more than one-tenth of one percent asbestos by weight.

G. The Contractor shall not use any building materials that contain lead-based paint (LBP). LBP is defined by Title 17, CCR, Division 1, Chapter 8, Section 35033, as paint or other surface coatings that contain an amount of lead equal to, or in excess of one milligram per square centimeter (1.0 mg/cm2) or more than half of one percent (0.5%) by weight.

H. Should the City tests of new building material reveal concentration of asbestos and lead higher than the limits stated above those mentioned above for asbestos and lead, the Contractor shall be responsible and liable for the damages including cost for the removal, abatement, and replacement of the building material.

1.11 WASTE HANDLING AND CHARACTERIZATION

A. Contractor shall accurately identify waste in accordance with all applicable Codes. Individual waste containers must be labeled in accordance with Cal/OSHA labeling requirements.

B. All waste shall remain stored on Site in a secured and designated waste storage area until results of waste identification/tests are available. Due to the analytical methods of some tests, this may require storage for up to 10 Working Days or more.

C. Waste that contains friable asbestos resulting from these abatement activities shall be handled, managed, and disposed of as California (i.e., non-RCRA) hazardous waste.

D. Package, label, transport, and dispose of hazardous waste in accordance with applicable Cal/EPA regulations under Title 22 CCR and the California Health and Safety Code, including completion of the Uniform Hazardous Waste Manifest (UHWM). Information on the UHWM must include the quantity of waste in cubic yards and the name and address of the BAAQMD to comply with EPA Waste Shipment Record requirements.

E. The Contractor shall follow the waste disposal; and manifesting requirements as specified under Section 02 81 00. The Contractor shall prepare the forms by typing in a neat, correct, and legible fashion for signing by the generator. The Contractor shall notify the Engineer at least 24 hours in advance of the time at which the manifest is ready to be signed.

F. Non non-hazardous/non friable wastes, the Contractor shall follow the waste disposal and procedures for class II Material as specified under Section 02 81 00.

G. All lead-containing waste or debris, including, but not limited to, painted building components, ceramic tile glazes, respirator cartridges, disposable suits, and other associated debris generated during this work, shall be packaged for disposal as hazardous waste until waste characterization has been completed and analytical results are available. Waste shall be segregated into distinct waste streams according to the waste categories suggested in the *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*, (a.k.a. "the HUD Guidelines"), dated June 1995 (revised Ch. 7 – 1997), which include:

Category I: Low Lead Waste – typically non-hazardous construction materials, filtered wash water, cleaned plastic sheeting, and other items that test as non-hazardous;

Category II: Architectural components such as painted finished items like siding, doors, windows, trim, etc. which demonstrate intact or stabilized surface coatings;

Category III: Concentrated Lead Waste - typically hazardous materials such as paint sludge, paint chips vacuum debris, vacuum filters, and any waste testing hazardous; and

Category IV: Other lead-containing waste requiring characterization testing.

H. Waste characterization for lead hazard content shall be performed in accordance with 22 CCR §66262, et. seq., including using one or more of the following testing procedures, as required:

1. Total Threshold Limit Concentration (TTLC)
2. Waste Extraction Test (WET)
3. Toxicity Characteristic Leaching Procedure (TCLP)

I. Miscellaneous Hazardous Materials Disposal

1. Disposing of PCB-containing ballasts in landfills is prohibited by Federal and state law. Drums containing PCB ballasts and other PCB-

contaminated materials must be disposed of, or otherwise treated, at an EPA-approved facility.

2. Ballasts with "Non-PCB" fluids, must be disposed of at a legally permitted disposal/recycling facility as assumed DEHP-containing ballasts.

3. Fluorescent lamps must be stored in packaging or containers that are designed to minimize breakage/damage during both storage and shipping. Containers shall be labeled as "Universal Waste – Spent Fluorescent Lamps" or "Universal Waste," as appropriate, and each container shall be marked with the date on which storage of said waste began.

4. The Contractor shall use a non hazardous waste form when shipping fluorescent lamps to a recycler: This form shall contain the name and address of generator, transporter, and recycler; number of lamps shipped; date of shipment and date of receipt by recycler; and obtain a dated signature of the receiving recycler. A copy of this form shall be submitted to the City Representative at abatement completion.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

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SECTION 01 35 29.10
HEALTH AND SAFETY

PART 1—GENERAL

1.01 DESCRIPTION

A. Contractor shall be solely and fully responsible for compliance with Codes (laws, rules, and regulations) applicable to the health and safety of persons during the performance of the Work, and shall fully assume the defense of, indemnify and hold harmless those entities and persons listed as Indemnities' in the General Provisions for Contractor's violations of said Codes and negligence.

B. The Contractor and not the City, is responsible and liable for the health and safety of its employees and subcontractors, in accordance with federal, state, and local statutes, laws, and regulations; consequently, the Contractor shall be solely responsible for any and all fines, penalties, or damages, which result from its failure to so comply, even if a regulatory or other agency having jurisdiction or court determines that the City shares liability under a theory of coemployer or premises liability.

C. Nothing contained in this Section shall relieve the Contractor or any subcontractor or supplier of the obligations assumed under the Contract and as required by law. The requirements contained herein for a Contractor Injury Illness Prevention Program (IIPP) are by no means all-inclusive. It shall be the Contractor's sole responsibility to develop IIPP, comprehensive and specific to the Work of this Contract, and to implement the IIPP throughout the life of the Contract. Where any portion of the requirements in this Section conflict with or are less stringent than any federal, state, or local statutory safety regulations, the more stringent requirements shall apply.

D. Contractor's compliance with all Health and Safety Codes and Contract requirements is Incidental Work, unless specified otherwise.

1.02 HAZARDOUS MATERIALS

A. Many of the materials and items of equipment used to perform and construct the Work contain materials known to the State of California to be either carcinogenic or reproductive toxins. Such hazardous, contaminated, and non-hazardous materials and environments include, but are not limited to: hazardous and non-hazardous materials, soils, groundwater and storm water; heavy metals; petroleum hydrocarbons; polynuclear aromatic hydrocarbons; organic compounds; asbestos; transite; serpentine rock, which may contain natural asbestos; lead based paint materials; railroad ties; sewage; sludge; debris; grit; sewer gases; oxygen deficiency; bacterial/biological contamination; and confined spaces.

B. The Contractor shall ensure that all personnel performing the Work, including subcontractors and agents, receive appropriate and required awareness

training and orientation that will prevent inadvertent or unauthorized disturbance of hazardous materials that are present at the Site.

C. Lead Hazards:

1. OSHA Lead in Construction Standard (29 C.F.R. part 1926.62 and Title 8 CCR section 1532.1) requires awareness training and compliance on the part of an employer when there is any possibility that an employee could be exposed to lead as a result of his or her activities.

2. The level of engineering control and medical monitoring required shall be based on all applicable Cal/OSHA regulations for the Project duration for the level and extent of lead exposure at the Site.

3. Provide competent supervision by a Contractor designated Contractor's Safety Manager who shall identify potential lead hazards at the Site and oversee implementation of appropriate protective measures to comply with all Cal/OSHA requirements applicable for lead-containing materials and lead base paints.

1.03 SITE CONDITIONS

A. The Contractor is advised that Work in this Contract includes, but is not limited to, the following activities:

1. Working with soils that may be hazardous or contaminated, or both.

2. Working around live, high voltage lines and wires, switches, moving vehicles, and other potential hazards specific to Muni operation.

3. Working around live utilities.

4. Working in spaces or areas where employees may be exposed to lead.

5. Working in open trenches.

6. Entering or working in confined spaces.

7. Welding, painting or other potentially hazardous work, or working in the vicinity of such activities.

8. Working with lead based paints.

9. Working around explosive or harmful gases, including methane.

B. The Contractor is alerted to the presence of the overhead Muni traction power contact system. The overhead contact system is above each trolley coach route and track and adjacent to each platform. This is a HIGH VOLTAGE SYSTEM operating in excess of 600 volts DC. The Contractor's attention is directed to Article 37 of G.O. Order 95 of the Public Utilities Commission, State of California. CAL/OSHA regulations require that any boom type equipment that moves vertically must maintain a 10-foot radial clearance and any other equipment must maintain a 6-foot clearance from Muni overhead electric wires. The Contractor shall observe those regulations.

1.04 SUBMITTALS

A. Submit to the Engineer the following in accordance with the submittal requirements in Section 01 33 00, Submittal Procedures.

1. MSDS (Materials Safety Data Sheet) for all chemicals and other hazardous materials to be used.

2. Copy of the IIPP.

1.05 HEALTH AND SAFETY REQUIREMENTS

A. The Contractor shall take all precautions necessary to protect all persons and all property from injury or damage, including those special precautions designed to protect against risks, which are inherent to the Work to be performed, and the particular conditions present at the Site and Construction Area.

B. The Contractor shall ensure that its employees, agents, and subcontractors provide and maintain personnel safety training, medical examinations in accordance with all applicable federal, State, and local safety and health standards, rules, regulations, and orders.

C. The Contractor shall, at all times, be responsible for providing its employees with the proper level of personnel protective equipment (PPE) appropriate to the type of work being performed by the individual employee at any given time. Refer to OSHA, ANSI, Manual on Uniform Traffic Control Devices (MUTCD), National Safety Council, and other codes and regulations governing the use, selection, and maintenance of personal protective equipment. Employees' hard hats shall also show their employer's name.

D. The Contractor shall provide Site-specific safety orientation training for all Project workers before they are granted access into the Work environment. The Contractor shall employ a Project-specific hard hat insignia (sticker) program which identifies workers as successfully completing the training, on the hard hat.

E. The performance of all Work and all completed construction, particularly with respect to work practices and the Contractor's use of equipment, tools, machinery guards, and the like, shall be in accordance with the Tunnel Safety Orders issued by the State of California Division of Industrial Relations California Occupational Safety Health Administration.

F. The Contractor shall not create any condition that endangers the safety of City employees, other contractors, consultants and the public. If such a condition should be observed, then the Engineer is authorized to stop the Work until the condition is corrected, and such order to stop the Work shall not impose on the City any obligation, penalty, additional costs or assumption of liability of any kind. The construction schedule shall not be affected by such events, and delay caused by a stop Work order due to unsafe condition shall not be grounds for Contractor to receive an extension of Contract Time or additional compensation. Further, such stop order shall not relieve the Contractor of its

control of the Site or responsibility for safety on the Site during the period the Work is stopped.

G. The Contractor shall as Incidental Work do all work necessary to protect the public from hazards including surface irregularities, un-ramped grade changes in pedestrian sidewalks or walkways, and trenches or excavations in roadways. In addition, the Contractor shall assure safe and proper routing of vehicular and pedestrian traffic as well as compliance with the Americans with Disability Act (ADA).

H. The Contractor shall construct/furnish, and at all times maintain satisfactory and substantial ramping, guard rails, warning flags and signs at appropriate heights, temporary chain link fencing, solid fencing, railing, barricades, steel plates or bridging as applicable at all openings, obstructions, or other hazards in streets, sidewalks and the like. All such barriers shall have adequate warning lights as necessary or required for public safety. The Contractor shall divert traffic by use of traffic cones, flagmen, flags, and signs adequate to the site conditions and task at hand. All temporary and permanent safety features shall be installed before beginning startup of any portion of the Contractor's Work.

I. The Contractor shall inform all workers, supervisory personnel and authorized visitors on the Site of the potential known hazards, take necessary precautions and implement mitigation measures to help prevent the release of potential pollutants in the form of dust, fumes, mists, excessive noise and vibration into the air and surrounding environments.

J. The use of respirators and personal protective equipment is Incidental Work. The City will not pay additional compensation to the Contractor due to costs incurred by the use of respirators and personal protective equipment in performing the Work.

K. Contractor's and subcontractor's personnel shall not use any controlled substance or alcohol when performing the Work, and Contractor shall not allow any person to be under the influence of any controlled substance, alcohol, or a prescription that negatively affects alertness or performance while on City property or the Site.

L. The Contractor shall administer an Early Return to Work Program that allows injured workers to perform alternative work consistent with the restrictions outlined by the treating physician. The Contractor is responsible for working with the affected employer to identify and/or design modified duty for all injured workers who are capable of performing work activities which do not impede the healing processes.

1.06 CONTRACTOR’S INJURY ILLNESS PREVENTION PROGRAM (IIPP)

A. The objective of the Contractor’s safety program is to prevent accidents/injuries, preserve life and property and to ensure safe work practices so as to maintain a healthy environment for construction workers, the City, and the public. No Work at the Site shall begin until the Contractor has

submitted and implemented the IIPP. Contractor shall maintain a copy of IIPP at the Site at all times.

B. The Contractor shall have full responsibility and liability for compliance with provisions of the Work Hours and Safety Standards Act (40 U.S.C. 327 et seq.), the Construction Safety Orders (Title 8 CCR, subchapter 4 et seq.), and all applicable federal, State, and local regulations including:

1. Federal OSHA.
2. Cal/OSHA.
3. Local regulations pertaining to work practices, protection of workers and visitors to the Site.

C. The Contractor shall also comply with all applicable safety orders and other requirements, including but not limited to:

1. Code of Federal Regulations (CFR) Title 29 - Labor (http://www.access.gpo.gov/nara/cfr).
2. California Code of Regulations (CCR), Title 8, Industrial Relations (http://ccr.oal.ca.gov).
3. California Code of Regulations (CCR), Title 8, Tunnel Safety Orders (8400-8586).
4. California, Department of Industrial Relations, DOSH Mining and Tunneling Unit, Underground Classification dated March 16, 2009. (included herein).
5. California Health and Safety Code (http://www.leginfo.ca.gov/calaw.html).
6. California Code of Regulations (CCR), Title 26 and 22.
7. California Public Utilities Commission, General Orders No. 95, "Rules for Electric Line Construction"
8. Bay Area Air Quality Management District Regulations.
9. California Code of Regulations, Title 17, Section 93105 - Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations (www.arb.ca.gov/toxics/atcm/asb2atcm.htm).
10. Trade association safety standards; and
11. Equipment and materials instructions including Material Safety Data Sheets (MSDS), if any.
12. SFMTA Construction Safety Standards.

D. The City will neither assume administration nor direct control and responsibility for maintaining the Contractor's health and safety program. The City's review of the Contractor's Construction Safety performance and IIPP shall not be construed as approval of the adequacy of the Contractor's Safety

Manager, the Contractor's IIPP, or any safety measures taken in on or near the Site. The City's review of the IIPP shall in no way amend the City's delegation of control of the Site to Contractor.

E The Contractor shall conduct weekly "Tool Box" Meetings. Tool box meetings shall be at least 15 minutes minimum for all employees. The purpose of these weekly meetings is to:

1. Discuss observed accident trends and concerns
2. Plan safety into the Work activities.
3. Take action to correct worker's safety concerns
4. Review emergency procedures with employees.

E. Whenever the Contractor determines through workplace air monitoring that its employees' exposures to airborne chemicals and particulate contaminants would exceed regulated limits, the Contractor shall reduce employee exposures below said limits, using the following progressive means, as appropriate:

1. Engineering controls, which include ventilation, equipment design, and facility management;
2. Administrative controls, which include practices such as work scheduling and procedures; and
3. Personal Protective Equipment.

F. The Contractor's IIPP shall contain a description of emergency response conditions and procedures, describe the responsibility the Contractor's representatives who control each phase of the operations, and shall set forth in writing the policies and procedures to be followed by all Contractor personnel, including its Subcontractors:

1. Identification and description of the roles and responsibilities of the individuals who control each phase of operations and are responsible for employee and public safety. The IIPP shall set forth in writing the policies and procedures to be followed by all personnel. The IIPP shall include the designation and resume of an overall project Safety Manager for the Contract 1300 Work, in compliance with the health and safety requirements. The Safety Manager shall have full authority to correct any unsafe conditions, including authority to stop construction activity or modify work practices if the IIPP is being violated, or if such action is necessary to protect workers, property, and the surrounding community during the Work. This requirement shall apply continuously and not be limited to normal working hours.
2. Information describing all workplace hazards that have been identified or are generally associated with the Work (by phase if appropriate), and how this information will be communicated to employees (e.g., tailgate, tool-box, safety meetings, monthly safety meetings, daily job

briefings). Hazardous material communication standards can be found in 29 CFR 1910.120 and Title 8 CCR 5194. Hazardous waste information can be found in 29 CFR 1910.1200 and Title 8 CCR 5192. Local hazardous material/waste information can be found in Articles 21, 21A, 22 and 22A of the San Francisco Health Code.

3. Measures to be used to identify, monitor, and control worker, building occupant, and public exposure to all identified hazards. The monitoring of Site personnel for contaminant exposure shall be conducted so as to maintain the proper level of personal protection, including the action level.

4. Provision of sufficient personnel properly trained to handle, excavate, transport and dispose of hazardous waste and other contaminated waste that is expected to be encountered or generated in the course of the Work. The level of training required for all or specified Contractor or Subcontractor personnel, as required for the Work of this Contract, including, but not limited to:

   a. Asbestos, lead, and petroleum hydrocarbons/organic awareness training,

   b. The 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) Training Program, and associated 8-hour refresher training in accordance with 29, CFR 1910.120, and Title 8 CCR 5192.

   c. Respiratory program in accordance with 29 CFR 1910.134 and Title 8 CCR 5144.

5. This training specified in Article 1.06F.4 above shall be required for all personnel who will handle, or operate equipment that handles surface and subsurface contaminated materials when performing the Work. The Contractor shall provide these training records to the Engineer. The Contractor shall maintain training records in accordance with applicable regulations.

6. Requirements of the Contractor and Subcontractors for implementing the following:

   a. Medical surveillance programs and Injury and Illness Prevention Programs (IIPP), i.e., SB 198, Title 8 CCR and CAL/OSHA, GISO 3203, Section 5192 and 1509. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel in accordance with all applicable federal, State, and local regulations.

   b. Personnel air monitoring according to 29 CFR and Title 8 CCR.

   c. The Construction Standard (29 CFR 1926).

d. Federal and California Lead Standards for the Construction Industry (29 CFR, Part 1926.62 and Title 8 CCR, Section 1532.1, respectively).

e. Asbestos OSHA Regulation 29 CFR Part 1926.1101 (Title 8 CCR 1529 in California).

f. Workers' Right to Know (29 CFR 1910.120).

g. Section 6360-99 of the California Labor Code (Hazard Communication).

h. The American with Disabilities Act (ADA).

7. Engineering controls, specific work practices, air monitoring for contaminants (including but not limited to dust, asbestos, lead, volatile organic, and hydrocarbons), and personal protective equipment (Title 8 CCR 5144) to protect workers, building occupants and the public.

1.07 REQUIREMENTS OF THE CONTRACTOR'S PROJECT MANAGER

A. The Contract 1277 Project Manager or his Project Engineer shall be physically present at the Site during all working hours.

B. The Project Manager and Project Engineer covered under this Section are considered Key Personnel; and shall not double-up to serve two positions, in part or in whole unless approved by the Engineer.

C. An Alternate Manager shall be submitted and approved for times when either the Project Manager or Project Engineer will not be present at the Site (e.g., multiple shift operations and vacations).

D. Unless otherwise approved by the Engineer, the Contractor's Project Manager (and Alternate) shall:

1. Be knowledgeable with the safety provisions of Federal OSHA, Cal/OSHA, and the requirements of this Section.

2. Possess current certifications from Cal/OSHA necessary for completion of the Work.

3. Possess a valid certification or designation in one of the following:

a. Construction Health and Safety Technician (CHST) issued by the Board of Certified Safety Professionals (BCSP).

b. Occupational Health and Safety Technician (OHST) issued by BCSP.

c. Certified Safety Professional (CSP) issued by the BCSP.

d. Certified Industrial Hygienist (CIH) issued by the American Board of Industrial Hygiene (ABIH).

4. Possess evidence of completing either the OSHA 30 Hour Construction Outreach Training or equivalent within the last three years.

5. Be capable of identifying potential hazards and hazardous materials, perform safety inspections, and conduct accident investigations.

6. Be currently certified in First Aid/CPR, and be able to use an automatic external defibrillator (AED).

1.08 REMEDIAL ACTION

A. The Contractor's failure to comply with applicable safety and health standards, rules, regulations, and orders; or the Contractor's IIPP, shall be material breach of the Contract, and may be cause for the suspension of the Work.

B. Should the Contractor be notified by the City of unsafe or unhealthy conditions associated with the performance of the Work or should the Contractor be directed by the Engineer or any agency with jurisdiction over the Work to take remedial action to correct such conditions, the Contractor shall take action immediately, if so directed, but not later than 24 hours after receipt of such notice.

C. If the Contractor should fail to provide adequate measures to assure public safety, the City reserves the authority to have the necessary work performed by others, assess corresponding liquidated and other damages, and deduct from the Contractor's progress payment all monies required therefore.

1.09 TRENCHING

A. Trench Safety: Comply with all requirements of Federal OSHA (29 CFR 1926.650-652), CAL/OSHA (Construction Safety Order 1539-1544), the California Labor Code, and these Contract Documents.

B. Federal and State Safety regulations require:

1. Safe Exits, when trenches are more than 4 feet deep, and an exit (ladder), which must be within 25 feet from each worker.

2. Shoring is required for trenches more than 5 feet deep and designed to prevent cave-ins.

1.10 CONFINED SPACE ENTRY

A. Where required, the Contractor shall provide all equipment and assistance to make the confined space safe for entry by the Contractor's employees, the Engineer, and its representatives in accordance with the Code of Federal Regulation 29 CFR 1910.146 and the California Code of Regulations, Title 8, General Industry Safety Orders entitled "Confined Spaces" and other applicable Codes.

1.11 NOT USED

1.12 ACCIDENT DOCUMENTATION AND REPORTING

A. If death or serious injuries or serious damages occur, the accident shall be reported at once by telephone or messenger to the Engineer, to Cal/OSHA, and as required by any applicable Codes to any other regulatory agency with jurisdiction over the Work. In addition, the Contractor shall promptly report in writing to the Engineer all accidents whatsoever arising out of or in connection with the performance of the Work whether occurring on or adjacent to the Site, or Construction Area, giving full details and statements of witnesses.

B. The Contractor is responsible for all documentation and reporting obligations of an accident and near- miss incidents in accordance with federal, state, and local laws and regulations.

C. Within 5 Working Days of occurrence (incident), the Contractor shall provide the Engineer with two copies of the Contractor's accident and near-miss reports. A significant accident is defined to include events where personal injury is sustained, or property loss of substance is sustained, or where the event posed a significant threat of loss or personal injury.

D. If a claim is made by anyone against the Contractor, Subcontractor or agent of Contractor on account of an accident, the Contractor shall promptly report the facts in writing to the Engineer, giving full details of the claim.

E. The Contractor shall submit a report on a monthly basis, or as determined by the Engineer, all Work Related Injuries and Illnesses and post the OSHA 300 Log in accordance to Cal/OSHA guidelines in an accessible area.

1.13 TRAINING RECORDS

A. The Contractor shall maintain at the Site all training records in accordance with applicable Codes and provide copies of these records to the Engineer when requested.

1.14 HAZARDOUS MATERIALS IN THE WORK

A. Materials that contain hazardous substances or mixtures may be required on the Site. Material usage shall be in strict adherence to Cal/OSHA safety requirements and all manufacturer's warnings and application instructions listed on the material safety data sheets (MSDS) provided by the product manufacturer and on the product container label. Contractor shall:

1. Be responsible for coordinating the exchange of MSDS or other hazard communication information required to be made available to or exchanged between Subcontractors at the Site.

2. Notify the Engineer in writing if Contractor considers specified Materials or equipment, or its intended use of a product or equipment

to be unsafe prior to ordering the Material or equipment or prior to the Material or equipment being used in or incorporated to the Work.

B. Should Materials containing hazardous substances be used, provide the City with its information and clearly indicating:

1. Area or areas where the Materials are to be stored and to be used.

2. The Contractor's preventative measures, means, and facilities to prevent spillage and contamination of soil, water, and atmosphere by the discharge of noxious substance.

C. The Contractor shall not use any Materials that contain Asbestos Containing Construction Materials (ACCM). ACCM is defined by Cal/OSHA, 8 CCR 1529 (q) and (r), as any manufactured construction material that contains more than 0.1 percent asbestos by weight.

D. The Contractor shall not use any Materials that contain lead-based paint (LBP). LBP is defined by Title 17, CCR, Division 1, Chapter 8, Section 35033, as paint or other surface coatings that contain an amount of lead equal to, or in excess of 1 milligram per square centimeter or more than 0.5 percent by weight.

E. The City will not be responsible for any Materials brought to the Site by the Contractor or its agent. Should the City's tests of the Materials show concentrations above those stated above for asbestos and lead, the Contractor shall be responsible and liable for any damages and costs incurred by the City, and for the cost of the removal, abatement, and replacement of the building Material(s).

F. If unidentified contaminated materials are encountered during construction or an incident results in the release of hazardous materials, Work shall be stopped and the area evacuated and secured. The Contractor shall immediately notify the Engineer. Contractor shall take precautions to limit the contamination to the specific location within the Site or Construction Area.

1.15 CONSTRUCTION EQUIPMENT AND TOOLS

A. Selection and operation of all construction equipment and tools shall conform to Cal/OSHA requirements, requirements specified within the Contract, and applicable Codes, and tools and equipment shall be appropriate for their intended uses.

B. Equipment shall be subject to inspection and approval by the City. Contractor's equipment that is rejected as not conforming to the foregoing shall be promptly removed and replaced with equipment acceptable to the City without additional cost and without delaying the schedule for performance of the Work by the Contractor.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

NOT USED

END OF SECTION

SECTION 01 35 36

CONSTRUCTION AND DEMOLITION DEBRIS RECOVERY PLAN

PART 1—GENERAL

1.01 DESCRIPTION

A. In October 16, 2006, the Mayor of San Francisco issued Executive Directive 06-05 requiring all Construction Contracts to divert 75 percent of construction and demolition debris from landfill disposal sites. This directive is supported by existing policies that require reuse, recycling, and management of construction and demolition debris. Some of these policies are described below.

B. The City and County of San Francisco has adopted an ordinance (No. 27-06) that creates a mandatory program to maximize the recycling of all construction and demolition debris.

1. The Ordinance requires that mixed construction and demolition debris be transported off-site by a Registered Transporter and taken to a Registered Facility that can process and divert from landfill a minimum of 65 percent of the material generated from construction, demolition or remodeling projects.

2. Material source separated at the Site should be taken to a facility that recycles such material.

3. This ordinance applies to all construction projects within the City and County of San Francisco, such as new construction, remodels, tenant improvements, additions, repairs, and full and partial demolitions.

4. This ordinance prohibits any construction and demolition debris from being placed in trash or sent to a landfill.

C. Chapter 7 of the San Francisco Environment Code requires the Contractor to prepare and submit a Construction and Demolition Debris Management Plan, Construction and Demolition Debris Recovery Monthly Summary Reports, and Construction and Demolition Debris Recovery Final Report in accordance with the submittal requirement specified below. This requirement applies to Construction Contracts for City facilities, regardless of location, with construction cost estimate of $90,000 or more.

D. Chapter 5 of the San Francisco Environment Code requires the Contractor to reduce wastes by maximizing the use of recycled content materials, recycling, and reuse.

E. The Mandatory Recycling and Composting Ordinance, Chapter 19 of the San Francisco Environment Code, requires that all persons in San Francisco must source separate their refuse into recyclables, compostables and trash, and place each type of refuse in a separate container designated for disposal of that type of refuse. No person may mix recyclables, compostables or trash, or

deposit refuse of one type in a collection container designated for another type of refuse.

F. California Integrated Waste Management Act of 1989 (AB 939) established the procedures for the Highest and Best Use practices to reduce, recycle, and reuse construction and demolition debris to the maximum extent feasible in an efficient and cost-effective manner.

G. State regulations require that Universal Wastes and Treated Wood Wastes be handled and disposed of in accordance with the requirements of the California Department of Toxic Substances Control and all applicable laws.

H. This Section describes in further detail the requirements of the above ordinances, regulations, and policies applicable to this contract.

I. Separate measurement or payment will not be made for work required under this Section. All costs in connection to the work specified herein shall be incidental work.

1.02 RELATED SECTIONS

A. Section 01 11 00, Summary of Work

B. Section 01 41 00, Regulatory Requirements

C. Section 02 81 00, Transportation and Disposal of Excavated Materials

1.03 SUBMITTALS

A. Follow Section 01 33 00, Submittal Procedures.

B. Follow Section 01 77 00, Closeout Procedures.

C. Contractor shall submit:

1. Construction and Demolition Debris Management Plan.

2. Construction and Demolition Debris Recovery Monthly Summary Report and supporting documentation.

3. Construction and Demolition Debris Recovery Final Report.

1.04 REFERENCE STANDARDS

A. Mayor's Executive Directive 06-05, Recycling and Resource Conservation, October 16, 2006.

B. San Francisco Ordinance No. 27-06 (Construction and Demolition Debris Recovery Ordinance) with effective date on July 1, 2006.

C. San Francisco Environment Code, Chapter 5, Resource Conservation Ordinance.

D. San Francisco Environment Code, Chapter 7, Construction and Demolition Debris Management.

E. San Francisco Environment Code, Chapter 19, Mandatory Recycling and Composting.

F. California Integrated Waste Management Act of 1989 (California Public Resources Code 40000 et. seq.) - Assembly Bill 939.

G. Leadership in Energy and Environmental Design (LEED) for New Construction, Version 2.2, October 2005, US Green Building Council.

H. Universal Waste information from the following website: http://www.ciwmb.ca.gov/HHW/Uwaste/.

I. Treated Wood Waste Fact Sheet from the following website: http://www.dtsc.ca.gov/HazardousWaste/Treated_Wood_Waste.cfm.

J. San Francisco Board of Supervisors Resolution Nos. 530-04 and 679-02 establishing 75 percent diversion goal.

K. Food Service Waste Reduction Ordinance as set forth in San Francisco Environment Code Chapter 16.

L. Refuse Collection and Disposal Ordinance, adopted November 8, 1932.

1.05 DEFINITIONS

A. Class III Landfill are landfills sited pursuant to Title 27 (Environmental Protection), Division 2 (Solid Waste), Chapter 3, Subchapter 2, Article 3, Section 20260. SWRCB - Class III: Landfills for Nonhazardous Solid Waste.): this type of landfill that accept non-hazardous waste such as household, commercial, and industrial waste resulting from construction, remodeling, repair and demolition operations. A Class III Landfill must have a solid waste facilities permit from the California Integrated Waste Management Board (CIWMB), and is regulated by the Local Enforcement Agency (LEA).

B. Compostable: Any material that can be broken down into, or otherwise become part of, usable compost (e.g., soil-conditioning material) in a safe and timely manner as accepted in San Francisco's compostables collection program, such as food scraps, soiled paper and plant trimmings. Compostable materials can also include disposable plastic food service ware and bags if labeled "Compostable", in accordance with the Food Service Waste Reduction Ordinance (No. 295-06) and Department of the Environment regulations for easy identification, meeting the ASTM Standard Specification (D6400) for compostable plastics, and consistent with State labeling law (California Public Resources Code Section 42359) that any plastic bag or food container labeled "Compostable" must meet the ASTM Standard Specification for compostable plastics.

C. Construction and Demolition Debris: Building materials and solid waste generated from construction and demolition activities, including, but not limited to, fully cured asphalt, concrete, brick, lumber, gypsum wallboard, cardboard and other associated packaging, roofing material, ceramic tile,

carpeting, fixtures, plastic pipe, metals, tree stumps, and other vegetative matter resulting from land clearing and landscaping for construction, deconstruction, demolition or land developments. This term does not include refuse regulated under the 1932 Refuse Collection and Disposal Initiative Ordinance or sections of the Municipal Code that implement the provisions of that ordinance; materials from the public right-of-way; or, unless specified in Chapter 14 of the Environment Code, materials source separated for reuse and recycling. Hazardous waste, as defined in California Health and Safety Code section 25100, et seq., as amended, is not Construction and Demolition Debris. For the purposes of this Section, soil/materials from the station excavations are not considered Construction and Demolition Debris. Refer to Section 01 5723 Environmental Management of Excavated Materials.

D. Disposal: Acceptance of solid waste at a legally operating facility for the purpose of land filling. This includes Class III Landfills and Inert Fills. State regulations do not consider the disposal of Construction and Demolition Debris at Inert Fills or Inert Backfill Sites, as recycling.

E. Hazardous Waste: see Section 01 57 23 Environmental Management of Excavated Materials.

F. Highest and Best Use: Highest and best use practices require performing both of the following: (a) Promote the following waste management practices in order of priority: (1) Source reduction. (2) Reuse (3) Recycling and composting. (4) Environmentally safe land disposal, at the discretion of the city or county. (b) Maximize the use of all feasible source reduction, reuse, recycling, and composting options in order to reduce the amount of solid waste that must be disposed of by land disposal. For wastes that cannot feasibly be reduced at their source, reused, recycled, or composted, the local agency may use environmentally safe land disposal.

G. Inert Fill Facility: A facility that can legally accept inert waste such as asphalt and concrete exclusively for the purpose of disposal.

H. Recover or Recovery: Any activity, including source reduction, deconstruction and salvaging, reuse, recycling and composting, which causes materials to be recovered for use as a resource and diverted from disposal.

I. Recyclable Material: Any material or product separated or capable of being separated at its point of discard or from the solid waste stream for utilization as a raw material in the manufacture of a new product.

J. Recycling: (PRC section 40180) is defined as the process of collecting, sorting, cleansing, treating, and reconstituting materials that would otherwise become solid waste. Recycling does not include burning, incinerating, or thermally destroying solid waste.

K. Recycling Facility: A recycling facility is an operation that collects and does any one or combination of the following: sorting, cleaning, treating, reusing, and reconstituting materials that would otherwise become solid waste.

L. Registered Transporter: Anyone who is hired to remove mixed construction and demolition debris from a construction and/or demolition site, who uses a vehicle with more than two axles or two tires per axle (such as a large pickup truck with four tires on the rear axle or three-axle dump trucks) and is hauling at least one (1) cubic yard of mixed construction and demolition debris, must be a Registered Transporter. The Registered Transporter must have applied for and received a registration from the San Francisco Department of the Environment. The Registered Transporter is obligated to take this mixed material only to a Registered Facility.

M. Registered Facility: Any facility that accepts mixed construction and demolition debris for processing and recycling must be registered with the City and must demonstrate an overall minimum recycling rate of 65 percent for mixed construction and demolition debris. A Registered Facility must have applied for and received a registration from the San Francisco Department of the Environment.

N. Reuse: Making new use of a material without altering its form.

O. Source-Separated Materials: Materials that are sorted at the site of generation by individual material type for the purpose of reuse or recycling, e.g. demolished concrete that is separated at the Site for delivery to a base course recycling facility.

P. Solid Waste: Materials designated as non-recyclable and discarded for the purposes of disposal.

Q. Universal Waste: (CCR Title 22, Division 4.5, Chapter 34) Hazardous wastes that are more common and pose a lower risk to people and the environment than other hazardous wastes. Universal wastes are handled with reduced management requirements. Examples of universal waste: batteries, fluorescent tubes (lamps), electronic devices (cell phones, computers, televisions), cathode ray tubes (CRTs), mercury wastes (thermometers and toys), and non-empty aerosol cans.

1.06 GENERAL REQUIREMENTS

A. Diversion Goal: In order to meet the City's goal of 75 percent diversion from landfill by 2010, the goal for this contract is to divert a minimum 75 percent of the construction and demolition debris from landfill disposal through waste prevention, re-use, and recycling. If a construction site contains hazardous wastes and/or universal wastes, the 75 percent diversion requirement should pertain to all non-hazardous or non-universal waste material. No construction and demolition debris shall be disposed in garbage or taken to landfill:

B. All Hazardous and Universal Wastes shall be documented separately, and a summary of all manifests, including material description and weights, shall be provided to the Engineer.

C. Requirements only for Construction Contracts within the legal and geographical boundaries of the City and County of San Francisco:

1. Registered Transporters and Registered Facilities: Only Registered Transporters can remove mixed construction and demolition debris from the construction site, and they must take this material to a Registered Facility. Materials source separated at the Site should be taken to the appropriate recycling facility.
    a. For a list of registered facilities and registered transporters refer to the website: www.SFEnvironment.org/c&d.
2. Full Demolition Requirements: Contractor conducting full demolition of an existing structure must submit a Demolition Debris Recovery Plan (DDRP) to the San Francisco Department of the Environment (SFE).
    a. The DDRP must demonstrate a minimum of 65 percent diversion from landfill of demolition debris, including materials source separated for reuse or recycling.
    b. The DDRP must be submitted to and approved by SFE before the Department of Building Inspection will issue a Full Demolition Permit.
    c. This requirement does not apply to City construction contracts outside of the legal and geographical boundaries of the City and County of San Francisco.
    d. The DDRP is available at the website: www.SFEnvironment.org/c&d

D. EcoFindeRRR: Use the EcoFindeRRR at www.SFEnvironment.org to find out how to recycle, re-use and safely dispose of construction and demolition debris.

E. Universal Wastes: Contractor shall handle and dispose "Universal Wastes" in accordance with the requirements of the California Department of Toxic Substances Control (DTSC). Refer to DTSC website: www.dtsc.ca.gov. In general, universal waste may not be discarded in solid waste landfills. Contractor shall comply with all hazardous waste regulations, including, but not limited to, the following:

1. Universal wastes shall be stored in containers so that they do not spill, leak, break, or are released into the environment.
2. Label or mark universal wastes, or their containers, to identify their types.
3. Send all universal waste to a facility authorized to collect, recycle or dispose of universal waste.
4. Do not dispose of universal waste in the trash.
5. Do not accumulate more than 5,000 kilograms of universal waste at any one time.

6. Train employees in proper universal waste management including handling, packaging, storing and labeling the universal waste, as well as how to respond to releases. This training may be accomplished by simply giving employees written instructions about universal waste.

7. Keep record of all shipments and receipts of universal waste for three years.

F. Treated Wood Waste: For complete information on handling and disposal of Treated Wood Waste (TWW), refer to the fact sheet available from the DTSC website. For incidental TWW wastes generated during construction, the Contractor shall comply with the following minimum requirements:

1. Keeping TWW segregated from other materials.

2. Storing no more than 1,000 pounds of TWW for no longer than 30 Days. In the event that Contractor stores more than 1,000 pounds of TWW or stores TWW for more than 30 days, Contractor shall comply with additional requirements for routine generators of TWW. Refer to DTSC fact sheet.

3. Labeling all TWW bundle/shipments with the following information:

TREATED WOOD WASTE – Do not burn or scavenge.
TWW Handler
*Name:*_____
*Address:*_____
*Accumulation Date:*_____

4. Taking TWW to an authorized TWW facility. See the listings at the end of the factsheet for information on facilities who have been authorized to accept TWW in California.

G. Waste Reduction: Contractor shall implement waste reduction measures, including, but not limited to, the following:

1. Eliminating the procurement of unneeded supplies;

2. Reduce waste by printing and copying double-sided;

3. Submit all submittals, reports, and forms in electronic format (PDF);

4. Fully participate in available and required recycling and composting programs;

5. Purchase products made with recycled content such as paper and recycled aggregate.

H. LEED Credit: Compliance with the 75 percent diversion goal meets the requirements of LEED MR Credit 2.2 and earns the Project 2 points.

1.07 CONSTRUCTION AND DEMOLITION DEBRIS MANAGEMENT PLAN

A. The requirements under this Article 1.07 apply to all City construction contracts, regardless of location, with construction cost estimate of $90,000 or more.

B. After Award of Contract and before commencement of the Work at the Site, the Contractor shall assess at the Site to estimate the types and quantities of materials that will be generated by construction and demolition at the Site and which materials are anticipated to be feasible and practical for reuse and recycling. Contractor shall prepare a construction and demolition debris management plan to be discussed with the Engineer.

C. Contractor shall meet with the Engineer to discuss its proposed construction and demolition debris management plan and to develop a mutual understanding regarding the City's recycling and reuse policies and goals and their application to the Work.

D. Contractor shall prepare and submit a written construction and demolition debris management plan in a format prescribed by the City. The plan shall include, but not be limited to, the following:

1. The Contractor's information and Project identification.
2. Procedures to be used for debris management.
3. A list of the materials and estimated quantities to be reused, recycled, or transported to a registered facility.
4. The names, locations, and permit or license, as applicable, of recycling and reuse facilities and Registered Facilities (for mixed debris) that the Contractor plans to use for the Work.
5. Procedures for source separation for the materials listed in Article "Recycling Requirements" of this Section.
6. Source Reduction: Describe any project practices for the Work which will reduce waste at the source, such as requiring vendors to deliver materials in reusable packaging.
7. On-site Processing: Describe procedures in which materials are recycled and/or reused on-site, such as grinding materials for use on-site, or reuse of lumber for concrete forms.
8. Procedures to educate and train all employees and subcontractors on recycling and reuse procedures to be used at the Site.

E. The construction and demolition debris management plan is subject to approval by the Engineer.

F. Review of the Contractor's construction and demolition debris management plan will not relieve Contractor of responsibility for compliance with applicable laws and regulations governing control and disposal of solid waste or other pollutants.

G. In accordance with the Mayor's Directive 06-05, Contractor shall achieve a landfill diversion rate of 75 percent.

1.08 RECYCLING REQUIREMENTS

A. Source Separated Materials: The Contractor shall develop and implement procedures for source-separation, to the greatest extent feasible, of the following types of recyclable or reusable materials:

1. Asphalt.
2. Concrete, concrete block, slump stone (decorative concrete block).
3. Bricks, stone(s), granite, and other finished stone-type materials.
4. Wall board (gypsum sheetrock).
5. Dimensional lumber and beams.
6. Fixtures, hardware, doors, and windows.
7. Ferrous and non-ferrous metal.
8. Corrugated cardboard.
9. Trees, cleared vegetation and cut-off or other wood scraps.
10. Carpet and pads.
11. Rigid plastic.
12. Acoustical ceiling tiles.
13. Other: describe.

B. Mixed Construction and Demolition Debris: All mixed construction and demolition debris shall be handled in accordance with the requirements of the San Francisco Ordinance No. 27-06 and as described in this Section.

C. Handling Of Recyclable Materials:

1. The Contractor shall assure that recyclable or reusable materials are free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process. The Contractor shall clean materials that are contaminated before placing them in collection containers.
2. The Contractor shall arrange for collection of recyclable materials by or delivery to the appropriate recycling center for purposes of recycling.
3. All mixed construction and demolition debris must be taken to a Registered Facility.

1.09 CONSTRUCTION AND DEMOLITION DEBRIS RECOVERY MONTHLY SUMMARY AND FINAL REPORT

A. Contractor shall submit a Construction and Demolition Debris Recovery Monthly Summary Report, quantifying the construction and demolition debris generated and recycled, reused or transported to a Registered Facility. Refer to Appendix A of this Section for the form to be used for this report. The Contractor shall include manifests, weight tickets, receipts, and invoices specifically identifying the Project and waste material.

B. Contractor shall submit this report with each application for progress payment. This report is a condition of progress payment and failure to submit this information shall render the application for payment incomplete.

C. Contractor shall be responsible for transporting all mixed construction and demolition debris to a Registered Facility by using a Registered Transporter. No construction and demolition debris shall be burned, buried or otherwise disposed of on the Site.

D. As a requirement for Final Completion, Contractor shall submit a Construction and Demolition Debris Final Report to Engineer.

1.10 JOB SITE ADMINISTRATION

A. The Contractor shall review the environmental goals of this Project with all subcontractors and sub-subcontractors. The Contractor shall make a proactive effort to increase awareness of these goals and ensure full compliance to the Construction and Demolition Debris Management Plan among the Contractor's workers and all subcontractors and other workers.

B. The Contractor shall review MSDS (material safety data sheet) with workers on the Site. The Contractor shall discuss alternatives to minimize exposure to potentially harmful substances.

C. The Contractor shall provide recycling containers for field office wastes to separate recyclable and compostable materials from trash using the City's blue, green, and black recycling system. To subscribe to these services, contact Recology Sunset Scavenger (415.330.1300) or Recology Golden Gate (415.626.4000). For assistance in setting up recycling and composting programs in field offices, contact: SFGovRecycling@SFEnvironment.org.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

NOT USED

END OF SECTION

APPENDIX A TO SECTION 01 35 36: C&D DEBRIS RECOVERY WORKSHEET

To be filled out by Contractor & submitted to Engineer.
Please complete both pages of this form.

Section 1: Project Information			
1. Project Name:		2. Project/Job Number:	3. Reporting Period:
4. Project Street Address:		5. City (if not in SF):	
6. Contractor Name			
7. Contractor Address			
8. City, State, Zip Code			
9. Office Phone:	10. Cell Phone:	11. Fax:	12. e-mail:
13. Preparer's Name:			14. Date Prepared:
15. Preparer's Signature:			16. Date Submitted:

☐ **Original C&D Debris Management Plan (OMP)***

Estimated Start Date: _____ Estimated End Date: _____

*Attach a brief description of how this project will comply with the requirements identified in Section 01 35 36, paragraph 1.06D. Review Article 1.09 of Section 01 35 36 for other requirements to be conducted at the job site.

☐ **Progress Payment Report (Monthly Summary Report)**

Reporting Period (mm/yy): _____ Progress Payment No.: _____

☐ **Final Report**

Date Project Completed: _____

Engineer Review:

Engineer Signature:	Date:

APPENDIX A TO SECTION 01 35 36: C&D DEBRIS RECOVERY WORKSHEET

Instructions for Completion of
Section 2 - Debris Recovery Worksheet

(refer to Section 01 35 36 for all definitions)
see worksheet on next page.

(a) Enter the appropriate Diversion Activity Code associated with the kind of material being handled and how the material is being processed.

(b) Enter Total Tons of material for each type of material being processed.

(c) Enter Tons Recycled for each type of material being processed.

(d) Enter Tons Reused for each type of material being processed.

(e) Enter Tons diverted as Mixed Debris. Mixed Debris is defined as construction debris that has not been separated by material type at the site.

(f) Enter name of facility where material will be taken. If project is located in San Francisco, Mixed Debris must be taken to a Registered Facility authorized to process the material.

(g) Enter name of Transporter hauling the material. If project is located in San Francisco, only Registered Transporters are authorized to haul Mixed Debris.

(h) Calculate Diversion Rate at bottom of worksheet per formula.

(i) Submit completed form to Engineer.

APPENDIX A

Project/Job Number: _____	**Reporting Period:** _____	**Progress Payment Number:** _____

Section 2: Debris Recovery Worksheet

IMPORTANT: HAZARDOUS MATERIAL OR U-WASTE MUST BE SUMMARIZED SEPARATELY FROM THIS REPORT. DO NOT INCLUDE ANY HAZARDOUS MATERIALS AND UNIVERSAL WASTE IN THIS REPORT.

Diversion Activity Codes:

1 - Recycling of source-separated materials at a recycling facility.	**4 -** Reuse of salvageable items.
2 - On-site concrete or asphalt crushing for use on site.	**5 -** Reuse of soil or dirt on site.
3 - Recycling of mixed C&D debris.	**6 -** Reuse of dirt or mixed inerts for landfill construction.
	7 - Other diversion - please describe:

WORKSHEET

Type of Material	Diversion (a)	Total Tons (b)	Tons Recycled (c)	Tons Reused (d)	Tons Diverted As Mixed Debris* (e)	Facility Used* (f)	Transporter * (g)	Balance from OMP
MIXED C&D DEBRIS*		**A**						
SOURCE SEPARATED MATERIALS								
Asphalt								
Acoustical Ceiling Tiles								
Bricks, Granite, Finished Stone								
Carpet & Padding								
Concrete								
Corrugated Cardboard								
Dimensional Lumber & Beams								
Fixtures, Hardware, Doors, Windows								
Metal								
Mixed Inerts								
Rigid Plastic								
Soil/dirt/rock								
Trees, Landscape Debris, Wood Scraps								
Wallboard, Gypsum Sheet Rock								
Other:								
Sub-Totals		**B**	**C**	**D**				
Total (E = A + B)		**E**						

Diversion Rate Calculations:

SF Projects: [C+D+(A×0.65*)]÷E×100

Outside SF: [C+D+(A×____*)]÷E×100

Diversion Rate = _____ % (h)

* For projects located in San Francisco, Mixed C&D Debris must be taken to a Registered Facility authorized to process the material, and it must be hauled by a Registered Transporter (lists available at sfenvironment.org/c&d); diversion rate for Registered Facilities is 65%. For projects outside SF the diversion rate is 65% if taken to one of our Registered Facilities; if taken to a non-registered facility check with local jurisdiction for that facility's recycling rate. If a facility does not have a local approved recycling rate, the diversion rate is calculated as zero.

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SECTION 01 35 40

ARCHAEOLOGICAL DISCOVERIES

PART 1 – GENERAL

1.01 SUMMARY

A. This Section includes

1. Requirements and procedures for Excavation within known sensitive archaeological zones at the Pagoda Palace, during performance of the Work.

B. Related Sections

1. Section 01 11 00 – Summary of Work
2. Section 01 33 00 - Submittal Procedures

1.02 REFERENCES

A. National Historic Preservation Act

1. Section 106 —36 CFR Part 800— Protection of Historic Properties
   a. Memorandum of Agreement (MOA) executed by the Federal Transit Administration (FTA), the SFMTA, and the State Historic Preservation Officer (SHPO) for the Project.

B. California Codes

1. California Public Resources Code, Division 5, Chapter 1 .7 § 5097.5;
2. California Public Resources Code, Division 5, Chapter 1 .75 § 5097.98 and §5097.99;
3. California Administrative Code, Title 14 § 4308;
4. California Penal Code, Part 1, Title 14 § 622-1/2; and
5. California Health and Safety Code, Division 7, Part 1, Chapter 2, §7050.5.

C. Section 6(a) of the Federal Archaeological Resources Protection Act of 1979

D. . Program-level Archaeological Research, Design, and Treatment Plan, Revision 0, March 21, 2011 (Program-level ARDTP)

E.. Archaeological Monitoring, Testing, and Treatment Plan for the Pagoda Option, February 19, 2013 (AMTTP)

1.03 DEFINITIONS/ABBREVIATIONS

A. AMTTP is the abbreviation for the Archaeological Monitoring, Testing, and Treatment Plan

B. ARDTP is the abbreviation for the Archaeological Research, Design and Treatment Plan.

C. FTA is the abbreviation for the Federal Transit Administration.

D. MOA is the abbreviation for Memorandum of Agreement with the SHPO.

E. SHPO is the abbreviation for State Historic Preservation Office(r)

1.04 PERFORMANCE REQUIREMENTS

A. Archaeological Materials (or "Finds") are the physical remains of past human activity and include historic-period archaeological materials and prehistoric Native American Archaeological Materials. Nonhuman fossils are not considered to be Archaeological Materials except when showing direct evidence of human use or alteration or when found in direct physical association with Archaeological Materials as described in these Specifications.

B. Historic-period Archaeological Materials include cultural remains beginning with initial European contact in California, but at least 50 years old. Historical Archaeological Materials include:

1. Trash deposits or clearly defined disposal pits containing tin cans, bottles, ceramic dishes, food bone, or other refuse indicating previous occupation or use of the Site;

2. Structural remains of stone, brick, concrete, wood, or other building material found above or below ground (also referenced as "Features");

3. Human skeletal remains from the historic period, with or without coffins or caskets, including associated grave goods.

C. Prehistoric Native American Archaeological Materials include:

1. Human skeletal remains or associated burial goods such as beads or ornaments;

2. Evidence of tool making or hunting such as arrowheads and associated chipping debris of fine-grained materials such as obsidian, chert, or basalt;

3. Evidence of plant processing such as pestles, grinding slabs, or stone bowls;

4. Evidence of habitation such as cooking pits, stone hearths, packed or burnt earth floors;

5. Remains from food processing such as concentrations of discarded or burnt animal bone, shellfish remains, or burnt rocks used in cooking.

D. The Contractor shall comply with the AMTTP, a copy of which is available for review.

E. Immediately upon discovery of Archaeological Materials, Contractor shall stop all work within a 60-foot radius of the Archaeological Materials and immediately notify the Engineer. Archaeological Materials found during performance of the Work are the property of the City. Contractor shall not resume work within the 60-foot radius of the find until written approval is issued by the Engineer.

F. Archaeologist Services:

1. The City will provide the services of a qualified Archaeologist and a qualified Historical Archaeologist.

2. The Contractor shall attend a pre-construction meeting with the Archaeologist and the Engineer. The meeting will discuss the work within the Site, notification procedures, the Archaeologist's authority, construction equipment and labor needs, and any planned work that may affect the Site. The meeting will be arranged by the Engineer and will be held within 10 Working Days after the NTP.

3. The Contractor's ground-disturbing work will be monitored by the Archaeologist and Native American representatives in conformity with the AMTTP.

4. If Archaeological Materials or human remains are uncovered during excavation or other construction related activities, the Contractor shall:

a. Require the Archaeologist to consult with the Engineer before beginning field investigations of archaeological remains.

b. Work with the Archaeologist to carry out the requirements of the Program Level ARDTP.

c. Provide suitable temporary access and egress ramps, ladders, or stairs to the remains, as well as appropriate shoring, to facilitate the work of the archaeological team.

d. Provide, as needed, two laborers to assist with unskilled tasks associated with the investigation; a backhoe-loader or similar equipment with a wide bucket and moe-board and operator; and a lockable storage facility (for duration of the project).

G. City will provide archaeological monitoring personnel including Native American Representatives. Contractor shall notify the Engineer (who will coordinate with the City's Archaeologist/Environmental Review Officer (ERO), seven calendar Days prior to the start of any ground disturbance activity so the Engineer can coordinate archaeological monitoring activities.

H. In accordance with the terms of this Contract and as requested by the Engineer, furnish all necessary labor, equipment, materials, incidentals, transportation, and facilities to perform excavation and other construction services as necessary to accommodate and support archaeological testing, data recovery, and exhumation of human burials or cremations.

I. Ground disturbance activities cannot be performed prior to completion of the required Contractor training, and notification of the Engineer and Archaeologist.

J. Ground disturbance activities cannot proceed without the presence of Archaeological Monitor(s). Excavation cannot receive improvements, or be backfilled until the Archaeologist has completed his inspection, data recovery activities, and determined that construction activities can proceed.

K. Perform all Work covered under this Section in accordance with applicable Federal, State, and local statutes, rules, regulations, and ordinances (Codes).

L. Comply with all required reporting and record keeping requirements in accordance with the provisions of this Contract and all applicable Codes.

M. Provide the Engineer the Excavation Work Plan at progress and work coordination meetings prior to performing excavation at the Site. Attend meetings with regulatory representatives as directed by the Engineer.

N. On discovery of potential Finds, the Contractor shall protect the features by ceasing any construction activities at that location and keeping personnel clear of any find. The Contractor shall follow the instructions of the Archaeologist on how to protect the Finds. The Contractor shall notify the Engineer within an hour of such discovery.

O. The Contractor shall shift its work effort to an area of 60 feet clear of the Find and continue its operation. The Contractor will be notified by the Engineer when it can commence work within the area of the Find.

P. The Contractor shall require all personnel involved in ground disturbance activities be made available for Archaeological awareness training. The training will be performed by the Archaeologist.

Q. The Contractor shall accommodate archaeological monitoring, testing, and data recovery activities during ground disturbing construction activities.

R. The Contractor shall provide mechanical excavation equipment and operators to assist in the archaeological testing, data recovery, and exhumation of burials or cremations.

S. Report all potential Archaeological Materials or paleontological resource discoveries to the Engineer or designee when Archaeologists are not present.

T. Upon discovery and written notification of any unknown archeological materials, costs for mitigation measures shall be measured and paid under the Allowance Item in Section 01 20 00 Price and Payment Procedures.

U. The Contractor shall comply with the traffic regulations requirements in Section 01 11 00 Summary of Work.

1.05 SUBMITTALS

A. Submit the following information in accordance with the requirements of Section 01 33 00 - Submittal Procedures, except as modified herein.

1. Equipment Operator Training logs maintained by the Contractor.

2. A work plan laying out excavation limits, locations, and type of excavation. The plan shall include procedures for addressing Finds including notifications procedures, protection of Finds/features, and support of the Archeologist through further excavation. The Contractor shall brief its personnel at the Site on such plan and provide qualified operators for excavations within sensitive zones.

1.06 QUALITY ASSURANCE

A. Conduct all Work covered under this Section using personnel who are fully trained, as required for archaeological awareness and all other applicable Codes.

B. Do not allow Contractor personnel who are not properly trained in accordance with this Section to enter or work in areas identified as containing or potentially containing archaeological features.

PART 2 - PRODUCTS

2.01 EQUIPMENT

A. Provide one or more backhoes (equipped with a flat 3-foot toothless bucket and moe-board) and backhoe operators to work with the Archaeologists in archaeological excavations, if necessary

PART 3 - EXECUTION

3.01 ARCHAEOLOGICAL INVESTIGATIONS

A. The form or type of archaeological investigation is moderately sensitive with the probability of finding archaeological resources associated with historic occupations. Demolition activities are unlikely to encounter remains from pre-historic occupations, which are more deeply buried.

B. Construction procedures in support of archaeology will vary. In addition to the Performance Requirements stated in Section 01 35 40, Article 1.04 the following requirements shall be applied:

1. Seven calendar Days notice can be provided at weekly meeting or by the three (3) week look-ahead schedule as long as sufficient information is provided to Archaeologist that allow Archaeologist to determine monitoring requirements. Archaeologists may attend the weekly Contractor's meeting if this proves the best manner in which to secure information.

2. The Contractor shall allow the Archaeologist sufficient time to inspect excavated areas and gather information prior to further excavation, installation of utilities or structural elements, or back-filling.

3. The Contractor shall accommodate Archaeology monitoring of all ground disturbing activities during demolition.

4. If requested by the Archaeologist, the Contractor shall place all excavated materials on the ground adjacent to the point of excavation for archaeological inspection. Contractor shall remove excavated materials upon completion of archaeological inspection.

5. During monitoring, the Contractor shall allow Archaeologist to suspend Work in the immediate area where Finds are discovered for short periods of time, typically no more than 15 minutes per event, to allow Archaeologist to examine the Site for potential Finds. Finds could require one of three actions:

6. Recommence construction and Archaeologist returns later for additional investigation;

7. Archaeologist suspends work for a limited period and tests the resource;

8. Archaeologist requests Contractor to vacate the area to allow full recovery.

9. If Archaeologist requests that Contractor suspend the Work or vacate the location, Archaeologist will provide an estimate of the time of Work suspension so Contractor can determine how to best minimize or mitigate cost and schedule impacts. Excavation activities can continue at adjacent locations during any period of Work suspension.

10. The Contractor shall allow Archaeologist to inspect the sidewalls of excavations after completion and gather samples as necessary.

11. The Contractor shall notify Engineer of any potential Find and protect the area until Archaeologist can assess the area. Archaeologist will inform the Contractor through the Engineer as to the results of the find.

12. The Contractor when performing the work shall comply with all the traffic regulation requirements stated in Specification 01 11 00, Summary of Work.

3.02 SEQUENCE OF OPERATIONS

A. The exact sequence of operations when a Find is discovered in any given case is dependent on the particular archaeological feature encountered, so perform the operations appropriate for the given circumstances as may be directed by the Archeologist or Engineer.

B. Upon discovery of an abnormal condition or a potential indicator of a Find or Archaeological feature, immediately suspend all work activities within sixty (60) feet of the area of concern, and notify the Engineer within one hour of discovery.

C. Secure the area as needed to restrict Contractor’s personnel, City personnel, and the public from disturbing the archaeological features.

3.03 ARCHAEOLOGICAL SENSITIVITY ZONES

A. Surface to base of fill deposits +/- 10 feet below grade. Moderate sensitivity for historic-era archaeological remains that may have survived the existing basementing.

B. Contact of fill and Undifferentiated Deposits +/- 10 feet below grade. Moderate sensitivity for prehistoric archaeological remains.

C. Undifferentiated Deposits to above contact with Colma Formation +/- 40 feet below grade. Moderate sensitivity. The top 3 feet of the Colma Formation is considered of moderate archaeological sensitivity. The Colma was deposited before the arrival of humans in the San Francisco Bay Area and therefore represents the area's cultural basement (ASC 2007:5.16).

D. Colma Formation < 40 feet below grade. Low sensitivity. Once the top three feet of Colma has been removed, there will be no archaeological monitoring requirements for the remainder of the work.

3.04 CONSULTATION AND COORDINATION

A. To ensure complete understanding of the Contract objectives related to this Work, meetings between Engineer and the Contractor shall be held as often as deemed necessary by the Engineer.

B. The Engineer will serve as a liaison between the Contractor and City's Archaeologist, and will provide the Contractor with the following materials, permissions, and services:

1. Copies of available archaeological studies and investigation reports.

C. While performing the Work required by this Section, maintain daily contact with the Engineer and immediately notify the Engineer should unanticipated problems arise during the course of the fieldwork.

D. Do not deviate from approved prepared plans without the approval from the Engineer.

E. Permit the Engineer, his designee, City and SHPO representatives to review and inspect the Work at reasonable times, including review and inspection on a daily basis, as needed. All visitors other than the Engineer and Archaeologist will be required to check-in prior to each Site visit.

F. Provide the Engineer or his/ her designee with safe access to the Site during archaeological monitoring, testing, data recovery and excavation activities, and furnish them with adequate safety and personal protective equipment meeting the requirements of 29 CFR §1910.132-138 - Personal Protective Equipment (PPE).

3.05 TESTING, EVALUATION, AND TREATMENT DECISION PROCESS FOR HISTORICAL ARCHAEOLOGY DURING PAGODA PALACE BUILDING DEMOLITION

A. Types of Finds anticipated to be discovered at the Site include Domestic Occupation Sites, Commercial Sites, and Pre-Gold Rush and Gold Rush-era sites, as described in the Program Level ARDTP and AMTTP. These Finds may be expressed as caches of artifacts in sheet deposits and hollow/filled features as well as architectural features. B. The following sequence of actions will be taken to identify, evaluate, and treat potential finds:

1. Building demolition will be monitored by an Archaeologist. . The City's Historical Archaeologist will monitor building demolition during the removal of foundations and other elements that contact the ground surface. The monitor shall be authorized to redirect Contractor's equipment that may damage buried resources. The aim of demolition monitoring will be to identify and protect the historic-period ground surface and the potentially significant historic archaeological Features cut through, by, or beneath it.

2. Should a potential archaeological feature be encountered, the Archaeologist will be empowered to redirect construction crews and to direct the heavy equipment in clearing up debris from the general area, if this is useful.

3. After the demolition debris is cleared to just above the historic ground surface, the historic-period sensitivity of the parcel can be reassessed. Did construction of the Pagoda Theatre in 1908 destroy the earlier deposits? Or have features survived in portions of the parcel not impacted by the existing basements?

4. Archaeologists expose and cross-section features that appear to meet the data requirements in the Program ARDTP.

5. City Archaeologist/ERO and Principal Investigator (PI) for archaeology visit the site to examine the exposed features. Associations and data requirements for variety and quantity of artifacts will be summarized in advance for their use.

6. City Archaeologist/ERO and PI apply the Criteria for Evaluation to determine which features are in/eligible to CRHR/NRHP and document the basis of the determinations by means of a Decision Memo to FTA and SHPO. The Memo is transmitted to FTA and SHPO within 24 hours of the field visit.

7. If the City Archaeologist/ERO and the PI cannot make a determination, the resource is treated as if eligible. In this case, the

feature is excavated and the final eligibility decision deferred until the relevant data have been reviewed.

8. Resources deemed eligible to CRHR/NRHP are excavated or sampled, the materials collected for further processing at the lab, documented in a data recovery report, and submitted for permanent curation.

9. The most sensitive areas for historical Archaeological deposits at the Site are generally in the rear of (existing and demolished) buildings where back porches; kitchens, "outhouses," and open areas were once located (see Figure 3.8 of the AMTTP).

10. Evaluation and Data Recovery will follow the steps/protocols for the Pagoda Option (see Section 4 of the AMTTP). The Archaeologists will have exclusive access to that portion of the construction zone for testing, evaluation, and data recovery for a period of up to 10 contiguous Working Days each occurrence (as previously defined).

3.06 EVALUATION AND TREATMENT DECISION PROCESS FOR PREHISTORIC ARCHAEOLOGY

A. Prehistoric property types may include either residential or non-residential sites (Program Level ARDTP: Section 7). Although the Pagoda Site has only a moderate sensitivity for prehistoric archaeology, resources may be present on buried surfaces. It is unlikely, however, that prehistoric deposits will be encountered during the demolition process.

1. If Native American Archaeological remains are uncovered, subsequent work on these remains will be monitored by the Project's Native American consultant. Native American human remains are treated according to the requirements of State law and the Project MOA.

2. City Archaeologist and PI will visit the Site to examine the Finds.

3. Prehistoric archaeological Finds other than isolated objects (such as pieces of debitage and shell) are assumed eligible to CRHR/NRHP under Criterion D. The City Archaeologist, FTA or designee, and the PI will consult with the Project Native American consultant to determine if the Finds are important under other criteria.

4. In consultation with the Native American consultant, City Archaeologist, FTA or designee, and PI will devise appropriate treatment, including data recovery and documentation as appropriate. The treatment will be documented in a Decision Memo and transmitted to SHPO within 24 hours of the field visit. Contractor shall allow five contiguous working days to devise appropriate treatment and a further ten contiguous working days for data recovery

and documentation, each occurrence (an occurrence is defined as each time an area of Find is exposed).

5. If the City Archaeologist considers that the Finds or remains have significant public interpretive potential, the City Archaeologist may require the creation of interpretive product(s) prepared by the Archaeologists, in addition to the technical report. The City Archaeologist will make this decision in consultation with the descendant community.

END OF SECTION

SECTION 01 41 00

REGULATORY REQUIREMENTS

PART 1—GENERAL

1.01 DESCRIPTION

A. All materials, installation, and construction shall comply with the applicable provisions of current laws, codes, safety rules, and regulations of the City and County of San Francisco, the State of California, the Federal Government, and any other applicable authorities ("Codes").

B. Contractor shall obtain and comply with all permits required for the Work and for temporary facilities, including indemnification and insurance requirements of such permits, and shall pay all fees and furnish deposits and bonds required therefor.

C. Contractor shall keep a copy of each applicable permit, regulation and Codes in its Site field office, and shall ensure that it and its Subcontractors' superintendents and foremen are thoroughly familiar with all applicable permits regulations and Codes.

D. Contractor shall provide sufficient time in its Baseline Schedule to obtain permits. Contractor's failure to provide reasonable estimate of time for permitting agencies to review and approve permit application shall preclude Contractor's claim for demand for additional time or compensation for delay arising from its failure to provide adequate time for permit processing.

E. Codes referenced in the Contract Documents shall have full force and effect as though set out in full in these Specifications. Nothing in the Contract shall be construed to permit Work not conforming to applicable Code requirements.

F. The Codes and other authorities referenced in the Contract Documents are not a comprehensive list of all Codes applicable to the Work; the Codes listed in the Contract Documents are referenced for the information and convenience of the Contractor only. The City does not represent that the all Codes applicable to the Work have been cited or adequately described in the Contract Documents. Contractor is solely responsible for compliance with all Codes applicable to the Work and relevant to the Contractor's means and methods of performing said Work.

G. Delays caused by permitting agencies in issuance of permits shall not be the cause for unavoidable delay. However, the Engineer may at its discretion recommend an extension of time, provided that the Contractor waives additional compensation caused by that delay, and demonstrates aggressive pursuance of obtaining such permits.

1.02 CITED CODES AND AUTHORITIES

A. Laws, Codes, safety rules, regulations and authorities referenced in the General Provisions include but are not limited to the following:

1. California Code of Regulations (CCR) or California Administrative Code, Title 8 - Industrial Relations, Part 1 - Department of Industrial Relations, Chapter 4 - Division of Industrial Safety:
    a. Subchapter 4 - Construction Safety Orders (CSO),
    b. Subchapter 5 - Electric Safety Orders (ESO),
    c. Subchapter 7 - General Industry Safety Orders (GISO).
    d. Subchapter 20 - Tunnel Safety Orders.
    e. The Contractor's attention is directed to sections of above Safety Orders, which cover some of the most frequently encountered safety concerns, as follows:
        1) CSO #1540 - Excavations
        2) CSO #1541 - Shoring, Sloping and Benching Systems
        3) CSO #1598 - Traffic Control for Public Streets and Highways
        4) CSO #1599 - Flaggers
        5) GISO #3380 - Personal Protective Devices
        6) GISO #3381 - Head Protection
        7) GISO #3395 –Heat Illness Prevention Standards
        8) GISO #3646 - Operating Instructions (Elevated Work Platforms)
        9) GISO #3648 - Operating Instructions (Aerial Devices)
        10) GISO #5003, #5006, #5021, #5022, #5024, #5025 - Cranes
        11) ESO #2940.2 - Clearances
        12) ESO #2940.7 - Mechanical Equipment
        13) ESO #2941 - Work On or In Proximity of Overhead High Voltage Lines
        14) ESO #2946 - Provisions for Preventing Accidents due to Proximity of Overhead Lines
2. CCR Title 17, Public Health, including the Final Regulation Order of 07/22/2002, in Section 93105, on Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations (http://www.arb.ca.gov/toxics/atcm/ asb2atcm.htm).
3. CCR Title 19, Fire Marshal.
4. CCR Title 22, Social Security, Division 4, Environmental Health, and Division 4.5, Environmental Health Standards for the Management of Hazardous Waste.

5. CCR Title 24, California Building Standards Code – 2007 including Part 9, California Fire Code.
6. CCR Title 24, Americans with Disabilities Act – Accessibility Guidelines for Buildings and Facilities.
7. CCR Title 26, Toxics.
8. CCR Article 4.8 Section 2449 General Requirements for In-Use off Road Diesel fueled fleets, ARB AB 1085. (http://www.arb.ca.gov/msprog/ordiesel/knowcenter.htm)
9. Code of Federal Regulations (CFR):
    a. CFR Title 29, Labor - Labor Environmental Health and Safety Plan (EHASP).
    b. CFR Title 40, Protection of Environment.
    c. CFR Title 49, Transportation.
10. San Francisco Municipal Codes, including San Francisco Administrative Code, San Francisco Building Code, San Francisco Electrical Code, San Francisco Environment Code, San Francisco Mechanical Code, San Francisco Plumbing Code, San Francisco Police Code, San Francisco Public Works Code, San Francisco Transportation Code, San Francisco Fire Code, and all department orders adopted pursuant thereto.
    a. Regulations for Working in San Francisco Streets ("Blue Book"), SFMTA Division of Sustainable Streets (formerly DPT), City and County of San Francisco.
    b. DPW Order 171,333, Dust Generation and Control Regulations
    c. DPW Order 135,595, Street Opening and Pavement Restoration Regulations for Non Moratorium City Streets.
    d. DPW Order 135,596, Street Opening and Pavement Restoration Regulations for Newly Renovated City Streets.
    e. DPW Order 167,840, Placement of Barricades at Construction Site.
    f. DPW Order 178,940, Regulations for Excavating and Restoring Streets in San Francisco.
    g. DPW Order 171,378, Dust Control Order
    h. DPW Order 172,596, Guidelines for Processing and Issuance of Special Sidewalk Permits within the Downtown Streetscape Areas.
    i. DPW Order 174,878, Regulations and Slip Resistant Standards for Any Manhole, Vault, or Sub-Sidewalk Basement Cover, Grille, Grate on the Public Sidewalk.

j. Article 2.4, San Francisco Public Works Code, Excavation in the Public Right-of-Way

k. Article 4.1 San Francisco Public Works Code; Industrial Waste Ordinance,

l. Article 29, San Francisco Police Code, Regulation of Noise.

m. San Francisco Building Code (SFBC)

1) Section 106A – Permits

a) 106A.3.2.2 Demolition

b) 106A.3.2.6. Construction Dust Control

2) Section 3303 – Demolition

3) Section 3306 – Protection of Pedestrians

4) Section 3307 – Protection of Adjoining Property

n. Ordinance No. 27-06, San Francisco Construction and Demolition Debris Recovery Program

o. Standard Specification of the City and County of San Francisco, Department of Public Works, Bureau of Engineering (SSDPWSF), revised November 2000.

1) Section 302 – Removing, Plugging, and Filling Existing Sewers and Related Structures

11. San Francisco Planning – Project Requirements

a. Final Supplemental Environmental Impact Statement / Supplemental Environmental Report (Final SEIS/SEIR) for the Central Subway Project as the second phase of the Third Street Light Rail Project, Volume 1 and 2, dated September 2008 (Case File No. 96.281E).

b. Addendum to Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report, dated January 31, 2013 (Case File No. 1996.0821E).

12. San Francisco Health Code

a. Article 21 – Hazardous Materials

b. Article 21A – Risk Management Program

c. Article 22 – Hazardous Waste Management

d. Article 22A – Analyzing Soils for Hazardous Waste

e. Article 22B – Construction Dust Control Ordinance #176-08

13. San Francisco Department of Building Inspection (SFDBI) Central Permit Bureau.

14. San Francisco Department of Public Health (SFDPH).

15. San Francisco Fire Department (SFFD)
    a. AB 5.01 Street Widths for Emergency Access
16. San Francisco Municipal Transportation Agency (SFMTA)
    a. Mitigation Monitoring and Reporting Program (MMRP) – Construction and Operational Testing
    b. SFMTA Construction Safety Standards
17. California Division of Industrial Safety.
18. California Health and Safety Code.
19. California Department of Transportation (Caltrans)
    a. Right-Of-Way Cooperative Agreement Procedures
    b. California Manual on Uniform Traffic Control Devices (MUTCD).
    c. Caltrans Standard Specifications and Plans
20. California Labor Code.
21. California State Vehicle Code.
22. California Public Utilities Code Section 29037.
23. State of California Public Utilities Commission.
    a. General Order No. 26D, Regulations Governing Clearances on Railroads and Street Railroads with Reference to Side and Overhead Structures, Parallel Tracks, Crossings of Public Roads, Highways and Streets.
    b. General Order No. 95, Rules for Overhead Line Construction.
    c. General Order No. 128, Rules for Construction of Underground Electric Supply and Communication Systems.
    d. General Order No. 143B, Safety Rules and Regulations governing Light Rail Transit.
24. California Health and Safety Code.
25. California Occupational Safety and Health Administration (CAL/OSHA).
26. California Storm Water Municipal and Construction Activity BMP Handbooks. California Regional Water Quality Control Board (RWQCB)
27. State Water Resources Control Board
28. Bay Area Air Quality Management District (BAAQMD)
    a. Regulations 1-13.
29. Construction General Permit (CGP)

a. Order 2009-0009 DWQ of the Clean Water Act.

b. Order 2010-0014 DWQ Adopted Order that amends Order 2009-0009 DQQ of the Clean Water Act.

30. Federal Transit Administration (FTA) Regulations and Best Practices Manual.

31. Federal Clean Air Act.

a. Section 608 Regulatory Requirement -Stationary Refrigeration and Air Conditioning (refrigerant recovery/removal)

32. Federal Clean Water Act.

33. Not Used.

34. Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG).

35. American National Standards Institute (ANSI)

a. A10.6 Safety Requirements for Demolition Operations

36. National Fire Protection Association (NFPA) code:

a. NFPA 70, National Electrical Code.

b. NFPA 241 Safeguarding Construction, Alteration, and Demolition Operations

37. National Electric Code (NEC)

38. Occupational Safety and Health Administration (OSHA)

a. OSHA Standard 1910

39. Uniform Fire Code.

40. The Work Hours and Safety Standards Act (40 U.S.C. 327 et seq.)

B. 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, the State Fire Marshall, Cal-OSHA and the State Construction Safety Orders, and the California Labor Code.

1.03 NOT USED

1.04 PERMITS OBTAINED BY CONTRACTOR

A. Contractor shall obtain the following permits:

1. State, County, and City Transportation vehicle permits for construction related vehicles that are overwidth, overlength, overheight, overload.

2. State Industrial Safety Orders/Construction Safety Orders: Training and Certification of Workers – Confined Spaces, Welding, High Voltage Electrical.

3. CAL/OSHA permits:

   a. Construction permits:

      1) Trenches/Excavations five feet and deeper.

      2) Building, structure, scaffolding or falsework 36 feet and higher.

      3) Demolition of building, structure 36 feet and higher.

      4) Erection, dismantling of vertical shoring 36 feet and higher.

      5) Tower cranes: fixed and mobile.

   b. Elevator permits for temporary hoisting and lifting equipments.

4. SFDPH – Hazardous Materials Unified Program Agency permits:

   a. Removal of Hazardous Materials Permit.

   b. Hazardous Materials Certificate of Registration: Contractor shall obtain and keep current a hazardous materials certificate of registration and implement the hazardous materials plan submitted with the registration application, in accordance with Articles 21, 21A, and 22 of the San Francisco Public Health Code. Contact the SFDPH/HMUPA at (415) 252-3900.

   c. Dust Control Plan in accordance with Article 22B Construction Dust Control Ordinance #176-08.

   d. Well Construction or Soil Borings Permit: A permit is required to construct or operate an environmental or geotechnical well or soil boring. These wells include, but are not limited to, cone penetrometers, inclinometers, piezometers, cathodic wells, exploratory wells, extraction wells, recovery wells, monitoring wells, temporary wells, irrigation wells, industrial wells, dewatering wells, wick drains, hydropunch soil borings ,and soil borings drilled for geotechnical or environmental purposes (whether or not groundwater is encountered). This information is not intended as a substitute for familiarity with applicable laws and regulations. Contact the SFDPH, Monitoring Well Section at least 15 Working Days in advance of drilling at (415) 252-3947.

5. SFDPW permits:

   a. Encroachment (minor and major) permits for sidewalks.

   b. Street Space Permit.

   c. Night Noise Permit.

   d. Sidewalk Legislation Permit – Temporary by Contractor.

e. Sidewalk Permit – Temporary by Contractor.

f. Surface Mounted Facility Permit – Temporary by Contractor.

g. Parking Legislation Permit – Temporary by Contractor.

h. Debris Box Permit.

i. Removal of City Survey Benchmarks Permit needed for removal of existing survey benchmarks.

j. Pipe Barrier Permit.

k. Personal Wireless Permit.

l. Boring/Monitoring Wells Permit.

m. Removal of Underground Storage Tanks (USTs) Permit

6. San Francisco Bay Regional Water Quality Control Board permits:

   a. National Pollutant Discharge Elimination System (NPDES) Permit – for sewer connections direct to Bay during construction.

7. SFPUC Waste Water Enterprise, Collection System Division (WWE-CSD permits:

   a. Wastewater Discharge Permit – for sewer connection direct to sewer during construction

8. State, County and City Transportation Permits.

9. Excavation Permits:

   a. Contractor shall contact DPW/BSM at (415) 554-5810 for all requirements for applying for the permit and the cost of the fees. Engineer will not allow any Work on the street without an Excavation Permit.

   b. Contractor shall be the applicant of the permit, comply with all permit requirements, pay all costs, and be responsible for fines resulting from non-compliance to the permit requirements.

   c. Contractor shall pay all permit fees requested by DPW/BSM. Contractor shall be reimbursed the Street Damage Restoration fee associated with water work. Other fees are incidental to the Work resulting in the fee.

   d. It is the responsibility of the Contractor to determine the number of calendar days to complete the Work in the permit application.

   e. It is the responsibility of the Contractor to keep permits valid for the entire period of construction including periods of extension or delay. All work and costs incurred to apply for and obtain the excavation permit, and keeping a valid permit shall be Incidental Work, and no separate payment shall be made to the Contractor, except as provided below.

f. The City will reimburse the Contractor for all charges by DPW/BSM plus $100 per application for an extension of a permit required as a result of an unavoidable delay.

10. Not Used.

11. Electrical permits.

12. San Francisco Public Utilities Commission, Wastewater Enterprise Collection System Division (WECSD) Batch wastewater discharge for wastewater and dewatering permit and notifications.

13. San Francisco PUC/BWPC use of reclaimed water permit. Contact BWPC at (415) 648-6882 x1378.

14. San Francisco PUC/Water Department/City Distribution Division permits and service requests for water and meters.

15. San Francisco PUC/Bureau of Light, Heat, and Power (BLHP) permit and notification for removal of temporary lighting.

16. San Francisco PUC/ Hetch Hetchy Water & Power (HHWP) application and notification for electrical service connection to PG&E. Contact HHWP at (415) 554- 1596.

17. San Francisco Department of Building Inspection (DBI) permits, notifications, inspections, and approvals. Contractor shall obtain and pay all necessary permits to start and complete the Work, including, but not limited to, the following:

    a. DBI Building Demolition Permit:

        1) The Contractor shall complete and obtain the Building Demolition Permit under its name from DBI for this Contract 1277.

        2) Contractor shall not start Work Site without the appropriate and valid DBI Job Cards (to record sign-offs by building inspectors upon satisfactory in-progress inspections and final inspection) on site.

        3) Contractor shall be responsible for obtaining the appropriate and valid DBI Job Cards and DBI approved sets of Contract Drawings and Specifications, prior to the planned or actual start of permitted work.

        4) Contractor shall be responsible for arranging and coordinating periodic and final inspections by DBI, and satisfying all other requirements of DBI, including securing for City Temporary Certificates of Occupancy, if requested by City, and the Certificates of Final Completion and Occupancy from the DBI as required.

    b. Other DBI permits (Temporary Shoring, Excavation and others):

1) Contractor shall obtain all other required permits from DBI, and shall pay for any additional costs related to the permits that were not covered by the Building Demolition Permit, prior to the start of permitted work.

c. DBI Special Inspection for Demolition – in accordance with SFBC 3303.7 and 1701.3.

18. San Francisco Fire Department permits, including but not limited to:

a. The flammable or combustible material storage permit. Contact the SFFD, Bureau of Fire Prevention at (415) 558-3300.

b. Permit and notification for AWSS relocation.

Permit and notification for removal and installation of fuel or chemical storage tanks.

19. San Francisco Police Department permits.

a. Section 2908 – Night Noise Permit

20. San Francisco Department of Parking and Traffic (SFMTA, Division of Sustainable Streets) permits and traffic plans, and approvals.

a. Special Traffic Permit

b. Traffic Bureau – Prohibition of Stopping

21. San Francisco Municipal Railway permits and notifications.

22. Port of San Francisco permits.

23. San Francisco City Planning permits and approvals.

24. Bay Area Air Quality Management District (BAAQMD) permits and notifications, and the California Air Resources Board (CARB) permits, and notifications. The Contractor shall obtain all the permits required by the BAAQMD and CARB. For information on the permit requirements and application forms check the web page at www.baaqmd.gov, or -http://www.baaqmd.gov/enf/compliance_assistance/index, or call the compliance assistance hotline at (415) 749-4999. For asbestos http://www.baaqmd.gov/enf/asbestos/index.htm or call the district's Asbestos Program at (415) 749-4762.

a. The following BAAQMD permits forms shall be completed for work involving screening, crushing or grinding, and use of abatement devices:

1) Form P-201: General information

2) Form P-101B: General information

3) Form G: Emission Source (crusher or grinder)

4) Form A: Abatement Devices: Wet Spray System

b. Contractor is hereby notified that screening or crushing operations of excavated materials cannot proceed without the appropriate BAAQMD, and Cal-EPA/DTSC permits.

c. Contractor is hereby notified that diesel exhaust pollutants requirements under ARB 1085 for In-use off- road diesel fueled fleet are in effect to minimize diesel exhaust emissions. Contract-or shall register and obtain an Equipment Identification Number (EIN) per vehicle/equipment over 25 horsepower with the Air Resources Board: (http://www.arb.ca.gov/msprog/ordiesel/knowcenter.htm).

25. The Regional Water Quality Control Board (RWQCB), San Francisco Bay Region, and the California State Water Resource Control Board (SWRCB) permits and notifications.

26. Cal/EPA, Department of Toxic Substances Control (DTSC) permits and notifications, including but not limited to permit–by-rule, hazardous waste facilities permit, transportable treatment unit (TTU), and treatment storage and disposal facility (TSDF) permits.

27. Utility Service Alert (USA) permits and clearance at 1- (800) 642-2444.

28. Any other permit required to perform the Work not listed in Paragraph 1.04, above.

1.05 SUBMITTALS

A. A copy of each permit that the Contractor obtains shall be provided to the Engineer for information prior to commencing Work covered by such permit.

1.06 RESOLUTION OF CONFLICTS

A. If the Contractor is aware that the Specifications or Drawings are at variance with permits, laws, or regulations, the Contractor shall give the Engineer prompt written notice thereof and the Engineer will resolve the conflict in accordance with the General Provisions. If the Contractor performs Work knowing or having reasons to know that it is contrary to such permits, Codes and safety rules, and without such notice to the Engineer, the Contractor shall bear all responsibility and costs arising there from including all costs of demolition correction and completing the nonconforming Work.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

NOT USED

END OF SECTION

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SECTION 01 42 00

REFERENCES

1.01 DESCRIPTION

A. This Section explains the use of Reference Standards in these Contract Documents.

B. This Section includes abbreviations of various associations, societies, organizations, regulatory agencies, and their meanings as used in these Contract Documents.

C. This Section provides definitions in addition to those found in the General Provisions.

D. This Section lists Reference Documents and the use of data resulting from the various investigations or from available information, including existing geotechnical data and reports, hazardous materials survey reports, as-built drawings and other documentation, survey reference line and control, underground facilities plans, and environmental assessment information.

1.02 REFERENCE STANDARDS

A. The Contract Documents contain references to various standard specifications, plans, codes, practices, and requirements for materials, work quality, installation, inspections, and tests, which references are published and issued by the agencies, organizations, societies, and associations listed. Cited sections of such references are hereby made a part of the Technical Specifications to the extent that they are not in conflict with the Contract Documents. For conflicts with regulatory requirements, see Section 01 41 00, Regulatory Requirements.

B. When such references are specified, and the effective date is not given, it shall be understood that the current edition or latest revision thereof and amendments or supplements thereto in effect on the date of issue of these Contract Documents shall govern the work.

C. When standards are not referenced in the Work specified or shown in the Contract Documents, then the work shall be performed in accordance with the San Francisco Department of Public Works (DPW) Standard Plans and Specifications, prevailing industry standards applicable to the Work to be performed, or the General Provisions, whichever is most stringent.

D. Reference Standards are not furnished with the Contract Documents because Subcontractors, manufacturers, and the trades involved are assumed to be familiar with their requirements and they are available, either commercially or directly from the issuing entity.

E. Whenever cited sections of Reference Standards require submittals, make such submittals in accordance with Section 01 33 00, Submittal Procedures.

F. Whenever cited sections of Reference Standards require quality control or testing of products, perform such quality control or testing in accordance with Section 01 45 00, Quality Control, and the specific Technical Sections.

G. Whenever cited sections of Reference Standards require a certificate of compliance for products, furnish such certificate in accordance with Section 01 45 00, Quality Control, and the specific Technical Sections.

H. Whenever cited sections of Reference Standards require as-built drawings, furnish such drawings in accordance with Section 01 78 39, Project Record Documents.

I. Whenever Reference Standards refer to "Special Provisions," that reference shall be deleted and "Specifications" shall be inserted in its place.

J. Whenever Reference Standards refer to "Plans", that reference shall be deleted, and "Contract Drawings" shall be inserted in its place.

K. Measurement and payment provisions and payment as "Extra Work" provisions, of Reference Standards shall be deleted and considered null and void, insofar as this Contract is concerned.

1.03 ABBREVIATIONS

A. Whenever in the Contract Documents the following abbreviations are used, it shall be understood to mean the full name of the respective organization, as follows:

1.	AAR	Association of American Railroads
2.	AASHTO	American Association of State Highway and Transportation Officials
3.	ACI	American Concrete Institute
4.	ADA	Americans with Disabilities Act
5.	AISC	American Institute of Steel Construction
6.	AISI	American Iron and Steel Institute
7.	ANSI	American National Standards Institute
8.	APA	American Plywood Association
9.	AREMA	American Railway Engineering and Maintenance-of-Way Association
10.	ASTM	ASTM International
11.	AWPA	American Wood Preservers Association
12.	AWS	American Welding Society
13.	AWWA	American Water Works Association
14.	BLHP	Bureau of Light, Heat & Power (San Francisco Public Utilities Commission)

15.	CA	Commercial Standards of NBS
16.	CAC	California Administrative Code
17.	CAL/OSHA	California Occupational Safety and Health Administration
18.	CALTRANS	California Department of Transportation
19.	CRSI	Concrete Reinforcing Steel Institute
20.	DBI	San Francisco Department of Building Inspection
21.	DPW	San Francisco Department of Public Works
22.	FM	California State Fire Marshall
23.	FS	Federal Specification (also abbreviated Fed. Spec.)
24.	FTA	Federal Transit Administration
25.	ICEA	Insulated Cable Engineering Association
26.	IEEE	Institute of Electrical and Electronic Engineers Acceptance Testing Specifications
27.	NEC	National Electric Code
28.	NEMA	National Electrical Manufacturers Association
29.	NETA	National Electrical Testing Association
30.	NFPA	National Fire Protection Association
31.	PG&E	Pacific Gas & Electric Company
32.	PS	U.S. Product Standard
33.	REA	Rural Electrification Administration Standards
34.	SF	San Francisco
35.	SFBC	San Francisco Building Code
36.	SFEC	San Francisco Electrical Code
37.	SFMC	San Francisco Mechanical Code
38.	SFMTA	San Francisco Municipal Transportation Agency
39.	SFPC	San Francisco Plumbing Code
40.	SFTC	San Francisco Traffic Code
41.	SFPUC	San Francisco Public Utilities Commission
42.	SFWD	San Francisco Water Department (SFPUC)
43.	SMACNA	Sheet Metal & Air Conditioning Contractors National Association
44.	SSPC	Steel Structures Painting Council
45.	TEL. SIGNAL CORP.	Television Signal Corporation

46.	UBC	Uniform Building Code
47.	UL	Underwriters Laboratories, Inc.
48.	UMTA	Urban Mass Transportation Administration
49.	WCLIB	West Coast Lumber Inspection Bureau

1.04 DEFINITIONS

A. The following words and terms are used in these Contract Documents and are defined as follows:

1. Applicable: As appropriate for the particular condition, circumstance, or situation.
2. Approved: As accepted by the Engineer.
3. Approved equal: As accepted by the Engineer as being of equivalent functionality, durability, maintainability, operability, quality, utility, and appearance.
4. Directed: As instructed by the Engineer in writing.
5. Engineer: Resident Engineer assigned by the City.
6. Indicated: As shown on the Contract Drawings, Contract Documents, or noted.
7. Noted: As written on the Contract Drawings or in the Contract Specifications.
8. Provide: Furnish and install.
9. Required: As required by regulatory requirements by the Contract Documents, by Reference Standards, by generally accepted construction practice, or as applicable.
10. UMTA: The Urban Mass Transportation Administration is defined to be the Federal Transit Administration (FTA).
11. Standard Specifications: Standard Specifications, Bureau of Engineering, Department of Public Works, City and County of San Francisco.
12. Standard Plans: Standard Plans, Bureau of Engineering, Department of Public Works, City and County of San Francisco.

1.05 GEOTECHNICAL REPORTS

A. Bidders' attention is directed to geotechnical reports that were prepared by others as follows:

1. Geotechnical Investigation 1731-1741 Powell Street, La Corneta Place, December 1, 2008.

B. Geotechnical Data provided in the SF DBI reports was obtained only for the use of the City and its consultants for the planning and design of the Project

and is not part of the Contract Documents, but boring logs and test results contained in said geotechnical reports constitute technical data on which the Bidder may rely.

C. All statements, findings, and interpretations in said report are those of the geotechnical consultant, and the City makes no representations, either express or implied, as to the completeness or adequacy of said report.

1.06 ENVIRONMENTAL REPORTS

A. Final Supplemental Environmental Impact Statement / Supplemental Environmental Impact Report (Final SEIS/SEIR) for the Central Subway/Third Street Light Rail Phase 2 in the City and County of San Francisco, September 2008.

B. Addendum to Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report, San Francisco Planning Department, January 31, 2013, Case No. 1996.0821E.

C. The City's environmental consultant has investigated the Project Site for the potential of environmental impacts of the Work impacts. The findings are documented in the following:

1. Central Subway, Phase I Environmental Assessment and Site History Report, New Central Subway Alignment, San Francisco, CA Revision 1, Geomatrix Consultants in Association with PB/Wong Joint Venture. December 18, 2003.

2. Central Subway, Addendum to Phase I Environmental Assessment and Site History Report, Hazardous Materials Investigations Revision 0. Geomatrix Consultants in Association with PB/Wong Joint Venture. April 1, 2005.

3. Phase I Environmental Site Assessment, Theatre Building, 1731-1741 Powell Street, San Francisco, CA, Ceres Associates, May 30, 2001.

4. Asbestos and Lead Survey, 1731 Powel Street, San Francisco, CA, EnviroNova, June 19, 2009.

D. Environmental assessment information was obtained only for the use of the City and its consultants for planning and design. Said information is not part of the Contract Documents, but the technical data or mandatory mitigation requirements contained therein on which Bidder is entitled to rely are incorporated in the Contract Documents by reference.

1.07 ARCHAEOLOGICAL REPORTS

A. Historic Context and Archaeological Survey Report for the Central Subway, Phase 2 of the Third Street Light Rail Project. Anthropological Studies Center, Sonoma State University, March 23, 2007.

B. Program-Level Archaeological Research Design and Treatment Plan, Revision 0. Anthropological Studies Center, Sonoma State University in association with Central Subway Partnership, March 21, 2011.

C. Memorandum of Agreement (MOA) executed by the Federal Transit Administration, the SFMTA, and the State Historic Preservation Officer for the Project.

1.08 NOT USED

1.09 SFMTA DOCUMENTS

A. SFMTA Construction Safety Standards, Revision 3, dated June 27, 2012.

B. SFMTA Division of Sustainable Streets – Temporary Street Closures for Special Events – Annual Summary of Special Events

1.10 EXTERNAL DOCUMENTS

A. North Beach Festival Press Release, North Beach Business Association

B. New North Beach Library Ground Breaking News Release, San Francisco Public Library

1.11 AVAILABILITY OF REFERENCE INFORMATION

A. Unless otherwise noted, copies of the above Reference Documents, if not included in this Project Manual, are available for inspection by prospective Bidders at SFMTA Office located at 1 South Van Ness Avenue, San Francisco, CA 94103.

1.12 USE OF DATA

A. The foregoing Reference Documents are not part of the Contract Documents. The City does not warrant the completeness of the Reference Documents.

B. The City makes no representation, either express or implied, that the conditions indicated in the Reference Documents are representative of those existing at the Site, or that different conditions may not occur or materials other than or in proportions different from those indicated may not be encountered.

C. Bidders must visit the Site and familiarize themselves with existing conditions prior to submitting a Proposal.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

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SECTION 01 45 00

QUALITY CONTROL

PART 1—GENERAL

1.01 SECTION INCLUDES

A. This Section specifies the requirements for quality control, including those for tests, and inspections documentation of quality activities, and providing certificates of compliance. These requirements are in addition to the requirements specified elsewhere in the Contract.

B. The Contractor is responsible for quality control and shall establish, document, implement, and maintain an effective contractor quality control system, hereafter referred to as the Contractor Quality Program (CQP. The Contractor's Project Manager in addition to requirements elsewhere in the Contract shall be the highest-level manager responsible for the overall quality, safety, and production activities on and off of the site. The Project Manager is subject to removal by the Engineer for non-compliance with the quality requirements.

C. No separate payment will be made for Work covered under this specification. The Work associated with this specification is Incidental Work (incidental to the completion of Work in which it pertains). The cost of this Work shall be accounted for in accordance with the General Provisions.

D. Failure of the Contractor to comply with the requirements of this Section shall be grounds to stop Work, for a credit assessed against the Contractor for quality control Work not performed, and to withhold progress payments, in part or in total, until the Contractor is in compliance with these requirements. In addition, no non-conforming Work will be approved for payment.

1.02 DEFINITIONS

A. Construction Quality Management is the performance of tasks that ensure that construction is performed according to Contract Drawings and Specifications. Quality is the attainment of a predetermined level of excellence established by the Contract Drawings and Specifications. The Contractor, in building to the quality standards in the Contract Drawings and Specifications, controls the quality of the Work.

B. Contractor Quality Control (CQC) is the successful execution of the Contractor Quality Program, providing certification that the required standards of quality construction are met and to preclude problems resulting from poor quality or lack of quality. The Contractor, for each definable feature of work, shall conduct at least three phases of control as described in Article 1.08.

C. Construction Quality Assurance (CQA) involves the means by which the City protects its interests. Through reviews, inspections, tests, Quality Assurance

surveillances and audits, the City assures that the CQP is being implemented and is working effectively, and that the end product complies with the level of quality established by the Contract.

D. A definable feature of Work is a particular Work task that is separate and distinct from other work tasks, has separate control requirements delineated in the Specifications, and may be performed by different trades or disciplines, or it may be work by the same trade in a different environment.

E. Witness Points are points in the sequence of work where the Engineer may review, witness, or test parts and processes of the Work. The Contractor's Project Manager is required to notify the Engineer at least 48 hours in advance of the required Witness Point or as otherwise agreeable to the Engineer.

F. Hold Points are mandatory verification or inspection points in the sequence of Work beyond which Work shall not proceed until the Contractor's Project Manager notifies the organization establishing or mandating the Hold Points and the organization performs the necessary verification or inspection to confirm that specified conditions have been met, and gives authorization to the Contractor to then proceed to the next sequence of Work. Hold Points may be established by the Contractor, Engineer, or approving authorities. The Contractor is required to notify the Engineer at least 72 hours in advance of the required Hold Point or as otherwise agreeable to the Engineer. The Contractor is responsible for notifying and coordinating with other approving authorities.

1.03 OBSERVATIONS BY THE CITY

A. All Work (which includes but is not restricted to Materials, workmanship, testing, and manufacture and fabrication of components) shall be subject to inspection, including Hold Points, Witness Points, and tests by the City and by other authorized personnel designated by the City. Such inspection or test is for the sole benefit of the City and shall not relieve the Contractor of the responsibility for providing quality control measures to assure that the Work strictly complies with the Contract requirements. No inspection, test, surveillance or audit by the City shall be construed as constituting or implying acceptance. Inspections, tests, surveillances or audits by the City shall not relieve the Contractor of responsibility for damage to or loss of the material prior to acceptance, nor in any way affects the continuing rights of the City after acceptance of the completed work.

B. The Contractor shall make available all offsite fabrication facilities for inspection, surveillance, and/or audit of fabricated items by the City.

C. If the Contractor does not promptly replace rejected Material or correct rejected workmanship, the City may, replace such material or correct such workmanship and deduct the cost thereof from subsequent progress payments.

D. The Contractor shall be held responsible for delay of inspection or test due to Material or Work not being acceptable or ready at the time specified by the

Contractor for such inspection or test, and for re-inspection or retest necessitated by prior rejection.

E. The Contractor shall not cover, or allow to be covered, any of the Work installed under this Contract without the Engineer's approval. Should any of the Work be covered prior to such approval, the Engineer shall have the authority to require the work to be uncovered for the Engineer's inspection and approval, re-covered, and all resultant damage repaired, all at the Contractor's expense. Work that is found to be unacceptable shall be documented and dispositioned as required by the CQP.

F. Should it be necessary or advisable by the City, at any time before Final Acceptance, to make an examination of Work already completed, the Contractor shall, if requested, promptly furnish all necessary facilities, equipment, labor, and material required. If such Work is found to be defective or nonconforming, the Contractor shall be responsible for all the expenses of such examination and for satisfactory reconstruction. If, however, the Engineer was allowed ample opportunity to inspect said work and Work is found to meet the requirements of the Contract, the Contractor will be compensated for the additional services involved in such examination and reconstruction under Force Account, and, if completion of the Work has been delayed thereby, the Contractor shall, in addition, be granted a suitable extension of time.

G. Neither inspections nor approvals by the Engineer or by others shall relieve the Contractor from the obligation to perform the Work in accordance with the Contract.

1.04 CONTRACTOR'S QUALITY PROGRAM (CQP)

A. The Contractor shall establish, implement and maintain an effective Contractor Quality Program (CQP) that describes how the Contractor is to manage, control and document the Work to assure that it complies with the requirements of the Contract.

B. The CQP shall include as required below, identification or description of personnel, procedures, controls, instructions, tests, certifications, records, and forms to be used, and shall include, as a minimum, the following to cover all construction operations, Inspection and Testing Laboratories:

1. A description of the Contractor's organization for the Contract (including Contractor's senior management, Subcontractors, and Suppliers) and an organizational chart showing names, titles, responsibilities, lines of authority, and interrelationships among those responsible for managing the Contractor Quality Program and the rest of the Contractor's staff.

2. The Contractor shall also acknowledge that the Contractor shall implement the three-phased control system defined in Article 1.08 herein for all aspects of the Work specified.

3. In resume format, the names, qualifications, certifications, duties, responsibilities, and authorities of Special Inspector(s)─Document Control procedures

    a. For submitting, processing, and managing documents such as Submittals, RFIs, and other communications including tracking and verifying that appropriate personnel are reviewing documents and working with correct information.

    b. To ensure the use of the most current approved documents, including but not limited to Submittals, RFIs, drawings, specifications, procedures, and directives.

    c. To provide for control of documents and changes to preclude use of inappropriate documents.

    d. To establish records control logs and a systematic filing system for ease of retrieval.

    e. To establish format for forms and documents, including logs, Quality Control and inspection reports, test reports, procedures, Quality Control Inspection Checklists and Contractor Non-Conformance Reports.

    f. The use of document management software, such as Primavera's web-based Construction Management software may be used to supplement, augment or replace the Contractor's Document Control Procedures if such software complies with the requirements of this Specification Section.

4. Process Control Procedures

    a. To establish methods for assuring and documenting that activities have been completed in accordance with Contract requirements.

5. Quality Control Inspection and Testing Procedures (including those for the Independent Testing Laboratories)

    a. For the performance, control, verification, certification, and acceptance of each specific test and inspection.

    b. To verify the Work processes, products and systems comply with documented instructions, codes, and Contract Documents.

    c. For documenting inspection activities, testing activities, and test results.

    d. To assure testing and measuring equipment are properly calibrated and maintained in accordance to nationally recognized standards, and that the equipment utilized for inspection, measuring, or testing is of the proper range and type.

e. For evaluating the validity of previous inspection and test results and acceptability of materials and equipment so checked if the test equipment is found to be out of calibration.

f. For maintaining records and suitable markings of test equipment to indicate calibration status, including entity that performed the last calibration, date that the calibration was performed, and date on which re-calibration is due.

g. Refer to Article 1.10 herein for additional requirements.

6. Procedures for tracking and documenting preparatory, initial, and follow-up control phases.

7. Non-Conformance Procedures

a. For controlling, tracking and reporting of construction deficiencies, non-conforming items, CQP failures, or shortcomings, and/or inadequate administration of the CQP from identification through acceptable corrective action. These procedures shall establish measures to identify, segregate, and remove from work operation the non-conforming items to prevent inadvertent use/incorporation into the Contract, identify root cause, and provide documented verification that identified deficiencies have been corrected and approved by the Engineer. Refer to Article 1.10I herein for additional requirements of Non-Conformances.

b. The Contractor shall have Contractor Non-Conformance Report (CNCR) forms and a CNCR log for identifying, correcting, documenting, and controlling non-conformances. The format and content of the CNCR form and CNCR log shall be approved by the Engineer.

8. Corrective Action Procedures:

a. For ensuring that CQP failures or shortcomings, inadequate administration or implementation of the CQP, or series of related or repeating Non-Conformances are identified and documented through the use of separate Corrective Action Requests, or may be included in the Non-Conformance Report and that rigorous steps are implemented by the Contractor's Project Manager and Contractor's Principal Officers to prevent recurrence.

b. Additionally, subsequent work may not progress on work that is the subject of a Corrective Action Request, until conditions adverse to quality are corrected as documented by the CSI via the Corrective Action Request. Refer to Article 1.10.I herein for additional requirements of corrective actions.

9. A training program to assure that suitable proficiency is achieved and sustained by personnel performing activities that affect and ensure

quality. Additionally, the Contractor shall provide awareness training in the general requirements of the CQP for the Contractor's staff prior to work being performed and upon changes to the CQP. All training shall be documented with an agenda, related information, minutes of the training, attendance sheet, date, and time. The Engineer shall be notified a minimum of 2 Days in advance of training which it may attend.

10. Provisions for identification of all types of required quality records as evidence that all activities comply with the requirements of the Contract Documents and CQP.

11. A list of definable features of the work.

12. An organized list of tests that includes the test name, frequency of test, specifications Section and Article requiring test, feature of work to be tested, person and organization responsible for each test, and test type, including Construction Inspection Tests, Acceptance Tests, and other tests.

13. Special Inspectors proposed by the Contractor are subject to approval by the Engineer.

C. The Engineer reserves the right to require the Contractor to make changes in its CQP and operations including removal of personnel, as necessary, to obtain the quality specified at no cost to the City.

1. After approval of the CQP, the Contractor shall notify the Engineer in writing of proposed change, including changes/replacement of the Contractor Special Inspector(s). Proposed changes are subject to approval by the Engineer.

1.05 CQC-COORDINATION CONFERENCE

A. After the Pre-construction Meeting and prior to acceptance by the Engineer of the Contractor Quality Program (CQP), the Contractor shall convene a CQC Coordination Conference with the Engineer or authorized City representative and discuss the CQP. The CQP shall be submitted for review a minimum of 7 Days prior to the Coordination Conference. The Engineer will return comments on the CQP submittal within 15 Working days unless otherwise noted after the Conference. During the Conference, a mutual understanding of the system details shall be developed, including the forms for recording the Contractor's Quality Control operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the City's Quality Assurance. Minutes of the meeting shall be prepared by the Contractor's Project Manager and signed by the Contractor's Project Manager and Contractor's Special Inspector (CSI) for Demolition Work and the Engineer. The minutes shall become a part of the Contract file. Subsequent conferences can be called by either party to reconfirm mutual understandings and address deficiencies in the CQP.

1.06 3 PHASES OF CONTROL

A. The Contractor's Special Inspector (CSI) and Superintendent, for each definable feature of work, shall conduct at least three phases of control as described in the following:

1. Preparatory Phase: This phase shall be performed at least 15 Working Days, except as otherwise acceptable to the Engineer, prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted by the Engineer, and after copies of said documents are at the work site. This phase shall include:

   a. A review of each paragraph of applicable Contract requirements, reference codes, and standards. The Contractor at the preparatory phase meeting shall make a copy of those sections of referenced Codes and standards applicable to that portion of the Work to be accomplished in the field. These copies shall be maintained in the field for use by the Engineer until Final Acceptance of the work.

   b. A review of the relevant Contract Documents, Submittals, RFIs, and other instructions, including verification that the Engineer's approval has been obtained for all Submittals or RFIs, prior to the start of work for each definable feature of work.

   c. Review of relevant permits and their requirements including governing jurisdiction inspection requirements.

   d. Examination of the Site and documentation to assure that all required preliminary Work and previous definable features of work have been completed and are in compliance with the Contract, and all relevant Contractor Non-Conformance Reports, and Non-Compliance Notices have been properly dispositioned and closed, including acceptance by the Engineer. Contractor shall provide organized and compiled documents and records of the previous definable feature of work, including but not limited to Special Inspection reports to the Engineer as evidence of compliance.

   e. A review of the safety activity hazard analysis to assure safety requirements are met.

   f. A check to ensure that the Engineer has accepted the portion of the plan for the Work to be performed.

   g. Review of Contractor's Quality Control inspection checklists. The checklists, based on the above requirements, shall be developed for the definable Work feature to control and document the Work quality. Each checklist shall be in a format

that field personnel can monitor, implement and document results. Each checklist is to include the, but is not limited to, work sequence, work location, inspection and test requirements as applicable, acceptance criteria (including allowable tolerances, pass/fail criteria and level of workmanship) as applicable, test equipment identification number and calibration date as applicable, date of test as applicable and inspection. The checklists are to also include inspection and test Hold Points and Witness Points as agreed upon or established by the Engineer and/or as required by approving agencies. Multiple checklists are required for each definable feature of work if Work occurs at multiple locations and/or on different days.

h. The Engineer shall be notified at least 3 Working Days in advance of beginning the preparatory control phase; 18 Working Days prior to the start of Work on each definable feature of Work. This phase shall include a meeting, jointly conducted by the CSI and Superintendent and attended by the Engineer, other Contractor's personnel (as applicable), and the supervisors, including foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CSI and attached to the CSI Daily Inspection Report. The Superintendent shall instruct applicable workers as to the acceptable level of workmanship required in order to meet Contract Specifications.

2. Initial Phase: The purpose of this Initial Phase, which is separate from the Preparatory Phase, is to prepare for work, refine the controls and close out open items from the Preparatory Phase. This phase shall include a meeting, jointly conducted by the CSI and Superintendent and attended by the Engineer, other personnel (as applicable), Contractor Safety Engineer and the supervisors, including foreman responsible for the definable feature. The Initial Phase meeting shall occur after the Preparatory Phase and a minimum of 2 Working Days, or as approved by the Engineer, prior to initiating the field activity for the particular definable feature of work. The following shall be accomplished:

   a. Review minutes of the preparatory meeting and ensure open items are properly closed out.

   b. The CSI shall update and finalize the Quality Control inspection checklists as required.

   c. Contractor's Safety Engineer shall verify that safety considerations are adequate or if it is determined that upgrading of the safety plan and activity hazard analysis, is required. The Safety Engineer shall review the activity analysis with each worker.

d. Separate minutes of this phase shall be prepared by the CSI Daily Inspection Report.

e. Exact location of items reconciled during the initial phase, such as acceptable architectural finishes or quality of craftsmanship, shall be indicated/documented for future reference and comparison with follow-up phases.

f. The initial phase shall be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met as determined by the CSI, Superintendent, or the Engineer.

3. Follow-up Phase: Daily quality control activities, including control inspection and testing, shall be performed to assure work complies with Contract requirements, until completion of the particular feature of work. All testing and inspections shall be made a matter of record in the CSI CQC documentation. Final follow-up inspection and testing shall be conducted and all non-conforming work is to be corrected as required by the CQP. The Contractor shall correct all Non-Conforming Work prior to the start of additional features of work that may be affected by the non-conforming work. The Contractor shall not build upon or conceal non-conforming work.

4. The Contractor shall refer to Article 1.10 herein for additional requirements.

5. All Contractor documentation, including minutes of the Preparatory and Initial Phases, checklists, and inspection and test report shall be organized, compiled, and archived by the relevant definable feature of work.

1.07 ADDITIONAL PREPARATORY AND INITIAL PHASES

A. Additional preparatory and initial phases shall be conducted on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in Special Inspection personnel, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if problems develop.

1.08 INSPECTIONS AND TESTS

A. The Contractor shall perform specified or required quality control activities including inspections and tests by qualified personnel to verify that control measures are adequate to provide a product, which conforms to Contract requirements. The Contractor shall perform the following activities and record and provide supporting documentation:

1. Verify that work processes and activities comply with documented instructions, codes, standards, and Contract requirements, and the QCP.

2. Document quality control inspection activities, testing activities, and test results.

3. Verify testing and measuring equipment are properly calibrated and maintained in accordance with nationally recognized standards, and are of proper range and type. The equipment shall have suitable markings to indicate calibration status including entity that performed the last calibration, date that calibration was performed, and date on which calibration is due.

4. Verify that recording forms including all of the test documentation requirements, have been prepared. Test reports, as applicable, shall include the type of test (e.g. construction tests, acceptance tests, and/or Special Inspection tests), date and location of the test, reason for the test (e.g., reference permit number, applicable codes and Specifications Sections and Articles(s)), duration of test, the test results, name and signature of person(s) conducting the test, all data and results obtained during the tests, analysis of the data, conclusions relating to the test pass/fail criteria outlined in the test procedure, sign-offs and certification by authorized staff, and identify follow-up and corrective actions that are required if re-testing is required.

5. Copies of each completed and signed-off test report, including related quality reports, shall be provided to the Engineer after approval by the CSI for the Engineer's acceptance within 5 Days after completion of each test and also shall be provided to the permitting agency as required by the permitting agency's permit.

6. Results of all tests, both passing and failing, shall be recorded on the CSI Daily Report for the date the test was conducted. Specifications Section and Article reference, location where tests were performed, and the sequential control number identifying the test shall be provided. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Engineer within 2 Days of completion of each test. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this Contract.

7. Certificates of Compliance where required.

B. Inspection and Testing include but are not limited to the following:

1. Quality Control Inspection: Quality Control Inspection and Testing of Construction is the responsibility of the Contractor and is conducted to confirm that demolition of facilities are in accordance with industry workmanship standards, industry codes and standards and as required by the Contract Documents.

C. The Contractor is required to hire different independent inspection and testing agencies/laboratories, approved by the Engineer, to cover all testing and

inspection work as required by the Contract and the governing jurisdictions. This may include, but is not limited to the following:

1. Independent Certified Testing Laboratory to perform testing such as soil classification, soil compaction tests, continuity tests, and in-situ testing.

2. Independent Certified Testing Laboratory to perform chemical analysis for items such as hazardous/non-hazardous soil classification.

3. Special Inspections (the Contractor may directly hire the Special Inspector(s) for Demolition Work) and testing services to be performed by a qualified Independent Certified Inspection and Testing Agency. These are Special Inspections as specified in the Contract Documents and as required by the governing jurisdiction, including the local building officials/codes, and are not to be confused with other types of inspections and testing. The Independent Inspection and Testing Agency shall investigate thoroughly the scope of all Special Inspections and testing required by the building codes prior to submitting bid. The following is a sample, incomplete list of items requiring Special Inspections and testing services:

   a. Demolition

4. Where there is a dispute between whether special testing or inspection is to be performed or any disputes on the frequency of testing, inspections, or on the timing and the manner by which these tests and inspections are to the performed, such disputes shall be resolved among the Engineer and the and Contractor's Project Manager within 2 Working days or else brought before the City's Permitting Agency (the agency issuing the Permit) immediately for resolution. The Permitting Agency's interpretation/ruling on the dispute shall be final.

5. NOTE: None of the Independent Inspection and Testing Agencies/Laboratories proposed and retained by the Contractor shall be associated with the Contractor or any of the Contractor's Subcontractors, i.e. associated by way of being a past or current affiliated company, subsidiary company, or partnering company of the Contractor or any of the Contractor's Subcontractors.

D. Where the required inspections and tests vary from the approved inspections and testing schedule, the Independent Inspection and Testing Agencies/Laboratories, in conjunction with the Contractor, shall provide a minimum of 5 Working Days advance notice to the Engineer prior to the date of the inspection and testing so that the Engineer may witness the inspections and the tests.

E. Within 5 Working Days after the completion of the inspections or tests performed, the Independent Inspection and Testing Agencies/Laboratories shall submit to the Engineer, 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. With respect to the Special/continuous inspections and tests of Section 1.10.C.4 herein, the Independent Inspection and Testing Agencies/Laboratories shall also submit directly to the Permitting Agency two copies, or as required, of inspection and test reports.

F. In addition, the Engineer may choose to verify the Contractor's testing and inspections with its own testing. The Contractor shall cooperate fully with the City's inspection and testing agencies/laboratories and shall furnish samples of materials, labor, equipment, tools, storage, and assistance as requested by the Engineer.

G. Re-testing or re-inspecting required (including re-inspecting by building officials) because of non-conformance to specified requirements shall be performed by the same independent agency/laboratory on instructions by the Engineer. All expenses related to re-testing and re-inspecting shall be borne solely by the Contractor.

H. Contractor is responsible to coordinate all required inspections, tests, including re-tests, by all independent inspection and testing laboratories/agencies so as to avoid unnecessary delays to the construction schedule.

I. The CSI is required to complete and issue a Contractor Non-Conformance Report (CNCR) for each occurrence of non-conforming work or material. The Engineer shall be furnished a copy of all CNCRs within 1 Working day upon initial generation and upon "closeout". Contractor Non-Conformance Reports (CNCR) with REPAIR or USE AS-IS dispositions require review and acceptance by the Engineer prior to the performance of repairs or subsequent incorporation of the non-conforming work into the Contract. Additionally, subsequent work may not progress on work that is the subject of a CNCR until conditions adverse to quality are corrected as documented by the CSI via the CNCR and accepted by the Engineer. CNCRs dispositioned as REJECT or REWORK, do not require the Engineer's approval. A copy of the updated CNCR Log shall be provided weekly to the Engineer or as otherwise approved by the Engineer. Copies of CNCRs are to be furnished to the Permitting Agency as required by the Permitting Agency.

1. The Contractor shall investigate the root cause of the non-conformance, and take appropriate corrective actions to prevent recurrence. Failure to properly identify and prevent recurrence may be cause for removal of Key Personnel, as determined by the Engineer, from the Contract. Responses with preventive measures form Suppliers, Subcontractors, and others shall be recorded on or attached to the CNCR.

2. Each CNCR shall be logged and validated by the Contractor's Project Manager. CNCRs determined to be invalid shall be marked "VOID", with an explanation and VOID status clearly indicated on the CNCR Log.

1.09 COMPLETION INSPECTION

A. Contractor's Preliminary Punch-Out Inspection: Near the end of the Work, or any increment of the Work established by a time stated in the Contract for Time Allowance for Completion of Work, the Contractor's Project Manager and CSI (as applicable) shall conduct an inspection of the Work. A preliminary Punch List of items that do not conform to the Contract shall be prepared and included with the quality records. The list of deficiencies or non-conforming items shall include the estimated date by which the items will be corrected. The Contractor's Project Manager and CSI (as applicable) shall make a second inspection to verify that these items have been corrected. Once this is accomplished, the Contractor's Project Manager shall notify the Engineer that the facility or final product is ready for the City Pre-Final Inspection.

B. City Pre-Final Inspection: The City will perform the Pre-Final Inspection to verify that the facility or final product is complete and ready for use, and as result, will develop a City Pre-Final Punch List that will be provided to the Contractor. The Contractor's Project Manager and SCI (as applicable) shall ensure that deficiencies or non-conforming items identified on this list have been corrected within the time slated for the completion of the Contract or any increment of work if the Contract is divided into increments by separate completion dates. Once this is accomplished, the Contractor shall notify the Engineer so that a Final Inspection with SFMTA Operations and Maintenance and other City Departments can be scheduled.

C. Final Acceptance Inspection: The Contractor's Project Manager and CSI (as applicable) and the Engineer shall be in attendance at the Final Acceptance Inspection. Additional City personnel including, but not limited to, those from SFMTA Operations and Maintenance or other City Departments may also be in attendance. The Engineer, based on the results of the City Pre-Final Inspection, will schedule the Final Acceptance Inspection. The Contractor's Project Manager shall give the Engineer an advance notice of 14 Days prior to the Final Acceptance Inspection and shall assure that all work is in compliance with the Contract by the date scheduled for the Final Acceptance Inspection. Failure of the Contractor to have all Contract work acceptably complete for this inspection will be cause for the City to bill the Contractor for the City's additional inspection cost in accordance with the General Provisions.

1.10 DOCUMENTATION

A. The Contractor shall maintain current quality records to provide factual evidence that all activities, including quality control activities such as inspections and tests have been performed, accepted, and comply with the Contract Documents and the CQP. These quality records shall include the work of the Contractor, Subcontractors, inspection services and testing laboratories, and shall be on an acceptable form.

B. Quality records shall include but are not limited to Certificates of Compliance, checklists, CQP, inspection reports, calibration test reports, CNCRs, personnel information (qualifications, certifications, resumes and approvals), minutes of the Preparatory Phase, Initial Phase, and Follow up Phase meetings, procedures, Submittals and RFI logs, Punch Lists, and training records.

C. Contractor Special Inspector (CSI) Daily Inspection Report shall include, as a minimum, the following information provided by the CSI:

1. Contractor/Subcontractor and their area of responsibility.

2. Description of the weather conditions encountered and the work performed each day, giving location, description, and by whom. Identify each phase of work performed each day by CPM schedule activity number or Work Breakdown Structure (WBS), as applicable.

3. Test, inspections and control activities performed with results and references to specifications/drawings requirements. List of deficiencies noted, along with the required corrective actions.

4. Documentation generated from the Preparatory Phase, Initial Phase, and Follow up Phase work.

5. Each Contractor Special Inspection (CSI) Daily Report shall clearly indicate that the work performed is acceptable or unacceptable. Unacceptable work that is considered by the CSI to be in-process, which will be brought into conformance with the Contract Documents; both within one (1) Working Day, or at a time deemed to be reasonable by the CSI and subject to approval of the Engineer, shall be clearly indicated on the CSI Daily Report as requiring follow-up acceptance inspection. Work that is found to be non-conforming, that can't be brought into conformance with the Contract Documents, shall be documented and processed via a Contractor Non Conformance Report (CNCR) with the Contractor's Non-Conformance Report number indicated on the CSI Daily Report.

6. CSI Daily Reports: completed Quality Control inspection checklists or forms and related laboratory test report results for work performed for the activities described within the Report shall be attached to the CSI Daily Report and shall be furnished daily to the Engineer within 24 hours after the date covered by the Report. Reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 Days of no work and on the last Day of a no work period. All Days shall be accounted for throughout the life of the Contract. The first report following a Day of no work shall be for that Day only.

7. Daily Inspection Reports shall be signed and dated by the CSI.

1.11 NOTIFICATION OF NON-COMPLIANCE

A. In the event, for whatever reason, that the Contractor refuses to generate a Contractor Non-Conformance Report, the Engineer may issue a Non-Compliance Notice to the Contractor for any detected non-compliance 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 Site, shall be deemed sufficient for the purpose of notification.

B. The Contractor's Project Manager and shall take immediate corrective action after receipt of such Notice. The Contractor shall provide a written Response to the Notice within 5 Working Days after receipt of the Notice. The Contractor's response shall (a) explain why the Contractor believes that the work was performed in accordance with the Contract Documents or (b) the Contractor shall generate a CNCR, provide the CNCR number to the Engineer, and process the CNCR.

C. If the Contractor disputes issuance of the Notice, the Engineer 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. Such determination from the Engineer shall be final and conclusive of the matter. If the Engineer directs the Contractor to correct the work, the Contractor shall do so within 5 Working Days after receipt of such direction from the Engineer, or such other time as may be agreed to with the Engineer.

D. If the Contractor fails or refuses to comply promptly, the Engineer may issue an order stopping all or part of the work until satisfactory corrective action has been taken to prevent installation of Non-Conforming Work. The Contractor shall make no part of the time lost due to such stop orders the subject of a claim for extension of time or for excess costs or damages.

1.12 CERTIFICATES OF COMPLIANCE

A. The Contractor's Project Manager is to furnish Certificates of Compliance, prior to the performance of the City's Pre-Final Inspection in accordance with Article 1.11B herein for all or part of the Work.

B. Identification Requirements: Certificates of Compliance shall include the following:

1. Contract title and Number
2. Name of Contractor and Subcontractor
3. Material or equipment represented
4. Source
5. Name of producer and brand
6. Applicable Specification Section and Article number
7. Location in work
8. Name, address, and telephone number of organization performing tests

9. Date of tests

10. Notarized signature of entity certifying compliance

C. Furnish six copies of Certificate of Compliance.

D. The Engineer may comment on or return to the Contractor Certificates of Compliance at its discretion.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

NOT USED

END OF SECTION

SECTION 01 45 13
BIDDERS QUALIFICATIONS

PART 1—GENERAL

1.01 DESCRIPTION

A. As required in the Instructions to Bidders, the Bidder shall demonstrate to the satisfaction of the SFMTA that the Bidder is qualified to perform the Work under this Contract 1277 and is otherwise responsible to perform the Work.. The information submitted by Contractor as required by this Section is for the purpose of initial determination of a Bidder's qualifications and responsibility; Contractor will be required to provide additional documents to establish responsibility, and will be required to prepare additional, separate detailed submittals as required under the Contract Documents for various elements of the Work.

B. To assist the SFMTA in the review of the Bidder's qualifications, the Bidder must provide the information described in this Section 01 45 13.

C. If the Bidder has been in business for less than the time period set forth in any item, the Bidder shall submit information about the firm for the time it has been in business. If the Bidder is a joint venture, the Bidder shall submit information about the expertise and qualifications of each member of the joint venture to perform the Work of this Contract 1277. If the Bidder is a joint venture, the Bidder shall describe any projects on which the joint venture has worked together in the past and the roles each member played in that/those past project(s).If the joint venture is recently formed and does not have a project work history, then each member of the joint venture must state the portions of the Work it would perform under the Contract, and must describe its expertise, experience and other responsibility factors that qualify it as part of the joint venture to perform that Work.

D. The SFMTA may require the Bidder to provide additional documents, references and other information necessary for the SFMTA to verify or clarify the information provided by the Bidder and to determine its whether it is qualified (responsible) to perform the Work.

E. For purposes of completing this Section, "similar in scope and complexity" shall mean projects having the following characteristics, in accordance with the Contract Document, Drawings and Specifications:

1. Building demolition
2. Compensation Grouting
3. Other Working Environments:
    a. Work adjacent to Existing Residences, Restaurants, Businesses, Merchants, and Institutions (library, public parks, schools, churches, hospital, and public facilities).

b. Work adjacent to and in Existing Facilities and Existing Operating Systems.

c. Minimizing Street and Lane Closures.

d. Work nearby trolley overhead contact systems.

1.02 RELATED SECTIONS

A Bidder must establish that it is qualified to perform the Work as described in the Contract Documents. Bidders' attention is directed to the following Sections that describe essential tasks, skills, and requirements to perform and complete the Work. This list is not comprehensive or exclusive, but is indicative of the expertise, experience, and skill necessary to perform the Work.

A. Section 01 11 00, Summary of Work

B. Section 01 45 00, Quality Control

C. Section 31 43 14, Compensation Grouting

1.03 PROPOSAL SUBMITTALS

A. Responses to the following items shall be submitted in a clear, comprehensive and concise manner. Submit one (1) unbound original and two (2) bound copies. The original and copies shall be indexed with tabs for each item; using recycled, white, 8-1/2"x11" paper where possible; and a minimum font size of ten points. The cover sheet shall include the Contract Title, Contract Number, Bidder's name, mailing address, contact person, email address, telephone, and fax number.

B. The Bidder shall demonstrate how, with its own forces, it shall perform, at the Site, Work equivalent to at least twenty percent (20%) of the Contract Price. The Bidder may demonstrate this by identifying the portions of the Work it intends to perform with its own forces and the estimated dollar amount and percentage to its overall bid amount of that Work.

C. If the Bidder is a joint venture, a copy of the joint venture agreement shall be included in the submission.

D. Project Experience and References:

1. Past Experience on Similar Projects: Using copies of the attached forms identify all construction contracts (whether completed or in progress) entered into or performed by the Bidder within the past fifteen (15) years for projects with elements of similar scope and complexity to the Work called for under this Contract. Explain how these projects were of similar scope and complexity. Provide the owners' names, the project name, the contract price, and the names and phone numbers of the owners or their representatives to contact to confirm the reference.

2. References will be asked to rate Bidder's performance on the following items: overall project performance; acceptable experience and

technical knowledge; effective coordination of subcontractors; ability to coordinate and work with utility companies and governmental entities; responsiveness to owner requests; attention to safety; quality and timeliness of submittals; basis for change order proposals; adherence to project schedule; accuracy of schedule updates; number and basis for delay claims; completion of applicable paperwork; quality of workmanship; and warranty service.

3. To the extent that the Bidder relies upon subcontractors for meeting specific qualifications listed above in "scope and complexity", furnish the information specified above for those subcontractors. In addition, confirm that the subcontractors will be committed to the Project for duration of the construction of those elements of the Work to which they will be assigned and for which the Bidder seeks to have them qualified.

E. Management Personnel:

1. By identifying individuals within this qualification section or in response to the SFMTA's questions, the Bidder is committing to making those individuals available and responsible for the tasks identified for the duration of the Project or the duration of the activity for which that individual has responsibility. Individuals will be reviewed and prior experience checked to ensure that the individuals identified are qualified and have adequate experience on projects similar in scope and complexity.

2. Identify Contractor's Designated Project Manager and Superintendents using copies of the attached forms as references for all projects with features similar in scope and complexity to the Work which were managed by these persons. For each referenced project, provide the project name, contract value, and owner's name, contact information and phone number, and describe the individual's responsibilities on that project.

3. The Contractor shall meet other personnel qualifications as required by other Sections.

F. Contract History:

1. State the projects and dates or periods in the past ten (10) years in which:

a. Bidder's contract was terminated for cause or default;

b. Bidder received a written notice of breach or default of contract and the reason for and resolution of such notice;

c. Bidder's performance or payment bond was called to perform the contract or pay subcontractors and/or suppliers;

d. Bidder's contract was terminated for owner’s convenience;

e. Bidder did not actively conduct business as a construction contractor (that is, not performed construction work);

f. Bidder declared bankruptcy, sought reorganization and/or been placed in receivership;

g. Bidder was not registered and licensed as a construction contractor;

h. Bidder was voluntarily or involuntarily debarred or otherwise been disqualified by any federal, state or local agency from being awarded and/or participating in contracts with any public agency;

i. Bidder was involved in a bond forfeiture (i.e., surety has been called to perform the contract), litigation, or major claim between the Bidder (or one or more of the Joint Venture partners) and the owner. Include a brief, concise and accurate explanation of the reasons, or basis for such forfeiture, litigation or major claim. For purposes of this item, "major claim" shall mean any dispute or claim which led to or resulted in (a) the issuance of unilateral change orders; (b) entering into some form of Alternate Dispute Resolution, such as mediation, Dispute Review Board, or arbitration; or (c) filing a complaint; (d) threatened litigation; or (e) litigation.

G. Financial Resources:

1. Submit proof of adequate financial resources that would be available to the Bidder to support its performance and completion of the Work hereunder.

H. Safety:

1. Provide a summary description of the corporate safety program that the Bidder has used in recent past projects and that Bidder would use for the Work under this Contract. If the Bidder is a joint venture, then describe the corporate safety program that the lead construction contractor or the sponsor (lead partner) of the joint venture (JV) will establish for the Work. Include a description of safety programs or procedures that would be applied to the Work.

2. The Bidder (and, if Bidder is a joint venture, the joint venture's partners) shall complete the Contractor Safety and Health Program Questionnaire attached to this Section. Bidder shall include safety statistics and records indicated, including categories of accidents and accident incidence or frequency rates. For firms that have worked in the USA, the following safety information and records shall be provided:

a. The Workers' Compensation Experience Modification Rating ("EMR") or Experience Modification Factor ("EMF") for the past three years (2009, 2010, and 2011). The EMF or EMR is the

workers' compensation insurance premium adjustment factor that has been calculated by California or the National Council on Compensation, Inc. or other similar advisory organization or rating bureau. The EMR or EMF is calculated by comparing a company's actual workers' compensation loss data against average loss data for other employers in the same state who share the same industry classification code.

b. The Days Away from Work injury incidence rate for the past three years. A Days Away from Work injury is an injury that prevents an employee from returning to his next regularly scheduled shift. The incidence rate shall be calculated in accordance with the formula provided.

c. The completed OSHA Form 300A "Summary of Work-Related Injuries and Illnesses" for the past three years including a list of any fines or citations issued and their cause for the past three years.

d. To be deemed responsible, a Bidder must establish that its Experience Modification Rate (EMR) for the years 2010, 2011, and 2012 is an average of 1.25 or less, and that its average total recordable injury/illness rate and average lost work rate for the most recent three-year period do not exceed the applicable statistical standards for its business category. If the Bidder is a joint venture that cannot establish a three-year average EMR, each member of the joint venture must establish that it's respective EMR does not exceed 1.25, and that each respective member's average total recordable injury/illness rate and average lost work rate for the most recent three-year period do not exceed the applicable statistical standards for their respective business category/ies.

e. For firms without substantial experience working in the United States, provide comparable safety performance statistics reported to applicable governmental agencies that will provide the SFMTA substantive information concerning the Bidder's work site and employee injury safety record, lost days per annum, injury incidence and severity rates sufficient in detail that the City may evaluate whether the Bidder's safety record is a functional equivalent to an EMR of 125 percent.

I. Project Schedule:

1. Provide a summary schedule in sufficient detail to demonstrate how the Bidder will meet Contract Milestones and will complete the Work within the Days stated in the Bidder's Proposal.

J. Additional Information:

1. At the SFMTA's request, provide any additional explanation or information, which would assist in evaluating the qualifications of the Bidder, the Bidder's Key Personnel and proposed Subcontractors.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

NOT USED

END OF SECTION

PAST EXPERIENCE ON SIMILAR PROJECTS

CONTRACTORS AND SUBCONTRACTORS

The following information as to the experience qualifications of the Bidder are to be submitted with the Proposal. The Bidder certifies that the information provided is complete, true and accurate. The Bidder may be required to submit additional information regarding the Bidder's past experience to the San Francisco Municipal Transportation Agency for the purpose of determining the Bidder's qualifications to perform the Work required under this Contract.

The information is pertained to (Name of Bidder)

_____

1. Name of Construction Contract:

   _____

2. Start Date:_____

3. Original Planned Completion Date:_____

4. Actual Completion Date:_____

5. Bid Price (US$): _____

6. Final Cost (US$):_____

7. Role in Contract (Circle one): General Contractor/Subcontractor

8. If Subcontractor is selected or a joint-venture (JV), identify the General Contractor/JV Partner:

   _____

9. Name of Owner(s): _____

10. Name/Title/Phone number of owner's representative or other individuals for reference:

    _____

11. Provide description of project, and explain its similar scope and complexity to the Work under this Contract:

    _____

    _____

    _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

(Use duplicate of this form for additional information)

EXPERIENCE OF MANAGEMENT PERSONNEL

The following information as to the experience qualifications of the Key Personnel are to be submitted with the Proposal, as part thereof, and the truthfulness and accuracy of the information are guaranteed by the Bidder. Additional information may be required to be furnished to the San Francisco Municipal Transportation Agency for the purpose of determining the Bidder's qualifications and responsibility to perform the Work under this Contract.

Name of Bidder:

_____

1. Name of Individual: _____
2. Assigned Position for this Contract:_____
3. Past Experience:
    a. Project Name:_____
    b. Owner/Client Name:_____
    c. Owner Contact Person and Title:

        _____
    d. Owner Contact Phone Number(s):_____
    e. Contract Value (US$):_____
    f. Project Features of Similar Scope and Complexity to the Work:

        _____

        _____

        _____

        _____

        _____
    g. Position Title:_____
    h. Dates of Service in this Role:_____

i. Duties and Responsibilities:

_____

_____

_____

_____

_____

_____

_____

_____

_____

(Use additional sheets as necessary)

CONTRACTOR SAFETY AND HEALTH PROGRAM QUESTIONNAIRE

Company Name: _____

Company Type (General Contractor, Mechanical, etc.): _____

Address: _____ Telephone No.: _____

_____

_____

A. RESOURCES

1. Name of company Safety and Health Contact: _____

   Title: _____

2. Is this a full-time position? ☐ Yes ☐ No

3. What percent of this person's time is spent on safety and health related matters? _____ %

4. What professional safety and health certifications does this person hold (e.g., CSP, PE, CIH)? _____

5. How many other full-time safety and health representatives are employed by your company? _____

6. Does your company have a written procedure to ensure that adequate safety and health program resources, such as budget, equipment, training, and manpower are **included in each project bid**? ☐ Yes ☐ No

B. SAFETY AND HEALTH PROGRAM ELEMENTS

1. Does your company have a written safety, health, and accident prevention program (SP)? ☐ Yes ☐ No

2. Does your company have a written procedure to ensure safety and health issues are preplanned into each project and work operation (e.g., job hazard analysis, checklists, etc.)? ☐ Yes ☐ No

3. Does your company have a written safety incentive program that will be implemented on this project? ☐ Yes ☐ No

4. Does your company have a written accident/incident investigation procedure? ☐ Yes ☐ No

   If yes, do your written procedures require near-miss incidents to be investigated? ☐ Yes ☐ No

5. Does your company have a written safety and health training program? ☐ Yes ☐ No

   If yes, does the program include the following?

   - New employee/project orientation. ☐ Yes ☐ No
   - Weekly "toolbox" meetings. ☐ Yes ☐ No
   - Daily job briefings. ☐ Yes ☐ No
   - Supervisor safety training. ☐ Yes ☐ No
   - Task specific training. ☐ Yes ☐ No
   - OSHA and Cal/OSHA required training. ☐ Yes ☐ No
   - Other _____ ☐ Yes ☐ No

6. Does your company have a written procedure to ensure that only employees who are qualified by training and experience are allowed to operate equipment, tools, machinery, and vehicles? ☐ Yes ☐ No

7. Does your company designate and train competent people as required by the applicable OSHA and Cal/OSHA standards (e.g., excavations, scaffold, erection, etc.)? ☐ Yes ☐ No

8. Does your company have a written procedure to audit projects to ensure all projects are in compliance with applicable laws, requirements, etc.? ☐ Yes ☐ No

9. Does your company have a written procedure to screen subcontractors based on their past safety performance ☐ Yes ☐ No

10. Does your company use a screening process to ensure employees are physically able to perform work as assigned? ☐ Yes ☐ No

---

C. DRUG FREE WORKPLACE PROGRAM

1. Does your company have a written drug free workplace program that includes drug testing? ☐ Yes ☐ No

2. If the answer to Question 1 is yes, does your written drug free workplace program include the following?

   - Pre-employment drug and alcohol testing. ☐ Yes ☐ No
   - Post accident drug and alcohol testing. ☐ Yes ☐ No
   - For cause drug and alcohol testing. ☐ Yes ☐ No
   - Random drug and alcohol testing. ☐ Yes ☐ No

Supervisor and employee training. ☐ Yes ☐ No

D. REGULATORY CITATIONS

1. Has your company received any **Federal or State Plan** OSHA fines or citations within the last 3 years? ☐ Yes ☐ No

2. If the answer to question 1 is yes, how many of each of the following types of citations have you received?

Willful	_____
Imminent danger	_____
Serious	_____
Nonserious	_____
De minimus	_____

Give a brief description of the nature of the citation(s), or attach a copy of the citation(s).

_____

_____

E. ACCIDENT AND ILLNESS STATISTICS

		2012 Year	2011 Year	2010 Year
1.	How many man-hours has your company worked in each of the last 3 years?			
2.	How many OSHA recordable injuries did your company experience in each of the last 3 years?			
3.	Based on the below listed formula (a), what are your incident rates for each of the last 3 years?			
4.	How many lost time accidents has your company experienced in each of the last 3 years?			
5.	Based on the below listed formula (b), what is your lost workday case rate for each of the last 3 years?			
6.	How many fatalities has your company experienced in each of the last 3 years?			
7.	Submit a copy of your OSHA 300A logs for the last 3 years with your completed questionnaire.			

(a) $\frac{\text{Number of injuries and illnesses x 200,000}}{\text{Man-hours worked}}$

(b) $\frac{\text{Number of lost time injuries and illnesses x 200,000}}{\text{Man-hours worked}}$

F. WORKERS' COMPENSATION EXPERIENCE MODIFICATION RATE

		2012 Year	2011 Year	2010 Year
1.	List your company's Workers' Compensation Experience Modification Rate for each of the last 3 years	_____	_____	_____
2.	Submit, on your insurance company letterhead, your Workers' Compensation Experience Modification Rate for each of the last 3 years with your completed questionnaire.	_____	_____	_____

SECTION 01 56 10
TEMPORARY SITE CONSTRUCTION

PART 1—GENERAL

1.01 DESCRIPTION

A. This Section specifies requirements for temporary construction.

B. The Contractor shall provide all temporary construction required in the execution of the Work that is not to be part of the completed facilities to be provided under this Contract.

C. Temporary construction shall include equipment and staging, hoists, barricades, temporary utilities, power and services, sanitary facilities, security, and similar facilities and controls as required to perform the Work and to safeguard personnel, property, and the public.

D. Install, maintain, and remove temporary construction.

E. Work required under this Section is Incidental Work.

1.02 RELATED SECTIONS

A. Section 01 11 00 Summary of Work

B. Section 01 31 13 Project Coordination

C. Section 01 35 00 Hazardous Materials Procedure

D. Section 01 57 13 Stormwater and Erosion Controls

E. Section 01 57 19 Environmental Mitigation Procedures

F. Section 01 76 29 Protection of Existing Property

1.03 SUBMITTALS

A. Bridges and decking: Installation details; material specifications; connection and fastening details. Structural calculations for bridges or decks with more than 3-foot span.

B. Metal Plating: Installation and seating details.

C. Timber panel and timber planking assemblies: installation plan, material specifications, and connection and fastening details.

D. Product Data and Manufacturer's Instructions: For non-skid and rust-inhibitive coating, tape and reflective overlay markers.

E. Temporary traffic signals: manufacturer's product, installation details, and locations.

F. Drawings, plans, calculations and all other information required for providing temporary power for the Work.

G. Material Safety Data Sheets (MSDS).

H. Evidence of compliance with third-party requirements.

I. Certifications required under this Section.

J. Site: Scaled general arrangement drawings identifying the locations and distribution of temporary construction, and annotated to indicate capacities, intended use, and other information required by the Engineer. Where staging is performed, provide separate arrangement drawings indicating the locations and distribution of temporary construction relative to staging sequences.

K. Integrate the requirements specified or indicated elsewhere in the Contract with the requirements specified with Section 01 56 10. Identify the time that temporary construction is required in the Project schedule.

1.04 MATERIALS

A. Materials for temporary construction may be new or used, but shall be in good condition and adequate for the required usage, shall not create unsafe conditions, and shall not violate requirements of applicable Codes and standards.

B. Tape for temporary pavement delineation.

C. Temporary Paving: For asphalt surfaces, temporary paving shall be Asphalt Concrete in accordance with the DPW Standard Specifications. For other surfaces, 1500 psi concrete shall be used.

D. Non-Skid Coating: Metal plating and metal bridging or decking shall be coated with non-skid and rust-inhibitive product, and shall be Integrated 750 HS (formerly 7300 magna-Prime) Amido-Amine Epoxy, manufactured by Courtauds Coatings, or equivalent product. This material shall be applied after sand or bead-blasting the steel plates. Plating shall be installed and maintained in such a manner as to provide a non-skid surface with no edges or corners sticking up, and with no bouncing or shifting. Edges shall be feathered with temporary paving.

1.05 TEMPORARY CONTROLS

A. Cleaning During Construction: Perform the Work in a manner that minimizes the generation and accumulation of dust, dirt, rubbish, and other debris; prevent dust and debris from interfering with the progress of the Work; keep dust and debris from accumulating in areas adjacent to the Site and the Work Area. Maintain work areas in a clean and orderly condition and comply with all requirements of Section 01 57 19, Environmental Mitigation Measures. Remove debris and rubbish from work areas daily.

B. Graffiti Control: Maintain the Site, equipment, structures, barriers and fences free of graffiti. Remove all graffiti daily, using methods that cause no damage to the Work or existing facilities.

C. Water Control: Provide water barriers to control water or other liquids, and should conditions develop, control and suitably dispose of such liquids by means of temporary pumps, troughs, drainage lines, or other methods. Comply

with all requirements of Section 01 57 13 Stormwater and Erosion Controls and the Caltrans Statewide NPDES Stormwater Permit, Order No 99-06-DWQ, NPDES No CAS000003, adopted by the State Water Resources Control Board on July 15, 1999 and Caltrans Statewide Stormwater Management Plan (SWMP). Copies of this permit and SWMP are available from the Department of Transportation, Materials Operations Branch, Publication Distribution Unit, 1900 Royal Oaks Drive, Sacramento, CA, 98518.

D. Sewerage Control: Take adequate measures to prevent the impairment of the operation of the sewerage system. Prevent construction material, pavement, concrete, soil, or other debris from entering sewers, catch basins, or storm water inlets. Comply with the requirements of the Public Works Code, the Industrial Waste Ordinance #19-92 and DPW Order No. 158170, for discharge into the sewerage system.

E. Noise Control: Conform to general construction noise control requirements of the San Francisco Noise Control Ordinance, Police Code Section 2908 and all permit requirements as specified in Section 01 57 19, Environmental Mitigation Measures.

F. Vector Control: 60 days prior to construction, Contractor shall submit a vector control plan and site-specific mitigations to be mitigated in conformance to the requirements of the San Francisco Department of Public Health Vector Control Program and requirements described below:

1. The vector control plan shall include, but not be limited to;

    a. Integrated pest management plan.

    b. Incident Investigation protocols.

    c. Performance Monitoring and Intervention.

    d. Copies of Material Safety Data sheets (MSDSs) and catalogue cuts.

    e. Procedures for the placing, and the removal and disposal of carcasses and waste.

    f. Methods and procedures to be used for identifying sites of pest harborage and access.

    g. Monitoring and inspection schedules.

2. When a vector problem is identified, the Contractor shall use physical controls as a primary defense including, but not limited to, baits and traps, building sealing strategies, improved maintenance of damp or wet areas, improved sanitation, food storage, and improved biodegradable waste management strategies. The Contractor shall:

    a. Obtain a licensed Pesticide Control Officer to monitor and implement vector control plan and strategies.

b. Develop a vector control plan to cover a 1000 foot wide area.

c. Notify the Engineer prior to the use of pesticides or toxic chemicals in vector control implementation so it may inform affected building owners, institutions or residents of this activity.

d. Use rodent-proof dumpsters, compactors and trash cans.

e. Line all refuse bins with plastic bags and have tight locking covers.

f. Ensure that temporary (metal) decking over cut-and-cover excavations in the street is secured to prevent harborage of rodents.

g. Seal runway access ports to eliminate pathways used by rodents.

h. Take steps to eliminate harborage including, but not limited to, routine removal of debris construction materials, and trash; well-organized storage and warehousing of construction materials; removal of potential nesting materials; and removal of unused vehicles and equipment.

i. Apply rodent-proofing treatments to utility entrances, pipes, foundations, vents, exhaust fans, utility chases and other pathways used by rodents.

j. Store all food in animal-proof rooms, containers or cabinets. All food items must be covered.

k. Reduce or eliminate rodent populations by using rodenticides or mechanical control devices (traps, glue boards). The bait formulation shall be appropriate to the conditions and circumstances of the observed infestations.

l. Treat all visible rodent burrows with "Vengeance Rodenticide" as manufactured by Roussel Uclaf's, "Ditrac" or "Contrac" as manufactured by Bell Laboratories, or approved equal as per label instructions, not more than seven (7) days before excavating that particular area, and applied as per manufacturer's directions.

G. Maintain public safety.

1.06 PARKING

A. Submit arrangements for temporary parking areas to accommodate construction personnel to the Engineer for approval. Comply with the requirements for storage and parking plans as specified in Section 01 11 00, Summary of Work. When on-site space is not adequate, provide additional off-site space for storage and parking.

B. Employees of the Contractor, Subcontractors, and Suppliers shall not park their vehicles at the Site. Contractor shall provide parking for its employees

off-site, in a location that will not impact availability of local public parking, and transport employees between the parking area and the Site.

C. Vehicle Towing: When a vehicle is removed (towed) from a street at the request of the Contractor and a post-storage hearing determines that as a result of the Contractor's improper posting of required signs, reasonable grounds did not exist for removal, Contractor shall reimburse the City for costs incurred in vehicle storage, towing, and fees, as well as any additional administrative or legal costs.

1.07 TEMPORARY PAVING

A. Public vehicular or pedestrian traffic over unpaved, unbridged, and undecked areas shall not be permitted. The Contractor shall construct, before use by public vehicular or pedestrian traffic, and thereafter satisfactorily maintain, a smooth, regular, temporary wearing surface, not less than 3 inches. Temporary paving shall be placed on subgrade and compacted to 95 percent relative density.

B. In the event that Work is started but will be delayed for 36 hours or more, that portion of the sidewalk or street shall be totally cleaned up and restored with temporary paving.

C. The edges of castings pavement base, plates, bridges, and existing and new pavement shall be feathered with temporary paving wedges (1:18 maximum slope). Abrupt surface changes shall comply with applicable Codes and references. Renew temporary paving when worn.

D. Where cross traffic is allowed over concrete base at an angle (i.e. at street intersections), the entire width shall be feathered with temporary paving wedges (1:18 maximum slope). Renew temporary paving when worn.

E. The requirements of DPW Standard Specification Section 212.06 shall apply to this Work.

1.08 BRIDGES, DECKING AND PLATING

A. Bridges, decking and plating shall be installed over trenches, excavations, and other obstructions in public streets and sidewalks to provide required traffic lanes and crosswalks and entrances to residential, commercial, or industrial access. Plate, bridge, or deck every unpaved opening accessible to pedestrians or vehicles.

Bridges and decking shall be:

1. Installed and maintained in such a manner as to provide a non-skid surface with no edges or corners sticking up, and with no bouncing or shifting. Deflection shall be less than one-three hundredths of the distance between supports.

2. Installed flush with the roadway, crosswalk, or sidewalk. Flush is defined as not more than 3/8 inch above or below the surface of the existing pavement.

3. Secured in place against displacement by using adjustable cleats, angles, or other devices.

4. Coated with non-skid and rust-inhibitive product.

5. At least 24 inches wider than the total minimum width of the traffic lanes accommodated on the bridge or deck.

6. Constructed with wheel guards and railings.

7. Kept clean from dust and debris as required in Section 01 57 19 Environmental Mitigation Measures.

B. For vehicle traffic, bridges, decks and plating shall be adequate to support AASHTO HS 20-44 loading, and shall be sufficiently rigid and supported such that they will not visibly deflect or be heard when driven over by trucks or coaches.

C. For pedestrian traffic, bridges, decks, barriers and plating shall be designed, built and maintained to isolate and protect the public and to provide safe, convenient temporary walkways around the Site and other work areas.

1. Barriers shall be constructed or installed between temporary walkways and adjacent roadways to protect pedestrians from traffic and reduce the risk of tripping or falling.

2. Acceptable barriers include wooden railings, plastic or Caltrans Type K-Rail barriers, or similar to suit the condition. Barriers shall be tall enough to extend at least three (3) feet above temporary walkways.

3. Pedestrian bridges and decking shall be wide enough to comfortably allow for two-way pedestrian traffic.

4. Temporary covered pedestrian walkways shall be provided at all locations of construction with aerial equipment, lifting, drilling, pile driving and similar activity to protect the public from noise, dust, debris and visual impacts during construction.

D. Mark each metal plate, bridge, or deck assembly of more than three plates or assemblies with its identification/location number.

E. Metal plates:

1. Minimum thickness shall be 1/4 inch.

2. Maximum span of metal plates shall be 4’-0”.

F. Timber planking: Minimum thickness shall be 3 inches.

G. Plates shall be installed on noise-dampening bearing pads.

1.09 TEMPORARY TRAFFIC AND PEDESTRIAN SIGNALS, STREETLIGHTS AND OVERHEAD CONTACT SYSTEM (OCS)

A. The Contractor shall furnish, install, and maintain temporary signals, streetlights, overhead contact system (OCS) and poles, as provided in the

Contract Documents and directed by the Engineer. The Contractor shall remove the temporary signals, streetlights, OCS and poles when no longer required, as directed by the Engineer.

1. Provide a temporary streetlight/traffic signal/OCS components in each location where an existing streetlight/traffic signal/OCS component is removed and the new streetlight/traffic signal/OCS component that will replace it is not yet operational.

2. All wiring from the junction box to the pole and on the surface of the pole shall be installed in rigid conduit. Exposed wiring and conduit on the ground are prohibited. Simultaneous operation of low and high voltage circuits in the same conduit shall not be permitted.

3. For locations where the proposed temporary cable/conduit may present a hazardous condition to pedestrians or vehicular traffic, as determined by the Engineer, the Contractor shall install the cable/conduit underground with a minimum cover of least 6 inches, and shall provide a satisfactory traveled way above the cable/conduit.

B. Traffic Signals:

1. Shall be visible at all times to motorists approaching the intersection and to pedestrians using crosswalks.

   a. For traffic signal or pedestrian signal that will be relocated, reinstalled or replaced, or are blocked or not in line with their respective crosswalks, the Contractor shall furnish, install, and maintain a temporary signal and mast arms for the periods when the permanent signal is out of operation or blocked or not in line with its respective crosswalk.

2. Traffic signals shall be kept in continuous operation. The Contractor shall furnish, at its own cost, two acceptable uniformed traffic control officers at each intersection when a signal is not in operation.

3. Temporary signals replacing signals on mast arms shall be installed on mast arms of equivalent lengths.

1.10 BARRICADES AND ACCESSIBLE PATH OF TRAVEL (PUBLIC THOROUGHFARE)

A. The Contractor shall maintain at least one accessible path of travel around the Site for persons with disabilities that comply with the requirements of the State of California Title 24, Part 2, Accessibility Standards and the American with Disabilities Act Accessibility Guidelines (ADAAG). The Contractor shall furnish, erect, and maintain signs, barricades, lighting, fencing, bridging, and flaggers as required by DPW Order No. 167,840.

B. The Contractor's construction operations shall not occupy public sidewalks except where pedestrian protection is provided, following the requirements

herein. The Contractor shall not place materials or equipment in the pedestrian path-of-travel.

C. The Contractor shall provide barricades and temporary curb ramps (max. 1:12 slope) at all closed crosswalks and curb ramps. Changes of level in a path-of-travel that are over 1/4 inch in height, but not exceeding 1/2 inch, shall be beveled at a 45-degree angle or less to provide a smooth, non-tripping transition.

D. The Contractor shall provide temporary fencing, barricades, or other barriers with solid and continuous bottom rails of high contrast at their bases to direct visually impaired pedestrians to and through temporary paths-of-travel through the construction area and to protect them from obstacles and hazards.

1.11 FENCING

A. The Contractor shall take all necessary precautions to isolate and protect the public from hazardous conditions. Contractor shall at a minimum install and maintain protective temporary 6-foot high chain link fencing around the Site during construction, as follows:

1. Provide 1 ¼" min. dia. galvanized steel chain link fencing poles founded on concrete footings and set at a maximum 10'-0" on center. Install fencing poles perpendicular to street grade. Provide standard, typical brace rail and truss rods with turnbuckle.

2. Provide chain link fencing around perimeter of construction site equipped with dust control felt fabric and slats.

3. Provide temporary barricade with fencing for street closures and where indicated on the Drawings. Temporary barricade shall be Caltrans Type K-Rail with 3'-0" high typical chain link fencing with dust control felt fabric.

4. Provide sound wall along construction site as indicated on Drawings and as required in accordance with 01 57 19 – Environmental Mitigation Measures.

5. Fence Gates: Provide min. 3'-0" wide swing gates for personnel access with gate locking mechanism for padlocking. Provide min. 6'-0" wide double swing gates for construction equipment, debris removal and material delivery access. Double gate shall be furnished with plunger rod and locking device to secure the Site.

B. Provide additional barricades and fencing as needed to prevent unsafe entry to the Site and other areas where Work is performed and to protect existing facilities and adjacent properties from damage from construction operations. Barricades and fencing shall include provisions to protect the public, traffic, and adjacent structures from mud, grout spillage and other waste products generated by the Work.

C. Fences at the excavation sites, and staging areas shall be provided with screening to minimize visual impact to the public.

D. Damaged fences shall be repaired or replaced within 24 hours. If damage to fences threatens the safety of the public or allows public access to the Site or other Work area, fences shall be replaced or repaired, or temporary fencing installed, as soon as possible.

E. The Contractor shall provide metal barricades 4 feet high around openings (holes) that are less than 3 feet deep. Barricades composed of metal frame are tripping hazard. Standard Type I, II, or III barricades will not be acceptable where they create a tripping hazard.

F. Holes deeper than 3 feet shall be plated.

1.12 SIGNS

A. Temporarily relocate all traffic control, street name, and other City signs as required for the performance of the Work and to prevent interference with traffic regulation. Such signs shall be satisfactorily maintained in place at all times. The Contractor shall similarly relocate or remove and salvage as City property, the standards in their entirety, and shall remove concrete there from.

B. The temporary relocation of each arterial "STOP" or other traffic regulatory signs shall be done immediately after their removal to a location as close as possible to the original location of such sign, as directed by the Engineer.

C. At the completion of the Work, the Contractor shall furnish new signs and standards to replace those removed.

D. Construction information signs shall be 48 inches by 45 inches or larger, installed on wooden posts at least 3 feet above sidewalk, placed as directed by the Engineer. At least 3 signs shall be in place at all times. Message and design will be determined by the SFMTA.

1.13 REMOVAL

A. Completely remove temporary materials and equipment when their use is no longer required.

B. Clean and repair damage caused temporary installations or temporary use of facilities.

C. Restore permanent facilities used temporarily to "like new" condition, unless otherwise specified.

1.14 TEMPORARY ELECTRICITY

A. Electrical Power:

1. The Contractor shall arrange with PG&E to provide electrical power required for its operations under the Contract and shall provide and maintain temporary power lines required to perform the Work in a safe and satisfactory manner.

a. All temporary electrical work must comply with the San Francisco Electrical Code and other applicable Codes and utility requirements. Site inspections of temporary electrical installation by San Francisco Department of Building Inspection electrical inspectors shall be arranged through the Engineer.

2. Contractor shall comply with all interconnection requirements provided by PG&E. For reference the Contractor is directed to the following documents:

a. *PG&E Technical Requirements for Electrical Service Interconnection at Primary Distribution Voltages, dated 11/23/2004.*

b. *PG&E Testing and Battery Requirements.*

c. *PG&E Electric & Gas Service Requirements-PG&E Green Book July 2012 or latest edition and at the following website: www.pge.com/greenbook*

B. Temporary Power Distribution:

1. The Contractor shall provide a weatherproof, grounded, temporary power distribution system sufficient for performance of the Work, including temporary electrical heating where indicated, energizing of space heaters or temporary heat source for moisture protection of stored equipment, operation of test equipment, operation of other temporary facilities, including permanent equipment and systems which must be placed in operation prior to use of permanent power connections, and power for temporary operation of existing facilities as needed at the Site during change-over to new permanent power system.

2. Contractor shall provide circuits of adequate size and proper power characteristics for each use; run circuit wiring generally overhead, and rise vertically in locations where it will be least exposed to possible damage from construction operations and will result in minimal interference with performance of the Work.

3. At certain times during construction, the Contractor may be required to provide portable generator(s) for construction purposes. It shall be the responsibility of the Contractor to comply with Bay Area Air Quality Management District (BAAQMD) regulations for the region in which the Work is located, applicable to the operation of such generators. If the Contractor should exceed BAAQMD limits for the maximum amount of run time for such generators, Contractor shall be liable for any fines imposed.

C. Emergency generator sets that will provide temporary service in case of an interruption of power from the PG&E primary service shall make connections after breaking service from the primary service so that paralleling of the generator set will not occur.

1.15 TEMPORARY LIGHTING

A. Construction Lighting: Work conducted at night or under conditions of deficient daylight shall be suitably lighted to insure proper performance of the Work, to afford adequate facilities for inspection and safe working conditions. Lighting shall be shielded or directed to ensure safe illuminated working areas, and to minimize nuisance to surrounding property owners and the public. Shaded night lights shall be used to minimize glare.

1.16 TEMPORARY WATER SERVICE

A. General: Provide an adequate supply of water of a quality suitable for all domestic and construction purposes.

B. Potable Water: Make all arrangements for the supply of potable water for the Work.

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. Provide and maintain distribution piping, water tankers, hoses, and all appurtenances necessary to supply water at the 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.

1.17 FIRE PROTECTION

A. Contractor shall install and maintain at the Site, a temporary fire suppression system connected to the temporary water supply, for as long and whenever Work is performed at the Site. Hose connections and hose, water casks, chemical equipment, or other sufficient means shall be provided for fighting fires at work areas, and responsible persons shall be designated and instructed in the operation of such fire apparatus to prevent or minimize the hazards of and damage to the Work from fire. The Contractor's fire protection program and facilities shall conform to the requirements of Cal-OSHA and the State Fire Marshall.

1.18 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 Cal/OSHA requirements.

B. Establish a regular schedule of 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 applicable Codes.

1.19 CONTRACTOR'S STAGING/STORAGE AREAS

A. The Contractor's staging/storage areas shall be as shown in the Contract Documents or as submitted by Contractor and approved by the Engineer. If no such area is shown or provided, then the Contractor shall make its own arrangements with adjacent property owners for staging/storage areas. 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. All activities associated with hazardous materials shall comply with Section 01 35 00, Hazardous Materials Procedures.

1. Hazardous materials shall be stored in groupings according to the Material Safety Data Sheets.
2. The Contractor shall obtain and submit to the Engineer a single EPA number for wastes generated at the Site.
3. The separate storage area shall meet the requirements of all applicable Codes and authorities having jurisdiction over the storage of hazardous materials.
4. The Engineer will make arrangements for inspection of the separate storage by appropriate regulatory authorities prior to construction of the storage area, upon completion of construction of the storage area, and upon cleanup and removal of the storage area.
5. 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 all applicable Codes and authorities having jurisdiction.
6. Contractor shall not park any mobile fueling vehicles or equipment below the underside of any highway improvements.
7. The bulk storage of gasoline or petroleum products shall not be permitted on-site. Portable generators and any other stationary diesel or gasoline powered equipment shall not be located below the underside of any highway improvements.

D. Fences at staging areas shall be provided with screening to minimize visual impact to the public.

1.20 MAINTENANCE DURING CONSTRUCTION AND REMOVAL

A. Maintain during construction and remove materials and equipment when their use is no longer required.

B. Clean and repair damage caused by temporary installations or temporary use of facilities.

C. Restore permanent facilities used temporarily to “like new” condition, unless otherwise specified.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

NOT USED

END OF SECTION

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SECTION 01 57 13

STORMWATER AND EROSION CONTROLS

PART 1 – GENERAL

1.01 DESCRIPTION

A. This Section specifies the general requirements for furnishing all labor, materials, equipment, and operations necessary for work related to storm water and erosion and sediment controls.

B. In accordance with Federal, State, and local regulations, it is unlawful to discharge pollutants from construction sites into the City's combined sewer system. Best Management Practices (BMPs) must be implemented at the Sites to minimize the discharge of pollutants into the combined sewer system. In addition, the Contractor must develop an Erosion and Sediment Control Plan (ESCP).

C. All work in this Section is Incidental Work to the completion of the Work in which it pertains, unless otherwise stated.

1.02 RELATED SECTIONS

A. Section 01 41 00, Regulatory Requirements

B. Section 01 57 19, Environmental Mitigation Measures

1.03 SUBMITTALS

A. Pursuant to the provisions of Section 01 33 00, Submittal Procedures, the Contractor shall submit an Erosion and Sediment Control Plan (ESCP) (including Best Management Practices, and Erosion and Sediment Control Measures) per this Section.

B. The Contractor shall submit the ESCP to the Engineer for approval no later than (30) thirty Days after the Notice to Proceed and before any commencement of earthwork activities. The Contractor shall not proceed with any excavation until the ESCP is approved by the San Francisco Public Utilities.

Commission, Wastewater Enterprise Collection System Division (WECSD) shall also approve the ESCP. The ESCP shall remain in effect for life of the Contract regardless of the year and season. A copy of this ESCP must be at the Site at all times.

C. On approval of the above plan the Contractor shall provide six (6) copies and two (2) copies on a Compact Disc (CD) with a case, in the Microsoft Word format.

D. The Sediment and Erosion Control Daily Log.

1.04 GENERAL REQUIREMENTS

A. The Contractor must prepare and submit the Erosion and Sediment Control Plan (ESCP) to the Engineer, and the City's Public Utilities Commission Wastewater Enterprise Collection System Division (WECSD) for review and approval. Two types of drainage systems are within or nearby the project boundaries; the storm drain system that discharges in to the Bay, and the catch basin system that discharges in to the City's sewerage system. The ESCP should depict both systems in its drawings, and indicate the BMP's that will be installed for the protection of both systems. The Contractor is not permitted to discharge in to the storm drain system that discharges directly to the Bay, and shall include BMP preventive measures to protect them in its ESCP.

B. Best Management Practices (BMPs): The Contractor shall follow and include in its ESCP measures recommended BMP's by the California Stormwater Quality Association (CASQA) for erosion control, temporary sediment control, wind erosion control, and tracking of discharge at: http://www.cabmphandbooks.com/Documents/Construction/Construction.pdf

C. The Contractor shall implement Best Management Practices (BMPs) at the location of bio-filtration and pervious paving construction areas to eliminate the discharge of sediment and pollutants into the infiltration area or onto the infiltration surfaces. Suitable erosion and sedimentation control measures include, but are not limited to waterboards, sedimentation barriers, weirs, sandbags and berms. The Erosion and Sediment Control Plan should also be prepared in accordance with the requirements of the State's Construction Stormwater General Permit.

D. No water quality monitoring of storm water runoff will be required.

E. The Contractor does not have to file a Notice of Intent (NOI) with the State.

F. Water Control:

1. The Contractor is responsible for the continuous control of surface and ground water at all times during the course of the construction, including Saturdays, Sundays, holidays, work stoppages, during periods of labor strikes, and during periods of work stoppages.

2. The Contractor is wholly responsible for obtaining the sewer discharge permit in a timely manner if required. The City will not honor any claims from the Contractor arising from delays in obtaining the sewer discharge permit.

G. Discharges to the sewer system shall meet the requirements of the following:

1. Industrial Waste Ordinance No. 116-97 (Chapter X (Public Works Code), Part II, San Francisco Municipal Code, Article 4.1).

2. DPW Order No. 158170 for wastewater discharges into the City's sewerage system.

3. Requirements for Batch Wastewater Discharges - the San Francisco Public Utilities Commission Waste Water Enterprise, Collection System Division (PUC/SFPUC- WECSD).

4. The Construction De-watering Site Discharge Limits of the Southeast Water Pollution Control Plant (SEWPCP) per Section 31-23-20 Dewatering Controls.

H. The Contractor is advised that both the SFPUC- WECSD and (Water Pollution Control Division) WPCD have the authority to order Contractor to cease immediately discharge(s) to the sewer system. The Contractor is solely responsible for all costs associated with ceasing discharges, and any and all costs for delay in operations.

I. Should the existing wastewater be uncontaminated, and subsequently become contaminated due to the Contractor's operations, all costs related to satisfactory cleanup and disposal shall be the responsibility of the Contractor. Such costs shall include re-design, re-construction, pretreatment, and sewer service permit and usage fee costs necessary to satisfy the above requirements.

1.05 STORM WATER POLLUTION PREVENTION MINIMUM BEST MANAGEMENT PRACTICES (BMPs) REQUIREMENTS

A. Management of Construction Materials

1. Cover and berm loose stockpiled construction materials that are not actively being used. Locate stockpiles a minimum 50 yards away from concentrated flows of storm water, drainage courses and inlets. All stockpiles should be completely covered and secured.

2. Stockpiles should be protected with a temporary linear sediment barrier berm prior to the onset of precipitation. During the rainy season, all stockpiles shall be protected from stormwater runoff by completely covering them and keeping the perimeter barriers around at all times.

3. Store chemicals in watertight containers (with appropriate secondary containment to prevent any spillage or leakage) or in a storage shed (completely enclosed).

4. Minimize exposure of construction materials to precipitation. This does not include Materials and equipment that are designed to be outdoors and exposed to environmental conditions (i.e. poles, equipment pads, cabinets, conductors, insulators, bricks and other exterior Materials).

5. Implement BMPs to prevent the off-site tracking of loose construction and landscape materials.

6. The Contractor shall provide continuous misting of water using hoses on the Project Work areas, and on roads and other areas immediately adjacent to the project limits, wherever traffic or buildings that are occupied or in use, are affected by such dust caused by hauling or

other operations. The Materials and methods used for water laying shall be subject to the approval of the Engineer.

7. Provide for prompt and daily removal of all dirt and other materials that have been spilled, washed, tracked, or otherwise deposited on existing roadways by the Contractor's hauling and other operations.

B. Waste Management BMPs

1. Prevent disposal of any rinse or wash waters or materials on impervious or pervious site surfaces or into the combined sewer system.

2. Ensure the containment of sanitation facilities (e.g., portable toilets) to prevent discharges of pollutants to the combined sewer system. Licensed waste material handlers must service portable sanitary facilities and trash dumpsters regularly.

3. Clean or replace sanitation facilities and inspect regularly for leaks and spills.

4. Cover waste disposal containers at the end of every business day and during a precipitation event.

5. Prevent discharges from waste disposal containers to the combined sewer system.

6. Contain and securely protect stockpiled waste material from wind and rain at all times unless actively being used.

7. Implement procedures that effectively address hazardous and non-hazardous spills.

8. Utilize spill response procedures that include providing equipment and materials for immediate cleanup of spills and leaks on site and proper disposal, and assigning and training appropriate spill response personnel.

9. Ensure the containment of concrete washout areas and other washout areas that may contain additional pollutants so there is no discharge into the underlying soil and onto the surrounding areas.

C. Vehicle Storage and Maintenance BMPs

1. Prevent oil, grease, or fuel from leaking into the ground, storm drains, and catch basins.

2. Place all equipment or vehicles, which are to be fueled, maintained and stored, in a designated area fitted with appropriate BMPs.

3. On-site vehicles must be monitored for leaks; inactive equipment must be stored with drip pans to contain any fluid leaks. Drip pans containing oil must be drained into waste oil drums on a regular basis.

D. Erosion and Sediment Control BMPs

1. Temporary sediment barriers such as silt fences, berms, dikes, fiber rolls, sandbags, gravel bags or straw bale barriers. These barriers shall be installed at the locations with potential erosion and to the limits shown on the approved ESCP and as otherwise directed by the Engineer. They shall be relocated as necessary for construction operations, with prior approval from the Engineer. Remove the temporary barriers at the end of the project.

2. Dust Control: Employ construction methods and means that will keep airborne dust to the minimum. Comply with Section 01 57 19 Environmental Mitigation Measures for additional dust control requirements.

3. Silt dams shall be installed and maintained on public streets to prevent sediments from flowing into storm drain inlets and public streets. Storm drain inlets shall be protected surrounding the inlets with BMPs such as fiber rolls or filters media appropriate to type of traffic and as approved by the Engineer.

4. Erosion Control Blankets shall be used to control and stabilize disturbed and exposed soil, if weather warrants such blankets.

5. Silt fencing shall be installed at the foot of the slope around the entire perimeter of the stockpiled soil.

6. V-ditches and silt traps/sediment traps shall be installed at the perimeter of the stockpile to collect runoff where necessary to allow flow to continue to storm drain inlets.

7. Soil stabilization measures, placement of hay bales, and sediment basins shall be constructed to reduce erosion of exposed soils.

1.06 EROSION AND SEDIMENT CONTROL PLAN (ESCP) REQUIREMENTS

A. An Erosion and Sediment Control Plan shall be prepared in consideration of the site existing topography and how it will be altered. It shall provide information of the erosion and sediment controls measures that will be used to minimize the risk of sediment pollution and how they will be implemented and maintained for the project construction duration.

B. The ESCP shall provide a narrative description of the erosion and sediment control BMPs that will be implemented at the site in consideration of construction sequence and schedules for the following:

1. Pre-Construction Actions: Before construction, evaluate, mark and protect unique areas adjacent to the Site and in the Construction Area.

2. Construction Access: Stabilize bare areas (equipment parking areas, construction routes, site entrances) immediately with gravel and other means to control track out.

3. Sediment Barriers and Traps: Install basins, traps, silt fences or inlet protection as needed for grading.

4. Runoff Control: Install diversion, perimeter dikes and outlet protection as needed.

5. Land clearing and grading: Begin major clearing and grading after installing sediment and runoff measures. Clear disposal areas as needed.

6. Surface Stabilization: Apply temporary and permanent seeding, mulching, sodding for stabilization immediately on all disturbed areas where work is delayed or completed.

7. Building construction: Install necessary erosion and sediment controls while excavation, paving and installing utilities.

8. Landscaping and final stabilization: Stabilize all open areas including spoil areas. Remove temporary control measures and stabilize.

C. The ESCP shall include an Erosion and Sediment Control BMP Site map depicting the following:

1. Site layout, Site and Construction Area boundaries,

2. Discharge locations to the combined sewer system

3. Existing topography and proposed grading.

4. Locations of erosion and sediment control BMPs including the site access points.

5. Stockpile location, storage and staging areas, where allowed under the Contract.

6. Street profile, utility locations, property boundaries and easement delineations as applicable.

D. A Certified Professional in Erosion and Sediment Control representing the Contractor shall sign and stamp the ESCP, amendments, and reports prepared for, or by the Contractor. Any person signing the aforementioned shall make the following certification in the ESCP:

1. "I certify under penalty of law that I understand and shall comply with the terms and conditions, as detailed in Section 01 57 13 –Storm Water and Erosion Controls of this Specification.

2. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete.

3. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations"

E. The ESCP shall include a sample copy of the daily sediment and erosion control inspection check list for the ESCP measures and BMPs inspected and implemented during the day.

F. The ESCP shall provide a Contractor's measures in the event of a spill.

1.07 SPILL RESPONSE, INSPECTION AND REPORTING PROCEDURES

A. Prohibited Discharge: Discharge of other materials other than storm water and approved non-stormwater discharges to the combined sewer/storm system is prohibited unless a batch discharge permit is obtained from the PUC. Approved non-stormwater discharges include incidental discharges of potable water from irrigation of vegetative erosion control measures, and water from dust control applications. Non-storm water discharges requiring a batch discharge permit include groundwater from excavations, water from truck washing activities, and water from the cleaning or testing of pipes or tanks.

B. Prohibited Discharge: The Contractor shall not discharge waste water to the Bay under the terms of this Contract. It is the responsibility of the Contractor to protect the storm drain systems that discharge to the Bay.

C. Spill Prevention and Response:

1. The Contractor is responsible for minimizing the potential for spills of pollutants stored at the Site. Leaks and spills shall be minimized and if observed, the Contractor shall clean it up immediately and institute preventive measures. Contractor's personnel shall:

   a. Be aware of potential spill areas and drainage routes in their work areas.

   b. Containers must remain closed at all times except when transferring contents.

   c. Do not attempt to carry or move heavy containers of oil or hazardous waste.

   d. Use funnels; pumps with closed hose systems, or other means to prevent spills while transferring material from large containers to small ones; and material without assistance or the use of a drum dolly. Pumps in operation shall not be left on, unattended.

   e. Hazardous materials will be stored in a designated area that is away from vehicle/traffic areas.

   f. Immediately notify the supervisor of any spill occurring in the work area. It is the responsibilities of the Contractor's designated Safety Officer to direct the cleanup activities and contact necessary regulatory agencies. All necessary emergency

telephone numbers shall be posted at the Site at a location accessible to all personnel.

g. The Contractor shall know the proper methods to clean up small spills in their work areas, and how spent cleanup material shall be managed.

h. A Competent Person with experience in erosion and sediment control is responsible for recording all steps taken to control spills in the field notes/daily log.

i. Spill cleanup equipment must be readily available at the Site and in the Construction Area site. Emergency response equipment includes absorbent socks, over pack drums, personal protective equipment, shovel, labels, valves, valve charts, valve wrenches to shut off water supply, etc.

C. General Inspection Procedures:

1. The person(s) conducting inspections for the Contractor must be a Competent Person with experience in erosion and sediment control. The Contractor must inspect the following areas:

a. Disturbed areas

b. Material storage areas

c. Locations where vehicles enter and exit the site

d. All catch basins, storm drains and inlets. The Contractor shall provide an inventory of the inlets existing conditions and their maintenance.

e. All areas where erosion and sediment control BMPs are used.

D. Reporting and Retention of Records:

1. ESCP inspection reports, compliance certification statements, training records, and correspondence must be maintained. The Contractor shall retain copies of the ESCP, all reports required by the ESCP, and records of all data including all logs and documentation described in this section for a period of at least three (3) years from the date the site is finally stabilized.

2. Inspection and monitoring requirements and forms are contained in the California Regional Water Quality Control Board's - Erosion and Sediment Control Field Manual, pages 123 to129. Inspections shall be conducted daily during the wet season and weekly during the dry season and 24 hours prior and after a rain event.

3. The Contractor shall document the inspections on daily logs and inspection checklists, the ESCP measures inspected and implemented during the day. These records shall be kept at the job trailer so that

during an inspection, it can be shown to the Regional Water Quality Control Board (RWQCB), PUC, City and Engineer as requested.

4. Copies of the ESCP inspection checklists shall be submitted monthly with progress payment request.

5. Progress payments shall be withheld if Contractor fails to submit the ESCP inspection reports with payment request.

6. The ESCP, all inspection forms, logs, training records and all amendments to the ESCP shall be submitted to the Engineer in a timely manner.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

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SECTION 01 57 19

ENVIRONMENTAL MITIGATION MEASURES

PART 1—GENERAL

1.01 DESCRIPTION

A. This Section includes special Project conditions, and environmental mitigation measures aimed to minimize disruptions to surrounding neighborhoods, resources and land uses, particularly air quality, noise, vibration during demolition, for Contract 1277 – Pagoda Palace Demolition.

B. The requirements in this Section are Incidental Work, unless noted otherwise.

C. Mitigation measures described in this Section are required to be in compliance with the California Environmental Quality Act-Mitigation Monitoring and Reporting Program (CEQA-MMRP), State Regulations, and Local Ordinances. Failure to implement mitigation measures to control environmental impacts is subject to federal, State, and local fines. In addition, the Engineer will issue environmental non–complaince notices and assess fines as of $1000.00 per event/occurrence if mitigation measures required are not implemented daily and consistently creating public and nuisance concerns. Liquidated damages for failure to comply with environmental requirements will apply.

1.02 PROJECT CONDITIONS

A. Contractor shall be responsible for all costs necessary to prevent its operations from violating any federal, State, or local governmental regulations and the requirements of the Contract Documents.

B. The Contractor shall make provisions to assign a dedicated crew with a minimum of two workers or more as needed to ensure that mitigation controls are consistently implemented for the Project duration.

C. If the Contractor does not observe said regulations or the requirements specified herein, or promptly take all required remedial actions to the City's satisfaction, liquidated damages for failure to meet environmental requirements will apply.

D. The City will monitor Contractor's adherence to the requirements specified herein and will report on Contractor's compliance pursuant to California Assembly Bill 3180 (Chapter 1232).

1. Said monitoring and reporting activities may include, but are not limited to, qualitative, quantitative and video observations and data collection on the impacts of noise, vibration air quality, traffic, street pavement damage, water quality, cultural resources, biological resources and hazardous materials.

2. The Contractor shall cooperate with such monitoring activities, provide access to the Site to establish and secure monitoring stations, and make its facilities and records available to the City for performing such monitoring.

1.03 SUBMITTALS

A. The Contractor shall submit the Plans listed below, and have the Plans approved by the Engineer at least 10 Working Days before any demolition/excavation, and no later than 30 Days after the Notice to Proceed.

B. Pursuant to the provisions of the submittal section, the Contractor shall submit the following as separate submittals, and as per specification:

1. Site- Specific Dust Control Plan (DCP) in accordance with Article 1.07 herein.

2. Noise and Vibration Control Plan as per Articles 1.08 and 1.09 herein. This plan shall be prepared by a qualified acoustical consultant to include identification of noise control measures, monitoring protocols, notification procedures and mitigation information. A qualified noise and vibration consultant is defined as a Board certified Institute of noise control Engineering (INCE) member or other qualified consultant or Engineer approved by the City. Monitoring shall occur as weekly or more often if needed in response to complaints. Monthly Submittals:

a. Copies of the wet sweeping log daily schedule servicing the streets, intersections and construction/demolition zones within the project boundaries

b. Copies of dust monitoring logs, in the event that respirable dust monitoring is required as per the DPH Dust control monitoring plan review.

c. Copies of vibration monitoring reading logs

d. Copies of noise demolition spot check monitoring reading logs, including pre and post filed calibration records

C. On approval of the above Plans, the Contractor shall provide 4 hard copies and four copies of each Plan on a Compact Disc (CD) with a case, in the Microsoft Word format.

1.04 MAINTENANCE OF THE WORK AREA AND DEBRIS CONTROL

A. The Contractor shall maintain work areas under its control and adjacent public right-of-ways in a safe condition, and remove all accumulations of debris at the end of each working day, and all accumulations of debris and surplus materials at completion of the Contract; the Contractor shall leave it in a clean and orderly fashion.

B. Cleaning during Demolition: The Contractor shall control the accumulation of waste materials and debris. The contractor shall collect waste from demoltion areas and the project site daily. The Contractor shall also

1. Comply with requirements of NFPA 241 for removal of combustible waste material and debris.
2. Maintain construction/demoltion work areas and adjacent areas free of dust, accumulation of dirt during earthwork and other contaminants during construction/demolition as needed daily.
3. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of these types of materials in a lawful manner.
4. Maintain the site and all immediately adjacent public areas within its custody and control daily in a clean and orderly condition. Maintain the site, equipment, fences and signs free of graffiti. As warranted, remove all graffiti daily, using methods, which cause no damage to the work and existing facilities.
5. Damp-sweep all pedestrian walkways and dispose of debris around the site perimeter on a daily basis and as often as determined by the Engineer.
6. Keep all debris, hazardous/contaminated material, surplus concrete and excavated materials off the roadway, sidewalks and sewers at all times in all areas under the Contractor's control and adjacent public rights-of- way.
7. Remove trash (waste oil and oil rags) and debris from the construction/demolition zones and adjacent areas daily or at frequent intervals or as directed by the Engineer, so that its presence will not delay the progress of the work or cause a nuisance.
8. Storage areas: Ensure that materials to be used for construction/demolition are stored in designated structures or areas by the appropriate trades. Maintain such areas or structures in a clean condition for the life of the Contract.
9. Provide and maintain proper storage with secondary containment for lubrication oil, hydraulic fluids, waste oils, fuels, solvents and other hazardous or toxic materials and wastes.
10. Supervision: Oversee all cleaning of areas by trades using them and ensure that resulting accumulations are deposited in appropriate containers.
11. Burying or burning of trash and debris on the site is not permitted.
12. Removed materials, trash and debris shall become the property of the Contractor and shall be removed from the site and disposed of in a legal manner.

C. Initiate and maintain a specific daily program to prevent the accumulation of debris at the construction/demolition site, storage, and parking areas, and along streets, roads and haul routes. The Contractor shall:

1. Provide and maintain containers for the deposit of debris.

2. Prohibit overloading of trucks to prevent spillage.

3. Inspect traffic areas and haul routes to enforce requirements.

D. Immediately remove materials deposited outside of approved storage areas.

E. On a daily basis, remove all debris from all areas, including haul routes, caused directly or indirectly by the Contractor's operations.

1.05 SEWER POLLUTION CONTROL

A. Do not dispose of construction/demolition material, concrete, debris, sediments, wastes, effluent, chemicals, or other such substances into catch basins, manholes, storm drains, and sanitary sewers. Section 123 of Article 4.1 of the Public Works Code prohibits the discharge of solids into the City's sewerage system.

B. The washing out of concrete trucks into the sewerage system or into the excavation is not permitted.

C. Control sewage and contain it within covered conduits. Dispose of it, properly.

D. Refer to Section 01 57 13, Stormwater and Erosion Controls, for specific requirements.

1.06 AIR POLLUTION CONTROL

A. Comply with all air pollution control rules, regulations, ordinances and statutes which apply to work performed pursuant to the Contract, including air pollution control rules, regulations, ordinances and statutes specified in Section 11017 of the California Government Code.

B. Comply with the California Air Resources Board (CARB) Off-Road Diesel Vehicle Regulation to reduce diesel particulate matter (PM) and oxides of nitrogen (NOx) emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. The off-road regulation requires reporting and labeling, limits unnecessary idling, and requires disclosure of the regulation upon vehicle sale. These requirements have enforcement actions, with fines of up to $10,000 per day possible for each vehicle that is in violation. The link for the Knowledge Center for the Off-Road Diesel Vehicle Regulation is http://www.arb.ca.gov/msprog/ordiesel/knowcenter.htm

Also check the link: http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm.

1. All vehicles subject to the in-use off-road diesel vehicle should be labeled with Equipment Identification Numbers (EINs). At the discretion of the Engineer, the contractor shall provide a list of vehicle

registered with CARB with their corresponding EIN upon request. The link for the labeling fact sheet is: http://www.arb.ca.gov/msprog/ordiesel/faq/labeling_vehicles_faq.pdf.

2. Idling Limit: Prohibiting idling motors when equipment is not in use or when truck are waiting in queues. The idling time of all construction equipment (self-propelled diesel fueled or alternative diesel fuel vehicles 25 horsepower and up that are not designed to be driven on-road) used at the site shall not exceed 5 consecutive minutes. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to two minutes. The idling limit does not apply to

   a. Idling to verify that the vehicle is in safe operating condition

   b. Idling for testing, servicing, repairing or diagnostic purposes

   c. Idling necessary to accomplish work for which the vehicle was designed (such as operating a crane).

   d. Idling required to bring the machine system to a desired operating temperature.

   e. The link for the idling fact sheet is http://www.arb.ca.gov/msprog/ordiesel/faq/idlepolicyfaq.pdf.

C. In the absence of applicable air pollution control rules, regulations, ordinance, or statutes governing solvents, all solvents, including but not limited to the solvent portion of paints, thinners, curing compounds, and liquid asphalt used on the project shall comply with the applicable material requirements of the Bay Area Air Quality Management District. All containers of paint, thinner, curing compound or liquid asphalt shall be labeled to indicate that the contents fully comply with said requirements.

D. Implement the specific air pollution controls to reduce exhaust emissions of particulate matter and other pollutants from construction and related equipment, to a less significant level, by:

1. Preventing the accumulation of toxic concentrations of chemicals.

2. Preventing harmful or obnoxious dispersal of pollutants into the atmosphere. Limiting vehicle speed limit on unpaved roads to 15 miles per hour (mph).

3. Limit the hours of operation of heavy-duty equipment and/or amount of equipment in use to what is needed.

4. All equipment shall be properly tuned and maintained in accordance with the manufacturer's specifications. Copies of service records will be made available to the Engineer upon request.

5. When feasible, alternative fuel or electrical construction equipment shall be used at the project site.

6. Use the minimum practical engine size for construction equipment.

7. Gasoline-powered equipment shall be equipped with catalytic converters, where feasible.

8. Implementing specific maintenance programs to reduce emissions from equipment that would be in frequent use for much of the demolition and construction periods.

1.07 CONSTRUCTION / DEMOLITION DUST CONTROL

A. Protect the public from dust nuisance and property from dust damage. The Contractor shall keep the entire Site and Construction/Demolition Area and adjacent areas, including walkways and roadways, continuously free of dirt and dust by wet sweeping at least three times a day and at the end of each shift, and by consistently misting the active work areas at each step of soil handling activities.

B. Minimize dust generation.

1. Plan and execute the Work in such manner as to minimize the area of excavations open at a time.

2. Daily power wash adjacent storefronts, sidewalks, and street pavements.

3. Maintain a wet vacuum sweeper on the jobsite at all times and wet sweep/vacuum sidewalks, intersections, site access and street pavement within the jobsite and along haul routes, at the minimum three times (3) per shift or more as required to minimize dust emissions. This shall include at least once at the end of each work shift.

4. During all excavation and dirt moving activities, conduct localized dust controls by consistent misting using means to have water supply available at all times. Wet sweep/vacuum the streets, sidewalks, paths and intersections when Work is in progress during and at the end of each Working Day.

5. Wet sweeping will be done with a vacuum sweeper vehicle with sufficient suction so as to ensure that while sweeping, the vehicle does not blow dust towards neighboring business and residences. The Engineer will evaluate the effectiveness of the Contractor's vacuum sweeper vehicle and, if necessary, will require the Contractor to provide a more powerful and effective sweeper

6. Wet areas shall be barricaded to prevent slipping hazards.

C. Provide positive methods and use dust control materials to minimize dust from construction/demolition operations and to prevent air-borne dust. Water or water-miscible binders shall be continuously used to control dust during dust generating activities, including demolition, excavation, among others.

1. Maintain a water truck at the Site and in the Construction Area at all times when dust-generating conditions exist. Water truck shall be equipped with hand-held hoses. Hoses shall be equipped with micro-misters and micro-foggers. All water for dust control shall be treated with biodegradable, non-polluting, non-toxic dust control agent.

2. Wet all exposed and unpaved areas at least three times daily during dry weather and more frequently if dust is blowing or if required by the City. Soil, gravel, and cutback residuals shall be wet swept immediately. Cover after work hours. Secure coverings so they cannot be blown off or accidentally removed.

D. This project is subject to the requirements of the San Francisco Department of Public Health (CCSF DPH) Dust Control Ordinance. The Contractor shall submit to the Resident Engineer and the Department of Public Health a Site Specific Dust Control Plan for review and obtain an approval letter or a waiver from DPH. No building or other permit application subject to the requirements of the San Francisco Building Code Section 106.3.2.6 shall be approved until the Department of Building Inspection receives a written notification from the Director of Public Health that the applicant either has a Site-Specific Dust Control Plan approved by the Director of Public Health or the Director of Public Health has waived this requirement.

E. The Site- Specific Dust Control Plan shall include the following in addition to all provisions specified for the Air Pollution Controls listed in this Section:

1. Map showing the project location, and all surrounding sensitive receptors within 1000 feet of the project. The Director of Public Health may issue a waiver for the Site-specific Dust control Plan if no sensitive receptors are determined to be within 1000 feet of the project.

2. Name and phone number for the Contractor's designated person to implement the Site-specific Dust Control Plan

3. Air Monitoring Protocol if requested by DPH showing:

   a. Analysis of the wind direction;

   b. Particulate monitoring equipment description;

   c. Sampling plan prepared, stamped and signed by a Certified Industrial Hygienist showing:

      1) Placement of the upwind and downwind particulate dust monitors

      2) Monitoring exposure times an frequency of monitoring

      3) Pre ad post calibration methods and calibration form sample.

      4) Air quality monitoring log sample.

d. Recordkeeping procedures including monthly monitoring readings submittals.

4. Mitigation methods to comply with the BAAQMD goal of "NO VISIBLE DUST EMISSIONS" and the DPH Dust Control Ordinance.

5. Contingency plan with step up mitigation controls in the event that monitoring readings exceed the National Ambient Air Quality Standard (NAAQS) criterion of 0.15 milligrams per cubic meter (mg/m3) or other site specific criteria recommended by the City or when dust-generating operations have to be shut down due to dust crossing the property boundary or when dust is not controlled.

6. Copy of the wet sweeping log daily schedule servicing the project alignment. This shall be submitted monthly to the Engineer.

7. Copy of the wet vacuum sweeper specifications.

8. Description/specification of the wheel washing station that will be employed at the project access points or description of other alternative methods to control track out on public streets.

9. MSDS of the chemical binder or soil stabilizer that will be applied as warranted.

F. The Contractor shall take all reasonable measures to 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 surrounding properties, or causing a nuisance to businesses and local residents. The Contractor is responsible for taking all reasonable measures to prevent damage resulting from dust originating from its operations.

G. Air Quality Project Action Level (AAQPAL): As per the Environmental Protection Agency National Ambient Air Quality Standards (EPA-NAAQS) guidelines for air quality the Contractor in his/her construction/demolition activity shall not exceed the following criteria or other Site specific Project action levels recommended by the City for airborne contaminants:

Respirable Particulate (PM_{10}) 0.15 mg/m^3 Action Level*

** The Clean Air Act, which was last amended in 1990, requires EPA to set National Ambient Air Quality Standards (40 CFR part 50) for pollutants considered harmful to public health and the environment. The Clean Air Act established two types of national air quality standards. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. The EPA Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality*

primary standards for PM10 at 0.15 milligrams per cubic meter (mg/m3) as a criterion for this pollutant for 24 hours averaging time.

The City will conduct respirable dust monitoring (PM10) at the perimeter of the dust-generating construction/demolition activities and proximity to sensitive receptors as per DPW protocols established for MMRP compliance.

H. Observe and adhere strictly to all of the following specific dust control measures so as to achieve a goal of "NO VISIBLE DUST EMISSIONS." This means that the Contractor shall not emit particles from any operation in sufficient number to cause annoyance to any other person, which particles are large enough to be visible as individual particles at the emission point or of such size and nature as to be visible individually as incandescent particles (BAAQMD Regulation 6-305, Particulate Matter and Visible Emissions, (http://www.baaqmd.gov/regs/rg0600.pdf) and the San Francisco Dust control Ordinance #176-08:

1. Treat water for dust control with a City approved biodegradable, non-polluting, non-toxic dust control chemical. The water so treated becomes "amended" water.
2. Provide continuous water misting using as fine a spray or mist as possible (without creating run-off) in any area of land clearing, earth movement, excavation, drillings, demolition, concrete crushing and grinding and other dust generating activity. All active construction/demolition areas shall be watered when Work is in progress and at the end of the workday. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour.
3. Control the track out at the construction/demolition access points by installing wheel washers at the access site points and one or more of the following track-out prevention measures:
    a. Gravel pad designed using good practices to clean the tires of exiting vehicles;
    b. A tire shaker;
    c. Pavement extending for not less than fifty (50) consecutive feet from the intersection with the paved public road; or
    d. Any other measure as effective as the measures listed above.
4. Wheel washers shall be installed and used to clean all trucks and equipment leaving the construction/demolition site. If wheel washers cannot be installed, tires or tracks and spoils trucks shall be washed off before they re-enter City streets to minimize deposition of dust-causing materials.
5. Minimize the amount of excavated material or waste materials stored at the site.

6. Wet down areas around soil improvement operations, visibly dry disturbed soil surface areas, and visibly dry disturbed unpaved driveways, at least three times per shift. All unpaved access roads, parking areas, and staging areas at the construction/demolition site shall be paved; otherwise, water or non-toxic soil stabilizers shall be applied to all unpaved access roads.

7. Use reclaimed water for dust control as described in City Ordinance # 175-91, Article 21, and Section 1100 to 1107 of the San Francisco Municipal Code (Public Works Code).

8. Use dust enclosures, curtains, and dust collectors as necessary to control dust in the construction/demolition area.

9. Dust curtains, plastic tarps, barriers, enclosures or windbreaks shall be installed on windward and downwind sides of construction/demolition areas.

10. Vehicles entering or exiting construction/demolition areas shall travel at a speed, which minimizes dust emissions. This speed shall be no more than 15 mph.

11. Chemical binders, soil amendments, stabilizers, or emulsions to inactive construction/demolition areas shall be applied, including previously graded areas that are inactive for at least 10 calendar days.

12. Surface excavation and grading activities shall be terminated when wind speeds exceed 25 miles per hour.

13. Limit the area subject to excavation, grading, and other construction/demolition activities at any one time.

I. Control for Off the Site Transport: The Contractor shall ensure that no trucks hauling soils, sand and any excavated material leaves the loading area off-site unless:

1. Trucks are maintained such that no spillage can occur from holes or other openings in cargo compartments; and

2. Loads are adequately wetted and either:

   a. Covered with tarps; and

   b. Loaded such that the material does not touch the front, back, or sides of the cargo compartment at any point less than six inches from the top and that no point of the load extends above the top of the cargo compartment.

J. Stockpile Maintenance: No staging areas or stockpiling will be allowed at the project site. The Contractor may use a temporary soil staging area as approved by the Engineer. The Contractor shall maintain the stockpile and staging areas with consistent mitigation controls as follows:

1. Keep active storage piles adequately wetted, stored on, and/or covered with 10-mil (0.01-inch) polyethylene plastic or equivalent tarps.

2. Any stockpile greater than 10 cubic yards or 500 square feet of excavated materials, backfill material, import material, gravel, sand, road base and soil shall be placed on, and covered with a 10-mil polyethylene plastic or equivalent tarp and braced it down. The Contractor shall maintain this cover throughout its use. All active stockpiles shall be covered and protected at the end of each Working Day.

3. Control for disturbed surface areas, and storage piles that will remain inactive for more than seven (7) Days, shall include one or more of the following:

   a. Keep the surface adequately wetted.

   b. Establishment and maintenance of surface crusting.

   c. Application of chemical dust suppressants or chemical stabilizers according to the manufacturers' recommendations.

   d. Covering with tarp(s) or vegetative cover.

   e. Installation of wind barriers of fifty (50) percent porosity around three (3) sides of a storage pile.

K. The Contractor is responsible and shall perform and or pay for cleanup of spillage (including clean soils) on City streets, to the extent caused by actions of employees of the Contractor or its Subcontractors.

L. If the Contractor fails to provide adequate dust and other pollutant control as required herein, the Engineer reserves the right to issue environmental non-compliance notices, have the necessary mitigation and clean-up Work performed by others, assess fines as per DPW Ordinances of one thousand dollars ($1000.00) per non-compliance occurrence or event or to deduct or withhold all monies required therefore as permitted under the Contract Documents. Liquidated damages for failure to comply with environmental mitigation controls will apply.

M. The Contractor is hereby notified that any screening or crushing operations cannot `proceed without the appropriate BAAQMD, and Cal-EPA/DTSC permits.

1.08 CONSTRUCTION/DEMOLITION NOISE CONTROLS

A. The Contractor shall ensure that construction/demolition activities are in conformance with construction/demolition requirements of the City and County of San Francisco Police Code, Article 29, specifically sections 2901, 2907, and 2908. The Contractor shall conduct the following activities to mitigate potential construction/demolition noise and vibration impacts.

B. The City as part of the Mitigation monitoring and Reporting Program will monitor noise construction/demolition activities. The Contractor shall cooperate with the City's designated Compliance Coordinator to respond to noise complaints and to ensure that significance levels specified in this Contract are not exceeded during construction/demolition activities.

C. The Contractor shall prepare and submit a Noise and Vibration Control Plan (NVCP) to the City for review and approval, at least 30 days prior to commencing demolition. The Noise and Vibration Control Plan shall be prepared and implemented by a qualified acoustical consultant to include identification of noise control measures, monitoring protocol, notification procedures, and other information. A qualified noise and vibration consultant is defined as a Board Certified Institute of Noise Control Engineering (INCE) member or other qualified consultant or engineer approved by the Engineer. The NVCP shall include but not be limited to:

1. The method(s) of construction/demolition that will minimize noise and vibration.
2. The method(s) used by the Contractor to ensure that its equipment noise does not exceed the requirements of the San Francisco Noise Ordinance and vibration threshold levels.
3. The equipment with attenuation devices to be used
4. Administrative and engineering controls in the event that noise and vibration exceed the criteria specified.
5. Construction/demolition noise and vibration monitoring protocols that will be implemented, including but not limited to
    a. Type of equipment employed to record data;
    b. Monitoring frequency, weekly or more often if needed, in response to complaints;
    c. Monitoring methodology, (with weather considerations)
    d. Criteria for compliance,
    e. Reporting procedures for noise and vibration concerns and documentation for corrective actions.
    f. Recordkeeping
    g. Step up Mitigation Controls in the event that criteria for noise and vibration exceed the levels specified.
    h. For the vibration protocols, the Contractor shall develop and implement protocols to monitor vibration at the construction/demolition 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. The protocols shall specify

the type of vibration monitoring equipment to be used, monitoring procedure (i.e., monitoring both horizontal and vertical vibration directions), monitoring locations, monitoring frequency.

D. San Francisco Noise Control Ordinance Compliance):

1. The Work of this Contract is subject to requirements of City and County of San Francisco, Article 29 of the Police Code, Ordinance #274-72, and Regulation of Noise (herein after referred to as the "San Francisco Noise Ordinance".

2. The San Francisco Noise Ordinance includes (but is not limited to) regulations on Ambient Noise, Non Stationary Sources, Fixed Source, Zoning Districts, Noise Level Measurements, Construction/demolition Equipment, and Construction/Demolition Work at Night, Enforcement and Violations.

3. The Noise Ordinance limits noise from powered construction/demolition equipment to be no greater than 80 dBA at 100 feet. This is equivalent to 74 dB(A) at 200 feet or 86 dB(A) at 50 feet from the source of emission. Exceptions to this requirement include impact tools and equipment, pavement breakers and jackhammers. However, these shall be equipped with acoustically attenuating shields, or shrouds to best accomplish maximum noise attenuation.

4. Pay all fines for violations pertaining to the San Francisco Noise Ordinance, at no cost to the City, to the extent resulting from Contractor's (and its Subcontractor's) performance of the Work.

5. A variance should be requested from the San Francisco Noise Ordinance if construction/demolition noise between 8:00 p.m. and 7:00 a.m. is in excess of ambient plus 5 dB(A). Apply for a City noise permit at least 3 working days in advance of night (between 8:00 p.m. and 7:00 a.m.), weekend and holiday Work. The requirements of the Contract Documents, including safety requirements, shall apply for all night, weekend and holiday work to be performed.

6. If the Contractor is directed by special written notice from the City to perform any part of the work between the hours of 8 p.m. and 7 a.m., or on weekends or holidays, the Contractor must obtain and comply with a City noise permit prior to starting any Work.

E. Noise Mitigation Measures;

1. The Contractor shall implement mitigation controls to ensure compliance with the construction/demolition noise levels allowed. The maximum noise level from any powered construction/demolition equipment shall not be greater than 80 dB(A) at 100 feet. This translates to 86 dB(A) at 50 feet (dual units not applicable, as these are specific field and instrument measurements);

2. The Contractor shall monitor noise levels at the Site boundary or at the nearest sensitive receptor. If noise thresholds are exceeded, the Contractor shall stop work and identify alternate methods and equipment or place restrictions on construction/demolition operations to comply with noise thresholds;

3. The Contractor shall not resume operations before correcting the conditions that cause excessive noise as deemed acceptable by the City;

4. The Contractor shall use appropriate construction/demolition methods and equipment and install acoustical barriers so that noise emanating from the construction/demolition will not exceed noise levels pursuant to the City's Noise Control Ordinance;

5. The Contractor shall implement the following noise control measures, as necessary, if activities are expected to exceed the above noise thresholds:

    a. The Contractor shall use best available controls techniques including mufflers, intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds for all construction/demolition-noise equipment and trucks; and use electric-powered rather than diesel-powered construction/demolition equipment, as feasible

    b. The Contractor shall muffle and shield intakes and exhausts, shroud or shield impact tools.

    c. The Contractor shall enclose equipment such as large compressors, generators, and large dewatering pumps at a minimum in 1-inch-thick plywood sheds.

6. Provide and use acoustically attenuating shields to limit the noise level created by work performed between 8 p.m. and 7 a.m. to no more than the allowable ambient noise level plus 5 dB(A) at the nearest property line.

7. Impact tools must be equipped with intake and exhaust mufflers. Pavement breakers and jackhammers shall be equipped with acoustically attenuating shields or shrouds. Use of impact tools shall be restricted to the daytime construction/demolition hours of 8:00 a.m. to 3:30 p.m. unless approved otherwise.

8. Perform construction/demolition in a manner that maintains noise levels at noise sensitive land uses below specific limits. Select construction/demolition processes and techniques that create the lowest noise levels. Quieter procedures shall be used such as drilling rather than impact equipment whenever feasible.

9. The Contractor shall use quieter procedures, such as sonic or vibratory pile drivers drilling rather than impact equipment whenever feasible. If impact equipment is required, the 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 dB(A)). External jackets on the tools themselves shall be used, where feasible to achieve a reduction of 5dBA;

10. Drill holes will be pre-drilled wherever feasible to reduce potential noise and vibration impacts. Pile driving activities shall be prohibited during the evening and nighttime hours (7 p.m. to 7 a.m.);

11. Operation of equipment requiring the use of back-up beepers shall be avoided near sensitive receptors to the extent feasible during nighttime construction/demolition work hours between 8 p.m. to 7 a.m. If nighttime work requires backwards movement and the use of backup alarms results in the exceedance of noise level thresholds specified herein, the Contractor shall implement alternative methods such as the use of "smart" alarms, radar activated backup alarms, or administrative controls such as use of a spotter to direct the backing operation and planning activities to minimize backwards movement. Backup warning alarms shall comply with California Division of Occupational Safety and Health (Cal-OSHA) requirements (Codes of California Regulations [CCR] Title 8);

12. The Contractor shall locate stationary noise sources as far from sensitive receptors as feasible. If they must be located near receptors, adequate muffling, (such enclosures) shall be installed to ensure noise thresholds specified herein are not exceeded. Enclosure openings shall be faced away from sensitive receptors. If any stationary equipment (e.g., ventilation fans, generators, dewatering pumps) is required, such equipment shall comply with daytime and nighttime noise limits specified in pertinent noise ordinances to the extent feasible;

13. The Contractor shall locate materials and other stockpiles as well as staging and parking areas as far as feasible from sensitive receptors, residential, and school receptors;

14. The Contractor shall implement measures to comply with the noise thresholds specified herein. These measures can include, but are not limited to, using quiet ventilation fans, using grid power instead of generators, erecting temporary sound barriers, restricting heavy equipment operation during nighttime hours, using nonmetallic containers for muck removal, and prohibiting or limiting use of backup alarms as described above;

15. Unless approved by the City Representative Construction/demolition activities shall be prohibited during the nighttime hours (8 p.m. to 7 a. m) without a noise permit;

16. The Contractor shall provide advance notice to residents and affected businesses in the area of the site, of times, dates and location of construction/demolition activities;

17. Contractor shall direct all truck traffic to designated truck routes that avoid primarily residential areas.

18. In the event that 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;

19. In the event that noise compliant are reported, the Contractor, in coordination with the City, shall cooperate to the extent possible, including additional monitoring as required, and modify or implement better attenuation controls for any construction/demolition equipment or activities that generated the excessive noise levels as;

1.09 VIBRATION CONTROL TO PREVENT COSMETIC DAMAGE

A. Depending on the construction/demolition vibration concerns on adjoining buildings and properties, Contractor shall monitor vibration at the construction/demolition site using equipment and methods as deemed appropriate by the City to measure potential building damage and effect on occupants, property, and sensitive equipment.

B. Vibration Project Action Levels (VPAL): Unless otherwise directed by the Engineer, vibration during construction/demolition shall not exceed the following thresholds:

1. 0.2 inches per second, peak particle velocity (in/sec PPV) for continuous vibration (e.g., vibratory equipment and impact pile drivers) at the closest receptors to ensure that cosmetic or structural damage does not occur; and

2. 0.12 inches per second, peak particle velocity (in/sec PPV) for any construction/demolition activity that is within two hundred feet of any historic buildings structure. The Filbert Garage at 271-275 Filbert Street is considered a historic structure.

   If vibration complaints are received during demolition, operational adjustments shall be made (e.g., restricting use of equipment causing vibration disturbance during nighttime hours or slowing the pace of its operation), as necessary, to reduce vibration annoyance effects.

C. The City will require the Contractor to suspend operations that cause excessive vibrations or exceed the above Vibration Project Action Levels (VPAL). The Contractor shall implement better engineering or mitigation controls when:

1. Vibration complaints are received;
2. Vibration exceeds the above-specified VPAL limits;
3. The Contractor fails to comply with vibration mitigation controls specified herein or fails to follow its own Vibration Control Plan; or
4. Damage or disturbance to adjoining property or occupants has been reported.

D. The Contractor shall 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.

E. Vibration Mitigation Measures;: The Contractor shall implement the specific mitigation controls to reduce vibration from construction/demolition–related equipment to a less significant level by:

1. Limiting the use of construction/demolition techniques that create high vibration levels. If piles must be set near residential areas, the Contractor shall use pre-drilled piles or other measures that minimize the impact of pile driving.
2. Using alternative procedures in vibration sensitive areas by using techniques with lower vibration levels.
3. If feasible, restricting the hours of vibration intensive activities, such as pile driving, to weekdays during daytime hours.
4. Pile holes shall be pre-drilled wherever feasible to reduce potential noise and vibration impacts. If feasible, use sonic or vibratory pile drivers instead of impact pile drivers.
5. Restricting the use of equipment causing vibration disturbance during nighttime hours or slowing the pace of its operation to reduce vibration annoyance effects at nighttime.

F. The Contractor shall perform pre- and post-construction/demolition video or photographic surveys of structures within the project area and evaluation of the facades of buildings on both sides of the project alignment to ensure structural damage does not result from demolition activities that could cause ground vibration. The post-demolition survey and monitoring results would be evaluated to determine whether structural and/or architectural damage could have resulted from vibration.

G. Vibration levels equal to or exceeding 0.2 inch/second could result in architectural damage. If, following completion of demolition, changes in the architectural or structural conditions of residential and/or commercial building

has occurred, the Contractor shall restore the buildings to pre-construction/pre-demolition conditions, and to the satisfaction of the Engineer.

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. The Contractor shall cooperate and provide additional site specific data in order to resolve the vibration concerns.

1.10 LIQUIDATED DAMAGES FOR FAILURE TO MEET ENVIRONMENTAL REQUIREMENTS

A. The Contractor shall be strictly liable for all damages, fines, penalties, damages and costs arising from any violation of the Specifications, environmental mitigation measures, regulations and City Ordinances referenced in this Section and Section 02 81 00 as related to or concerning the control of dust and air borne particles, the control, removal, transport, and disposal of excavated materials, control of waste water and sediment, and noise. Contractor shall pay particular attention to:

1. The prevention of accumulation and prompt clean-up of spills of excavated materials onto streets, sidewalks, and roadways;
2. Sediment control, the protection of catch basins, and prevention of soil and sediment from falling or washing into storm drains and sewers;
3. The prevention and control of dust created by the Work;
4. Proper treatment and disposal of storm water and ground water prior to discharge;
5. Adherence to noise restrictions;
6. Adherence to equipment emissions requirements and restrictions.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

NOT USED

END OF SECTION

SECTION 01 58 01
IDENTIFICATION SYSTEMS

PART 1—GENERAL

1.01 DESCRIPTION

A. This Section specifies signage to be used in the Work.

B. The Contractor shall provide:

1. Project Sign
2. Hazard signs and hazard markings
3. Fire equipment location markers
4. OSHA signs: danger, informational, safety, caution and others

1.02 REFERENCES

A. ADA (Americans with Disabilities Act).

B. ANSI (American National Standards Institute).

C. ANSI A13.1 (American National Standards Institute Scheme for the Identification of Piping Systems).

D. APWA (American Public Works Association) Uniform Color Code.

E. California Code of Regulations (California Administrative Code), Title 8—Industrial Relations, Division 1—Department of Industrial Relations, Chapter 4—Division of Industrial Safety.

F. CALTRANS (California Transportation Department) Standard Plans and Specifications.

G. City and County of San Francisco (CCSF) ONESF Signage and Style Guide. http://onesanfrancisco.org/staff-resources/signage-and-style-guide/

H. OSHA (Federal Occupational Safety and Health Act).

I. NEMA (National Electrical Manufacturers Association) Standards Publications.

J. NFPA (National Fire Protection Association) Codes.

K. UL (Underwriters Laboratories) No 969 Marking and Labeling System.

1.03 SUBMITTALS

A. Project Construction Sign: Contractor shall provide Project sign, as indicated in the attachments at the end of this section.

1. Graphics of sign message, text, logos and update of named persons on Project Signs shall be furnished by Engineer to Contractor

2. Full-size mock-up of a Project Construction Sign shall be submitted for approval before fabrication of all signs. Approved mock-up can be incorporated into the Work.

3. Sign shall be maintained in good condition by Contractor including color and image rendition and legibility of text until Substantial Completion of the Contract.

1.04 MATERIALS

A. Physical hazard markings: Black and yellow striped or checkered tape in accordance with OSHA 1910.144; minimum 2 inches wide.

B. Physical hazard signs: "DANGER," "CAUTION," AND "WARNING" signs in accordance with ANSI A13.1; size, lettering and color codes as appropriate.

C. Fire equipment location markers: NFPA No 10, Factory Mutual approved, 18 gage metal with mounting holes; single faced or double faced and flanged to protrude from wall, where required.

D. Signs: Shall be shop finished. Lettering shall be done by professional sign makers, in paint or decal.

1. Materials shall resist weathering, fading, and vandalism; baked enamel on metal unless otherwise specified.

2. Size of sign and lettering type: Size appropriate to the message and in compliance with the ADA Accessibility Guidelines for Buildings and Facilities.

3. Character height: Characters and numbers on signs shall be sized according to the viewing distance from which they are to be read. The minimum height is 3 inches measured using an upper case X. Lower case characters are permitted.

4. Character Proportion: Letters and numbers on signs shall have a width-to-height ratio between 3:5 and 1:1 and a stroke-width-to-height ratio between 1:5 and 1:10.

5. Finish and Contrast: Characters and background of signs shall be eggshell, matte, or other non-glare finish. Characters and symbols shall contrast with their background, either light characters on a dark background or dark characters on a light background.

E. Color code for signage in accordance with ANSI A13.1 and Federal OSHA 1910.

1. Danger: White letters on red field with black background.

2. Informational: White letters on blue field.

3. Safety: White letters on green field.

4. Caution: Yellow letters on black field.

F. Color code for Project Station in accordance with CCSF ONESF Signage and Style Guide. See attachments at the end of this Section.

G. Markings and signs for traffic shall comply with City and Caltrans requirements.

1.05 INSTALLATION

A. Signs shall be installed to provide optimum visibility and shall be in compliance with the ADA Accessibility Guidelines for Buildings and Facilities. Exact location to be determined in the field.

B. Provide posts and frames and mounting hardware.

C. Install labels, markers, signs, and tags as required by other Sections, NEMA, NFPA, and Federal OSHA 1910.

D. Maintenance: Keep signs clean and in good repair until Substantial Completion of the Contract.

1.06 GRAFFITI-COMPLIANT LABELS

A. Graffiti-compliant labels shall be engraved with three lines of information, which include the name of the agency, telephone number, and identification number for the facility.

B. The Contractor shall coordinate with the Engineer for details, messages, and placement of the graffiti-compliant label. Submit shop drawings for approval.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

3.01 CLOSEOUT

A. Upon completion of the Work, remove and dispose of all temporary signs, as determined by the Engineer.

END OF SECTION

ATTACHMENT TO SECTION 01 58 01

SAMPLE PROJECT SIGN

Notes:

1. Contractor shall provide one (1) Project Sign as shown herein per the Work Site. Sign shall be fabricated to last at least three (3) years.
2. Lettering, City and Agency seals, sign background and borders shall be in accordance to ONESF guidelines – Official City of San Francisco Style Guide.
3. Printing: 4-color printing on a 4-color CMYK printer – in accordance to ONESF guidelines.
4. Mounting Material: Medium Density Overlay (MDO) board in ¾ inch thickness with Crezon® Two Step®.
5. Coatings: Provide anti-graffiti laminate. UV and anti-graffiti coatings shall last minimum three (3) years.
6. Sign and support structure shall be designed and provided by Contractor. Sign shall withstand basic wind speed or 70 mph and be approved by the Engineer.
7. Verify with the Engineer the details, messages, and other information of the sign prior to shop submittal and fabrication.

SECTION 01 76 29

PROTECTION OF EXISTING PROPERTY

PART 1—GENERAL

1.01 DESCRIPTION

A. Included Work:

1. Protection from damage and loss by the Contractor of City-furnished materials and existing facilities not required to be removed and disposed, including but not limited to: street trees, streets, sidewalks, concrete surfaces, existing utilities, poles, conduits, control points and benchmarks, adjacent structures, and related appurtenances.

2. Support, work around, and protect existing utility facilities.

B. The Contractor shall use such methods and shall take adequate precautions to prevent damage to existing facilities and other improvements during the performance of the Work.

C. The Contractor shall protect and maintain existing facilities so as not to interfere with the safe operation and use of the existing facilities.

D. The Contractor shall protect the Work from vandalism, damage, and other loss until Final Acceptance.

E. The Contractor shall provide security systems, devices and enclosures, and guard services as needed to protect the Work and Contractor tools and equipment.

F. The Contractor shall be responsible for loss or damage to the existing City property on the Site. Contractor shall be responsible for any damage to existing City property in the Construction Area (outside the Site boundaries) arising from or related to its performance of the Work irrespective of the cause.

G. The majority of existing City manhole frames and covers are labeled "HHWP" (Hetch Hetchy Water and Power) or "MUNI RWY" (MUNI Railway).

H. All work, including but not limited to, roadway pavement, sidewalk, curb, gutter, parking strip, curb ramps, and poles that is not specified in the Contract, but is damaged or removed by the Contractor, shall be restored in kind at the Contractor's expense.

1.02 RELATED SECTIONS

A. Section 01 32 33 – Photographic Documentation.

B. Section 01 33 00 – Submittal Procedures.

1.03 REFERENCES

A. San Francisco DPW Standard Specification.

B. San Francisco DPW Standard Plans.

C. California Codes & Regulations (California Administrative Code), Title 8 - Industrial Relations, Division 1 - Department of Industrial Relations, Chapter 4 - Division of Industrial Safety, Subchapters 4 and 7 - Construction Safety Orders (CSO) and General Industry Safety Orders (GISO).

1.04 JOINT SURVEY TO ESTABLISH PRE-EXISTING CONDITIONS

A. After NTP and no less than 14 Days before performing Work in any location along the alignment, the Contractor shall arrange for a joint examination by Contractor and SFMTA of existing structures, facilities, and other improvements in the vicinity of the Work that may be affected or damaged by the Contractor's operations.

B. The joint examination of existing structures, facilities, and other improvements shall be done whenever possible with a representative of the owner of the affected property. The Contractor's representative authorized to make these examinations is subject to the approval of the Engineer as to his/her expertise, experience and qualifications.

C. The scope of each examination shall include, but is not limited to, recording of damaged and undamaged conditions, cracks in structures, settlement, leakage/evidence of water intrusion, sprinkler system operation, condition of finish surfaces of exteriors and interiors, condition of sidewalks, condition of foundation, operation of doors and windows, and plumb of vertical and level of horizontal structural elements.

D. Contractor shall prepare and submit the following in addition to the survey Work under Section 01 32 33 Photographic Documentation

1. Prepare and submit to the Engineer a detailed Pre-Construction Condition Survey Report of all private property inspections identifying address, occupant/owner's name, time and date of inspections. Provide written copies of the examination inspection report for each building and structure, facilities, or other improvements including duplicate digital photographs/digital video. The report shall describe in detail and document the condition of the facilities, building and other improvements. The report shall also include all structures within 100 feet of any Site boundary, (e.g. temporary layout area, and compensation grouting).

2. Take such digital photographs as may be necessary to show the exterior and interior (if permission to enter is granted by property owner) of surfaces and grounds of each building examined, in addition to special or unique features or construction methods, and furnish the Engineer with one copy of each photograph, 8 inches by 10 inches in size, and an electronic copy.

3. These pictorial surveys shall contain narratives, either written or verbal (if videotaped), describing the content of each photo or video segment. Refer to Section 01 32 33 Photographic Documentation for identification method and quality of photographs and video survey.

4. Accompany the Engineer, and a representative of the property owner, if any, during re-examination of the property during the course of construction, or after construction is completed, to record any change to the property. Color digital photographs/digital video of conditions after construction shall be taken.

5. Each copy of the survey document or media shall be jointly signed and dated by the Contractor and the Engineer.

E. The above records are intended for use as indisputable evidence in ascertaining the extent of damage, which may occur 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 occurred due to the Work. Contractor shall keep all such records confidential. Copies of such records shall not be provided to anyone for any reason without authorization of the City.

F. Notify in writing all the property owners in the area of the survey asking the permission to video the inside and the outside of the property and, if required, to install and monitor crack monitors on selected existing cracks. The Contractor shall secure such approvals from the owner of the property as needed to perform these surveys, including, but not limited to, permission to photograph and video the interiors of the property, permission to photograph and video building exteriors to the extent that such documentation cannot be made from the street or sidewalk, and to install and monitor crack monitors on the property.

G. The refusal of any or all of the property owners to cooperate with the Contractor shall not relieve the Contractor of any of its obligations under this Contract. In the event of such refusal(s), the Contractor shall notify the Engineer and propose and implement alternative methods of obtaining the information and data needed to enable the survey work to be performed. Such alternative methods shall be subject to the approval of the Engineer.

H. Install crack gauges where approved or directed by the Engineer.

I. All Work described in this Section is Incidental Work.

~~1.05 SURVEY OF EXISTING UTILITIES~~

~~A. Prior to excavation, Contractor shall produce detailed maps of all of the existing systems, including shutoff valves, disconnects circuit breakers, etc. for each utility system that can be operated from the public right-of-way to shut off utility services in case of failure of the utility system within the settlement zone of influence of construction. These maps shall be verified by the respective utility owners.~~

~~B. Prior to excavation, the contractor shall coordinate with each utility to determine the operability of each valve, breaker, and disconnect required to shut off utility service within the settlement zone of influence.~~

~~C. Prior to excavation, the contractor shall conduct a leak survey on all existing water lines within an area at least one hundred feet horizontally from proposed surface and subsurface excavations.~~

~~D. The Work described in this Section is Incidental Work.~~

1.06 EXISTING UTILITIES AND IMPROVEMENTS

A. Notify Underground Service Alert (USA) prior to excavating areas in the public right-of-way so that utility companies may be advised of the Work and may field mark or otherwise protect and warn the Contractor of their existing utility lines. Contact USA, 4090 Nelson Avenue, Suite A, Concord, CA 94520, telephone (800) 227-2600, or refer to USA website for more information at: http://www.usanorth.org/.

B. Provide reasonable access to existing utilities and do not hinder or otherwise interfere with the service delivery of any company or agency having underground facilities in removing, relocating, or protecting such facilities.

C. Verify the actual locations and depths of all existing utilities indicated or field marked. Make exploratory excavations as required by the Contract Specifications of all utilities that may interfere with the Work, sufficiently in advance of construction to avoid possible delays to Contractor's Work. These exploratory excavations are Incidental Work.

1. Notify the Engineer if such exploratory excavations show the utility location as shown or as marked to be in error.

2. When utility lines are encountered within the Site or Construction Area, notify the Engineer and the owner(s) of the utility lines sufficiently in advance for the necessary protection measures to be taken to prevent interruption of service or delay to Contractor's operations.

D. The Contractor shall protect all existing utilities, facilities, and structures, public or private, and shall be responsible for all damage caused by the Contractor.

E. Overhead Contact System: Work on or under the overhead contact system shall be performed with lines and feeders energized unless shutdown of the system is granted by MUNI. Notify the Engineer at least 10 Days prior to performing Work near energized overhead trolley wires, feeder circuits, or at substations, so that the Engineer may arrange for necessary clearances and inspections.

1. Contractor is alerted to the condition that overhead trolley wires and feeder cables distribute electrical energy at 600 Volts DC or greater. Comply with the "High Voltage" provisions of the California Code of Regulations (Title 8, Division 1, Chapter 4, and Subchapter 5) and all other applicable Codes.

2. Take precautions to avoid accidents and damage to the overhead contact wires and riser and feeder cables.

F. Survey Monuments and Bench Marks: Contractor shall bring to the attention of the Engineer all survey monuments, benchmarks, property line marks and the like encountered on the Site. Survey monuments, benchmarks, or other survey marks or points shall not be removed or disturbed until referenced or relocated by the City or other agency or party having an interest therein, and then removed only at the time and in the manner specifically approved by the Engineer. The Contractor shall bring all City monument frames within the limits of the Work to grade with the express provision that any and all Work associated with the removal and relocation of such frames and covers, shall be under the direct supervision of the Engineer, and all such Work shall be considered Incidental Work. Contractor shall bear all costs of re-establishing and resetting survey monuments, benchmarks, or other survey marks or points lost or destroyed through the carelessness or negligence of, or inadvertently by, the Contractor, any Subcontractor, or their employees.

1.07 UTILITY AND STRUCTURE PROTECTION

A. Support, work around, and protect utility facilities.

B. Contractor shall take all steps necessary to protect effectively existing fences, guardrails, piers and columns, if any, of all structures from damage arising from or related to the Work, including Contractor's activities on and use of any construction launch or layout areas and any improvements, all without expense to the City. Unless an Owner Controlled Insurance Program (OCIP) is place for the Work under this Contract, Contractor shall, at its own cost and expense, repair in accordance with City's standards or applicable property owner's requirements of such damage, including, but not limited to, damage to fences, guardrails, piers, columns, and slabs, caused by Contractor, any Subcontractor, or their employees. If an OCIP is in place for this Contract, Contractor shall be solely responsible for the damaged described herein to the extent of the Contractor's deductible under the OCIP.

C. In advance of all excavations and trenches, Contractor shall, as Incidental Work, pothole to determine exact location and depth of all utilities and other existing facilities, which may be encountered during excavation.

D. While excavating and trenching, Contractor shall probe material to be removed to verify the absence of utilities or other existing facilities before the material is removed. If the Contractor cannot verify the absence of utilities and other existing facilities, excavation or trenching shall proceed by hand until the Contractor can again verify the absence of utilities and existing facilities.

1. Contractor shall verify and mark all locations of existing utility facilities. Contractor shall continually hand probe and excavate in advance of underground work until exact location and depth of expected underground facilities have been determined.

a. Contractor shall comply with California Administrative Code, Title 8, General and Construction Safety Orders and all other applicable Codes, in notifying all known owners of underground facilities, and where applicable, using the USA-North one-call notification service 72 hours before underground work.

b. Contractor shall contact PG&E Electric Transmission Inspector 72 hours prior to work related to or around electric transmission facilities.

c. Should the Contractor damage or displace SFWD, PG&E, AT&T, Comcast Corp., ASB, TPC, BART, AWSS, or SF DPW facilities, the appropriate utilities shall be notified immediately by calling:

1) SFWD: (415) 550-4911/(415) 550-4950

2) PG&E: (415) 995-5666

3) AT&T: (415) 863-6906

4) Comcast: (415) 863-8500 Ext.390

5) ASB: (925) 459-1048

6) TPC: (408) 380-0925

7) BART (510) 464-7000

8) AWSS

9) SF DPW

2. Duct Structure: Contractor shall take all necessary measures to prevent damage to any Duct Structure. Duct structure is one or more ducts, conduits or pipes, of any size, or a combination of such ducts, conduits or pipes, which are grouped together but which may or may not be banded, encased in concrete, or otherwise incorporated into a solid unit.

3. Nested Utility Facilities: Contractor shall take all necessary measures to prevent damage to any Duct Structure. Nested utility facilities are defined as facilities 4 inches or less in outside diameter or width, which are less than 3 feet clear distance from each other regardless of ownership. In the case of nested facilities, each crossing shall be paid for according to the "Cost of Utility Crossing" Schedule reduced by 33-1/3 percent.

4. SF DPW Sewer System: The Contractor shall take all necessary adequate measures to prevent the impairment of the operation of the SF DPW sewer system. Contractor shall prevent construction methods from damaging sewers, sewer structures, catch basins, and storm water inlets, and shall prevent construction materials or debris from entering,

impairing, and damaging, sewers, sewer structures, catch basins, and storm water inlets.

5. Water Department – Underground Facilities: The minimum requirements for supporting, working around, and protecting existing San Francisco Water Department (SFWD) underground facilities are as follows:

   a. In general, pipes spanning less than 6 feet may be unsupported. Pipes spanning more than 6 feet shall be supported by a beam with at least one cable and turnbuckle. For spans over 12 feet, an additional cable and turnbuckle shall be installed for each additional 6 feet or fraction thereof of span. Cables and turnbuckles shall be located to support pipe joints.

   b. Adequate bracing shall be provided at all fittings and bends.

6. Pacific Gas & Electric Co. (PG&E) – Underground Facilities: The minimum requirements for supporting, working around, and protecting existing PG&E underground electric, and gas are as follows:

   a. For pipe and conduit in sizes up to and including 6-inch inside diameter, spans of less than 6 feet shall be considered self-supporting unless otherwise directed by the PG&E Company Inspector. Spans of 6 feet or more, but exceeding 12 feet, shall be supported by a beam with at least one cable and turnbuckle. For spans over 12 feet, an additional cable and turnbuckle shall be installed for each additional 6 feet or fraction thereof of span. Cables and turnbuckles shall be located to support joints, valves and other fittings. Cast iron joints and valves, where encountered, shall be supported on both sides.

   b. For pipe and conduit in sizes larger than 6 inches inside diameter, spans shall be supported by beams with cables and turnbuckles located at intervals not to exceed ten times the diameter of the pipe, unless otherwise directed by the PG&E Company Inspector. Cable and turnbuckles shall be located to support joints, valves and other fittings. Cast iron joints and valves, where encountered, shall be supported on both sides.

   c. Beams, cables, and turnbuckles for supporting steel pipe or conduit shall be adequately sized to limit the deflection so as not to exceed length of span in feet divided by 360.

   d. Beams, cables, and turnbuckles used for supporting cast iron pipes shall be adequately sized to ensure that no deflection will occur.

   e. Beams, cables, and turnbuckles used for supporting concrete encased duct lines or concrete encased steam lines shall be adequately sized and spaced to insure that no deflection will occur.

f. For multi-way conduits, spacers shall be placed to maintain conduit separation at points of support. Two-inch by 4-inch wood softeners shall be used with all cable slings to prevent damage to the pipe, coating, wrapping, or concrete encasement. However, slings supporting unreinforced concrete encased pipe shall also incorporate strongbacks to prevent cracking of the concrete.

7. Communications (AT&T California, Comcast, Teleport Communication Group (TCG), Qwest Communications, & MCI) – Underground Facilities: The minimum requirements for supporting, working around, and protecting existing communications underground facilities are as follows:

a. A single duct spanning less than 6 feet shall be considered self-supporting unless otherwise directed by the City or by the Communication Company inspector though the Engineer.

b. A single duct spanning more than 6 feet shall be supported by a beam with at least one cable and turnbuckle. For spans over 12 feet, an additional cable and turnbuckle shall be installed for each additional 6 feet or fraction thereof of span. Cables and turnbuckles shall be located to support duct joints.

c. Duct structures, consisting of two or more single ducts not encased in concrete and spanning more than 4 feet, shall be banded with at least one cable turnbuckle. For spans over 8 feet, an additional cable and turnbuckle shall be installed for each additional 4 feet of span or fraction thereof. Banding of ducts shall be done in such a manner as to not distort the normal configuration of the structure.

d. Duct structures, consisting of two or more single ducts encased in concrete and spanning more than 4 feet, shall be supported by a beam with at least one cable and turnbuckle. For spans over 8 feet, an additional cable and turnbuckle shall be installed for each additional 4 feet of span or fraction thereof.

e. Multiple-duct structures of vitrified clay or concrete shall be supported for the complete width of the trench. The support shall consist of planking or beams equal in width to the width of the structure and banded to it. This structure in turn shall be supported by a beam with at least one cable and turnbuckle placed every 4 feet or fraction thereof so as to maintain the existing position and alignment of the duct structure.

f. Duct structures consisting of dissimilar conduit materials shall be supported in the manner applicable to the most fragile portion of the structure.

g. All other multiple duct structures, with the exception of steel pipe in good condition, shall be protected by the placement of wood planking or sheeting no less than 1/2 inch in thickness and equal in width to the width of the structure.

h. Single ducts shall be protected if required. This determination will be made by the Engineer or by the Communications Company Inspector through the Engineer.

8. City Underground Facilities: The minimum requirements for supporting, working around, and protecting existing City (sometimes labeled "MUNI RWY" or Hetch Hetchy Water and Power – "HHWP") underground conduit and ducts are as follows:

a. Steel conduit spanning less than 6 feet shall be considered self-supporting unless otherwise directed by the Engineer.

b. Steel conduit spanning 6 feet and more shall be supported by a beam with at least one cable and turnbuckle. For spans over 12 feet, an additional cable and turnbuckle shall be installed for each additional 6 feet or fraction thereof of span. Cables and turnbuckles shall be located to support duct joints.

c. Beams, cables, and turnbuckles for supporting steel conduit shall be adequately sized to limit the deflection so as not to exceed length of span divided by 360.

d. Spacers shall be placed between multiple conduits in a manner to maintain conduit separation at points of support.

e. Concrete-encased ducts spanning more than 4 feet shall be supported by a beam with at least one cable and turnbuckle. For spans over 8 feet, an additional cable and turnbuckle shall be installed for each additional 4 feet or fraction thereof of span for the complete width of the excavation.

f. Beams, cables, and turnbuckles for supporting concrete-encased duct lines shall be adequately sized and spaced to ensure that no deflection occurs.

g. The Contractor shall provide adequate support and protection to prevent differential movement at the juncture of manholes and duct banks.

h. Duct structures consisting of dissimilar conduit materials shall be supported in the manner applicable to the most fragile portion of the structure.

i. Steel conduit shall be protected if required as determined by the Engineer.

j. Duct structures having top or bottom wood planking or encased in concrete will not require additional protection unless otherwise directed by the Engineer.

k. All other duct structures, such as unprotected tile and the like, shall be adequately protected by the placement of wood planking or sheeting no less than 1/2 inch in thickness and equal in width to the width of the structure. The top, bottom, and sides shall be covered as necessary, depending on the Contractor's operations and the conditions of the work.

1.08 NOT USED

1.09 EXISTING STREET IMPROVEMENTS

A. Asphalt concrete pavement shall be restored with 2-inch thick asphalt concrete wearing surface on 8-inch thick concrete base per Sections 212 and 207 of San Francisco DPW Standard Specifications, respectively. However if the thickness of the existing asphalt concrete wearing surface exceeds 2 inches, then the asphalt concrete wearing surface shall be restored to match the thickness of the existing asphalt concrete wearing surface. In addition, if the thickness of the existing concrete base exceeds 8 inches, then the concrete base shall be restored to match the thickness of the existing concrete base.

B. Concrete pavement shall be restored with 8-inch thick concrete pavement per Section 210 of San Francisco DPW Standard Specifications. However if the thickness of the existing concrete pavement exceeds 8-inches, then the concrete pavement shall be restored to match the thickness of the existing concrete pavement.

C. Granite curb or concrete curb shall be reconstructed with concrete curb per Section 202 of San Francisco DPW Standard Specifications, unless otherwise noted.

D. Concrete sidewalk shall be restored with 3-1/2-inch thick concrete sidewalk to the nearest flagline in accordance with Section 204 of San Francisco DPW Standard Specifications. However if the thickness of the existing concrete sidewalk exceeds 3-1/2 inches, then the concrete sidewalk shall be restored to match the thickness of the existing concrete sidewalk.

E. Concrete Color shall be extra high strength, non-floating, dispersible, non-glare, and unaffected by sunlight. It shall be composed of extremely fine sub-micron particle size, and shall not create the loss of concrete strength.

F. Concrete sidewalk finish shall match that of the existing sidewalk pavement.

1.10 REPLACEMENT

A. Unless an OCIP is in effect for the Work under this Contract, if structures or property during Contractor's performance of the Work are damaged or become missing, including items to be salvaged or reused, the Contractor shall immediately notify the property owners and the Engineer and arrange for immediate restoration with new materials of the same or approved equal design and construction, at the Contractor's expense. If an OCIP is in place for this Contract, Contractor shall be solely responsible for the damaged described herein to the extent of the Contractor's deductible under the OCIP.

1.11 SUBMITTALS

A. General: Refer to Section 01 33 00, Submittal Procedures for submittal requirement and procedures.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

NOT USED

END OF SECTION

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SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1—GENERAL

1.01 DESCRIPTION

A. This Section includes requirements and procedures for final cleaning of the Site and Construction Area, and requirements for final inspection and Final Acceptance.

1.02 FINAL CLEANING

A. Before final inspection by the Engineer and as a condition of the City's acceptance of the Work, Contractor shall clean up the Site, installations and the Construction Area.

B. In addition to removal of temporary facilities, Contractor shall remove all waste, debris, and surplus materials from Site; remove stains, spills, and foreign substances from installations and paved areas, including haul routes; clean grounds and sweep clean all areas; and restore damaged pavement, sidewalk, and facilities.

C. Clean all pre-existing facilities and the Construction Area to their original condition before construction as documented in the pre-construction survey.

1.03 ACCEPTANCE INSPECTION

A. When Contractor considers the Work to be Substantially Complete, as defined in the Special Provisions, it shall submit written certification to the Engineer that:

1. Contractor has reviewed the Contract Documents.
2. The Work has been inspected for compliance with all Contract requirements, and in the Contractor’s opinion is Substantially Complete.
3. All equipment and systems have been tested in the presence of the Engineer and are operational.
4. Preliminary Punch List Work identified by Contractor’s Project Manager has all been satisfactorily completed. Refer to Section 01 45 00, Quality Control.
5. The Work is ready for pre-final inspection by the Engineer.

B. After receipt of Contractor’s certification of compliance, and in accordance with Section 01 45 00, Quality Control, Article 1.11, Engineer will perform a pre-final inspection to determine whether the Work is Substantially Complete.

C. Should the Engineer consider that the Work is not Substantially Complete or defective in any manner:

1. The Engineer will promptly notify the Contractor in writing, listing the incomplete or defective or nonconforming Work. (Pre-final Punch List items)
2. The Contractor shall remedy the stated deficiencies and send a written certification to Engineer that the Work is complete.
3. The Engineer will reinspect the Work, and the Contractor will further correct deficiencies noted by the Engineer as a condition of the Engineer issuing a Notice of Substantial Completion.

D. When and if the City occupies a portion of the completed facilities, and has otherwise beneficial use of the part of the Work prior to Final Acceptance, coordinate and establish responsibilities of the Contractor and the City prior to that event.

E. When all Work and Punch List items are complete, the City will conduct a final inspection.

1.04 ITEMS REQUIRED TO BE PROVIDED FOR FINAL COMPLETION

A. Contractor shall provide the following items at the Final Completion of the Work:

1. Evidence of compliance with requirements of all Codes and governing authorities.
2. Contract record documents – including as-built drawing documentation.
3. All testing reports and records, including non-conformance reports.
4. Evidence that all deficiencies (all remaining Punch List Work Items) have been satisfactory completed.

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 DESCRIPTION

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 document and As-Built documentation to the Engineer.

B. Related Sections:

1. Section 01 33 00, Submittals Procedures
2. Section 01 77 00, Closeout Procedures

1.02 GENERAL REQUIREMENTS

A. The Contractor is responsible for maintaining up-to-date record drawings and documentation. The Contractor shall make the up-to-date record drawings and documentation available for regular inspection by the Engineer.

B. Following completion of the Contract Work, the Contractor is responsible for submitting As-Built drawings.

C. The Contractor shall maintain in an orderly, clean, completed, indexed, and easily accessed filing system all record documents including, but not limited to: Contract Drawings, Specifications, Addenda, Change Orders, RFIs, Clarifications, approved shop drawings, samples, and other submittals clearly marked to record accurately the Work as actually constructed ("As-Built"), including changes, adjustments, and other information relative to the Work.

D. References herein to "As-Built Drawings," "As-Built Markup Drawings" or "As-Built Documents" are intended for inclusion within the generally used terminology of Contractor's As-Built Drawings or Documents.

E. Definitions

1. As-Built Drawings: The general terminology used to refer to the City's permanent record of final, approved-as-constructed-or-installed construction details, or to any of the sources utilized (e.g., Construction Drawings, Contractor's As-Built Drawings, Conformed As-Built Drawings, Record Drawings, and Main and Side Sewer post-construction television) in the development, approval, and documentation of those details.
2. Conformed As-Built Drawings: The digitized "As-Built" Drawings incorporating all the mark-ups in the approved Contractor's "As-Built" Drawings, "As-Built" Shop Drawings, and Field Sketches in a "read only" format. The City will retain the "Conformed As-Built" Drawings for reference, maintenance, and future additions or modifications to the existing facilities.

3. Construction Drawings: The Updated Conformed Contract Documents stamped "Record Drawings" that the Contractor secures from the Engineer following Notice to Proceed, which the Contractor marks up to show all changes that are made during the construction period.

4. Contractor's As-Built Drawings: The final version of the Construction Drawings that reflect Work completed and the actual field conditions of the project details. The Contractor's "As-Built" Drawings entail Updated Conformed Drawings reflecting and incorporating all the changes made through Requests For Information (RFI), Change Orders (COs), "As-Built" (approved) Shop Drawings, field sketches, and marked details.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

3.01 REQUIREMENTS

A. The Contractor shall keep an accurately marked, up-to-date set of As-Built drawings for the work actually installed. Accurately indicate on record or As-Built drawings all site conditions, locations of utilities and capped point-of-entry services, changes, and details as specified herein, and as approved by the Engineer.

1. Contractor's As-Built Drawings including structural rakers and bracings shall be submitted after the Work has been completed at each location to the Engineer.

B. The Contractor shall record, as the Work progresses, changes to the Construction Drawings including, but not limited to, the following information relative to the Work:

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 requests for information.

3. Changes made by Change Order work.

4. Locations of utilities and appurtenances referenced to permanent, accessible features of the Work.

5. 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.

C. Upon completion of the Work at each location where Work is performed, furnish to the Engineer the completed Contractor's As-Built Drawings showing all requirements listed herein. The Record or As-Built details shall be drawn by the Contractor directly onto full-size copies of the affected design

drawings and shall include all intermediate changes previously submitted for the Engineer's approval.

3.02 PROCEDURES

A. The Engineer will provide the Contractor a complete set of all Contract Documents including one set of full-size unmarked Contract Drawings. Electronic copies will be issued as requested by the Contractor. Contractor shall affix a "Record Drawing" stamp for the incorporation of detailed As-Built changes or corrections and subsequent certification of those corrections by the Engineer. All Contract Documents provided to the Contractor for its markup documentation of the As-Built conditions shall be stamped "Record Drawing" by the Contractor. The Contractor shall record all changes on the "Record Drawing" stamped set, which will be submitted regularly for inspection to the Engineer.

B. Contractor shall delegate responsibility for maintenance, coordination, and accuracy of the Contractor's As-Built Drawings to one person on Contractor's staff.

C. The Engineer will check, initial, and date the corrected Record Drawings to signify that they reflect the field conditions.

D. If the stamped Contractor's As-Built Drawings are not submitted, accurate, or complete, the Engineer will recommend that the monthly progress payment be withheld.

E. The Engineer will sign the corrected-as-marked Contractor's As-Built Drawings to indicate that it has reviewed the corrections for completeness, prior to forwarding them for transfer of the As-Built information into the City's permanent drawings files.

~~3.03 MAINTENANCE OF AS-BUILT DRAWINGS~~

~~A. Contractor shall store As-Built drawings apart from documents used for performing the Work; keep in a dry, legible, condition and in good order. Contractor shall not use Contractor's As-Built Drawings for construction at the job site.~~

~~B. Contractor shall record neatly on the Contractor's As-Built Drawings all changes made by clarifications, Change Orders, and other modifications to the Contract Documents.~~

~~1. Clearly describe changes on As-Built Drawings by note as required.~~

~~2. Date all entries, calling attention to the entry by a "cloud" drawn around the area or areas affected.~~

~~3. Record in each Section the manufacturer, trade name, catalog number, and Supplier of each product and equipment item incorporated into the Work.~~

C. Contractor shall show on the job set of Contractor's As-Built Drawings, by dimension accurate to within 1 inch, the centerline of each run of conduits, circuits, piping, ducts, and similar items, which are shown schematically on the Contract Drawings but where the final physical arrangement is determined by the Contractor, subject to the Engineer's approval.

1. The Engineer will issue a written waiver of the requirement for conversion of schematic layouts where, in the Engineer's judgment, such conversion serves no useful purpose.

2. Contractor may request additional copies of previously-received unmarked drawings from the Engineer to supplement or supersede previously marked As-Built or record documents, when necessary to maintain clarity or As-Built information.

D. Contractor shall keep Contractor's As-Built Drawings up-to-date during the entire progress of the Work, and make available to the City at any time. Contractor shall update no more than 5 working days after changes in the Work are made, and submit them on a regular basis to the Engineer.

3.04 FINAL CONTRACTOR'S AS-BUILT DRAWINGS

A. Contractor shall carefully transfer change data, coordinating the changes as required, clearly describe the change on Contract Drawings and details. Contractor shall date all entries, calling attention to each entry by drawing a "cloud" around the area or areas affected.

B. Contractor shall make changes neatly, consistently, and with proper media to assure longevity and clear reproduction.

3.05 REVIEW AND SUBMITTAL

A. Contractor shall sign and date the completed Project Record Drawings and submit them to the Engineer for review prior to final payment as specified in Section 01 77 00, Closeout Procedures.

B. Contractor shall participate in review meetings as required, make required changes and promptly deliver the final project record drawings to the Engineer.

1. If a Contractor's As-Built Drawing is not approved by the Engineer, Contractor shall secure a new copy of that Contract Drawing from the Engineer at the City's usual charge for reproduction and handling, and carefully transfer the change data to the new copy for the approval of the Engineer.

END OF SECTION

SECTION 02 13 00

HAZARDOUS MATERIALS ABATEMENT AND CONTROLS

PART 1—GENERAL

1.01 SUMMARY

A. Section includes requirements and procedures to be performed by the Contractor for the abatement and disposal of hazardous materials. This may involve asbestos-containing materials, lead based paints, and demolition associated with hazardous materials.

B. As warranted, all work in this Section shall be paid under the allowance for hazardous building materials with the exception of handling and demolition of lead containing paint materials which are incidental to demolition work as per compliance with Cal/OSHA regulations CCR 1532.1 for Lead Construction Standards. ADD NO. 2

1.02 RELATED DOCUMENTS AND SECTIONS

A. Section 01 11 00, Summary of Work

B. Section 01 35 00, Hazardous Materials Procedures

C. Section 01 35 29.10, Health and Safety

D. Section 01 42 00, References

E. Section 02 81 00, Transportation and Disposal of Excavated Materials

1.03 DEFINITIONS

A. Activity Class/Category - Lead: Lead hazard designations assigned to work activities that involve lead-containing materials. Activities, which fall into Classes I through III, including as examples the operations defined below, are required to assume the following personal airborne exposure levels, unless otherwise demonstrated.

Activity Class I Exposure Less than 500 microgram/m3	• Surface clean-up of lead-containing dust or debris less than 15,000 microgm/ft2 • Spray painting with lead-based paints • Manual demolition of structures (e.g. drywall, plaster, etc.) • Manual sanding, grinding, needle gunning, chiseling, hammering, wire brushing, milling or scraping of lead-based coatings • Head gun removal of surface coating power tool Power tool cleaning with dust collection system

Activity Class II Exposure500 microgram/m3 or greater but less than 2500 microgram/m3	• Using lead mortar • Lead burning • Rivet busting • Power tool cleaning without dust collection systems • Clean-up of dry abrasive • Abrasive blasting enclosure movement and removal
Activity Class III exposure 2,500 micrograms /m3 or greater	• Abrasive blasting of coated surfaces • Welding on coated surfaces • Torching or cutting of coated surfaces • Torch burning of coated surfaces

B. Asbestos Work Class: Activities for removing asbestos materials by categories as follows:

Work Class I	• Activity involving removal of Thermal System Insulation (TSI) and surfacing asbestos-containing materials (ACM) or friable presumed –asbestos containing materials (PACM)
Work Class II	• Activity involving removal of ACM which is not TSI or surfacing material, including, but not limited to, wallboard, floor tiles and sheeting, roofing and siding shingles, and construction mastics.
Work Class III	• Repair and maintenance operations where TSI or surfacing is likely to be disturbed, which fits within one standard glovebag or waste
Work Class IV	• Maintenance and custodial activities during which employees contact but do not disturb PACM or ACM and activities to clean up dust, waste and debris resulting from Work Class I, II, and III activities

1.04 SEQUENCING OF DEMOLITION AND HAZARDOUS ABATEMENT WORK

A. After notification of the commencement date, the Contractor shall be allowed ten (10) calendar days for the submittals of:

1. Copies of current certifications, notifications and/or letters of compliance according to the Regulatory Agencies governing the specific type of hazmat work.

2. The Hazardous Materials Management Plan (HMMP) in accordance with Specifications Section 01 35 00, Hazardous Materials Procedures.

B. The City Representative and its Industrial Hygiene Consultant (IH) will conduct the monitoring and oversight as per City's discretion.

1.05 QUALITY CONTROL

A. MEETINGS

1. Pre-Abatement Meeting: Upon the Engineer's approval for abatement, a pre-abatement meeting, and prior to any removal of hazardous materials will be conducted at the City's discretion. The Contractor is to attend a pre-construction meeting with the Engineer, the City Representative, City's IH and other Subcontractors whose work may be affected. The meeting agenda shall include the following considerations:

   a. Review of the Specifications and Plans in detail related to the abatement and hazards work. All conflicts and ambiguities, if any, shall be discussed.

   b. Review in detail the project conditions, schedule, construction sequencing, abatement application requirements, and quality of completed work.

   c. Review in detail the means of protecting adjoining areas; protect of Contractor's, Subcontractor's, City's workers, and completed work during the abatement activities.

   d. Pre-job submittals requirements.

   e. Site security requirements.

B. INSPECTIONS

1. Work Area Inspections:

   a. Inspections are required at the completions of the following abatement job phases:

      1) Pre-cleaning Inspection(s)

      2) Work Area Preparation Inspection

      3) Pre-Encapsulation Inspection

      4) Final Visual Inspection

      5) Waste Handling Inspection

   b. Precede all inspection requests by an evaluation by the superintendent. The superintendent shall be a person who has not participated in the supervision, preparation, abatement, and clean up of the work area, except on small-scale short-duration projects where the contractor's foreman may serve as the superintendent. The superintendent shall verify that criteria for acceptability have been met prior to requesting an inspection.

   c. The Contractor's superintendent shall provide in writing a signed or initialed request for inspection to the City. Request all inspections at least 24 hours in advance of the time required; inspections shall be

performed between the hours of 8:00 a.m. and 3:00 p.m., Monday through Friday, unless otherwise noted.

2. Pre-cleaning Inspection:

   a. The City Representative shall inspect all surfaces requiring pre-cleaning to verify that dust and debris have been removed and cleaned up to an acceptable condition. Multiple inspections may be required to cover all systems and the required phasing of activities.

   b. No object shall be covered until inspected or approved by the City Representative as stated in the requirements herein. When covered before such inspections are made and approved, the Contractor shall uncover such work for inspection, subsequently restore it, and replace work of others damaged thereby, all at the Contractor's expense.

3. Work Area Preparation Inspection:

   a. After preparing the work area and decontamination enclosure system(s) for Activity Class I and II work areas, as applicable, the City's Industrial Hygiene Consultant shall conduct an initial inspection to ensure completeness of work and containment according to the specifications.

   b. No abatement operations shall commence without the approval of the City Representative following a work area preparation inspection.

4. Pre-Encapsulation Inspection:

   a. After detail cleaning has been completed and the Superintendent has checked and approved the area as adequately cleaned, the City Representative or IH shall inspect all surfaces requiring encapsulation to verify that hazardous materials have been removed and the area and abated surfaces cleaned to an acceptable condition.

   b. During such inspections, the Contractor will provide adequate lighting, ladders, scaffolding, workers, etc., so as not to curtail the systematic inspection of all surfaces by the City Representative. Areas requiring rework will be tagged in a manner to allow continuation of the inspection in a timely manner. The City Representative or IH shall not be expected to remain within an area requiring extensive re-cleaning.

   c. For lead abatement: a final overall inspection will be required to reconfirm the final wipe down of all horizontal surfaces, which may have been subjected to contamination from airborne releases during the staged inspection process. The staging of inspections shall not preclude the Contractor from conducting internal quality control inspections prior to requesting the City's IH review.

5. Final Visual Inspection:

   a. After the encapsulation process is complete, the encapsulant is dry, and all debris bags, tools, supplies, and equipment have been removed

from the work area, as applicable, the City Representative shall inspect the work area to verify the cleanliness of the area, including but not limited to public and attic areas. The work area must be free of visible debris, dust, water, or loose and peeling lead-based paints as a minimum.

6. Waste Handling Inspections

   a. The City Representative shall inspect waste as it leaves the abatement area. The Contractor shall insure that all waste is packaged, labeled, and handled as required. The City Representative may inspect the waste dumpsters at any time, including prior to transportation. Coordinate temporary relocation to a transport staging area with the City prior to removal.

PART 2—PRODUCTS

2.01 GENERAL

A. Prohibited Materials

1. Mastic or paint removers shall not result in the generation of hazardous waste.
2. Cleaning Agents, equipment, and methods employed shall not in any way damage the substrate or adjoining surfaces and finishes which are to remain. Cleaning solvents shall be non-injurious to the surfaces upon which they are applied. The methods used shall cause no pitting, erosion or damages to the surfaces.
3. Paint removal chemicals that may not attach or leave deposits on the substrate material.
4. The following tools and equipment are specifically prohibited unless accepted in writing by the City:
   a. High or low pressure water-blasting equipment for hosing of ductwork or work areas.
   b. Gasoline, propane, diesel or other fuel powered equipment inside the building.
5. Equipment that creates excessive noise or vibration that would affect safety of the building or its occupants, or generate complaints from the occupants. Equipment shall not exceed an A-weighted sound level of 85 dB as measured at 50 ft. from the radiating source.

B. Minimum Requirements:

1. Deliver all materials in original packages, containers, or bundles bearing the names of the manufacturers and the brand names and details for proper storage and usage. Store all materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent

damage or contamination. Store materials so as not to interfere with the Owner's or other Contractors' operations.

2. Do not use damaged or deteriorating materials. Remove damaged materials from the premises. Dispose of contaminated materials in accordance with applicable regulations

2.02 MATERIALS AND EQUIPMENT

A. Protective Devices: Temporary wash stations or showers, disposable clothing, respirators, gloves, hard hats, and other required items. Respirators shall protect against appropriate dusts, fumes and mists as approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) under provisions of 30 CFR Part 11.

B. Waste Receptacles: Conform to federal and State regulations, with 6-mil minimum thickness waste bags.

C. Polyethylene Sheeting and Dust Barriers

1. Polyethylene sheeting shall be flame-retardant and approved and listed by the State Fire Marshal in accordance with Section 13121 and/or 13144.1 of the California Health and Safety Code

2. Thickness and Size: 6-mil thick minimum, unless otherwise specified, sized to minimize the frequency of joints.

3. Flammability: Comply with NFPA Standard 701 with a flame spread rating of no greater than 5 and a smoke development rating of no more than 70 when tested in accordance with ASTM accordance with ASTM E84 procedures.

D. Protective Devices to conform to the following:

1. Polyethylene drop cloths and dust barriers, temporary wash stations or showers, disposable clothing, respirators, gloves, hard hats, and other required items.

2. Respirators shall protect against asbestos and other appropriate dusts, fumes and mists as approved by:

a. Mine Safety and Health Administration (MSHA).

b. National Institute for Occupational Safety and Health (NIOSH) under provisions of 30 CRF Part 11.

E. Sealants:

1. Sealants shall, at a minimum, conform to the following:

a. Shall be Fire resistant

b. Shall be compatible with concrete, metals, wood, cable jacketing and other materials capable of preventing fire, smoke, water and toxic fumes from penetrating through sealants.

c. Shall be asbestos free and shall have a flame spread, smoke and fuel contribution of zero.

d. Shall be ASTM -and UL-rated for 3 hours for standard method of fire test for firestop systems.

2. Spray adhesives shall not contain methylene chloride or methyl chloroform (1,1,1- trichloroethane) compounds.

3. Adhesive tape shall comply, at a minimum, with the following.

a. Must be 2" or wider, shall be capable of sealing joints of adjacent sheet of polyethylene and attaching polyethylene sheet to finished or unfinished surfaces of similar materials.

b. Tape shall be capable of adhering under dry and wet conditions, including use of amended water. Complete taping to critical or sensitive surfaces utilizing preservation sealing tape, such as:

- 3M Scotch Brand No. 4811 Preservation Tape; or
- 3M Scotch Brands No. 472 Plastic Film Tape.

F. Surfactants and Encapsulants:

1. Wetting agents or surfactants shall be effective and compatible with the ACM being wetted.

2. Bridging or penetrating type encapsulants shall have the following characteristics:

a. Water based. Do not utilize an organic solvent in which the solid parts the encapsulant are suspended.

b. Non-flammable with no methylene chloride.

c. U.L. listed encapsulants, in full-scale ASTM E119 fire test, compatible with W.R. Grace “Retroguard, RG-1” fireproofing with “Spatterkote” Type SKII” bonding treatment for structural and decking widths exceeding 24 inches.

d. Compatible with replacement materials, especially mastics, fireproofing, and adhesives.

G. Mastic and Paint Removers to conform to the following:

1. Non-flammable solvent or gel, with a flash point above 140 degrees Fahrenheit.

2. Solvent waste shall not result in the generation of hazardous waste as described under 22 CCR, Division 4.

3. Removers shall NOT contain methylene chloride, halogenated hydrocarbons, or any of the following glycol ethers:

Common Name	Abbreviation	CAS #	Chemical Name
Ethylene glycol methyl ether	EGME	109-86-4	2 - methoxyethanol
Ethylene glycol methyl ether acetate	EGMEA	110-49-6	2- methoxyethyl acetate
Ethylene glycol ethyl ether	EGEEA	111-15-9	2- ethoxyethanol
Ethylene glycol dimethyl ether	EGDME	110-71-4	1,2-dimethoxyethane
Ethylene glycol diethyl ether	EGDEE	629-14-1	1,2 - diethoxyethane
Diethylene glycol	DEG	111-46-6	2,2 – dihydroxyethyl ether
Diethylene glycol methyl ether	DEGME	111-77-3	2-(2 methoxyethoxy) ethanol
Diethylene glycol ethyl ether	DEGEE	111-90-0	2- (2-ethoxyethoxy) ethanol
Diethylene glycol dimethyl ether	DEGDME	111-90-6	Bis-(2-methoxyethoxy) ether
Triethylene glycol dimethyl ether	TEGDME	112-49-2	2,5,8,11 tetraoxadodecane
Dipropylene glycol	DPG	110-98-5	2,2 - dihydroxyisopropyl

H. Vacuums and Negative Pressure Units (NPUs) used for cleanup of materials and detail shall be HEPA-filtered. Provide DOP testing on-site for all units as per City's request.

I. Air Filtration Devices shall, at a minimum, conform to the following:

1. Filtration devices shall be high efficiency particulate absolute (HEPA) filtration systems bearing a UL 586 label indicating its ability to perform under specified conditions. Filters shall be marked with the name of the manufacturer, serial number, airflow ratting, efficiency and resistance, and the direction of the test airflow. Provide units with two stages of pre-filtering, as follows:

   a. A low efficiency type first stage pre-filter for particle sizes 100 micrometers and larger.

b. A medium efficiency type second stage pre-filter effective for particle sizes down to 5 micrometers.

c. Pre-filters installed either on or in the intake grid to the exhaust unit and held in place with special housings or clamps.

2. HEPA-filtration exhaust units are to include:

a. An elapsed time meter showing the total accumulated hours of operation.

b. An electrical interlock preventing operation of the unit without a HEPA filter.

c. An automatic shutdown system to stop the fan in the event of a rupture in the HEPA filter or a blocked air discharge.

d. Warning lights to indicate normal operation (green), moderately high pressure drop across the filters, such as due to filter overloading (yellow), and too high of a pressure drop due to an overloaded or ruptured HEPA filter or obstructed discharge (red).

e. An audible alarm if the unit shuts down due to operation of the safety systems.

f. Electrical components approved by the National Electrical Manufacturers Association (NEMA) and the Underwriter's Laboratories (UL). Each unit shall be equipped with overload protection sized for the equipment. Properly ground the motor, fan, fan housing, and cabinet.

g. A cabinet constructed of steel or aluminum capable of withstanding damage from rough handling and transportation, with a width under 30-inches to fit through a standard-size doorway, mounted on casters or wheels.

h. Several spare HEPA-filtered exhaust units on-site to be used as needed should active units fail.

J. Waste Containers:

1. Waste Receptacles to conform to federal and State regulations, with 6-mil minimum thickness or glovebags or waste bags.

2. Sealable drums shall be of 30- or 55-gallon capacity constructed of fiber or metal with tightly fitting lids for asbestos disposal. Label the drums and bags in accordance with U.S. EPA and local Air Quality Management District requirements, including the Generator I. D. number or location identification, and manifest number. Provide air and water tight drums. If previously used, the drums shall be food grade and shall be approved by the City prior to their storage or use on-site. Sealable polyethylene bags shall be of 6-mil minimum thickness for asbestos disposal. Size bags to fit within drums specified above.

K. Cleaning Agents:

1. Cleaning agents, equipment, and methods employed shall not in any way damage the substrate or adjoining surfaces and finishes. Cleaning solvents shall be non-injurious to the surfaces upon which they are applied. The methods used shall cause no pitting, erosion or damages to the surfaces.

2. Do not use chemicals that may attach or leave deposits on the substrate material. Modify the process or processes to suit the finish, hardness, and condition of the surface to be cleaned

PART 3—EXECUTION

3.01 EXAMINATION

A. Review hazardous materials reports and Scope of Work as per Section 01 35 00 and insure the information is available to all subcontractors and trades.

B. Disturbance of asbestos or lead and other hazardous containing materials, including demolition, surface preparation, or removal of paint, can contaminate air, soil, and water surrounding the work site. It is the responsibility of the Contractor to evaluate and determine the most appropriate level of containment necessary to prevent the uncontrolled release of hazardous materials from the work site.

C. As per Cal/OSHA regulatory requirements, establish the required class of containment, of ventilation, and of air monitoring as appropriate for the removal means and methods as selected to perform the specific removal work. These systems shall be sufficient to control exposures to workers, the public, and to protect the surrounding environment.

3.02 PREPARATION

A. Protective Procedures and Workers Protection

1. Protect Visitors and Other Site Personnel: Cordon off the abatement area(s) with appropriate signs, and provide temporary tunneling or scaffolding, as applicable.

2. Provide site security to assure that no member of the public or any unqualified or untrained person is able to gain access to any hazardous materials' work area at any time while maintaining open access and egress routes at all times.

3. Provide worker training, respiratory protection, and medical examinations to meet applicable regulations.

4. Provide temporary lighting and power to work areas, including installation of ground fault interrupters as required. Ensure that all electrical power terminating in the work area, including but not limited to outlets and lights are disconnected and cannot be re-energized during the course of the work. Fully ground all equipment within the work zone and decontamination assemblies.

5. Construct enclosure system(s) for worker and equipment decontamination.
6. Establish negative pressure in work area(s) as required under 8 CCR Section 1529.
7. Follow, at the minimum, dust control procedures as outlined under Cal/OSHA regulations CCR 1532.1 and DHS regulations 17 CCR Sections 35001 through 36100
8. Provide workers with sufficient sets of protective full-body clothing to be worn in the designated work area and whenever a potential exposure to lead, asbestos and other identified hazardous materials. Such clothing shall include but not be limited to: full-body coveralls, headgear, eye protection, and gloves. Disposable-type protective clothing, headgear, and footwear may be provided.
9. Respiratory Protection: Comply with Cal/OSHA Regulations included in 8 CCR Section 1532.1 and ANSI Standard Z88.2, "Practices for Respiratory Protection: Workers shall wear appropriate respiratory protection during lead, asbestos and any other hazards work, unless negative exposure assessment testing verifies that employee exposures are below the Action Level.

B. Site Protective Controls:

1. Locate temporary scaffolding and containment barriers, as required, and proceed with the construction or demolition, allowing for continued operation of any adjacent occupied areas, as applicable.
2. Protect existing furnishings and building finishes from water, lead dusts, chemical strippers, or debris.
3. Erect temporary protective covers over pedestrian walkways and at points of passage for persons or vehicles, which are to remain operational during the work.
4. HVAC Systems
   a. Isolate HVAC system(s) to prevent contamination and fiber dispersal to other areas of the building. Openings to all ducts, fans, louvers and plenums will be sealed with two layers of polyethylene sheeting prior to the start of removal. Secure systems and equipment using OSHA lockout and tag-out procedures, as applicable.
   b. As warranted, shutdown steam and hot water system(s) in advance of the proposed abatement to allow adequate time for cooling of these systems.
5. Air Filtration Devices
   a. Differential air pressure systems for each work area to be in accordance with Appendix J of the EPA's "Guidance for Controlling Asbestos-Containing Materials in Buildings," EPA 560/5-85-024.

b. Minimum work area differential air pressure of -0.025 inches w.g. at all times when required, including during the removal, gross clean-up, waste transfer, and encapsulation activities. Account for fluctuations of the negative pressure by aiming for a higher-pressure differential at the project outset to ensure that the chances of the pressure differential dipping below -0.025 inches w.g. are minimal.

c. Provide sufficient number of units for each work area to maintain differential air pressure in the work area at -0.025 inches w.g. between the work area and adjacent non-work areas at all times, allowing for stack and thermal effects. Locate unit(s) so that the primary make-up air enters the zone through the decontamination facilities and traverses the work area as much as possible, unless otherwise approved by the City.

d. Provide on-site certification of the following negative pressure units to document adequate filtration efficiency for all units exhausting internally within the building or as otherwise required by the City. Systems shall be certified by DOP or Portacount testing, signed by an independent tester or the Contractor's Site Safety Representative. DOP testing shall verify an in-situ efficiency of 99.97% or greater. Portacount testing shall verify an in-situ efficiency of 99.3% or better.

6. Exhaust Air:

a. Establish negative pressurization within the work area exhausting air ducted through temporary panels located in window frames or exterior doorways. Such panels must be designed to prevent rainwater from entering the work area.

b. Vent exhaust air to the exterior of the building at locations approved by the City unless otherwise noted or directed.

c. Do not locate exhaust outlets near or adjacent to other building intake vents or louvers or at the entrances to the building. Do not exhaust air into the building interior spaces or within 50 feet of the building's supply air intakes, unless otherwise noted or directed by the City.

7. Decontamination Enclosure Systems

a. Construct a decontamination enclosure system (as a minimum) in accordance with OSHA Regulation 29 CFR Part 1926.1101 and Cal/OSHA Regulation 8 CCR Section 1529. The systems shall be contiguous to the work area consisting of three totally enclosed chambers and airlocks.

b. For Activity Class I work areas, provide as a minimum, with a two (2)-stage decontamination assembly, including an equipment and contiguous clean room with bucket wash-up facilities.

c. Post all emergency phone numbers, notifications, emergency exiting diagrams and procedures, as required.

1) Post danger signs at the entrance to all decontamination units, per OSHA Regulation 29 CFR Part 1926.

2) Mobile Isolation enclosure(s) shall be constructed of rigid frames (either 2 x 4-inch construction or PVC tubing, as appropriate) and polyethylene sheeting or rigid plexiglass sheets. Do not tape, nail, puncture or disturb asbestos containing building materials to attach, or secure the mini enclosure system.

d. No eating, drinking, smoking, or chewing gum or tobacco is permitted in or near the asbestos work areas or decontamination enclosure systems except in areas designated by the City. Smoking will not be permitted in the clean room and near storage or usage areas of flammable materials, such as spray adhesive and mastic removers.

3.03 ASBESTOS ABATEMENT PREPARATION AND CONTROL RENOVATION

A. Notifications:

1. Notify the City, in writing, a minimum of 72 hours in advance of any asbestos-abatement work. ADD. NO. 2

2. Notify, in writing, the BAAQMD a minimum of 10 working days prior to commencement of any asbestos project involving more than 100 linear feet (LF) or more than 100 square feet (SF) of asbestos materials.

3. Notify Cal/OSHA a minimum of 24 hours in advance of any disturbances of any amount of friable or non-friable asbestos-containing materials or prior to performing asbestos-related work.

4. Advise the Contractor's Site Safety Representative (SSR) of suspect conditions. Do not remove or disturb suspect materials until tested and approved.

B. Unexpected release of asbestos into the environment:

1. Cordon off the immediate area (10 to 20 ft. radius average minimum), and shutdown the area's HVAC system (if applicable).

2. Notify the Contractor's Site Safety Representative for proper removal and disposal using wet methods and HEPA-filtered vacuums. Clean-up work shall be completed under the directions of a Competent Person with 16-hour minimum EPA Operations and Maintenance asbestos training and by workers with 2-hours asbestos awareness training minimum unless exposures exceed the permissible exposure limit of 0.1 fibers/cc.

3. Decontaminate or dispose of friable waste in double 6-mil thick goose necked labeled waste bags for manifesting and disposal.

C. Work area set up and protection:

1. Pre-Cleaning

a. Work Areas: Pre-clean surfaces in workspace. If the space has any contamination in the opinion of the City's IH, then the Contractor shall

install air locks and negative pressure system prior to pre-cleaning. ADD. NO. 2

b. Fixed Objects: Pre-clean all fixed objects within the proposed work areas using HEPA filtered vacuum equipment and/or wet cleaning methods, as appropriate. Enclose with a layer of 6-mil polyethylene sheeting sealed with tape unless specified otherwise.

c. Ductwork: Pre-clean and wrap all active and inactive ductwork within the zone with a minimum of two layers of 6-mil polyethylene sheeting sealed with tape, unless otherwise directed by the City Representative. ADD. NO. 2

d. Removable Objects: Pre-clean removable objects within the proposed work areas exposed to friable ACM or debris using HEPA filtered vacuum equipment and/or wet cleaning methods, as appropriate. Properly remove and dispose of objects from work area before abatement operations commence.

e. Work area surfaces or items scheduled to remain covered with polyethylene sheeting during the clearance air sampling shall be inspected and approved by the City upon completion of pre-cleaning before critical barriers are erected or any other removal procedures are initiated.

2. Critical Barriers

a. Seal off all openings, including but not limited to corridors, doorways, ducts, grilles, diffusers, pipe chases, drains, grates, and any other penetrations of the work areas, with polyethylene sheeting sealed with tape. Use caulking where necessary to ensure a complete seal.

b. Except for emergency exits, doorways, which will not be used for passage during work, must be sealed by first applying tape over the gap between the closed door and the doorframe and the gap between the bottom of the door and the floor. Then apply polyethylene sheeting over the door and seal it with tape to the wall and to the floor.

c. Seal windows by applying two layers of polyethylene sheeting sealed independently to the wall with tape.

d. At any time during the abatement activities after barriers have been erected, if visible suspect dust is observed outside of the work area or if the barriers are damaged, work in the abatement area shall immediately stop. Repair the barriers, and clean-up debris/residue using appropriate HEPA vacuuming and wet cleaning procedures before work recommences.

3.04 ASBESTOS ABATEMENT PROCEDURES

A. Stucco, Gypsum Board Walls and Ceilings and Joint Compounds/Taping mud:

1. Remove composite materials using full isolation or mini-containment procedures within occupied building per Cal/OSHA Regulation 8 CCR 1529, Work Class II.
2. Use wet methods and HEPA vacuums, setting up critical barriers for occupied areas.
3. For building demolition projects, cordon off the area and use dust control methods to minimize airborne fiber releases.
4. Provide full decontamination system with shower for areas exceeding one hundred square feet (100 SF).
5. HEPA vacuum the entire contained area prior to clearances for renovation projects.
6. Dispose of composite materials as “trace” (less than one percent (<1%)) asbestos waste, unless otherwise contaminated with other asbestos or hazardous wastes.

B. Asbestos-Containing Plaster and Surfacing Materials Removal:

1. Seal HVAC systems and install drop cloths below and over nearby objects. Ventilate away from the workers, using a HEPA filtration system. Provide a full decontamination system with shower for abatement quantities exceeding 25 LF or as otherwise directed by the Contract Documents.
2. Remove plaster and lath using wet cleaning methods and HEPA vacuuming. Minimize clawing or sawing activities, which generate airborne particulate. Continually mist the air with an airless sprayer or Hudson sprayer to lockdown suspended particulate.
3. Clean-up debris from pipe insulation, fireproofing, acoustical insulation, or other sources (as applicable), which may exist on the topside of the studs or within the wall or ceiling cavity.
4. Walls or ceilings requiring surface plaster removal only will require demolishing all plasters and lath at the base plate, fire break and cross braces as required to remove and dispose of suspect materials which have fallen within the partition cavities.
5. HEPA vacuum the entire contained area prior to clearance air testing.
6. Dispose of the asbestos-containing waste. Metal lath or other materials may be wrapped in burlap or cardboard, prior to bagging, to protect against penetrating the disposal wrapping.
7. Dispose of ACM in double goosenecked bags properly labeled as friable asbestos waste

C. Removal of Fireproofing, Acoustical Plaster, and Laid-in, Splinned or Glued-on Acoustical Tile:

1. Mist asbestos material with amended water, using airless sprayers, or spray equipment recommended by the surfactant manufacturer and capable of providing a "mist" application to reduce the release of fibers. Saturate the

material sufficiently to wet it to the substrate without causing excessive dripping or de-lamination of the material. Mist the asbestos material continuously during work process to maintain damp conditions and to minimize asbestos fiber dispersion, but without accumulating water on the floor. ADD. NO. 2

2. Remove ACM and overspray from all surfaces, including but not limited to: structural steel, deck, walls, ceilings, ducts, insulation, piping, conduit, junction boxes, cables, etc. ADD. NO. 2

3. Remove the saturated ACM in small sections. As it is removed, place the material in sealable plastic bags. Do not allow materials to dry out prior to insertion into the bags. Do not permit materials to accumulate on floors and other surfaces in the work area. ADD. NO. 2

4. After removing the ACM, wet and wipe all surfaces, or use a soft-bristle brush to remove all residual accumulated material. Clean all surfaces with special emphasis on the top edge of the Spray-Poly or polyethylene covers. ADD. NO. 2

D. Removal of Vinyl Floor Tiles and Mastics:

1. Remove the flooring and mastics as indicated on the Contract Drawings using full isolation procedures, satisfying the requirements of Cal/OSHA Regulation 8 CCR 1529, Work Class II.

2. Set-up critical barriers and splash guards and establish negative pressurization.

3. Remove the tiles using wet methods to minimize breakage and airborne fiber releases.

4. Remove the mastic using an approved mastic remover.

5. HEPA vacuum the contained area following abatement for clearance.

6. Minimize use of encapsulant on sensitive abated areas or surfaces, such as vinyl floor from wood or concrete substances, so as not to affect the adhesion of flooring replacement materials.

7. Dispose of tiles and mastic as Category 1 and 2 non-friable waste, respectively.

E. Removal of Asbestos Floor Coverings

1. Use an approved mastic removal solvent following the manufacturer's recommended procedures. Wipe residual material and dispose of waste and rags in a proper manner.

2. Where removing the mastic is feasible without the use of solvents, use water with liquid dishwashing detergent (1 ounce of detergent to 1 gallon of water), and scrub surfaces as required to remove residual material, scraping the wetted surface with a stiff-bladed wall or floor scraper. Wipe

residual material and dispose of rags as ACM waste. Wet vacuum standing water with a HEPA vacuum.

3. Use of an approved portable shot abrasive "bead blaster" system that strips, cleans, and etches the floor, shall follow the manufacturer's recommended procedures. This method can dislodge sprayed-on fireproofing and/or sprayed-on acoustical plasters on the floor below due to excessive vibrations, where applicable. Therefore, adhesion and cohesion testing of these materials shall be completed by the City prior to the bead blaster's use or approval. Usage of this system will require a variance from Cal/OSHA and the local Air Quality Management District as a "dry removal" method and approval of the City.

4. Use of a buffer for mastic removal will require wet buffing only. Buffer brushes shall be disposed of after each use as asbestos waste. Thoroughly remove all mastic residues from the buffer before removal from the work area. ADD. NO. 2

F. Removal of Transite Wall /Panels and Ceiling Board, Pipelines, Ducts, Breechings, or Flues

1. Remove transite materials using wet cleaning methods and HEPA vacuuming. Avoid unnecessary sawing and breakage. Take out as whole sheets, if possible. Remove debris remaining at the nails, screws, or other attachments to the studs and joists. Continually mist the air with an airless sprayer or Hudson sprayer to lockdown suspended particulate

2. Remove the exterior materials by cordoning off the work area, installing polyethylene drop cloths on the ground and nearby objects, and removing the transite intact, where feasible.

3. Remove the materials using wet methods, minimizing breakage and airborne fiber releases.

4. Abate all adjoining mastics or caulking as Category 2 non-friable waste.

5. For transite flues, pipelines, ducts or breechings, take out as whole lengths, if possible, cutting at the hanger supports and wrapping the separated sections in a double layer of polyethylene sheeting.

6. Clean up the area. Dispose of transite debris and fragments as friable waste. Dispose transite as Category 2 non-friable waste, double wrapping intact segments in six (6) mil polyethylene sheeting. Panels may be wrapped in burlap or cardboard, prior to bagging, to protect against penetrating the disposal wrapping.

G. Removal of Exterior/Perimeter Windows/Skylights and Door Caulking

1. Cordon off the work area, installing critical barriers at the windows, doors, and other penetrations, as applicable.

2. Remove ACM using wet methods per Cal/She’s Regulation 8 CCR 1529, Work Class II.

3. Set-up drop cloths on the ground and nearby objects to contain falling materials on the ground or public access areas surrounding the work area.
4. HEPA vacuum the sills and frames following abatement.
5. Provide a full decontamination system with shower for areas exceeding 100 SF.
6. Remove residual caulking from perimeter stucco, wood, metal, window and doorframes and concrete finishes, as applicable. Double bag and dispose of materials as Category I non-friable waste.

H. Removal of Electrical/Wiring Insulation:

1. Remove wiring by cutout of the conduit in manageable sections, where possible. Otherwise, pull the wire through the conduit with a properly sized sponge wetted with encapsulant tied to the distal end, misting the insulation continually and HEPA vacuuming any residual debris. Avoid unnecessary cutting or peeling. [A]

I. Removal of Roofing Material:

1. Seal any air intakes, operable windows, and skylights within 50 feet of the work area with 6-mil polyethylene sheeting secured in place over the opening. Weather conditions should be dry and wind conditions less than 10 mph with dry conditions predicted for the next day at a minimum.
2. Establish a secured waste storage area where sealed bags of roofing material are stored during removal. Provide such areas for each different roof elevation or section. Line the storage areas with a layer of 6-mil polyethylene sheeting.
3. Employees and authorized visitors at the work site during on-going work shall wear approved respirators and full body disposable protective clothing as described in "Personnel Protection" and are required to fully shower out when exiting the abatement zone.
4. Dampen the roof surface with a fine spray of amended water before proceeding with removal. Keep roofing material damp throughout the removal process.
5. Cut, peel, and scrape the roofing materials as required to remove the largest pieces possible in layers. Continue the removal until roof decking is reached. Remove contaminated sleepers, flashing and counter flashings, as applicable. All tars, felts, flashings and counter-flashings are considered asbestos containing and require removal and disposal unless otherwise noted.
6. Double bag roofing material in 6-mil labeled disposal bags and dispose of by methods described herein. Do not drop bags from the roof to the dumpster; transport bags without risk of their integrity utilizing the stairs or a lined waste chute. Where a lined waste chute is used, contain the opening to the dumpster with polyethylene sheeting and install a HEPA-

filtration device to scrub the dumpster containment in the event of a bag rupture. Clean and seal the chutes overnight, as applicable.

7. HEPA vacuum and/or wet wipe the entire work site including adjacent roof area and removed areas following the roofing's abatement. The area may be sprayed with a light coat of encapsulant to lockdown all remaining asbestos fibers, except the skylights, as applicable.

8. Provide a full decontamination system with shower for areas exceeding one hundred square feet (100 SF).

9. Non-friable asbestos roofing material is considered non-hazardous and can be disposed of as non-hazardous asbestos waste. This can be transported and disposed disposal at a landfill-accepting Category I, non-friable ACM.

J. Removal of Window and Door Glazing Compounds

1. Remove windows and doors following abatement of other interior finishes and materials and wrap in a double layer of polyethylene sheeting, where feasible.

2. Where complete removal and disposal of the frames is not feasible, scrape the glazing compound following installation of polyethylene drop cloths under each window or door.

3. Scrape residual compounds from wood or metal frames, as applicable. Double bag and dispose of materials as Category I non-friable waste unless otherwise directed by the City.

K. Handling of Contaminated Water:

1. Do not dispose of contaminated water from the work area in the shower room. Contaminated water must be either filtered through a separate 1-micrometer filter into a sanitary drain or triple bagged using 12-mil appropriately labeled bags filled with absorbent. No free-flowing water shall be present in the bags.

2. All water from any asbestos abatement work area including shower waste will be filtered through a filter having maximum rated pore size of 1 micrometer before being discharged.

3. A holding tank located inside the work area is recommended in case the capacity of the filter is exceeded during active periods such as showering out.

4. Discharge all wastewater in an approved manner. No wastewater discharge will be allowed to enter a storm sewer, open drainage basis, body of water, a dry well or septic system.

3.05 LEAD ABATEMENT AND HAZARD CONTROL

A. Notifications:

1. Notify the City, in writing, a minimum of 48 hours in advance of any lead abatement work.

2. When disturbing exterior lead paint notify the San Francisco Dept. of Building Inspection in accordance with the provisions of the San Francisco Building Code, Chapter 36.

B. Prohibited Activities: The following activities are prohibited unless written permission otherwise is given by the City:

1. Open flame burning or torching, including propane-fueled grids.
2. Scrapping, sanding, and grinding without proper containment of HEPA vacuum exhaust tools.
3. Uncontained hydroblasting or high-pressure wash.
4. Heat guns operating above 1,100 degrees F.
5. Dry sweeping of debris.
6. Removal, burning through, torching, heating or welding have painted or coated surfaces by torch or flame.
7. Removal, disturbance, welding, or heating of or through lead-containing coatings with a torch or flame, except as unavoidable due to a condition where there is back-to-back structural elements with paint in between that cannot be adequately previously abated without affecting the integrity of the structure. For this conditions the Contractor is required to provide adequate lead hazard control as required to perform the work of this contract.
8. Disturbance of lead-painted or lead-coated surfaces scheduled to remain by cutting, sawing, grinding, or other construction operations without adequate dust controls.
9. Under no circumstances shall workers or supervisory personnel eat, drink, smoke, chew gum, or chew tobacco or remove their respirators in the work area or in the proximity to lead hazard operations.
10. The use of steam cleaning and compressed air removal methods.\
11. Abrasive blasting or sandblasting without local HEPA exhausts dust collectors, and containment.

C. Handling Requirements

1. For existing lead-painted or lead-coated surfaces that are present, advise workers of the potential hazards.
2. For areas where handling or disturbance of loose or peeling paints are required, verify that the paint that remains on interior walls, ceilings, and other surfaces in areas of active work, as applicable, is adhered to the substrate sufficiently to prior to demolition. Paints that peel or loosen during wetting shall be handled and removed as specified in this Section.
3. Building components with intact and non-peeling, lead containing coatings may be disposed of as general construction debris when done so in compliance with applicable laws and regulations.

4. During demolition, wet down building components and apply localized dust controls. Clean debris and surfaces with HEPA-filtered vacuums or wet methods. Dry sweeping is not permitted. Shoveling, wet sweeping, and brushing may be used only where vacuuming or other equally effective methods have been tried and are found to be ineffective for controls of potential hazardous airborne emissions.

5. Loose debris and scraped materials with a lead content greater than 1.0 mg/m3 or 0.5% by weight shall be treated as hazardous waste. Construction waste coated with intact lead paints or glazing may be disposed as construction debris in accordance with Cal/EPA requirements.

6. Workers shall decontaminate themselves and appropriate equipment prior to eating, drinking and smoking.

D. Building/Work Area Isolation and Signs:

1. Construct temporary isolation partitions, tunnels, and other critical barriers. Enclosures shall include, as minimum, polyethylene barriers impervious to dust and wind, taped and sealed joints, airlock entryways and negative pressurization of the work area using HEPA filtration devices. Equip critical barriers with transparent viewing ports, where feasible, to allow views by authorized personnel of the lead-related work activities throughout the regulated area. The Contractor shall secure area entrances and exits.

2. Cordon off active lead hazard and abatement zone(s) and post with warning signs at entries to regulated areas. Affix appropriate warning signs at the entry and approaches to the regulated area(s) as follows:

Warning

Lead Work Area

Poison

No Smoking or Eating

Authorized Personnel Only

3. Cordon off the proximity (within approximately 20-ft.) of OSHA Activity Class I & II work areas using construction tape or other appropriate means. Only the abatement worker, the City, and its representatives will be allowed in the restricted access area. Anyone entering the regulated "cordoned" work area shall wear appropriate respiratory protection and disposable coveralls equivalent to the type of personal protective equipment used by those performing the activity. Affix appropriate warning signs at the entry and approaches to the regulated area(s).

4. The Contractor shall decide the size of each daily work area to be cordoned off under the various Activity Class Categories. The Contractor shall fully isolate all OSHA Activity Class III abatement zones unless otherwise

directed by the City. Seal off entrances to these work areas with one layer of 6-mil plastic sheeting or barrier tape, as applicable.

E. Loose and Peeling Paint Hazard Controls:

1. Scrape loose and peeling paints and use dust controls for demolition of lead coated architectural and structural elements as indicated in the Plans and following dust control procedures as outlined under Cal/OSHA Regulation 8 CCR 1532.1.

2. Remove and dispose of intact lead-coated architectural and structural elements as non-hazardous waste.

3. EPA vacuum residual debris and wet wipe affected substrates as required for clearance inspection or testing. Characterize the waste for possible disposal as a hazardous waste.

3.06 LEAD REMOVAL PROCEDURES

A. Walls and Columns - Lead-Based Paint Removal:

1. Apply a chemical stripper and scrape the applicable wall area with loose and peeling paint.

2. Remove all loose plaster, sheetrock, concrete, stucco or other substrate materials that have peeled away with the paint and dispose of as lead waste.

3. Once paint has been removed from ceilings, walls and other building components, as applicable, the Contractor shall commence removal of debris found on floors or the scaffold platform.

B. Exterior Paint Removal:

1. Place drop cloths on the ground surrounding surfaces to catch any debris from scraping lead-based coatings, as applicable.

2. Erect temporary protective covers over pedestrian walkways and at points of passage for persons or vehicles, which may remain operational during the course of the paint removal.

3. Asbestos might be present on the paint coating material. Asbestos abatement work practices and isolation controls shall be followed when this condition exist for exterior paint coatings removal.

C. Loose Debris Clean up:

1. Construction operations may occasionally disturb loose and peeling paints outside the immediate work area through building vibration or other means. All such loose paint and debris shall be cleaned-up daily using a HEPA-filtration vacuum. Provide adequate protection to offset future disturbances by abating or otherwise sealing affected surfaces.

2. Clean-up background or construction-related dusts from demolition of lead-coated elements or other contaminant sources using wet methods and HEPA-filtered vacuums.

3. Do not dry sweep.

D. Non-ACM Ceramic Tile Demolition defined as HUD LBP's**:**

1. Manually demolish ceramic wall tiles using drop cloths, wet methods, and HEPA vacuums for dust control in compliance with Cal/OSHA regulation 8 CCR 1532.1.

2. Avoid dry sweeping. Clean-up daily all work areas before leaving the site.

3. For tiles mounted to concrete, plaster or masonry substrates, isolate the room and establish negative pressurization of the work areas using HEPA-filtered negative pressure units and demolish the tiles using an pneumatic or electric chipper or jackhammer. Continuously mist the work area during chipping activities.

4. Characterize and dispose of debris as possible hazardous waste. Dispose of large intact debris as non-hazardous waste and HEPA vacuum the fine debris and dust residues for characterization and possible disposal as hazardous waste.

E. Structural Steel Spot Removal

1. Remove paints on structural steel components scheduled for welding or torching using a chemical stripper, needle gun or other approved methods as outlined in the approved Contractor's Hazardous Materials Management Plan (HMMP).

2. Use drop cloths, polyethylene barriers, Hudson and airless sprayers and other methods as required for dust control.

3. Characterize and dispose of paints, rags, etc, separately for possible disposal as a hazardous waste. ADD. NO. 2

3.07 FINAL CLEARANCE

A. Regulated Zones

1. The lead and/or asbestos abatement zone shall remain secured until cleared by the City.

2. Visual Inspection: When the Contractor considers the work or a designated portion of the work to be complete, the Contractor shall notify the Resident Engineer that the work is ready for abatement zone clearance inspection.

3. If evidence of lead or asbestos contamination is identified during the final inspection the Contractor will conduct further cleaning as specified herein.

B. Asbestos Clearance Sampling

1. Asbestos-containing materials will be abated with clearance by visual inspection, phase contrast microscopy (PCM) or transmission electron

microscopy (TEM). The City reserves the right to conduct AHERA clearance criteria and limit the number of samples for clearances to be less than AHERA protocol when the City deems appropriate.

2. Clearance air samples using aggressive air sampling techniques shall be collected for all abatement zones, unless otherwise designated in the Contract Documents. ADD. NO. 2

3. Phase Contrast Microscopy (PCM) Clearances: Areas cleared by PCM shall show an airborne concentration of total fibers for each sample at or below 0.01 fibers per cubic centimeter (f/cc) using the NIOSH 7400A counting rules. Any sample result exceeding 0.01fibers/cc shall require re-cleaning of the work area and retesting. The City will determine the minimum number of samples, based on the quantity and types of materials removed, configuration, and sequencing of the work areas, and similar considerations.

4. When transmission electron microscopy (TEM) clearances are conducted, as designated by the Contract Documents, analysis shall be by the method described in 40 CFR Part 763, Appendix A, Subpart E (AHERA), with an analysis turn-around time of 24 hours, unless otherwise designated by the City. Z-test requirements under the AHERA regulations will not apply to this Project.

5. The City shall pay the costs of the final round of visual inspections, aggressive air sampling, and PCM and/or TEM analyses that will meet the Specifications. All rounds of visual inspections, aggressive air sampling, and PCM and/or TEM analyses that fail to meet the contract criteria shall be borne by the Contractor.

C. Lead Clearance Sampling

1. The City at its own discretion will conduct monitoring and clearance during lead hazard-related work, such as demolition, refinishing, or torching and welding activities, the City and its Consultants may collect air samples for analysis by flame atomic absorption.

2. Air sampling results in excess of the Cal/OSHA “Project Action Level” of 30 micrograms per cubic meter (µg/m3) within the construction zone may require isolation of the work area, upgrades in the required respiratory protection, amendment of work procedures, and/or clean-up of the affected area.

3. Air sampling results in excess of the EPA's National Ambient Air Quality Standard (NAAQS) of 1.5µg/m3 at the site's property line or at adjoining occupied non-construction areas may require isolation of the work area, amendment of work procedures, and clean-up of the affected area

4. Re-sampling of the contaminated areas and handling, shipping, analysis charges (including the City’s time and expenses) for additional sampling required to show background levels below these lead standards shall be borne by the Contractor

D. Wipe Sample Clearance Criteria: The Contractor shall re-clean the area if surface concentrations exceed the following "Interim HUD Clearance Dust Standards:"

40 micrograms/ft^2 for floors

250 micrograms/ft^2 for interior windowsills and stools

400 micrograms/ft^2 for exterior windowsills and interior window wells

800 micrograms/ft^2 for exterior concrete or other rough surfaces

800 micrograms/ft^2 for attic and non-public spaces

E. Where lead hazard abatement occur concurrent with asbestos abatement activities, the area may be cleared by aggressive air sampling, where airborne lead concentrations following the final visual inspection shall not exceed the EPA's NAAQS standard of 1.5 micrograms/m3 as analyzed by NIOSH method 7082 (flame atomic absorption) or 7105 (graphite furnace atomic absorption).

3.08 WASTE DISPOSAL AND MANIFESTING

A. Lead Waste Disposal

1. All lead-containing waste or debris, including but not limited to, painted building components, ceramic tile glazes, respirator cartridges, disposable suits and other associated debris generated during this work will be packaged for disposal as hazardous waste until waste characterization has been completed and analytical results are available. Waste shall be segregated into distinct waste streams according to the waste categories suggested in the *Guidelines for the Evaluation and control of Lead-Base Paint Hazards in Housing (a.k.a. HUD Guidelines) dated June 1995 (revised Ch 7, 1997)* which include:

Category I: Low Lead waste-Typically non hazardous construction materials, filtered wash water, cleaned plastic sheeting and other items that test as non-hazardous.

Category II: Architectural components such as painted finished items like siding, doors, windows, trims, etc, which demonstrate intact or stabilized surface coatings.

Category III: Concentrated Lead Waste-Typically hazardous materials such as paint sludge, paint chips, vacuum debris, vacuum filters, and any waste testing hazardous.

Category IV: Other lead-containing waste requiring characterization testing.

B. Waste Disposal and Manifesting Procedures

1. Packing, labeling, transporting, and disposing of hazardous waste shall comply with the requirements specified under Section 02 81 00- Handling, Transportation and Disposal of Excavated Materials and Cal/EPA regulations under 22 CCR including using one or more of the following testing procedures and completing the Waste Manifest Form (DTSC 8022A, 7/92, and EPA 8700-22) as required.
   a. Total threshold limit concentration (TTLC)
   b. Waste Extraction Test (WET)
   c. Toxicity Characteristic leaching procedures (TCLP)
2. Loose debris and scraped materials shall be treated as hazardous waste, unless otherwise approved by the City. Construction waste coated with intact LBP shall be profiled and may be disposed of as construction debris in accordance with the Cal/EPA requirements. All waste sampling analyses, handling, transportation, and disposal work in this Section shall be inclusive of the lump sum bid.
3. All waste shall remain stored on site in a secured and designated waste storage area until results of waste characterization are available. Due to analytical methods of these tests, this may require storage for up to ten working days or more.
4. Waste shall be packaged in accordance with the applicable U.S. Department of Transportation regulations included in 49 CFR Parts 173, 178 and 179. Individual waste containers must also be labeled in accordance with Cal/OSHA labeling requirements.
5. Profile waste with an approved landfill or incinerator by means of standard digestion and extraction tests (TCLP, WET, and SW846), as appropriate.

END OF SECTION

SECTION 02 81 00

TRANSPORTATION AND DISPOSAL OF EXCAVATED MATERIALS

PART 1—GENERAL

1.01 DESCRIPTION

A. This Section alerts the Contractor that work in this Contract will involve working environments that may be hazardous, contaminated, or non-hazardous to activities associated with the excavation, handling, transportation, and disposal of all removed materials and other wastes in the project area with emphasis to hazardous and contaminated materials.

B. Such hazardous, contaminated, and non-hazardous environments include, and are not limited to hazardous and non-hazardous materials, soils, groundwater, heavy metals, petroleum hydrocarbons, polynuclear aromatic hydrocarbons, organic compounds, serpentine rock and ultramafic material (which may contain natural asbestos), lead-based paint materials, sewage, sludge, debris, grit, sewer gases, oxygen deficiency; bacterial/biological contamination, and confined spaces.

C. Hazardous and non-hazardous waste shall only be disposed at certified and permitted California landfills or equivalent out-of-state landfills, or a permitted disposal and recycling facility.

D. All work in this Section shall be incidental to the Work.

1.02 RELATED SECTIONS

A. General Provisions Section 26

B. Section 01 11 00, Summary of Work

C. Section 01 33 00, Submittal Procedures

D. Section 01 41 00, Regulatory Requirements

E. Section 01 42 00, References

F. Section 01 57 19, Environmental Mitigation Measures

1.03 NOT USED

1.04 SUBMITTALS

A. The Contractor shall submit the documents listed below, and have the Plans approved by the Engineer at least 20 working days before soil disturbing activity, and no later than 30 calendar days after the Notice to Proceed.

B. Pursuant to the provisions of Section 26 of the General Provisions and Section 01 33 00, Submittal Procedures, the Contractor shall submit the following as separate submittals:

1. Waste Profile Application Package on each waste stream that the Contractor plans for disposing the excavated soil. The Contractor shall prepare and submit waste profile application to each proposed disposal facilities for acceptance based on the Phase 2 assessment findings. The formal waste profile application will also include, if any, additional information (such as slurry additive applied by the construction contractor as part of the construction) will be included in the formal waste profile application. Only the Generator (City) will be sign the profile application.
2. Waste Profile # (s) from the permitted landfills or the permitted disposal & recycling facilities that the Contractor will use.
3. Not used.
4. Workers HAZWOPER Training Records in accordance with Article 1.07 herein.
5. Transporter's current Class 1 Certificate of Compliance from the California Highway Patrol and Hazardous Substance Removal Certification in accordance with Article 1.09 herein, as warranted.
6. Copy of the Non-Hazardous Waste form for and subsequent copies in accordance with Article 1.10 herein.
7. Hazardous Waste Manifest in accordance with Article 1.11 herein, as warranted.
8. Not used.

1.05 CLASSIFICATION AND MANAGEMENT OF EXCAVATED MATERIALS

A. Except as otherwise stated in the Contract Documents, the Contractor is responsible for the excavation, loading, handling, transportation, and disposal of all surplus waste excavated soils and sediments from dewatering activities, meeting requirements of a certified and permitted California landfill or an equivalent out-of-state landfill. All such disposal activities shall require the approval of the Engineer prior to actual loading and disposal.

B. Conditions for acceptance at various local landfills/waste disposal facilities include, filling out of a waste profile, that the surplus waste excavated soil hauled to the landfill will have greater than 50 percent solids, and cannot have any free liquids. It is the Contractor's responsibility to meet landfill requirements for disposal.

C. With the exception of this Article 1.03 herein, the Contractor shall not conduct any sampling or analysis without prior permission from the Engineer. This does not include the Contractor's obligation for personnel monitoring.

D. The Contractor shall inform the City in writing and obtain City approval prior to any sale, supply, or offer to sell excavated material. The Contractor shall similarly comply with Bay Area Air Quality Management District's (BAAQMD's) Regulation 11, Rule 14 for asbestos-containing serpentine.

Additional information may be found at http://www.baaqmd.gov/regs/rg1114.pdf, The California Air Resource Board Advisory #161 (http://www.arb.ca.gov/cd/advs161.htm, and Title 17, Section 93106 of the California Code of Regulation (CCR). In such a case, the Contractor, at its own expense, shall perform all engineering and chemical testing as required by the City and by federal, State, and local statutes, laws, regulations, and policies.

1.06 DEFINITIONS

A. Generator: The City is the "generator" as defined in Section 66260.10 of Article 2, Chapter 10, Division 4.5 of Title 22 of the California Code of Regulations (CCR) and in Title 40, Code of Federal Regulations (CFR) of any excavated pre-existing hazardous waste. The City will be responsible as the generator to the extent of the law.

B. Waste: Discarded material of any form as defined by the Code of Federal Regulations 40 CFR 261.2 (http://www.access.gpo.gov/nara/cfr) and the California Code of Regulations 22 CCR 66261.2 (http://ccr.oal.ca.gov).

C. Hazardous Waste: This may include excavated material, asbestos, loose and peeling lead–based paints, and other material that is regulated by and requires management, handling, transport, treatment, storage, and disposal according to the requirements of the Federal Resource conservation Recovery Act (RCRA) and associated regulation 42 U.S.C. 6901 et seq. (http://www.access.gpo.gov/congress/cong013.html) and 40 CFR Part 260 et seq., or the California Hazardous Waste Control Law (http://crc.losrios.cc.ca.us/~hodappd/20a/callaw/index.htm) and associated regulations (Health and Safety Code 25000 et seq. (http://www.leginfo.ca.gov/calaw.html) and 22 CCR 66260 et seq.).

D. References to hazardous material or contaminated material incorporate definitions of hazardous pollutants, hazardous contaminants, hazardous material, hazardous substances, hazardous waste, toxic pollutants, and toxic substances applicable in accordance with federal, State, and local statutes, laws, and regulations.

E. Management of excavated materials or “management” means transportation, transfer, recycling, recovery, disposal, handling, processing, storage, and treatment of excavated materials in accordance with federal, State, and local laws and regulations

F. Soil: earth material composing the superficial geologic strata (material overlying bedrock), consisting of clay, silt, sand, or gravel size particles as classified by the U.S. Soil Conservation Service. Soil does not include asphalt, concrete, aggregate base, vegetation, debris, wood, obstructions, and other organic, unsound, or deleterious matter.

G. Excavated material includes all soils (fill, alluvium, bedrock), and other materials generated in the course of the project work, which are to be excavated, handled, or disposed of as part of the Contract.

H. Waste excavated soil is excavated soil that is a waste and cannot be reused within the project site in accordance with reuse criteria of this. It is surplus and shall be managed, transported, and disposed of as part of the Contract. Waste excavated soil does not include asphalt, concrete, vegetation, wood, debris, obstructions, and other organic, unsound, or deleterious matter.

I. The following soil classifications with corresponding requirements are established solely for the purpose of payment for the excavation, handling and transporting of the excavated materials determined to be a waste:

California Class I (non-RCRA) hazardous waste: is waste excavated material that is classified as California (non-RCRA) hazardous waste, requires disposal at a Class I disposal facility or a similarly permitted out-of-state facility and requires transport by a registered hazardous waste transporter.

California Class - non hazardous waste: is non-hazardous waste, and is not a California or Federal hazardous waste. It requires disposal at a California permitted non hazardous waste landfill such as class II or permitted recycling disposal facilities or at a similarly permitted out-of-state facility without the need of a registered hazardous waste transporter.

1.07 WORKER'S HAZWOPER TRAINING

A. The Contractor shall provide sufficient numbers of properly trained personnel who may come in contact with, may be exposed to, disturb, operate equipment in, or otherwise excavate, handle, transport and dispose hazardous or contaminated excavated material. This training shall be required irrespective of whether contaminated or hazardous substances are found. Each such employee shall posses a current 40-hour Hazardous Waste Operation and Emergency Response ("HAZWOPER") training and certification and the associated 8-hour HAZWOPER refresher training (in accordance with Sections 5192 and 5144 of Title 8, CCR and Title 29 CFR, Sections 1910.120 and 1910.134), and shall be certified to wear appropriate personal protective equipment.

B. Only qualified persons shall engage in hazardous materials-related work. Contractor and Subcontractor personnel, who come in contact with, are exposed to, disturb, operate equipment in, or otherwise handle hazardous or contaminated materials, or demolition debris shall have appropriate hazards communication and required training and medical monitoring.

C. The City will not grant extensions of time or increases in payment for costs associated with the Contractor's inability to provide properly trained personnel, costs of training Contractor's workers, or hiring of required personnel.

1.08 REGULATORY INDEMNIFICATION

A. The City will not indemnify against liability of the Contractor resulting from the activities or duties, which are the responsibility of the Contractor under the terms of this Contract. This includes, but is not limited to, liability arising from the arrangement of transportation of excavated material, whether on- or off-site.

Therefore, the City will not assume any liability, present or future, incurred by the Contractor by reason of these activities.

B. The Contractor is specifically alerted to, and shall familiarize itself and its Subcontractor(s) to, the liability statutes of:

1. The Comprehensive Environmental Responses, Compensation, and Liability Act (CERCLA) of 1980 found in 42 USC, Section 9601 et seq.
2. The Superfund Amendments and Re-authorization Act (SARA) of 1986 found in 42 USC, Section 9601 et seq.
3. The California Hazardous Substance Account Act (HSAA) of 1981 found in California Health and Safety Code, Section 25300 et seq.
4. California Health and Safety Code, Division 20, Regulations and CCR 22 Section 6600 et. seq.
5. Cal/OSHA Lead in Construction Standard, Title 8, CCR, Section 1532.1.
6. BAAQMD Regulation 6 for Particulate Matter and Visible Emissions (http://www.baaqmd.gov/regs/rg0600.pdf) and Regulation 11 for Hazardous Pollutants (http://www.baaqmd.gov/regs/rulereg.htm).
7. The Final Regulation Order of the California Code of Regulations (CCR) Title 17, Public Health, Section 93105, on Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations (http://www.arb.ca.gov/toxics/atcm/asb2atcm.htm).
8. The San Francisco Building code Section 106.3.2.6 and San Francisco Health Code 22B-Construction Dust Control Ordinance #176-08.
9. The DPW Dust control Order 171,378.

C. The Contractor shall be responsible for all liability and costs necessary to prevent its own or Subcontractors' operations from violating federal, State, or local statues, laws, regulations, and policies.

1.09 REQUIREMENTS FOR THE TRANSPORTER

A. As warranted, the Contractor shall ensure that its drivers as well as the Subcontractor drivers have in their possession, during the hauling of material and soil, all applicable California State and local vehicle insurance requirements, valid driver's license, and vehicle registration and licensing. A current Class 1 Certificate of Compliance from the California Highway Patrol shall be affixed to each vehicle.

B. All hazardous materials/waste haulers shall possess a Hazardous Substance Removal Certification granted by the State of California, Contractor's State License Board (1 800-321-2752 or http://www.cslb.ca.gov), and all other required certifications and insurance.

C. Haul trucks carrying excavated material shall be loaded so that the material does not extend above the walls of the truck bed, and there is no leakage from any vehicle.

D. All loads require covering and lining underneath, regardless if the material is wet, hazardous, or non-hazardous.

E. The Contractor shall be responsible for cleaning up excavated material spill, which occurs during loading, handling, and transportation.

F. Preparation for shipment: Marking, labeling, placards, and packaging prior to transport shall be in accordance with all regulations and shall be the responsibility of the Contractor.

1.10 USE OF NON-HAZARDOUS WASTE MANIFEST FOR CLASS II MATERIAL OR LESSER

A. For transportation and disposal of the waste, the Contractor shall provide and prepare for the Engineer's signature, a Non-Hazardous Waste Manifest form obtained from the landfill provider. The Non-Hazardous Waste Manifest form shall be completed for each vehicle carrying excavated material classified as California Class II non-RCRA waste, or of a lesser waste classification. The Contractor shall submit the Non-Hazardous Waste Manifest form to the Engineer for the Generator's signature at least 72 hours in advance of the day of the off-haul with an estimate of the number of loads scheduled for off-haul. The Non-Hazardous Waste Manifest form shall contain the following information before providing the final copy for the Engineer to sign:

1. Name, address and phone number of the Generator, Project name, and Specification Section number.
2. The Contractor's billing information
3. The soil profile approval number and description of the waste.
4. Name, address and phone number of the transport company.
5. The Name, address, and telephone number of the receiving facility i.e., disposal facility.

B. The City will not be responsible for off haul delays if the Contractor does not notify the Engineer in a timely manner to sign the Non-Hazardous Waste Manifest forms.

C. On a monthly basis, the Contractor shall provide the Engineer with a copy of each completed Non-Hazardous Waste Manifest Form (with the landfills signature) and its corresponding certified weight ticket.

1.11 HAZARDOUS WASTE MANIFESTING PROCEDURES FOR CLASS I MATERIAL (APPLICABLE?)

A. As warranted, the Contractor shall furnish all labor, materials, equipment, and incidentals required to transport those materials identified as hazardous waste for the purpose of disposal.

B. The Contractor shall comply with all applicable regulatory requirements listed as well as other applicable federal, State, or local laws, codes, and ordinances,

which govern or regulate transportation of wastes (including but not limited to DOT-HM 181 in accordance with 49 CFR 172).

C. All material classified as hazardous waste (Federal Class1 RCRA and California Class1 non-RCRA wastes only) shall be hauled off using a licensed hazardous waste transporter and the uniform hazardous waste manifest form (DTSC Form 8022A and/or EPA Form 8700-22 a.k.a. the manifest).

D. Preparation and handling of waste manifests

The Contractor shall provide and prepare the waste manifests and landfill profiles for each shipment of hazardous wastes from the site. The Contractor is hereby notified that hazardous waste manifest, waste profiling, and landfill service agreements have to be prepared and have to be approved by the landfill in advance of the off-haul. The Contractor shall consult with the Engineer for local requirements in filling out the forms.

1. The manifest shall describe the contents of each truck carrying materials to the waste disposal site, including the weight of the waste materials. Weight, not volume, shall be used to measure waste quantities.
2. The Engineer will provide a hazardous waste generator identification number for use on the manifest. The Contractor shall provide the State Transporter identification number and telephone number.
3. The licensed transporter shall also sign and date the manifest indicating that it has accepted the load described in the manifest on that particular day.
4. Only a City employee (and not the Contractor) will sign the manifest for the "generator" of the waste.
5. The Contractor shall notify the Engineer 72 hours prior to off-haul of all excavated material. If the manifest and other forms above are to be signed by the Engineer during periods other than the hours stipulated above, the Contractor shall give an additional 72-hour advance notice to the Engineer.
6. The Engineer will sign and keep the Generator's copy and give the remaining copies to the licensed transporter.
7. The licensed transporter shall carry the hazardous waste manifest with each truckload using the traffic control approved routes for off haul
8. Within 2 days of its return, the Contractor shall provide the Engineer with the completed waste manifest. The completed waste manifest shall be certified by the receiver of the waste shipment, confirming that the shipment was received at the waste treatment or disposal facility designated in the Contractor's bid, and certifying the weight of the shipment.
9. Should any waste manifest not be returned within 35 days of shipment, the Contractor shall initiate follow-up, shall document such follow-up effort in writing with an Exception Report in accordance with 40 CFR 262.42 and/or 22 CFR 66262.42, and shall provide a copy to the Engineer.

E. Mandatory City Information for the Manifest

Manifest Item 1: Generator's US EPA ID Number for Project. (Will be provided by the Engineer after NTP as deemed necessary)

Manifest Item 3: Emergency response Phone: # 24 hours line to be provided by the Contractor

Manifest Item 5:

a. Generator's Name and Mailing Address:

City and County of San Francisco
Department of Public Health/BEHM
1390 Market St., Suite 210
San Francisco, CA. 94102

b. Generator's Site Address:

City and County of San Francisco
Central Subway
Municipal Transportation Agency
Along 4th and Stockton Streets
San Francisco, CA 94103

Manifest Item 14: The following information is mandatory:

c. City and County of San Francisco
d. Municipal Transportation Agency
e. Central Subway/Third Street Light Rail Phase 2
f. Chinatown Station (Stockton & Washington)
g. Contract# 1277
   Project Manager: To be provided by Engineer
h. Project Manager Phone Number #To be provided by Engineer
i. Profile # _____(Defined when manifest is generated. To be obtained and provided by the Contractor)

Include the following statement for soil disposal on line 14 of the manifest: The City of San Francisco applies for an exemption from the BOE Land Disposal Generator fees in accordance with H&SC 25174.7, 25174.1; 25205.5, and 25345. The soils were excavated from beneath a public street.

PART 2—PRODUCTS

NOT USED

PART 3—EXECUTION

3.01 TEMPORARY STOCKPILING OF EXCAVATED MATERIAL AND IMPORT MATERIAL

A. The Contractor is not permitted to stockpile excavated materials, backfill materials, or import materials overnight along the project alignment.

B. If feasible and in the event that the Engineer permits the Contractor to temporarily stockpile excavated and import material along the project alignment, the following conditions shall apply:

1. Material shall be stockpiled at a location approved by the Engineer. The volume of the stockpile will be limited within the discretion of the Engineer.

2. Stockpiled materials shall not be stored for more than 48 hours.

3. The Engineer retains the right to suspend the use of temporary stockpiling in the event of negative public perception, aesthetic concerns, and regulatory concerns. In such an event, the Contractor is directed to remove the stockpile within 24 hours.

4. After a stockpile has been removed, the Contractor shall wet sweep and vacuum the area, street, and sidewalk to remove residual soil.

C. All costs associated with the temporary stockpiling shall be borne by Contractor. No additional payment shall be made therefore. Such related costs include, but are not limited to, dust control measures, wet sweeping, covering of soils, multiple handling, multiple staging, work re-sequencing or rescheduling, time associated due to duration of storage, use of personal protective equipment, and other City requirements.

END OF SECTION

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SECTION 31 43 14
COMPENSATION GROUTING

PART 1 – GENERAL

1.01 DESCRIPTION

A. The Work specified in this Section consists of installation of compensation grouting tube-a-manchettes for use by follow-on Contractors.

1. compensation grouting region has been developed for the structures in the vicinity of the future Retrieval Shaft and Tunnel construction (constructed by Others) that may be significantly affected by shaft and tunnel excavation.

2. Specific location and length of tube-a-manchettes to be provided by Engineer at Notice-to-Proceed (NTP) for this Contract.

1.02 RELATED SECTIONS

A. Related Sections: The work of the following Sections is related to the work of this Section. Other Sections, not referenced below, may also be related to the proper performance of this work.

1. Section 01 11 00, Summary of Work
2. Section 01 31 13, Project Coordination
3. Section 01 32 33, Photographic Documentation
4. Section 01 33 00, Submittal Procedures
5. Section 01 35 29.10, Health and Safety
6. Section 01 45 00, Quality Control
7. Section 01 57 19, Environmental Mitigation Measures
8. Section 01 76 29, Protection of Existing Property

1.03 THE WORK ALSO INCLUDES

A. Furnish, install, maintain and monitor trenches, and other means of access to permit installation of grout pipes, as needed.

1.04 DEFINITIONS

A. Restoration - Correction by repair or replacement of a structure or facility that is damaged, removed, or altered by construction activities.

B. Compensation Grouting - Grouting technique using controlled injection, through pipes placed at necessary locations, of cementitious grouts by fracturing the ground beneath structures to induce heave which balances

settlements. Grout is extruded into soil mass as soil movement occurs during station construction.

C. Ground Conditioning for Compensation Grouting: - activity after grout pipe is installed but before station construction to prepare the grout pipes and ground. Involves injecting grout under high but controlled pressure to locally fracture the ground, achieving penetration of grout fully about the grout pipe, fill any voids or loose zones, and pre-stress the ground. Ensures that compensation grouting is effective when first required to compensate for ground settlement.

D. Specialty Subcontractor - Subcontractor specializing in designing and performing compensation grouting with qualifications as specified.

1.05 QUALITY CONTROL

A. Specialty Subcontractor who has experience in performing the types of compensation grouting work as specified herein. Provide written descriptions of at least three similar projects that successfully completed in the last 7 years.

1.06 SUBMITTALS

A. Refer to Section 01 33 00, Submittal Procedures, for submittal procedures. Submit the following for each building for review and approval by Engineer:

1. Description of plant, equipment and materials including:
    1. Manufacturer's product data for materials used in the Work.

2. Working drawings
    a. Separate working drawings and methods statements for drilling work and grouting work for each building and structure that is to be protected by compensation grouting at least 90 days in advance of station excavation under the building involved.

    b. Plan for assuring timely delivery of equipment and materials to eliminate delays to follow on construction and operations, including estimated material consumption, and recommended material reserves.

    c. List of utilities required to be maintained in service, and proposed methods for their location.

    d. Methods including location, depth, size, angle and details of grout pipes, Show temporary protective measures, scaled drawings to include grout pipe installation procedures and sequences. Show locations of existing building piping, utilities and structures with dimensioned clearance from proposed hole locations.

    e. Methods and layouts for maintaining specified access to buildings.

f. Methods for surveying as-built locations of grout pipes.

g. Protection sequence in relation to construction. Identify methods, including the use of protective barriers, for protecting:

1) Below grade utilities.

2) Building and associated utilities and structures.

3) Sidewalks, streets, easements, and lots.

h. Methods for controlling dust and noise.

i. Methods for repairing damage from operations and restoring work areas.

3. Prepare working drawings and calculations of shoring for temporary access pits, and trenches, including methods of stabilization and protection of structures, workers and public.

4. As-built record of surface and tip elevations of grout pipes, showing deviations from intended locations and elevations, including a copy of survey records.

5. Schedule of Operations/Work Plan submitted for each area at least 60 days before starting the Work in that area:

a. Anticipated times for mobilization in various areas and actual protection operations related to driving progress.

b. Security guard services scheduled for the expected duration of drilling operations

6. Written verification of field conditions, with deviations from indicated conditions, within 7 days of discovering deviations.

7. Résumés and written experience and qualifications statements as specified.

List of personnel authorized to work on each property to the Engineer and property owner/agent.

9. Five working days notice to the Engineer of intended conferences with building owners/agents so the Engineer may arrange conferences.

10. Noise reduction plan for compliance with Section 01 57 19, Environmental Mitigation Measures, and Section 01 35 29.10, Health and Safety.

11. Worksite Traffic Control Plans (WTC) and Traffic Circulation Plans (TCP) for drilling and grouting operations.

1.07 WORKSITE CONDITIONS

A. Consents, Permits and Approvals - Engineer will obtain necessary permits to occupy construction areas shown on Contract Documents for performance of Work as indicated in this Section.

B. Agreements with property owners to perform Work on or in their premises will be obtained by the Engineer for properties identified in the Contract Documents. Contractor shall provide permits and necessary traffic control plans for grouting operations.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Grouting Pipes – Steel or plastic regroutable sleeve-port type with injection points at maximum 2-foot centers and covered by expandable rubber sleeves, within the limits of the grout zone, as indicated on the Contract Drawings, at regular intervals as required for adequate grouting capability over length required. Flexible sleeves over injection ports shall be compatible with grout and chemical additives. Couplings or splices of pipe such that pipe can be installed and withdrawn from ground by jacking and will not rupture under grouting pressures. Size of pipe shall be sufficient to receive packers and handle grout materials without plugging.

2.02 EQUIPMENT

A. Furnish drilling equipment as required to install casings and grout pipes at locations, and to depths and at inclinations indicated. Use duplex rotary (self-casing) drills to install all grout pipes. The system must prevent flow of water from the top of the borehole and prevent ground losses as a result of installation. The use of wash boring techniques is not acceptable.

B. Locator - Heliflux Magnetic Locator as manufactured by Schonstedt Inst., Pacometer, or other approved equal devices for locating conduits, pipes, drains, and reinforcement before drilling or cutting holes.

C. Survey hole with instrument capable of locating pipe tips of grouting pipe with accuracy of 1 in 200, with a maximum pipe length of 100 feet.

PART 3 – EXECUTION

3.01 PROCESS OF COMPENSATION GROUTING

A. Building Access and Facilities

1. Before starting Work on a building, confer with building owner or its agent jointly with the Engineer a minimum of 3 weeks before pipe

installation. Coordinate sequence of operations including specific details and timing of functions.

2. Maintain necessary vehicular and pedestrian access to buildings.

3. Locate, protect, support, and maintain without interruption utility facilities, equipment, services, and owner and tenant's chattels within building.

4. Gain access for operations, as indicated or as necessary and agreed upon with building owners/agents and the Engineer.

5. Locate conduits, pipes and other buried utilities and items required to be maintained in continuous use while installing grout pipes.

6. Excavate, shore and protect trenches as required to install compensation grouting installation equipment. Obtain necessary permits and approvals for closures and blockages of streets, sidewalks, and easements.

3.02 TEMPORARY PROTECTION

A. Protect buildings and equipment required to remain in operation during compensation grouting installation process.

B. Provide temporary protective barriers around drilling and grouting sites where located in streets, sidewalks, easements, and lots.

3.03 VERIFICATION AND DETERMINATION OF EXISTING CONDITIONS

A. Contract Drawings show existing conditions based on best knowledge and data gathered at time of design. Drawings and other information obtained during design are available in the Engineer's office for Contractor's use. Verify field conditions.

B. Locate utilities, conduits, other embedments, and sub-slab piping in basements, if present, of existing buildings and buried utilities in streets where grout pipes are to be installed. Place grout pipes to avoid interference with existing conduits, utilities and sub-slab piping.

C. Noise Control - Comply with noise control and noise level requirements as specified in Section 01 57 19, Environmental Mitigation Measures.

D. Do not disclose instrumentation monitoring results to third parties without prior approval of the Engineer.

E. Contractor may shift pipes from proposed surface locations to obtain proper clearance around walls and equipment, to clear unexpected objects such as footings or utilities, and to avoid other obstructions.

F. Monitor for gas continuously in enclosed areas during installation and utilization of grout pipes until grout pipes are acceptably plugged or pipes

removed and holes grouted. Ventilate, provide safety equipment for workers and follow safety procedures for gas-bearing ground.

3.04 GROUT PIPE INSTALLATION

A. Install grout pipes as directed by Engineer.

1. Verify locations of bottom of tips of grout pipes using Engineer-approved survey equipment / methods.

2. If grout pipe installation is obstructed by existing conditions, withdraw drill, grout hole, and redrill and grout hole in adjacent location.

3. Shift pipes from proposed surface locations to obtain proper clearance around walls and equipment, to clear unexpected objects such as footings or utilities, and to avoid other obstructions.

B. Devise installation technique to allow pipes to be installed through soil conditions indicated in the Referenced documents.

C. Before installation of grout pipes within the public right-of-way, mark their proposed locations and notify subsurface utility owners of proposed installation. Notify Underground Service Alert prior to excavation. Allow time for utility owners to mark locations of their existing subsurface facilities adjacent to proposed grout pipes. Relocate grout pipes when locations are in conflict with existing subsurface utilities. When utility is within 2 feet of proposed grout pipe location, expose existing utility by hand excavation. Protect utility from damage during grout pipe installation and grout operations.

D. Verifying the grout pipe configuration with a "Maxibore" probe against the design profiles, and use of a "sheath" grout mix to allow multiple grout injections through the grout pipe.

3.05 CLEANUP AND RESTORATION

A. Ensure that work area is clean and free of hazardous conditions at all times.

END OF SECTION