ADDENDUM NO. ONE

PROJECT:  Spring Valley Elementary School Prop 39: HVAC & Control Upgrades
           1451 Jackson Street, San Francisco, CA 94109

DATE:  May 09, 2018

OWNER:  San Francisco Unified School District
        555 Franklin Street
        San Francisco, CA 94102

RESPONSE TO QUESTIONS

No Questions were submitted.

GENERAL ADDENDUM NOTES:

1. All drawing modifications are clouded on the drawings.
2. A full new Addendum 1 Drawing set is issued as part of this addendum.

PROJECT MANUAL

1. Item No. PM1-1
   Reference:  Replace 00 01 00 Table of Contents
   Description:  Replace 00 01 00 Table of Contents to remove 00 45 86
                Roofing Contract Financial Interest Certification, and add
                Appendix A. See attached updated specification.

2. Item No. PM1-2
   Reference:  Add Appendix A Hazardous Materials Specification
   Description:  See attached Appendix A Specification document for
                Hazardous Abatement Materials Requirement.
DRAWINGS

1. Item No. AD1-1
   Reference: DRAWING T1.0 COVER SHEET - REPLACE ENTIRE SHEET
   Description: Modification to the scope of work #2 to clarify motor replacement – Add new variable frequency drive to multi-zone supply fan with discharge plenum pressure control. Replace (E) fan motor with new inverter grade motor with shaft grounding. SEE REVISED SHEET ATTACHED.

2. Item No. AD1-2
   Reference: DRAWING M4.0 MECHANICAL SCHEDULES & DETAILS – REPLACE ENTIRE SHEET
   Description: Modification to detail 1&2, side and frontal view detail of air handling unit. SEE REVISED SHEET ATTACHED.

3. Item No. AD1-3
   Reference: DRAWING M5.0 MECHANICAL CONTROLS - REPLACE ENTIRE SHEET
   Description: Modifications to the boiler sequence of operations as it relates to the control system SEE REVISED SHEET ATTACHED.

ATTACHMENTS:

Project Manual:

PM 1-1 3 Pages (05-09-2018)
PM 1-2 64 Pages (05-09-2018)

Drawings: Full Addendum Drawing Set

AD1-1 1 Page (05-09-2018)
AD1-2 1 Page (05-09-2018)
AD1-3 1 Page (05-09-2018)

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TO BE PROVIDED IN ADDENDUM
Prepared by: Sensible Environmental Solutions
Dated: May 8, 2018

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HAZARDOUS MATERIALS SPECIFICATIONS
BID SUBMITTAL

San Francisco Unified School District
Spring Valley Elementary School
2018 Proposition 39 HVAC Upgrades
1451 Jackson Street
San Francisco, CA 94109
SFUSD Project Number 12005

Prepared For:
San Francisco Unified School District
135 Van Ness Avenue
San Francisco, CA 94102

Prepared By:
Sensible Environmental Solutions Inc.
1116 Willow Pass Court
Concord, CA 94520

May 8, 2018

SES Project No. 17-119
HAZARDOUS MATERIALS ABATEMENT

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ABATEMENT PLANS

Not used
PART 1 – GENERAL

1.01 SUMMARY

A. This section provides a list of known and assumed hazardous materials that may be impacted during renovation, demolition, repair, custodial and/or maintenance activities. The hazardous materials information has been provided through existing surveys conducted by the San Francisco Unified School District (District) and the District’s environmental consultants.

B. Some materials and items found at the Site either contain or may contain materials known to the State of California to be either hazardous, carcinogenic or reproductive toxins. These include but are not limited to asbestos, lead, PCB’s, silica, and other materials.

C. The Contractor shall hold the District and its consultants harmless for claims, damages, losses, and expenses, including attorney’s fees arising out of the Contractor’s hazardous materials related work including releases from any incidental disturbance of existing hazardous materials, on-site or off-site spills of hazardous materials, or from non-compliance with the Contract Documents and regulatory requirements.

1.02 HAZARD COMMUNICATION

A. The District may have conducted previous hazardous materials abatement projects at the site. The hazardous materials abatement oversight information is available for review by appointment only through the District’s Asbestos Control Program at (415) 241-6226.

B. Copies of previous hazardous materials report(s) and the AHERA Management Plan for the site are available for review by appointment only through the District’s Asbestos Control Program at (415) 241-6226.

C. Asbestos Hazards at Spring Valley Elementary School

1. Asbestos has been identified at concentrations greater than one percent (>1%) in the following materials:

   a. Pipe insulation (identified as asbestos in previous sampling reports) on straight pipe runs, pipe elbows and tees throughout at ceiling plenums and wall cavities.

   b. Speckled paint coatings (2% Chrysotile asbestos) on walls at Toilet T54 and Janitor J74 at the First Floor and Men’s Toilet T55 at the Second Floor.
2. The following materials have not been sampled and shall be assumed to contain asbestos at concentrations > 1%:
   a. Asbestos cement underground sewer, water and drain piping located throughout the entire site.
   b. Asbestos cement exhaust piping inside metal ducting at Attic Stairs S85 at the Second Floor.
   c. Mechanical flange gaskets.

3. Asbestos has been identified at concentrations less than one percent (<1%) in the following materials:
   a. Not used.

4. The following sampled suspect materials had results that reported NO asbestos detected by PLM analysis:
   a. Interior paints.
   b. Smooth wall and ceiling plasters.
   c. Rough cementitious wall and ceiling plasters.
   d. Gypsum board and taping compounds on wall and select ceilings.
   e. Clay tiles and cement mortar at walls at the Ground Floor at Boiler Room 27, Janitor J73, MDF 27A, Electrical 29, Storage 35 and Storage 36.
   f. 12"x12" ceiling tiles and mastics.
   g. 12"x12" tan/beige floor tile and mastic at Classroom 2, Library 3, Classroom 4, Elevator E80, Elevator Room E80A, Corridor C 91A and Vestibule C91B at the Ground Floor, Storage 12A, Staff Toilet T63, Corridor C91A and Vestibule C91B at the First Floor and Corridor C91A and Vestibule C91B at the Second Floor.
   h. 12"x12" blue floor tile and mastic at Classroom 1, Storage 1A and Restroom 1B at the Ground Floor.
   i. 12"x12" green floor tile (patched areas) at Teachers Lounge 32 at the Ground Floor (Note: the floor tile mastic was identified to contain asbestos at concentrations >1%).
   j. 12"x12" teal green floor tile and mastic at the Ground Floor at Storage 2A.
   k. 12"x12" red floor tile and mastic at Storage 3A at the Ground Floor.
   l. 12"x12" brown floor tile and mastic at patched areas of Brown / red battleship sheet flooring.
   m. Brown/red battleship sheet flooring, backing and glues throughout the campus.
   n. Red marmoleum sheet flooring, backing and glues at Toilet T54 at the First Floor.
o. White floor leveling compounds.
q. Tackboards and mastics.
r. Chalkboards (slate and fiberboard) and mastics.
s. Paper backing with brown mastic (possibly old tackboard backing and glue) at existing tackboard locations throughout Classrooms.
t. 4"x4" blue, white and yellow ceramic wall tile, grout and glue at Boys Toilet T50 and Girls Toilet T61 at the Ground Floor.
u. 2"x2" blue and yellow ceramic floor tile, grout and mortar at Boys Toilet T50 and Girls Toilet T61 at the Ground Floor.
v. 6"x6" pink ceramic base tile, grout and glue at Corridors C90 and C91 at the Ground Floor.
w. 6"x6" tan, white, green and brown ceramic wall tile, grout and glue at Boys Toilet T51 and Girls Toilet T60.
x. 2"x2" tan and green ceramic floor tile, grout and mortar at Boys Toilet T51 and Girls Toilet T60.
y. Off-white sink undercoatings on stainless steel sinks at Storage 2A and Teachers Lounge 32 at the Ground Floor, Storage 6A at the First Floor and Storage 22A at the Second Floor.
z. Gray sealant / caulking at HVAC ducting.
aa. Fiberglass pipe insulation.
bb. Window glazing compounds.
c. Exterior paints.
dd. All roofing materials.
e. Asphalt coatings and asphalt at play areas.
ff. Concrete retaining walls.
gg. Exterior and interior stucco walls and overhang ceilings.

5. Areas and/or Spaces where asbestos abatement was conducted include:

a. Extensive abatement was conducted during the 2006 Bond Modernization Project including removal of sinks with asbestos undercoating, asbestos floor tiles and mastics, asbestos paint coatings and pipe insulation where impacted.
b. All asbestos-containing roofing materials were removed in the summer of 1997.
c. All asbestos-containing 9"x9" floor tile and mastic were removed from Classrooms 1, 2, 3 and 4, Storage 1A, Girls Toilet T60 and Assembly Hall 26 at the Ground Floor in 1991.
d. All asbestos-containing pipe insulation was removed from Boiler Room 27 in 1986.

D. Lead Hazards at Spring Valley Elementary School

1. Lead has been detected in individual painted surfaces and surface coatings in concentrations greater than 5,000 parts per million (ppm) lead or 1.0 milligram of lead per square centimeter (mg/cm²). Where ranges of lead levels are indicated, Contractor shall presume the highest level is typical. These lead containing surfaces include, but are not limited to the following:
a. Paints, glazings and/or stains on **ALL** of the following building materials:

1) Plaster, stucco / plaster and concrete walls, columns, beams and ceilings throughout interiors (Note: ceilings concealed by 12”x12” ceiling tile contain LBP) (1.0 to >9.9 mg/cm²).

2) Tackboards with metal trim (1.0 to 1.7 mg/cm²).

3) Metal guard rails at windows at Stairs (7.9 mg/cm²).

4) Exterior wood window sash, jamb, casing / framing and sills (>9.9 to >9.9 mg/cm²).

5) Exterior metal chain link fencing and gates at property boundaries (1.0 to 4.4 mg/cm²).

6) Exterior wood fencing and metal support brackets at property boundaries (>9.9 to >9.9 mg/cm²).

7) Exterior metal fencing and posts around the gas meter at the west side of the building (1.0 mg/cm²).

8) Exterior wood flagpole (>9.9 mg/cm²).

2. Lead has been identified in individual painted surfaces and surface coatings in concentration less than 5,000 ppm lead or 1.0 mg/cm². Where ranges of lead levels are indicated, Contractor shall presume the highest level is typical. These lead containing surfaces include, but are not limited to the following surfaces:

a. Paints, glazings and/or stains on **ALL** of the following building materials:

1) Wood benches (interior & exterior) (-0.1 to 0.0 mg/cm²).

2) Wood tackboard trim, chalkboard trim and chalkboard trays (-0.2 to 0.3 mg/cm²).

3) Wood floors (-0.1 to 0.0 mg/cm²).

4) Wood door panels (-0.2 to 0.6 mg/cm²).

5) Metal conduit (0.0 to 0.1 mg/cm²).

6) Metal decorative panels at Corridors (0.0 mg/cm²).

7) Metal fire extinguisher cabinets (-0.1 mg/cm²).

8) Metal gates (-0.1 mg/cm²).

9) Wood hanger racks (-0.1 to 0.1 mg/cm²).

10) Metal heater covers (-0.1 mg/cm²).

11) Wood hand rails (-0.1 to 0.0 mg/cm²).

12) Wood shelving (-0.1 to 0.4 mg/cm²).

13) Wood stair treads and risers (-0.2 to 0.0 mg/cm²).

14) Ceramic murals (0.3 mg/cm²).

15) Ceramic floor tiles (-0.5 to -0.1 mg/cm²).

16) Ceramic wall and base tiles (-0.5 to -0.1 mg/cm²).

17) Terra cotta / clay wall and base tile (-0.1 mg/cm²).

18) Exterior concrete, concrete block and stucco / plaster walls, ceilings and retaining walls (-0.3 to 0.1 mg/cm²).

19) Exterior metal downspouts, drain pipes and gutters (-0.1 to 0.0 mg/cm²).

20) Exterior metal louvered vents (-0.1 to 0.0 mg/cm²).

21) Exterior wood, metal and plastic play structures (-0.4 to 0.0 mg/cm²).

22) Exterior asphalt paint striping (-0.3 to 0.0 mg/cm²).
b. Paints and stains on doors, door framing / casing and trim excluding those listed above (-0.4 to 0.3 mg/cm²).

c. Paints on wood window sash, jamb, casings and sills throughout excluding at the Ground Floor at Classroom 1, Restroom 1B, Storage 3A, Storage 25, Storage 30, Kitchen 31, Teachers Lounge 32, Boys Toilet T50, Boys Toilet T51, Girls Toilet T60, Girls Toilet T61 and Janitor J73 (-0.2 to 0.4 mg/cm²).

d. Paints on concrete and wood baseboards and wood and plaster chair rail throughout excluding at Stairs S80, S81 and S82 at ALL Floors and Corridors C90 and C91 at the First and Second Floors (-0.3 to 0.5 mg/cm²).

e. Paints on wood baseboards and chair rail throughout excluding at Storage 1A, Classrooms 1, Kitchen 31 and Teachers Lounge 32 at the Ground Floor and Classroom 6 at the First Floor (-0.3 to 0.5 mg/cm²).

f. Paints on wood baseboards and chair rail throughout excluding Stairs S80, S81 and S82 at all Floors, Corridors C90 and C91 at the First and Second Floors and Storage 1A, Classrooms 1 and 6, Kitchen 31 and Teachers Lounge 32 at the Ground Floor (-0.3 to 0.5 mg/cm²).

g. Paints on wood cabinets throughout excluding Storage 1A and Restroom 1B at the Ground Floor (-0.6 to 0.4 mg/cm²).

h. Paints on wood wall paneling throughout excluding Corridor C91A at the Ground Floor (-0.2 to 0.4 mg/cm²).

i. Paints on metal electrical panels throughout excluding at Corridor C90 at All Floors (-0.2 to -0.1 mg/cm²).

j. Paints on wood mirror framing throughout excluding at the Ground Floor at Restroom 1B (-0.1 to -0.1 mg/cm²).

k. Paints on metal piping throughout excluding at Janitor Closets at ALL Floors (-0.2 to 0.1 mg/cm²).

3. The Contractor shall assume that all paints and surface coatings contain detectable quantities of lead requiring compliance with CAL/OSHA lead regulation in the absence of objective data to the contrary. Additionally, the Contractor shall assume that, at a minimum, lead is “present” in all of these materials at levels that have a potential, until proven otherwise, to create a lead hazard.

4. The District has not verified that any paints, coatings, dusts, or materials are “lead free” or below 600 ppm. The Contractor shall treat all paints, coatings, dusts or materials as having a lead content greater than 600 ppm requiring dust controls and personal protective procedures for construction activities in conformance with the Cal/OSHA Lead Construction Standard, 8 CCR 1532.1 lead. Any paint, varnish, or other coating or finish not listed above shall be considered to be lead-based paint with lead levels at or exceeding 5000 ppm lead or 1.0 mg/cm² for this contract.

5. All firms, including sub-contracted firms who impact lead-based paint (LBP) (5,000 ppm lead or 1.0 mg/cm² or greater) at Child Occupied Facilities shall conduct all work in accordance with 40 CFR Part 745. This includes but is not limited to being an EPA certified firm; having an EPA “Certified Renovator”; providing “on-the-job” training for workers; conducting pre-renovation notifications; following specific work practice procedures for containment,
disturbance and final clean-up; and inspection requirements. Renovation is defined in 40 CFR Part 745 as the modification to any existing structure or portion that results in the disturbance of LBP surfaces, unless the activity is performed as part of an abatement. In essence this regulation includes all work activities that disturb LBP surfaces.

6. The EPA certified Contractor or Sub-contractor(s) “Certified Renovator” shall be responsible for identifying the specific job activities which impact lead-based paint (LBP) during renovation that requires the use of “containment” as described in 40 CFR Part 745. Work also includes but is not limited to provide “on-the-job” training for workers; conduct pre-renovation notifications; follow specific work practice procedures for containment, disturbance and final clean-up; and inspection requirements as defined by regulation.

7. In addition to lead-containing paints and coatings, the Contractor shall assume that lead is present at detectable levels over 600 ppm in existing plumbing components and solders, glazing compounds, roof jacks, and surficial soils.

E. Metallic Mercury and mercury compounds are present at this site in fluorescent lighting tubes, high intensity discharge lamps, mercury switches and mercury thermostats. All demolition and disposal of these items shall be conducted in accordance with applicable safety and environmental regulation and the requirements of the Contract Documents.

F. Polychlorinated biphenyl (PCB)-containing fluorescent lighting ballasts. This site contains fluorescent lighting fixtures manufactured or installed prior to 1979. All fixtures known or presumed to have been installed prior to 1979 shall be considered to contain PCB ballasts unless otherwise noted in the contract documents. Removal, handling and disposal of PCB ballasts is subject to applicable regulation and requirements of the Contract Documents.

G. This site is presumed to contain smoke detectors with low level radioactive materials. Removal, handling and disposal of smoke detectors with low level radioactive materials is subject to applicable regulations and requires coordination with the manufacturer for proper disposal.

H. This site contains is presumed to contain self-luminating exit signs with low level radioactive tritium (i.e. tritium-tubes). Removal, handling and disposal of self-luminating exit signs with low level radioactive tritium (i.e. tritium-tubes) is subject to applicable regulations and requires coordination with the manufacturer for proper disposal.

I. This site contains emergency exit signs with back-up emergency light fixtures with lead back-up batteries and back-up emergency light fixtures with lead back-up batteries. Removal, handling and disposal and / or recycling of lead batteries are subject to applicable regulation and requirements of the Contract Documents.

J. Crystalline Silica is presumed present in all concrete, plaster, ceramic tile, grouts, and other cementitious materials at this site as well as soils. Worker protection and control of air dust during cutting, drilling, demolition and other construction operations is the responsibility of the Contractor.
K. The Contractor shall take into consideration all existing known and presumed hazardous materials that may be disturbed or otherwise impacted by the Work of this project. All work of this project that disturbs or otherwise impacts hazardous material shall be considered included in the Work of the project and shall be conducted in accordance with all applicable regulations and the Contract Documents. The Contractor shall use appropriately trained and qualified personnel to conduct all hazardous material related work and shall adhere to the requirements for handling, removal, clean-up, and disposal in accordance with the Contract Documents and all applicable Cal/OSHA, Cal/EPA, Department of Health Services (DHS), and Bay Area Air Quality Management District (BAAQMD) regulations.

1.03 RELATED DOCUMENTS

A. Contract Documents including hazardous material-related plans and specifications and all other project construction documents. Refer to Section 01 11 00 Summary of Hazardous Materials Work, Article 1.04 Related Documents for a more detailed listing.

1.04 USE OF HAZARDOUS MATERIALS INFORMATION

A. Hazardous material information identified herein was obtained for the use of the District and its Consultants for planning and design stages of the Project. The above mentioned survey data and reports are not, as a whole, part of the Contract Documents, but can be relied upon by the Contractor to characterize general site conditions, although quantities, friability and other factors may have changed or altered since the published report dates.

B. All statements, findings and interpretations in the above mentioned reports are those of the Survey or Environmental Consultant. The District makes no representation, either expressed or implied, as to the completeness or adequacy of the above mentioned reports. Bidders are advised that the limited testing of components allows for generalizations in describing the extent of hazardous materials. Contractors may visit the site and investigate to identify locations of hazardous materials identified herein. Specific components or materials, should be checked against the referenced survey reports and the Contract Documents, or be tested at affected locations, prior to disturbance of such components.

PART 2 – PRODUCTS: NOT USED

PART 3 – EXECUTION: NOT USED

END OF SECTION
PART 1 – GENERAL

1.01 GENERAL

A. The work required to be performed by the Contractor comprises

HAZARDOUS MATERIALS IMPACTED CONSTRUCTION AND ABATEMENT
SAN FRANCISCO UNIFIED SCHOOL DISTRICT
SPRING VALLEY ELEMENTARY SCHOOL
2018 PROPOSITION 39 LIGHTING UPGRADES
1451 JACKSON STREET
SAN FRANCISCO, CA 94109
SITE EPA I.D. #: CAL912623880

in conformity with plans and specifications herein after identified; including furnishing all materials, labor, tools, equipment, and services necessary there for and incidental there to, complete and ready for use, except as herein after otherwise provided.

B. The hazardous materials abatement portion of the project includes removal, clean-up, decontamination, and proper disposal of the following materials: lead-based paint (LBP); lead-containing coatings and materials; suspect polychlorinated biphenyl (PCB) light ballasts; non-PCB light ballasts and mercury containing fluorescent lighting tubes and lamps. Abatement will take place in areas of work indicated on the project drawings and where can reasonably inferred to be required to support the project.

C. Hazardous materials abatement documents are not to be considered stand-alone documents. In addition to the identified hazardous removal work described in the scope of work, abatement shall include all incidental removal of hazardous materials required to complete the Work. Coordinate all hazardous materials related work with all other work of the Contract as indicated or inferred in the Contract Documents.

D. The Contractor and its associated Subcontractors shall take into consideration all identified and presumed hazardous materials present that will be impacted by the work of this Project. At minimum, the Contractor’s bid shall take into consideration the information provided in Section 00 31 27, hazardous materials specifications, all contract documents, and the information resulting from Contractor’s own onsite investigation and review of site conditions.

E. Hazardous material abatement specifications have been prepared on the basis of existing documents and site inspections. Location of materials scheduled for abatement are general in nature. Contractor is responsible for locating, accessing and removing all hazardous materials (i.e. LBP; LCP; lead-containing surface...
coatings, glazings and materials; suspect PCB light ballasts; non-PCB light ballasts, and mercury containing fluorescent lighting tubes and lamps) in areas of work to support the modernization project.

F. The Contractor shall carefully schedule and coordinate all phases of hazardous materials related work to ensure that unprotected personnel are not exposed to hazardous substances. This includes the coordination of all pre-demolition, demolition, alteration, repair, renovation, and new construction work.

G. The Contractor shall coordinate the removal of all furniture, fixtures, casework, fixed and movable objects, non-hazardous partition walls, finishes, mechanical ducting, etc., prior to hazardous material abatement. Refer to the Contract Documents for items scheduled for salvage and reuse. Any work that could impact known or assumed hazardous materials shall be conducted within a negative pressure enclosure in accordance with the requirements herein.

H. All hazardous materials related work shall be performed after normal school hours and / or on weekends during the academic school year. Hazardous materials related work may not be performed in buildings or on the site during normal school hours without the written approval from the District.

I. All submittals as required by the project specifications must be approved prior to the start of any hazardous materials related work. The Contractor shall review Specification Sections 02 83 00 and 02 84 00 and Article 1.06 of this section for specific submittal requirements.

J. To the extent possible, the Contractor shall construct containment areas to the full extent of each area of work on each floor. Additional clearance samples resulting from separation of containment areas into multiple containments will be back charged to the Contractor.

K. Contractor’s electrician shall de-energize and lockout electrical power to the work areas to the greatest extent possible. Contractor’s electrician shall install temporary power from an outside source. Temporary power shall be protected with ground fault interrupter circuit breakers. The contractor shall supply adequate power to each of the work areas solely dedicated for use by the District’s Environmental Consultant.

L. Provide, operate and maintain magnahelic gauges / circular or strip chart recorders of appropriate range at the entrance to each interior work area during asbestos and lead related activities. No asbestos/lead work shall be conducted unless the system is installed, operating and recording correctly.

M. All differential air pressure units and vacuums must be DOP tested on-site prior to use by an independent third party. If previously tested equipment is removed from the site at any time the equipment must be re-tested on-site prior to its re-use.

N. All polyethylene sheeting and construction materials shall be fire retardant.
O. Final clearance for lead work areas will be conducted by the District’s Environmental Consultant in accordance with the California Department of Public Health Services and Environmental Protection Agency lead regulations. Refer to Specification Section 02 83 00.

P. Contractor shall be responsible for securing all entrances and exits to hazardous materials work areas to prevent unauthorized access. Contractor shall affix appropriate warning signs at the entries and approaches to the regulated area(s) as required by regulation and the contract documents.

1.02 HAZARDOUS COMMUNICATION

A. Hazardous materials present in the building(s) and structures at this site include: asbestos containing materials (ACMs); assumed ACMs; asbestos containing construction materials (ACCMs); LBP; lead-containing coatings and materials; suspect PCB light ballasts; non-PCB light ballasts, mercury containing fluorescent lighting tubes and lamps; smoke detectors and exit signs with radioactive material sources; and emergency batteries. These materials will significantly impact demolition and renovation activities. The Contractor shall review Specification Section 00 31 27 – “Existing Hazardous Materials Conditions” for known and assumed hazardous materials that are to be impacted by the project.

1.03 SCOPE OF WORK

A. The Contractor(s) work includes the removal of hazardous materials to the extent specified and/or necessary prior to normal demolition, renovation, alteration, repair, or other construction operations. The Contractor is responsible for locating, accessing and removing all hazardous materials in areas of project work including materials and assemblies scheduled for removal and any necessary removal coincidental to the completion of the work of the project. All removal shall be to the extent necessary to properly complete the work of the project. This project requires close coordination with all other trades and work on this project. The Contractor’s hazardous materials scope of work includes but is not limited to the following:

1. Remove, clean-up and dispose of interior metal mechanical air handlers and ducting coated with LBP and lead-containing paint (LCP) to the extent required to support removal and replacement of existing zone dampers scheduled for removal. Work includes removal, drilling, coring, anchoring and / or affixing to metal mechanical air handlers and ducting coated with LBP and LCP.

2. Remove, clean-up and dispose of LBP and lead-containing paint (LCP) from interior plaster, stucco / plaster and concrete walls, columns, beams and ceilings to the extent required to support the project. Work includes removal, drilling, coring, anchoring and / or affixing to interior plaster, stucco / plaster and concrete walls, columns, ceilings, and beams to support mechanical work. Coordinate with work specified elsewhere in the contract documents.
B. The Contractor shall refer to the Hazardous Materials Abatement Specifications, Mechanical Drawings and the Contract Documents for approximate locations and extent of hazardous materials related work, project phasing, bid alternates, and other requirements for completion of the Work.

C. All hazardous materials related work shall be conducted in accordance with applicable federal, state, local regulations and the Contract Documents. The most stringent requirements shall take precedence.
   1. All lead-related work shall be conducted in accordance with Section 02 83 00 – Lead Impacted Construction & Abatement.

D. The Contractor shall ensure that any hazardous materials contamination resulting from any construction activities on this site is cleaned up prior to each room or work area is turned back over to the District. The same hazardous materials clearance methods and standards shall be used to determine adequacy and completeness of the Contractor’s final clean-up operation prior to returning each room or work area to the District.

E. The Contractor shall ensure that their Asbestos Supervisor and California Department of Public Health (CDPH) Certified Lead Supervisor on this project speaks fluent English and is present on the project during all asbestos and lead-related activities.

F. Hazardous materials related work entails adhering to special requirements for the protection of workers, occupants, the public and the environment, and requires consideration of, and close coordination with, work specified elsewhere for this site.

1.04 RELATED DOCUMENTS

A. Hazardous Materials Related Documents
   1. Section 00 31 27 – Existing Hazardous Materials Conditions.
   2. Section 02 83 00 – Lead-Impacted Construction & Abatement


1.05 DEFINITIONS

A. Definitions Applicable to All Hazardous Materials Specification Sections:
   1. Abatement: Special methods and procedures to control or prevent hazardous releases during removal, repair, encapsulation, and enclosure of hazardous materials. This definition is not meant to imply an intent to reduce or eliminate an existing hazard unless so stated in the project work scope.
2. Air Filtration Equipment: A portable air re-circulation system equipped with HEPA filtration and used to cleanse air of particulate matter within an abatement Work Area or containment. Air filtration equipment is essentially the same as differential pressure equipment except it re-circulates air instead of exhausting it.

3. Airlock: A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area. Typically consisting of chamber with two curtained doorways at least 3 feet apart. Note: See Curtained Doorway.

4. Air Monitoring: The process of measuring the airborne levels of one or more air contaminants, such as asbestos, lead, by collecting a specific volume of air in a stated period of time. “Personal” air monitoring is used to determine compliance with exposure limits; “general area” and “perimeter” air samples are used to evaluate the effectiveness of hazard controls; “background” air monitoring is used to monitor initial conditions prior to disturbance or abatement; and “clearance” air is used for comparison with air quality standards established for assessing status and acceptability of work completion.

5. Amended Water: Water to which a surfactant (chemical wetting agent has been added to improve penetration and wetting.

6. Authorized Visitor: The District’s Project team member, the District’s Representative, and any Representative of a regulatory or other agency having jurisdiction over the project.

7. CDPH: California Department of Public Health.

8. Competent Person: One who is capable of identifying existing asbestos, lead or other hazards in the workplace and selecting the appropriate control strategy for worker exposure, who has the authority to take prompt corrective measures to eliminate them. All work performed in regulated work areas must be supervised by a “Competent Person” specially trained in accordance to regulation.

9. Containment or Containment System: The system of physical barriers and protective coverings (e.g. plastic sheeting) used to enclose or “contain” the hazardous materials within a Regulated Area (or Work Area) and thereby prevent personnel exposure and environmental contamination outside the Regulated Area. Includes simple mini-containments to full HEPA exhausted negative pressure enclosure (NPE) with contiguous worker and/or equipment Decontamination Enclosure System(s). Also see related Mini-containment below and Negative Pressure Enclosure definitions.

10. Critical Barrier: A unit of temporary construction of air tight and impermeable barrier, which provides the only separation between an asbestos or other hazardous materials Work Area and an adjacent, potentially occupied area.
11. Curtained Doorway – A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms. Typically constructed by placing two overlapping sheets of plastic sheeting over an existing or temporary doorway, securing each along the top of the doorway, and securing the outer vertical edge of each of the sheets along the adjacent vertical sides of the doorway.

12. Decontamination Enclosure System: A series of connected rooms, with airtight doorways between any two adjacent rooms, for the decontamination of workers and of materials and equipment. A decontamination enclosure system always contains at least one airlock.

13. Differential Pressure Equipment: A portable local exhaust system equipped with HEPA filtration and capable of maintaining a constant, low velocity air flow into contaminated areas from adjacent uncontaminated areas. Also referred to as “HEPA units” or “HOGS”.

14. District: The San Francisco Unified School District (SFUSD) and its designated representatives (District’s Representatives) for this project. For the hazardous materials-related work of this project, the District’s Representatives include the District’s Project Manager, Construction Manager, Inspector of Record (Construction Inspector) and other persons designated or appointed to represent the District in all matters concerning the construction of the Project.

15. Disturbance: Contact or activities, which disrupt the matrix of a hazardous material, crumble or pulverize a hazardous material, or otherwise cause airborne dust and/or visible debris containing hazardous constituents to be released. Typically applied to asbestos or lead related work.

16. Environmental Consultant – firm and its representatives retained to provide environmental consulting services for the District including surveys, project design, bid support, construction technical support and construction compliance observation and monitoring services. Also known as the District’s Environmental Consultant.

17. Equipment Decontamination Enclosure: That portion of a decontamination enclosure system designed for controlled transfer of materials and equipment, typically consisting of a wet sponge area, a washroom and a holding area.

18. Exposure Assessment: Sampling of the concentrations asbestos, lead or other airborne contaminant within the breathing zone of worker during representative work operations and shifts to determine airborne exposure levels as required by regulation.
19. Fixed Object – A unit of equipment, furniture or other features in the Work area that cannot be removed from the Work Area. Fixed Objects typically require protection from contamination during abatement or related work that disturbs asbestos, lead or other hazardous materials.

20. HEPA Filter: High Efficiency particulate air filter means a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. Required filtration system for vacuums, local exhaust systems for asbestos, lead and other specified hazardous material work. For respirator cartridges, the equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters where HEPA filtration is required (e.g. asbestos, lead, cadmium, etc.)

21. HEPA Vacuum Equipment: Vacuuming equipment with a HEPA (UL 586 labeled) filter system.

22. Mini-containment or Mini-enclosure – A small, temporary negative pressure enclosure constructed of impervious material (e.g. plastic sheeting) with at least one air lock to permit ingress and egress. The entire Work Area is enclosed or contained within this system to prevent the release of contamination outside the work area.

23. Negative Exposure Assessment (NEA): Air sampling of representative operations to demonstrate employee exposures are below the permissible exposure limits for similar operations undertaken using similar method and procedure, production rates, by similarly trained and skilled employees. Often conducted for limited maintenance and operations type work involving asbestos and/or lead. To be accepted as valid, the NEA must have been conducted within last 12 months.

24. Negative Pressure Enclosure (NPE): An enclosed or contained area of any configuration constructed of polyethylene sheeting with a minimum of four (4) air changes per hour and a negative pressure of -0.02 inches of water as compared to surrounding area outside the enclosure. NPE must be maintained until final air clearance sampling or final dust wipe sampling and air must be exhausted to the exterior of the building.

25. Regulated Area – A controlled access work area where asbestos, lead, or other hazardous materials are being removed or otherwise disturbed. Access is limited to specially trained and protected personnel. The perimeter of the regulated area is established to preclude airborne hazards to personnel or environmental contamination outside the Regulated Area. Minimum controls involve signage and barrier tape, but controls can range all of the way up to full negative pressure containment with HEPA filtration.

26. View Port: A clear material, typically Plexiglas, which allows observation of all possible areas inside the work area.
27. Waste Generator Label: Waste Generator Label shall include the Generator’s Name, ID Number, Address and Waste Manifest Number.

28. Wet Cleaning: The process of eliminating asbestos, lead or other contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water, and by afterwards disposing of these cleaning tools as contaminated waste. Often used in conjunction with detergents and/or other agents for lead, mold or other contamination.

29. Work Area: Designated rooms, spaces, or areas of the project in which abatement, removal or other disturbance activities involving asbestos, lead or other hazardous materials are undertaken or which may become contaminated as a result of such abatement actions. A contained Work Area is one which has been sealed and equipped with a decontamination enclosure system. A non-contained Work Area is a controlled-access Work Area which has not been sealed nor equipped with a decontamination enclosure system. Also known as a “Regulated Area”.

30. Worker Decontamination Enclosure System: That portion of a decontamination enclosure system designed for controlled passage of Workers, and other personnel and authorized visitors, typically consisting of a clean room, shower room, and an equipment room.

B. Definitions specific to a particular hazardous material are found in the specific hazardous material abatement specification section and are to be used to supplement the definitions of this section.

1.06 SUBMITTALS

A. General. Submit Pre-Job hazardous materials abatement submittals in accordance with the Contract Documents and at least 14 days prior to any planned work. Allow a minimum of 14 days for review by the Environmental Consultant. Additional review time will be required for re-submittals of rejected or incomplete submittals. Upon written approval of the Pre-Job submittal package, the hazardous materials abatement contractor may mobilize to site but shall submit the required remaining Pre-Start submittal items prior to starting any hazardous materials abatement work. Daily Submittals are due within 24 hours of completion of each day of site work. Inspection, Weekly, and Close-out Submittals are to be submitted within the time frames indicated below. At least one copy of each completed submittal shall be maintained on-site and shall be available for review. Refer to the Submittal Check Sheet which is provided as Appendix A to this section.

B. Pre-job Submittals. Submit a minimum of eight (8) copies of each of the following hazardous materials submittals. Submittals shall be organized by type of work (lead impacted construction and abatement, PCBs, mercury containing fluorescent light tubes, etc.) and otherwise in the order specified herein. Partial submittals and/or submittals not organized in the required order will be considered deficient and not
acceptable for review. No hazardous materials related work will begin until the submittal package has been fully approved in writing. Refer to the Submittal Check Sheet which is provided as Appendix A to this section.

1. Licensing and Registration: Submit copies of current and valid certificates for the following:
   a. Contractor’s license and Contractor’s asbestos certificate issued by the California State Licensing Board (CSLB);
   b. Registration for asbestos-related work from OSHA in accordance with 8 CCR, Article 2.5 (asbestos abatement contractors only);
   c. Contractor’s certification to conduct lead-based paint renovation, repair and paint activities pursuant to 40 CFR 745.90 (i.e. EPA RRP).

2. Notifications, Communications and Postings. Provide copies of all required notifications including the following:
   a. Division of Occupational Safety and Health (Cal/OSHA) Local Office (Pre-start notification lead)
   b. California Department of Public Health (CDPH) Childhood Lead Poisoning Prevention Branch 850 Marina Bay Parkway Building P, Third Floor Richmond, CA 94804-6403 (Abatement of Lead Hazards Notification)
   c. Where local police and fire departments have jurisdiction, provide required notifications.

3. Respiratory Protection Plan: Submit a site specific written respiratory protection plan along with a written standard operating procedure governing selection, fit testing, use, and storage of respirators in accordance with applicable regulation. Include NIOSH Certification and manufacturer’s information that indicates respirators to be used in this project have been properly selected for the anticipated hazards and hazard levels.

4. Detailed Work Plan: Submit a detailed work plan proposed for use in complying with the requirements of each specification section (02 83 00 and 02 84 00) applicable to the work to be performed for each hazardous material (lead impacted construction and abatement, PCBs, mercury containing fluorescent light tubes, etc.) at each abatement/removal location and phase. Each work plan shall include:
a. A drawing or sketch showing details of the containment area including location of the containment boundaries, Decontamination Enclosure System(s), portable fire extinguishers, Differential Pressure Equipment (HEPA Units), and emergency exit routes;

b. Description of Regulated Area/Containment construction including materials;

c. Description of proposed removal methods, equipment, and materials for each type of hazardous material and condition;

d. Method of containment and clean-up of hazardous materials if there is an unexpected breakage or breach.

5. The Contractor shall submit a detailed schedule for completing hazardous materials work within the allowable time frame. The schedule shall identify hours of work and locations of work and the anticipated schedule of completion for each regulated work area.

6. Method of secure storage of hazardous materials and hazardous wastes at the site.

7. Waste Transportation and Disposal:
   a. Name, address, EPA I.D. number and telephone number of each transporter of hazardous material waste and removed hazardous materials to be recycled.
   b. Method of disposal for each type of waste generated (i.e. hazardous asbestos, non-hazardous (e.g. non-friable) asbestos, lead, PCBs, universal wastes, etc.) indicating land disposal (treated or non-treated), incineration, recycling, etc.
   c. Name, class, address, EPA I.D. number and telephone number of each treatment, storage, and disposal (TSD) waste site(s) to be utilized for disposal and facility or site to be used for recycling hazardous wastes. Clearly indicate what wastes are anticipated to be disposed or recycled at each TSD site or facility.

8. Rental Equipment Notifications: When rental equipment is to be used in removal areas or to transport waste materials, provide a copy of written notification given to the Rental Company informing them of the nature of use of the rented equipment. Otherwise, certify that no rental equipment is to be used.

9. Product Data: Manufacturers product data for all items required for complete and proper execution of the work, this includes product data for items listed in Part 2 Products of Section 02 83 00 as applicable. Product data shall include manufacturing product data, specifications, application instructions; material safety data sheets (MSDS) and other information as necessary or required. All data sheets must be legible. Do not submit data for products not intended for use on this project.
C. Pre-start Submittals. Submit a minimum of one (1) copy of the following hazardous materials submittals to the Environmental Consultant at the site prior to the start of hazardous materials work. Additionally, the Contractor shall maintain one (1) copy at the site at all times during hazardous materials related work. Submittals shall be organized by type of work (lead impacted construction and abatement, PCBs, mercury containing fluorescent light tubes, etc.) and otherwise in the order specified herein. The Contractor’s Supervisor shall be held responsible for the accuracy and authenticity of the submittals provided. Discovery of altered or misleading personnel documents provided by the Contractor will result in the removal of such person(s) from the project immediately. Repeated offenses will result in the removal of the Contractor’s Supervisor. Refer to the Submittal Check Sheet which is provided as Appendix B to this section.

1. Personnel Qualifications: Personnel documents required by this section shall be organized by individual employees and must be current and valid. All workers who will be performing work at the site will be required to show photo documentation prior to approval of their personnel documents. Workers who do not have all the required documentation present at the site, including photo documentation, will be denied access to the type of hazardous material Work Areas for which they are lacking full valid documentation.

   a. CDPH Lead Certifications. Employee training certifications demonstrating that all employees engaged in lead removal activities have attended formal training by a California Department of Public Health (CDPH) accredited training provider to conduct lead related activities in accordance with the worker training provisions in the CAL/OSHA and CDPH lead regulations and this specification:

      1) The minimum acceptable training course duration is 40 hours for the Contractor's Supervisor/Competent Person and 24 hours for abatement workers.

      2) The Contractor's Supervisor(s) and worker(s) shall be certified through the CDPH lead accreditation program for lead-related construction. Copies of each employee’s certification shall be provided (Note: Course completion forms do NOT constitute current certification per CDPH and are NOT accepted as proof of current certification. Only actual CDPH cards with current dates are valid to meet CDPH certification requirements).

      3) Updated information shall be provided in advance of on-site lead supervisor and worker personnel changes.

      4) The Contractor’s CDPH Accredited Lead Supervisor shall be onsite at all times during lead-related work.

   b. EPA Lead Renovation, Repair and Painting (RRP) Training Certifications. Employee training certification(s) for the EPA Certified Renovator and training documentation for all trained individuals engaged in lead removal activities.
c. Medical Examination: Submit proper documentation, in the form of the physician’s written opinion, showing that all hazardous materials abatement personnel scheduled for this project have had the appropriate medical examinations applicable to their assignments. Exams must be in accordance with 8 CCR 1532.1 for lead, and 8 CCR 5144 for respiratory protection. All exams must have been conducted within the last 12 months. Respiratory use evaluation exams alone do not suffice for asbestos and lead related work. Do not submit actual medical exam results. The written physician’s opinion should indicate what exam(s) were provided and whether there are limitations on the worker.

d. Baseline blood lead testing performed in accordance with CAL/OSHA 8 CCR 1532.1 Lead and Federal OSHA 29 CFR 1926.62 Lead. The baseline blood lead shall have been within the past 30 days.

e. Respirator Fit Tests: Submit proper documentation that personnel who will be entering Regulated Areas have had a qualitative respirator fit test performed within the last 12 months for all face fitting respirators.

f. Provide a signed copy of Certificate of Worker’s Acknowledgment (Appendix C) for each worker conducting hazardous materials related removal work.

g. All other hazardous materials hazard communication training and related documentation for general construction work shall be kept on site for review upon request.

2. Calibration Data: Submit calibration data for the secondary standard (rotometer) that will be used on this project to calibrate personal air sampling pumps. The secondary standard must be calibrated to a primary standard within the last (6) six months.

3. HEPA Filtration Certifications:

a. Provide third party test certificates for all Differential Pressure Equipment and HEPA Vacuums to be used on this project. Such Certificates shall document that each item of equipment has been tested on-site prior to start-up and that the results have demonstrated that each HEPA equipment assembly meets the efficiency requirement for HEPA filtration as an installed system or unit of equipment.

b. All HEPA filtration testing must be conducted by challenging the installed filter system with 0.3 micrometer diameter particles using a dioctyl phthalate (DOP) particle generator & appropriate aerosol measurement test equipment designed for this purpose. Alternate test methods may be accepted if demonstrated to be equivalent and approved by the Environmental Consultant.
c. Test certificate stickers shall be placed on each machine tested and a copy of the testing certification shall be provided to the Environmental Consultant. The test result, date and time of testing, testing firm, and signature of qualified test technician shall be included on each certification along with equipment identification information.

D. Daily Submittals. As applicable, within 24 hours following the completion of each work shift, the Contractor shall submit the following information to the Environmental Consultant, as required by the applicable section.

1. Submit an employee roster for each work shift (Appendix D).

2. Work Area entry/exit logs (Appendix E).

3. Copies of Manometer recordings (Appendix F – where applicable).

4. Personal Air Monitoring Results: Provide copies of all personal air sampling results, 8-hour time weighted average (TWA) and short term exposure limit (STEL) results as applicable. Results shall be submitted on a daily basis or as approved by the Environmental Consultant.

5. Waste Manifests: Each time Hazardous Waste (i.e. asbestos, lead, PCBs, etc.) and Non-Hazardous Asbestos Waste is removed from the site; the Contractor shall submit complete and signed manifests to the Environmental Consultant. For hazardous waste manifests, submit the generator copy including a completed Land Disposal Restriction Form for each manifest to the Environmental Consultant.

6. Special Reports: The Contractor shall submit a special report of unusual events of significance which occurs at the site. The report shall include the date and time of the event, activities leading up to the event, a detailed account of the event, persons involved, corrective actions taken, and action taken to prevent a reoccurrence.

E. Inspection Submittals. The Contractor shall submit to the District and the Environmental Consultant a completed Inspection Form (Appendix G) at minimum 48 hours prior to inspection requests. Failure to properly notify the District and the Environmental Consultant in writing 48 hours in advance of a required hazardous materials inspection shall NOT result in an increase in number of days and/or shifts to the Contractor’s allotted schedule.

F. Weekly Submittals. The Contractor shall submit an updated detailed schedule for completing hazardous materials work within the allowable time frame on a weekly basis. The schedule shall identify hours of work and locations of work and the anticipated schedule of completion for each regulated work area. The Short Interval Schedule (SIS) or an equivalent weekly “look ahead” schedule can be used for this purpose.
G. Close-Out Submittals. Within 10 days following the completion of the Contractor’s work, the Contractor shall submit the following information to the Environmental Consultant.

1. All outstanding submittal information including; personal air sampling results, manifests, daily logs, sign-in/sign-out logs, manometer logs for all work areas, and all appendices required by this contract.

1.07 WORK SCHEDULE

A. Onsite hazardous materials related work shall not commence until all required submittals have been reviewed and approved. Delays due to deficient submittals will not result in contract time extensions.

B. Within the overall construction schedule, the total allotted time allowed for completion of all hazardous materials abatement work required by the Contract Documents is as follows:

1. Four (4) eight-hour regular shifts (Monday through Friday) for all hazardous materials related work.

C. The Contractor shall refer to the Contract Documents for construction phasing associated with the above allotted time to complete all interior and exterior hazardous materials related work.

D. The total number of work shifts allotted for the Contractor’s completion of hazardous materials related work for each phase of hazardous materials work includes the time required for the Environmental Consultant to conduct final clearance inspections and testing.

E. The Contractor will be responsible for additional costs incurred by the District for the Environmental Consultant for additional monitoring, consulting and analytical costs associated with working hours beyond the stipulated number of hours per shift and any additional shifts worked beyond the allotted number of shifts scheduled for the hazardous materials related work at the hourly rates, shift rates, and analytical rates established in Article 1.12 of this section.

F. Failed inspections and failed clearance tests shall be considered the result of defective work by the Contractor and, therefore, the Contractor shall be responsible for any additional travel, labor, and analytical costs associated with additional inspections and clearance testing by the Environmental Consultant.

G. The Contractor shall submit a detailed schedule for completing hazardous materials related removal and abatement work within the allowable time frame. The schedule shall identify hours of work and locations of work and the anticipated schedule of completion for each regulated work area. This schedule shall be provided prior to the start of any hazardous materials related removal or abatement work.
H. The Contractor shall provide to the District and the Environmental Consultant a minimum of one week (7 days) advance notice prior to start of each phase of work. In addition, the Contractor shall provide the District and Environmental Consultant a minimum 48 hours written notice for all pre-start and final visual hazardous materials inspection requests within each phase of work. Failure to properly notify the District and the Environmental Consultant in writing 48 hours in advance of a required hazardous materials inspection may result in inspection delays but shall NOT result in an increase in number of days and/or shifts to the Contractor’s allotted schedule. Cost associated with failure to provide timely notices shall be borne solely by the Contractor.

I. The Contractor shall be bound to conducting its work activities during the dates and times specified in the approved construction schedule. Schedules and times that deviate from the schedule must be submitted and approved 72 hours in advance by the District and Environmental Consultant.

J. The Contractor shall provide to the District and the Environmental Consultant a minimum of 24 hours notice of their intent to cancel a previously scheduled workday. Failure to properly notify the District and the Environmental Consultant in writing will result in the loss of a full day or full shift to the Contractor's allotted schedule and the Contractor will be responsible for the Environmental Consultant shift cost established in Article 1.12 of this section.

1.08 SEQUENCE OF CONSTRUCTION OPERATIONS

A. The recommended sequence of construction operations for this project is as follows: (Note: sequences may vary to best accomplish the work in a logical flow and/or to accommodate the District’s needs. The Contractor may propose alternate sequences for approval by the District and Environmental Consultant.)

1. Insolate Construction Areas from Occupied Areas as required by the Contract Documents.

2. Set-up of regulated areas (including NPE’s where required) for hazardous materials related work.


4. Remaining Construction Work

1.09 PRE-CONSTRUCTION MEETING FOR HAZARDOUS MATERIALS RELATED WORK

A. An initial progress meeting recognized, as "Pre-Construction Meeting" will be convened by the District prior to the start of any hazardous materials related work. Meet at the project site at a date and time to be determined.
B. This is an organizational meeting to communicate and review project communication lines, responsibilities, schedules, submittal issues, project details, temporary facilities, security issues and other project related issues.

C. The following individuals shall attend this meeting: the District; the Environmental Consultant; the Contractor's Principal or Superintendent; the Contractor's Competent Person scheduled for the project, and; any pertinent subcontractors.

1.10 ENVIRONMENTAL CONSULTANT

A. The Environmental Consultant is authorized to have free access to all hazardous materials Work Areas at any time. The Contractor shall supply the Environmental Consultant with disposable coveralls, respirators, replacement respirator cartridges, knee pads, flashlights, two way radios and any other required equipment.

B. The Environmental Consultant is authorized to conduct intermittent or continuous compliance observation and monitoring including, but not limited to:

1. Start up, progress, and clearance inspections for adequacy of containment, procedural compliance with contract documents, and completeness of work;

2. Air sampling for asbestos, lead or other contaminate to determine containment integrity;

3. Dust wipe, surface, bulk, or soil sampling for lead, PCB, or other hazardous materials to determine initial conditions and to evaluate Contractor containment controls;

4. Clearance air and surface sampling to evaluate compliance with completion standards; and

5. Collection and review of documentation to be provided by the Contractor including Pre-Start, Daily, Inspection, Weekly, and other required submittals.

C. The Contractor shall ensure that full cooperation is provided to the Environmental Consultant in carrying out the Environmental Consultant's responsibilities as the District's Representative including the immediate correction of any problems identified. The Contractor shall fully comply with the specifications and any applicable regulations.

1.11 ENVIRONMENTAL TESTING

A. The Environmental Consultant will be collecting dust wipe samples at the completion of lead related activities where required or deemed appropriate by the District. Sample results in excess of lead dust clearance levels (refer to Section 02 83 00) will require cleanup by the Contractor of the affected areas using approved cleaning techniques at no additional cost to the District. All costs for additional testing (i.e. Consultant fees and laboratory analysis) shall be the responsibility of the Contractor.
1.12 CONSULTANT FEES AND TESTING COSTS

A. In accordance with the General Conditions of the Contract Documents or as specified elsewhere in the Contract Documents by the District, the Contractor shall be responsible for additional costs incurred by the District for monitoring and consulting work by the Environmental Consultant when the additional work and/or costs are caused by the Contractor or the Contractor’s work activities as described herein.

B. When the Contractor's work activities, actions or inactions are determined by the District to have resulted in any of the following circumstances or conditions, the Contractor shall be responsible for taking action to correct any of these deficient condition(s) identified and shall be responsible for all associated costs including the cost of the Environmental Consultant and all associated analytical costs:

1. Breach of containment, hazardous materials spills (i.e. lead, asbestos, mold, PCBs, etc.) outside the Work Area based on visual evidence containment failure or contamination release;

2. Containment failure or other releases as evidenced by air sample results over 0.01 f/cc by PCM outside the asbestos Work Area and/or lead dust wipe sample results over 40 µg/ft² outside the lead-related construction Work Area;

3. Other hazardous materials related emergencies arising out of the Contractor’s work;

4. Re-work of defective and/or incomplete abatement work as evidenced by failed visual inspections or failed clearance test results;

5. Incomplete abatement work (i.e. additional removal of hazardous materials due to lack of proper planning, proper layout for removal, etc.) as evidenced by the set-up of additional regulated areas (containments) requiring additional removal, inspections and testing at work areas/zones where the hazardous materials related work was previously completed by the Contractor;

6. Failure to complete scheduled hazardous materials work within the total allotted number of work shifts specified in this section for the base bid, phase, or alternate as applicable. Partial shifts shall be counted as whole shifts for the purpose of determining the total number of hazardous material related work shifts worked for this Contract.

7. Failure to provide the District’s Project Manager and the Environmental Consultant a minimum of 24 hours notice of their intent to cancel a previously scheduled workday. This will result in the Contractor being responsible for the entire work shift cost of the Environmental Consultant as though the shift had been worked.

C. The following rates shall be used to determine the additional Environmental Consulting costs and shall be considered agreed upon for determining the monitory damage to be back charged to the Contractor for any of the conditions described in Paragraph B above:
1. **Daily Hourly Rates (Regular Business Hours – Monday thru Friday)** – Hourly rates for each technician for additional on-site monitoring and/or consulting shall be: $120 per hour for each additional hour of work over 8 hours but less than 12 hours in a day; $160 per hour for each hour worked over 12 hours but less than 24 hours per day;

2. **Off Shift Hourly Rates (Weekends and Night Work)** – Hourly rates for each technician for on-site monitoring and/or consulting shall be: $120 per hour for each hour of work less than 12 hours in a day; $160 per hour for each hour worked over 12 hours but less than 24 hours per day;

3. **Daily Shift Rates (Regular Business Hours – Monday thru Friday)** – Shift rates shall be charged at the rate of $525 per 4-hour shift; $875 per 8-hour shift; $1,125 per 10-hour shift; and $1,390 per 12-hour shift for compliance observation and monitoring. Each shift includes up to six (6) PCM air samples or six (6) lead air samples;

4. **Off Shift Rates (Weekends and Night Work)** – Shift rates shall be charged at the rate of $695 per 4-hour shift; $1,200 per 8-hour shift; $1,450.00 per 10-hour shift; and $1,720 per 12-hour shift for compliance observation and monitoring. Each shift includes up to six (6) PCM air samples or six (6) lead air samples; and

5. **Analytical Costs** – Analytical costs will be charged at actual costs plus 15 percent for additional samples required for additional shifts, spills, other emergencies and re-work.

1.13 **SPECIAL PROVISIONS**

A. Prior to disturbing any hazardous materials, the Work Area must be effectively isolated from interior and exterior areas occupied or in use by the District. Isolation shall be by rigid physical construction barriers and HVAC isolation by shut down and/or capping in addition to any required critical barriers or other specific containment and control requirements. Alternative methods may be proposed by the Contractor but must be approved by the District and Environment Consultant in advance.

B. All plastic sheeting and construction materials for construction of barriers, containments, decontamination units, critical barriers and related controls shall be flame retardant or fire rated.

C. All electrical power to the Work Areas shall be de-energized and locked out to the extent possible with any remaining energized lines clearly demarcated and protected. The Contractor is responsible for establishing temporary power protected by ground fault circuit interrupters (GFCIs). In addition, the Contractor shall provide an adequate number of GFCI protected electrical power outlets and extension cords for dedicated use of the Environmental Consultant. At minimum, provide six power cords inside each containment and two outside each containment unless otherwise noted or agreed upon.
D. All negative pressure enclosures (NPEs) shall be equipped with accurate and functioning magnahelic gages with circular chart recorders that continuously document negative pressure conditions. Recording charts shall be replaced daily. Copies shall be provided to the Environmental Consultant mounted on a completed Appendix F form within 24 hours as a Daily submittal.

E. The Contractor shall take all necessary precautions and modify work procedures to prevent hazardous materials spills or releases of any kind. The Contractor shall immediately extend the boundaries of the Regulated Work Area to incorporate the affected area if a spill or release occurs. The Contractor shall immediately contact the District and the Environmental Consultant.

F. If at any time during the course of this project additional suspect hazardous materials are identified or different conditions are encountered by the Contractor, the Contractor shall immediately notify the District and Environmental Consultant in writing and request an investigation.

G. Minimum respiratory protection for this project during all hazardous materials related activities shall be half-face air purifying respirators.

H. The Contractor shall hold the District and its consultants harmless for claims, damages, losses, and expenses, including attorney’s fees arising out of the Contractor’s asbestos, lead, or other hazardous materials related work including releases from any incidental disturbance of existing hazardous materials, on-site or off site spills of hazardous materials, or from non-compliance with the Contract Documents and regulatory requirements.

1.14 SECURITY

A. The Contractor shall take all necessary security measures to prevent unauthorized personnel access to the Building(s), hazardous materials Work Area(s), and waste bin(s) storing hazardous waste for the duration of the project.

B. The Contractor shall make all necessary arrangements for deactivation and re-activation of security alarms for work during off hours, weekends, and holiday in advance of scheduled work.

1.15 AUTHORITY TO STOP WORK

A. The District and/or the Environmental Consultant has the authority to stop work if it is determined that conditions or procedures are not in compliance with the specifications and/or applicable regulations; or the Contractor is deficient on submitting daily required paperwork; or the Contractor is impacting Facility and/or adjacent operations; or a potential release of lead, asbestos, or other hazardous material contamination outside the Work Area could occur; or if any other unsafe condition deemed to represent an immediate hazard to adjacent building occupants exists.
B. The work stoppage shall remain in effect until conditions have been corrected and corrective measures have been taken to the satisfaction of the District and the Environmental Consultant. All standby time and testing costs required to correct the above mentioned problems shall be borne solely at the Contractor’s expense.

PART 2 - PRODUCTS: NOT USED

PART 3 - EXECUTION: NOT USED

END OF SECTION
# PRE-JOB SUBMITTAL CHECKLIST

**Instructions:**

Use of this check sheet is required but should be understood to be a brief listing of the major submittal items required. It is not intended to be a substitute for the detailed submittal requirements of the contract. The Contractor’s submittal must comply with the requirements of Section 01 11 00 Article 1.06 and be in technical compliance with applicable technical specification sections and regulations.

## I. DISTRICT INFORMATION

<table>
<thead>
<tr>
<th>District Name:</th>
<th>San Francisco Unified School District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td>135 Van Ness Avenue, San Francisco, CA 94102</td>
</tr>
<tr>
<td>Point Of Contact:</td>
<td>Nate Kinsey Email Address: <a href="mailto:kinseyn@sfusd.edu">kinseyn@sfusd.edu</a></td>
</tr>
<tr>
<td>Phone No.:</td>
<td>(415) 241-4327</td>
</tr>
<tr>
<td>Fax No.:</td>
<td></td>
</tr>
<tr>
<td>Project Title:</td>
<td>Spring Valley Elementary School – 2018 Prop. 39 HVAC Upgrades</td>
</tr>
</tbody>
</table>

## II. ENVIRONMENTAL CONSULTANT (EC) INFORMATION

<table>
<thead>
<tr>
<th>Consultant Name:</th>
<th>Sensible Environmental Solutions Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td>1116 Willow Pass Court, Concord, CA 94520</td>
</tr>
<tr>
<td>Point Of Contact:</td>
<td>Mitch Edwards Email Address: <a href="mailto:mitch@sensibleinc.net">mitch@sensibleinc.net</a></td>
</tr>
<tr>
<td>Phone No.:</td>
<td>(925) 689-9737</td>
</tr>
<tr>
<td>Fax No.:</td>
<td>(925) 689-1420</td>
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## III. CONTRACTOR INFORMATION

<table>
<thead>
<tr>
<th>General Contractor Name:</th>
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<tr>
<td>Address:</td>
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<tr>
<td>Point Of Contact:</td>
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<td>Phone No.:</td>
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<td>Fax No.:</td>
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<tr>
<td>Haz. Mat. Contractor Name:</td>
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<td>Address:</td>
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<td>Point Of Contact:</td>
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<td>Phone No.:</td>
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<td>Fax No.:</td>
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## IV. SUBMITTAL INFORMATION

<table>
<thead>
<tr>
<th>District Submittal No.:</th>
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<tbody>
<tr>
<td>SES Project No.:</td>
<td>17-119</td>
</tr>
<tr>
<td>Date Received by EC:</td>
<td></td>
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<tr>
<td>No. Copies Received:</td>
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<tr>
<td>Date Reviewed by EC:</td>
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<td>Review Performed by:</td>
<td></td>
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<td>No. Copies of Submittal Distributed:</td>
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<tr>
<td>Date Distributed:</td>
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</tbody>
</table>
V. **PRE-JOB SUBMITTALS** – Refer to Section 01 11 00 Article 1.06 for detailed requirements:

Pre-job Submittals must be approved prior to the initiation of any hazardous materials related work including set-up operations. At minimum, ensure the following is submitted and complete.

<table>
<thead>
<tr>
<th>Item Submitted</th>
<th>Required</th>
<th>Accepted</th>
<th>Review Comment</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>1. Licensing &amp; Registration</td>
<td>X</td>
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<td>2. Notifications</td>
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<tr>
<td>a. Cal/OSHA</td>
<td>X</td>
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<tr>
<td>b. CDPH</td>
<td>X</td>
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<td>4. Detailed Work Plan</td>
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<tr>
<td>a. Drawing</td>
<td>X</td>
<td></td>
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<tr>
<td>b. Desc. of Reg. Area</td>
<td>X</td>
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<tr>
<td>c. Desc. of removal methods, equipment &amp; materials.</td>
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<tr>
<td>d. Method of clean-up if unexpected spill or breakage.</td>
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<tr>
<td>5. Detailed Schedule</td>
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<tr>
<td>a. Transporter Info.</td>
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<tr>
<td>b. Disposal Method/Type</td>
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<tr>
<td>c. Treatment, Storage &amp; Disposal Waste Site.</td>
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<tr>
<td>8. Rental Equip. Notifications</td>
<td>X</td>
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</tbody>
</table>

**Submittal Review No.:** ________  **Review Date:** ________________

This Submittal has been reviewed for conformance with the Contract Documents. **SES** has the following comments:

- [ ] Approved, No Exceptions
- [ ] Approved as Noted Above
- [ ] Rejected Completely. Revise & Resubmit

Reviewed By: ___________________________ Signature: ___________________________
# PRE-START SUBMITTAL CHECKLIST

**Instructions:**
Use of this check sheet is required but should be understood to be a brief listing of the major pre-start submittal items required. Pre-start Submittals must be approved at the site prior to the initiation of any hazardous materials related work. They may be submitted earlier but must be limited to documentation and certification for assigned workers and equipment. Do not submit extraneous information, but update later as needed for changes. The Contractor’s submittal must comply with the requirements of Section 01 11 00 Article 1.06 and be in technical compliance with applicable technical specification sections and regulations.

## I. DISTRICT INFORMATION

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<td>Project Title:</td>
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</tr>
</tbody>
</table>

## II. PRE-START SUBMITTALS - Reference 01 11 00 (1.06):

<table>
<thead>
<tr>
<th>Item Submitted</th>
<th>Required</th>
<th>Accepted</th>
<th>Review Comment</th>
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<tbody>
<tr>
<td>1. Personnel Qualifications</td>
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<tr>
<td>a. CDPH Lead Sup. &amp; Workers Certs.</td>
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<td>b. EPA RRP Training Certs.</td>
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<tr>
<td>c. Medical Exams</td>
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<td>d. Blood Leads (&lt;30 days)</td>
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<td>e. Resp. Fit Tests</td>
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<td>f. Worker Ack. (App. C)</td>
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<td>g. Haz. Comm. Training</td>
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<td>2. Calibration Data (&lt;6 Mos.)</td>
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<td>3. HEPA Certifications</td>
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NOTE: After startup of hazardous material work, progress submittals including Daily, Inspection, and Weekly Submittals are required. Upon completion of all hazardous materials work, Close Out Submittals are required. Refer to Section 01 11 00 Article 1.06 for detailed information and requirements.
CERTIFICATE OF WORKER'S ACKNOWLEDGMENT


PROJECT ADDRESS:  1451 Jackson Street, San Francisco, CA 94109

CONTRACTOR'S NAME:  

WORKING WITH HAZARDOUS MATERIALS CAN BE DANGEROUS.

Your employer's contract with the Owner for the above project requires that: You will be supplied with the proper respirator and be trained in its use. You will be trained in safe work practices and in the use of the equipment found on the job. You will receive a medical examination. These things are to have been done at no cost to you.

RESPIRATORY PROTECTION: I have been trained in the proper use of respirators, and informed of the type respirator to be used on the above referenced project. I have a copy of the written respiratory protection manual issued by my employer. I have been equipped at no cost with the respirator to be used on the above project.

TRAINING COURSE: I have completed a training course of not less than 4 days for the types of hazards I will be working with. I have been trained in the dangers inherent in handling hazardous materials and in proper work procedures and personal and area protective measures. The topics covered in the course included the following:

- Physical characteristics of hazards
- Associated Health hazards
- Respiratory protection
- Use of personal protective equipment
- Pressure Differential Systems
- Work practices including hands-on or on-the-job training
- Personal decontamination procedures
- Air monitoring, personal, and area

MEDICAL EXAMINATION: I have had a medical examination within the past 12 months in accordance with applicable regulations (asbestos, lead, mold, etc.), which was paid for by my employer. This examination included: health history, pulmonary function tests, and may have included an evaluation of a chest x-ray.

By signing this document, you are acknowledging only that the Owner of the building you are about to work in has advised you of your rights to training and protection relative to your employer, the Contractor.

Printed Name:  

Signature:  

Date:  

Witness:  

# EMPLOYEE DAILY ROSTER

**DATE:** ______________  **SES PROJECT NUMBER:** 17-119

**PROJECT TITLE:** Spring Valley Elementary School – 2018 Prop. 39 HVAC Upgrades

**CONTRACTOR:**

**COMPETENT PERSON:**

**IMPORTANT NOTE:** ALL PERSONS ENTERING AND EXITING THE WORK AREA MUST SIGN IN AND OUT EVERY TIME.

<table>
<thead>
<tr>
<th>No.</th>
<th>PERSONS NAME (PRINT)</th>
<th>START TIME</th>
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<td>27.</td>
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</tbody>
</table>
**WORK AREA ENTRY/EXIT LOG**

**DATE:** ______________________  **SES PROJECT #:** 17-119  **CONTRACTOR:** ________________________________

**PROJECT TITLE:** Spring Valley Elementary School – 2018 Prop. 39 HVAC Upgrades  **BUILDING NAME:** ________________________________

**LOCATION OF WORK AREA:** ________________________________  **DESCRIPTION OF WORK:** ________________________________

**IMPORTANT NOTE:** ALL PERSONS ENTERING AND EXITING THE WORK AREA MUST SIGN IN AND OUT EVERY TIME.

<table>
<thead>
<tr>
<th>PERSONS NAME (PRINT)</th>
<th>SIGNATURE</th>
<th>START TIME</th>
<th>STOP TIME</th>
<th>START TIME</th>
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</tbody>
</table>
DAILY MANOMETER REPORT

Project Title:  Spring Valley ES – 2018 Prop. 39 HVAC Upgrades  SES No.:  17-119
Work Area Location:  
Contractor:  
Competent Person:  
Start Date:  
Stop Date:  
Start Time:  
Stop Time:  

(CONTRACTOR IS TO ATTACH A COPY OF THE NEGATIVE PRESSURE RECORDING HERE AND COMPLETE THIS FORM FOR EACH WORK AREA ON A DAILY BASIS).

I hereby declare the above data is true and correct.

Competent Person’s Signature:  ____________________________  Date:  ____________________
ASBESTOS AND LEAD INSPECTION FORM

LOCATION OF ZONE / WORK AREA: ____________________________________________

BUILDING NAME: __________________________________________________________

DISTRICT NAME: San Francisco Unified School District SES REF. NUMBER: 17-119

PROJECT TITLE: Spring Valley Elementary School – 2018 Prop. 39 HVAC Upgrades

DESCRIPTION OF ASBESTOS WORK:

<table>
<thead>
<tr>
<th>Material Description</th>
<th>Room Name and No.</th>
<th>Quantity Removed</th>
<th>Abatement Method</th>
<th>Quantity Remaining</th>
</tr>
</thead>
</table>

Legend: AC- Asbestos-containing Sq. Ft. – Square Feet Ln. Ft. – Linear Feet

DESCRIPTION OF LEAD WORK:

<table>
<thead>
<tr>
<th>Material Description</th>
<th>Room Name and No.</th>
<th>Quantity Removed</th>
<th>Abatement Method</th>
<th>Quantity Remaining</th>
</tr>
</thead>
</table>

Legend: LC- Lead-containing LBP – Lead-based Paint Sq. Ft. – Square Feet Ln. Ft. – Linear Feet

CONTRACTOR’S PRE-START VISUAL INSPECTION

CONTRACTOR hereby certifies that he has visually inspected the Work Area and has found it to be prepared in accordance with the Contract Documents and associated Regulations and is ready to start abatement operations.

NAME: ___________________________ INSPECTION DATE: _______________________

SIGNATURE: ______________________ CERTIFICATION #: _____________________

CONTRACTOR’S FINAL VISUAL INSPECTION

CONTRACTOR hereby certifies that he has visually inspected the Work Area and has found no dust, debris or residue. This inspection included all surfaces including pipes, beams, ledges, walls, ceiling, floor, Decontamination Unit, sheet plastic, etc.

NAME: ___________________________ INSPECTION DATE: _______________________

SIGNATURE: ______________________ CERTIFICATION #: _____________________

CONSULTANT PRE-START VISUAL INSPECTION

CONSULTANT hereby certifies that he has conducted a pre-abatement visual inspection of the referenced Work Area, and verifies that the Contractor has prepared the Work Area in accordance with the Contract Documents and is ready to start abatement operations.

NAME: ___________________________ INSPECTION DATE: _______________________

SIGNATURE: ______________________ CERTIFICATION #: _____________________
ASBESTOS AND LEAD INSPECTION FORM

LOCATION OF ZONE / WORK AREA: ____________________________________________

BUILDING NAME: __________________________________________________________

CONSULTANT FINAL VISUAL INSPECTION

CONSULTANT hereby certifies that he has performed the final visual inspection of the referenced Work Area, and verifies that this inspection has been thorough and to the best of his knowledge and belief, the Contractor's Certification above is a true and honest one.

NAME: ___________________________  INSPECTION DATE: ______________________
SIGNATURE: ______________________  CERTIFICATION #: ______________________

ASBESTOS CLEARANCE AIR SAMPLING

CONSULTANT hereby certifies that the results of air samples collected and analyzed in this work area meet the clearance criteria indicated below:

☐ Not Applicable – No Asbestos Related Work Completed Within The Zone / Work Area.
☐ Not Applicable – Cleared by Visual Inspection Only – Exterior Work Area.
☐ Not Applicable – Cleared by Visual Inspection Only for the following Reasons: ____________________________
☐ Aggressive PCM Samples at or below 0.01 Fibers/cc
☐ Non-aggressive PCM Samples at or below 0.01 Fibers/cc
☐ Aggressive TEM Samples at or below 70 Structures/mm²
☐ Non-aggressive TEM Samples at or below 70 Structures/mm²

SES Clearance Air Sample Numbers: ____________________________________________

NAME: ___________________________  INSPECTION DATE: ______________________
SIGNATURE: ______________________  CERTIFICATION #: ______________________

CLEARANCE DUST WIPE SAMPLING FOR LEAD

CONSULTANT hereby certifies that the results of dust wipe samples collected and analyzed in this work area meet the clearance criteria indicated below:

☐ Not Applicable – No Lead Related Work Completed Within The Zone / Work Area
☐ Not Applicable – Cleared by Visual Inspection Only for the following Reasons: ____________________________
☐ 40 µg/ft² for Interior Floor Surfaces
☐ 250 µg/ft² for Interior Horizontal Surfaces
☐ 400 µg/ft² for Exterior Floor and Exterior Horizontal Surfaces

SES Dust Wipe Sample Numbers: ____________________________________________

NAME: ___________________________  INSPECTION DATE: ______________________
SIGNATURE: ______________________  CERTIFICATION #: ______________________
SECTION 02 83 00
LEAD-IMPACTED CONSTRUCTION AND ABATEMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This section specifies requirements for lead-impacted construction and lead hazard abatement including but not limited to:

1. Submittals
2. Contractor's Monitoring Program
3. Products
4. Abatement Execution including:
   a. Work Area preparation
   b. Worker protection and decontamination
   c. Removal of Lead containing components
   d. Removal of Plaster with Lead-based paint
   e. Removal of Lead containing coatings by chemical stripping
   f. Removal of Lead containing coatings by mechanical removal
   g. Drilling and Anchoring of Lead containing surfaces
   h. LBP and Lead coating stabilization
   i. Cleaning and decontamination
   j. Clearance inspection testing
   k. Waste characterization and disposal

5. Stop work orders
6. Project closeout

1.02 REGULATIONS

A. The Contractor shall comply with the requirements of the current issue of the following regulations and guidelines governing lead abatement and disposal and other applicable Federal, State, and Local Government regulations. The regulations listed herein are incorporated by reference.

   a. 29 CFR 1926, Construction Standards
b. 29 CFR 1926.62, Lead in Construction

c. 40 CFR Part 50.12, Ambient Air Quality Standard for Lead

d. 40 CFR Parts 261, 265 and 268, Hazardous Waste Management

e. 40 CFR Part 745 Lead; Renovation, Repair, and Painting Program

f. 49 CFR Part 172, 173, 178, 179, Hazardous Material Transportation

2. California Code of Regulations:

a. 8 CCR Division 1, Chapter 4, Subchapter 4, Construction Safety Orders

b. 8 CCR 1532.1, Lead in Construction

c. 8 CCR 5144, Respiratory Protection

d. 26 CCR Division 22, Hazardous Waste

e. 17 CCR Division 1, Chapter 8, Accreditation, Certification and Work Practices for Lead-based Paint and Lead Hazards.


4. San Francisco Building Code, Chapter 34, Section 3407, Work Practices For Lead-Based Paint On Pre-1979 Buildings And Steel Structures

1.03 RELATED DOCUMENTS

A. Contract Documents including hazardous material-related plans and specifications and all other project construction documents. Refer to Section 01 11 00 Summary of Hazardous Materials Work, Article 1.04 Related Documents for a more detailed listing.

1.04 DEFINITIONS

A. In addition to the definitions in Section 01 11 00 Summary of Hazardous Materials Work, the following definitions are specific to work of this section:

1. Abatement – Any set of measures designed to reduce or eliminate lead hazards or lead-based paint but does not include containment or cleaning.

2. Certified Lead Inspector / Assessor – An individual who has received a certificate or an interim certificate from the Department as a “Certified Lead Inspector / Assessor”.
3. Certified Lead Project Designer – An individual who has received a certificate from the Department as a “Certified Lead Project Designer”.

4. Certified Lead Project Monitor – An individual who has received a certificate or an interim certificate from the Department as a “Certified Lead Project Monitor”.

5. Certified Lead Sampling Technician – An individual who has received a certified or an interim certificate from the Department as a “Certified Lead Sampling Technician”.

6. Certified Lead Supervisor – An individual who is responsible for implementing lead-related construction work and enforcing work practices that ensure worker safety in residential or public buildings and who has received a certificate or an interim certificate from the Department as a “Certified Lead Supervisor”.

7. Certified Lead Worker -- An individual who performs lead-related construction work in residential or public buildings under the direction of a certified lead supervisor and has received a certificate from the Department as a “Certified Lead Worker”.

8. Certificate – “Certificate” means the document issued by the Department to an individual who meets the requirements for certification as described in sections 35083, 35085, 35087, 35089, or 35091 of Title 17.

9. Certified Industrial Hygienist – An individual who has met the education, experience, and examination requirements of an industrial hygiene certification organization governed by the American Board of Industrial Hygiene.


11. Component – A structural element or fixture, including but not limited to a wall, floor, ceiling, door, window, molding, trim, trestle, tank, stair, railing, cabinet, gutter, or downspout.

12. Containment – A system, process, or barrier used to contain lead hazards inside a work area such as described in “Guidelines for the Evaluation and Control of Lead-based Paint Hazards in Housing,” U.S. Department of Housing and Urban Development, June 1995, Chapter 8, “Containment and Barrier Systems,” Table 8.1, Table 8.2 and Table 8.3, or “Guide for Containing Surface Preparation Debris Generated During Paint Removal Operations,” Society for Protective Coatings, Technology Guide 6, October 1, 2004.


14. Deteriorated Paint – Paint or surface coating that is cracking, chalking, flaking, chipping, peeling, non-intact, failed or otherwise separating from a component.
15. Encapsulation – All herein specified procedures necessary to coat or seal Lead containing coatings/surfaces with some durable coating which is applied as a liquid to the painted surface. Lead-free paint is not to be considered as an encapsulant. The encapsulating material shall be airtight, impermeable, and provide a semi-permanent barrier that can be expected to last 20 years. The encapsulant shall be approved for use by the District and Environmental Consultant.

16. Enclosure – Accomplished by enclosing the Lead containing surface with a rigid and durable substance such as drywall, paneling, metal, vinyl or wood siding, or some other construction material. The enclosure must be dust-tight or sealed at all edges to provide a dust-tight enclosure. The construction materials used shall be approved for use by the District and Environmental Consultant.

17. Hazardous Waste – Lead debris shall be classified as hazardous due to the characteristic of toxicity, as determined by testing in accordance with the California Code of Regulations, Title 22, Division 4, Chapter 30, Article 11. Any substance(s) listed in Article 11 Section 66699 at concentrations greater than their listed Soluble Threshold Limit Concentration (STLC) or Total Threshold Limit Concentration (TTLC) may need to be further characterized by the Toxicity Characteristic Leaching Procedure (TCLP) in accordance with 40 CFR 261 and other tests prior to disposal as a hazardous waste. Note: whole painted components or architectural debris with intact LBP is not typically expected to exceed hazardous waste criteria and may be evaluated by a consideration of the ratio of all materials in the waste to the lead content of the associated paint.

18. Industrial Building – A structure that is used primarily for industrial activity, which is generally not open to the public, including but not limited to, warehouses, factories, and storage facilities. Industrial building does not include any structure which fits the definition of a public building or a residential building.

19. Intact LBP Components – LBP components removed substantially intact with LBP firmly adhering to the surface. Examples are door, door trim, baseboards, etc., with intact paint. Also referred to as architectural debris with intact paint.

20. Job Tasks – “Job Tasks” mean the specific activities performed in the context of work.

21. Lead Activities – “Lead Activities” means abatement, lead hazard evaluation, lead-related construction work, or any activity which disturbs lead-based paint, presumed lead-based paint, or creates a lead hazard.

22. Lead-Based Paint (LBP) – The concentration of lead in paint or other surface coatings that contain an amount of lead equal to, or in excess of 0.5% lead by weight when analyzed by AAS or ICP-AES or 1.0 milligrams of lead per square centimeter (mg/cm²) as determined by XRF testing or as identified by specification.
23. Lead-Based Paint Related Waste – Paint chips, vacuum dust, and debris, used cleaning articles, waste water, plastic sheets and other disposable items which were used during the Lead abatement process and as a result are considered lead contaminated waste or assumed hazardous waste pending further characterization.

24. Lead-Containing Paint/Surface Coatings – The concentration of lead in paint or other surface coating that contain an amount of lead less than 0.5% lead by weight when analyzed by AAS or ICP-AES or 1.0 mg/cm² as determined by XRF testing or as identified by specification.

25. Lead-Contaminated Dust – The amount of lead equal to, or in excess of 40 micrograms per square foot (µg/ft²) for interior floor surfaces, 250 µg/ft² for interior horizontal surfaces or 400 µg/ft² for exterior floor and exterior horizontal surfaces.

26. Lead-Contaminated Soil – Bare soil that contains an amount of lead equal to, or in excess of 400 parts per million (ppm) in children’s play areas and 1,000 ppm in all other areas.

27. Lead Hazard – Deteriorated lead-based paint or lead-containing surface/coating material, lead contaminated dust, lead contaminated soil, disturbing lead-based paint or lead-containing surfaces/coating materials or presumed lead-containing surfaces without containment, or any other nuisance which may result in persistent and quantifiable lead exposure and environmental lead contamination.

28. Lead Hazard Abatement – Special abatement activities undertaken with the specific intent to eliminate or reduce existing lead hazards as defined herein. Not to be confused with abatement controls on normal lead-related construction work in construction areas with restricted access to the general public. In this latter case, lead is present in or on construction materials and is impacted by the work but is not the focus of the work to be undertaken.

29. Lead Hazard Evaluation – The on-site investigation, for compensation, of lead-based paint or lead hazards for public and residential buildings, but does not include activities intended to determine adequacy of containment; air monitoring for lead as specified in Title 8, California Code of Regulations, Section 1532.1 and Title 17, California Code of Regulations, Sections 70100 and 70200; and testing components removed from a residential or public building for lead to determine the applicability of hazardous waste requirements specified in Title 22, California Code of Regulations, Division 4.5, Chapters 10, 11, 12, 13 and 18, and California Health and Safety Code, Section 25163, subdivision (c).

31. 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, surfaces or soil, may result in significant exposure of adults or children to lead.

32. Lead Safe Work Practices – Any individual conducting lead activities, excluding lead hazard evaluation shall use containment; ensure that the work area has no visible dust or debris following the completion of a project; and demonstrate compliance of the above requirements to the Department or local enforcement agency, as defined in Section 105251 of the Health and Safety Code, upon request.

33. Lead Stabilization – Process of controlled surface preparation using containment and wet methods and/or HEPA vacuuming to prepare a deteriorated LBP surface for painting and followed by application of approved primer and finish coats of paint. Process may be incorporated in a normal painting process for environmental protection.

34. Presumed Lead-Based Paint – Any paint or surface coating affixed to a component in or on a structure, excluding paint or surface coating affixed to a component in or on a residential dwelling constructed on or after January 1, 1978 or a school constructed on or after January 1, 1993.

35. Public Building – A structure or part of a structure, and its land, which is generally accessible to the public, including but not limited to schools, daycare centers, museums, airports, hospitals, stores, convention centers, government facilities, office buildings and any other building which is not an industrial building or a residential building.

36. Qualified Person – The individual identified by the Contractor to be responsible for conducting air sampling, calibration of air sampling pumps, evaluating sampling results, and conducting respirator fit tests.

37. Removal – All herein specified procedures necessary to remove and clean-up all LBP and lead-containing surface coatings, lead-contaminated dust, and lead-contaminated soil from the designated areas and to dispose of these materials at an acceptable site in accordance with Federal, State and Local Regulations.

38. Residential Building – A structure or part of a structure, and its land, which is used or occupied, or intended to be used or occupied, in whole or in part, as the home or residence of one or more persons.

39. Visually Clean – Free of visible dust, paint chips, dirt, debris, or films removable by vacuuming or wet cleaning methods specified. For outside soil or ground cover areas, visually clean shall mean free of construction or paint debris, chips or dust distinguishable from the initial soil or ground conditions.
40. Work Area – An area where lead activities are conducted.

1.05 HAZARD COMMUNICATION

A. The Contractor shall refer to Specification Section 00 31 27 – Existing Hazardous Materials Conditions for a list of all known or assumed hazardous materials including lead, asbestos, PCBs and other materials. All lead-related work shall be conducted with full consideration of any other hazardous materials impacted and required protective measures and controls.

1.06 SUBMITTALS AND NOTICES

A. Refer to Section 01 11 00 Summary of Hazardous Materials Work for submittal requirements applicable to this Section unless otherwise noted.

1.07 ENVIRONMENTAL CONSULTANT

A. The Environmental Consultant is authorized to provide compliance observation and monitoring, testing, and technical oversight services for the lead-impacted construction and abatement work of this project without limitation.

1.08 CONTRACTOR'S COMPLIANCE AND QUALITY ASSURANCE

A. The Contractor shall have a Competent Person who is a Department Certified Lead Supervisor onsite at all times while lead-related work or Lead/LBP abatement is in progress. The Contractor's Competent Person shall communicate and coordinate with the Environmental Consultant with regard to work schedules, inspections, daily submittals, and compliance issues.

B. The Contractor's Competent Person shall:

1. Ensure the Contractor's compliance with the plans and specifications.

2. Conduct worker exposure monitoring using a Qualified Person and provide results to the Environmental Consultant.

3. Pre-inspect Work Areas for compliance and completion prior to notifying the Environmental Consultant of the Work Area's readiness for inspection.

4. Accompany the Environmental Consultant during Work Area pre-start and clearance inspections.

5. Ensure all of the Contractor's workers have current and valid medical, blood-lead test, training, and respirator fit test records and provide copies of all new or updated records to the Environmental Consultant for approval before assigning the workers to any work within Work Areas.
6. Take timely and appropriate corrective actions to ensure compliance with the abatement plans and specifications and to eliminate unsafe, unhealthful, and environmentally unsound work practices regardless of whether or not they are brought to the Contractor's attention by the Environmental Consultant.

7. Adhere by the results for the characterization of waste for proper packaging, labeling, storage, transportation and disposal of waste.

8. Provide completed daily project documentation to the Environmental Consultant at the end of each work day. This includes daily rosters, entry/exit logs, foreman reports, and any other project information.

1.09 SPECIAL PROVISIONS

A. The Contractor shall hold the District, District's Representatives, Agents and Environmental Consultant harmless for claims, damages, losses, and expenses, including attorney's fees, arising out of or resulting from the Contractor's lead or other hazardous materials work, lead and hazardous materials spills on the site or enroute to the disposal site, or any other condition resulting from the Contractor's non-compliance with regulation or the Contract Documents.

PART 2 - PRODUCTS

2.01 PROTECTIVE COVERING

A. Polyethylene sheets, of 6 mil thickness in size (dimensions) to minimize the frequency of joints.

2.02 CLEANERS

A. For clean-up and decontamination, a lead-specific wash solution shall be used. Alternative cleaning and decontamination agents shall be subject to approval by the Environmental Consultant and District.

2.03 TAPE

A. Duct tape (or approved equivalent) two (2) inches or wider, capable of sealing joints of adjacent sheets of polyethylene sheeting and for attachment of polyethylene sheeting to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions.

2.04 PRIMER/SEALER

A. The primer/sealer paint applied after Lead removal and/or stabilization shall be compatible with the painting systems to follow under this contract.
2.05 SPRAY ADHESIVE

A. Provide spray adhesive in aerosol cans which is specifically formulated to stick to sheet polyethylene.

2.06 DISPOSAL CONTAINERS

A. Provide six (6) mil thick polyethylene sheeting, six (6) mil leak-tight polyethylene bags and other impervious containers as required by applicable regulations. All waste shall be labeled as hazardous or potentially hazardous waste unless proven otherwise by appropriate sampling and laboratory analysis.

B. All hazardous waste shipping containers shall meet applicable DOT requirements.

2.07 WARNING SIGNS AND LABELS

A. Caution Signs: To be minimum of 20 x 14 inches and includes phrase "Caution Lead Hazard, Keep Out Unless Authorized" in minimum 2-inch high letters. These shall be posted at each approach to each lead Work Area.

B. CAL/OSHA Lead Warning Posters: "Warning - Lead Work Area, Poison, No Smoking or Eating" shall be posted at the entrance to each Work Area.

C. Labels: Hazardous waste shall be labeled according to Federal, State and Local regulations including but not limited to the California Code of Regulations, Title 22, Chapter 30 and the U.S. Department of Transportation 49 CFR Parts 172, 173, 178 and 179.

2.08 PERSONAL PROTECTIVE EQUIPMENT

A. Personal protective equipment shall comply with the requirements of 8 CCR 1532.1 Lead.

B. Minimum protective clothing and equipment shall consist of fire-retardant, disposable, full-body coveralls, disposable boots, gloves, or equivalent in accordance with ANSI Z41. Sleeves at wrists and cuffs at ankles shall be secure.

C. Eye protection and hard hats shall be available and worn as required by applicable safety regulations and shall conform to ANSI 87.1 and ANSI 89.1. Eye protection shall be worn during demolition and paint removal work. Hard hats shall be worn during all exterior demolition work.

D. The Contractor shall provide Authorized Visitors with suitable disposable protective clothing, headgear, respirators, and footwear whenever authorized visitors are required to enter the Work Area. Up to an average of ten sets per day of suitable personal protective equipment shall be made available for authorized visitors.
E.  All disposable clothing worn during each work shift shall be removed prior to exiting the Work Area and shall be properly segregated and placed in containers for proper waste characterization. The Contractor shall bear full responsibility for additional costs associated with waste profiling and disposal if wastes are not properly segregated.

2.09 RESPIRATORS

A.  Provide workers with personally-issued respiratory equipment approved by NIOSH and suitable for the lead exposure level in the Work Area. Where respirators with disposable filters are employed, provide sufficient filters for replacement as required by the worker or applicable regulation. HEPA Type P100 cartridges shall be used with respirators. Each respirator shall be washed whenever the worker wearing it showers or at least daily prior to storage. The following general conditions shall apply to respirator use:

1.  All respirators used must be certified by NIOSH and a respirator program shall be established and implemented.

2.  The minimum respiratory protection required for this project, unless otherwise specified in writing by the Environmental Consultant shall be a half-face negative pressure air purifying respirator. Otherwise, the respirators worn shall be selected based on measured or reasonably expected airborne concentrations of lead as follows:

   a.  Half-face negative pressure air purifying respirator: up to 0.5 mg/m$^3$

   b.  Powered air purifying respirator: up to 2.5 mg/m$^3$

   c.  Type C supplied air respirator full face piece pressure demand mode: up to 100 mg/m$^3$.

   Note: Disposable respirators are not acceptable at any time. It is always permissible to upgrade to a more protective type of respirator.

3.  During all segments of lead removal and clean-up activities, respirator usage shall be required of all persons within the designated Work Areas at all times regardless of airborne lead concentrations.

B.  The Contractor is responsible for determination of airborne lead concentration levels for the Contractor's personnel and for providing and enforcing use of appropriate personnel respirator protection based upon airborne lead concentrations and this specification.

C.  Respirators shall not be removed inside the Work Area. Workers shall proceed to the designated washing area and clean the external surface of the respirator body before removing the respirator.

2.10 TOOLS AND EQUIPMENT
A. Provide suitable tools for the removal of Lead containing materials and contamination including required HEPA negative pressure units, HEPA vacuums, ground fault interrupters (GFIs), ladders, scaffold, garden sprayers and airless sprayers. All tools and equipment brought onsite shall be clean and free of lead and other hazardous material contaminants. HEPA vacuums shall be labeled with a lead warning label and dedicated to Lead-related construction work to prevent commingling of lead wastes with asbestos and other wastes.

B. Provide enough support equipment, including but not limited to, lumber, nails, hardware, shower stalls, hoses, plumbing, drain pans, sump pumps, and waste water storage drums to construct and operate the Decontamination Enclosure System(s) with showers. The number of showers shall be sufficient for the number of workmen scheduled on the job. The water hose used to connect the drain to the showers will not be used for any other purpose. The supply side water hose shall have a check valve to prevent backflow under any circumstance.

PART 3 - EXECUTION

3.01 GENERAL

A. All designated lead related work shall be conducted in accordance with this specification section, section 01 11 00 and the project drawings. In addition, refer to Section 00 31 27 and coordinate lead-related work with requirement for other hazardous materials as applicable. The Contractor shall utilize the requirements as set forth for the method chosen and approved.

B. Public Warning and Safety Information to be Posted:

1. Post signs at all approaches to the Work Area entrance to read "Caution Lead Hazard - Keep Out Unless Authorized." In addition, post the CAL-OSHA Lead Hazard Warning Poster at the immediate Work Area entrance.

2. A list of phone numbers for the local hospital and for emergency squad, the local fire department, a representative of the Contractor who may be reached 24 hours a day, the Contractor’s main office, the District’s Representative and Environmental Consultant and any other professional consultants directly involved in the project.

3.02 PREPARATION FOR INTERIOR REMOVAL/ABATEMENT WORK

A. Shut down electric power to the Work Area to the greatest extent possible. Consult with the District and District’s Representative before shutting down power. Provide temporary power and lighting and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements and provide ground-fault interrupter circuits as power source for electrical equipment.
B. Shut down and isolate heating, cooling, ventilation air systems to prevent contamination and dispersal to other areas of the structure. If shut down is not feasible, duct capping and sealing will be required according to an approved plan. During the Work, vents within the Work Area shall be sealed with tape and plastic sheeting and as indicated on plans (if available).

C. Move all non-fixed objects out of the Work Area(s). Such items shall be moved at least five (5) feet from Work Area(s).

D. Pre-clean entire floor area and all horizontal surfaces inside and within five (5) feet of the Work Area using HEPA vacuums and wet methods.

E. Cover all non-moveable objects within five (5) feet of the Work Area with six (6) mil polyethylene sheeting and seal with duct tape.

F. Cover all floors within the Work Area with two layers of six (6) mil polyethylene sheeting and seal with duct tape. All heater vents and registers shall be sealed with six (6) mil plastic sheeting and duct tape.

G. Install air lock flaps on all doorways into Work Area with plastic sheeting to form curtained doorways. Doors secured from the inside need not be sealed.

H. Provide, at minimum, 30-foot candle illumination lighting to the Work Area.

I. Install a Decontamination Enclosure System or equivalent prefabricated portable decontamination unit(s) as approved. This system will be the primary entrance and exit to the Work Area.

J. Install Differential Pressure Equipment where specified in accordance with the requirements herein.

K. Install lead caution signage at each approach to the Work Area and lead warning signage just outside each Work Area entry/exit point.

L. Complete any additional preparation work required by the specific component abatement/lead-related construction work requirements specified elsewhere in this section.

M. Establish and maintain emergency and fire exits from Work Areas at all times.

N. When Work Area preparation is complete, notify the Environmental Consultant and request an inspection. No abatement/lead-related construction work is to proceed in any Work Area until that Work Area preparation has been inspected and approved by the Environmental Consultant.

3.03 PREPARATION FOR EXTERIOR REMOVAL/ABATEMENT WORK
A. Cordon off the Work Area extending at a minimum of 10 feet horizontally beyond the area of work with barrier tape and warning signs as specified herein.

B. Pre-clean visible suspect lead-based paint dust and debris around and under areas where lead-based paint or LBP components will be removed. Use HEPA vacuums and wet methods to perform this cleaning which shall include, at minimum, the designated Work Area.

C. Cover ground and horizontal surfaces of Work Area (area within barrier tape) with a minimum of one layer of six (6) mil polyethylene sheeting. Secure the plastic on the building foundation as possible. Horizontal surfaces include scaffolding and/or other work platforms. Extend the plastic from the foundation to 10 feet beyond the Work Area. Seal all seams with tape and secure plastic to prevent undesired movement.

D. Where elevated Lead-containing components are likely to generate airborne dust or paint chips, devise a suitable containment to control such dust and prevent dispersal by wind. Exterior removal which generates Lead dust and debris shall not be attempted when winds or air currents (i.e., greater than 15 mph) prevent containment of such waste material within the designated Work Area. To conduct exterior removal under windy conditions, the Contractor shall implement special, safe and effective countermeasures to ensure containment of Lead dust and debris. These countermeasures include but are not limited to protective shrouds or mini-containments on work platforms.

E. Provide a designated entry/exit point to exterior Work Areas suitable for workers to properly decontaminate and exit from the Work Area as specified herein. Install lead caution and warning signage as specified above.

F. Complete any additional preparation work required for the specific abatement method to be used.

G. Notify the Environmental Consultant when the Work Area is ready for inspection. Abatement and lead-related work shall not proceed until the Environmental Consultant has checked and approved Work Area preparations.

3.04 WORKER PROTECTION AND DECONTAMINATION PROCEDURES

A. The Contractor shall use only workers medically qualified and trained for lead work and respirator usage.

1. Medically-qualified shall mean that the worker has had an occupational medical exam for lead exposure and respirator usage within 12 months of abatement start-up and at any time during abatement or lead-related construction work. The contents of the medical exam must be in conformance with 8 CCR 1532.1 and must include a blood-lead test within 30 days of starting work on the project. At no time shall the abatement worker exceed six months between each blood-lead testing.
2. Each lead abatement worker shall have successfully completed at least 24 hours of formal documented training in lead hazards and lead abatement methods and be a current Department Certified Lead Worker. Non-abatement workers performing lead related construction work shall have documented lead hazard communication training in accordance with 8 CCR 1532.1.

3. The Contractor's Competent Person shall have received at least 40 hours of formal training in lead hazards and lead abatement.

4. The Contractor's Supervisor(s) and workers shall be certified through the Department lead accreditation program for lead-related construction. Copies of each employee's certification shall be provided.

5. The Contractor shall ensure that no worker is allowed onsite to perform lead-related work until the Environmental Consultant has received and approved all of that worker's medical, training and fit testing certifications.

B. Each worker and Authorized Visitor shall, upon entering the job site, enter the designated clean change room and remove street clothes, put on an inner reusable or disposable coverall and work shoes and then put on an outer set of full body disposable coveralls, booties or shoe covers, respirator with HEPA filters, and gloves before entering the Work Area.

C. Each worker and Authorized Visitor shall HEPA vacuum contamination from protective clothing and then remove shoe covers before leaving one Work Area for another Work Area inside the same Work Area unless the Work Areas have been interconnected with a secured plastic sheet at least three feet wide.

D. When exiting an interior or exterior Work Area and leaving the specific building worked on, proceed to the designated area for unsuiting and remove outer protective clothing and equipment. Dispose of outer protective clothing as suspect Lead waste. Proceed to a designated shower area, remove and clean the respirator and store in a clean container. Wash hands and face and proceed to clean change area to re-suit for the next area.

E. At the end of the work day, all workers are to do the following in addition to those procedures described above: Place disposable outer garments and shoe covers in separate labeled waste containers dedicated to PPE for proper waste characterization; place reusable clothing for laundering in a closed container, clean protective gear including respirator, shower or wash hands and face at minimum, and put on clean street clothes in the clean room area.

F. All tools and equipment shall be decontaminated by HEPA vacuuming and wet wiping prior to being taken out of the Work Area. Tools and equipment with inaccessible internals shall be externally wet-wiped, bagged and sealed prior to being removed from the Work Area.
G. Workers shall not eat, drink, smoke, or chew gum or tobacco at the work site within 20 feet of any Work Area as specified by the Environmental Consultant.

H. Provide and post the decontamination and work procedures to be followed by workers in the equipment area and in the clean area.

I. Each worker shall have a final medical blood-lead laboratory test within one week of job completion and before engaging in other lead related work.

3.05 REMOVAL OF LEAD CONTAINING COMPONENTS

A. Remove any associated non-Lead containing hardware or construction interference (electrical and telephone utilities, conduit, piping, etc.) as required and store in construction area until final disposition is determined by the District's Representative.

B. Remove Lead containing components as specified herein and by the Contract Drawings. Scrape painted seam at edge of each component with utility knife or blade tool and remove any exposed accessible fasteners. Spray the affected surfaces of the Lead containing component being removed lightly with a fine mist of amended water.

C. Special precautionary controls shall be used as necessary to prevent Lead dust or debris from being carried or blown out of the controlled area by wind or air currents.

D. Using appropriate tools, begin to remove the Lead containing component by prying first behind nailing locations and/or removing accessible fasteners. Continue prying up the Lead containing component being careful not to break or create chipping until the Lead containing component is completely removed. Take necessary precautions to avoid damage to adjoining walls and/or associated surfaces.

E. Each component shall be carefully lowered to the ground, not dropped or thrown. Clean up dust and debris as removal proceeds.

F. Once removed, remove or flatten any remaining fasteners and wrap the Lead containing component in six (6) mil polyethylene sheeting, seal with duct tape, wet-wipe and transfer to secure waste storage for waste characterization.

G. HEPA vacuums and wet-wiping shall be used to ensure any resulting Lead dust, paint chips or debris have been cleaned up from horizontal surfaces and polyethylene sheeting prior to moving ladders, scaffolding, man-lifts or other working platforms to the next Work Area to be abated.

3.06 REMOVAL OF WALL AND CEILING PLASTERS WITH LEAD-BASED PAINT

A. Removal of plaster walls and ceilings with lead-based paint shall be conducted within negative pressure enclosures and shall be coordinated with other removal work specified elsewhere to prevent the waste material from becoming commingled with other wastes that may be produced.
B. Continuously mist the plaster walls and ceilings with lead-based paint being removed with amended water. There shall be a dedicated person applying mist at each point of removal. Clean up any standing water immediately.

C. Place removed plaster walls and ceilings with lead-based paint in impervious containers as they are removed. Complete Work Area clean-up when the plaster walls and ceilings with lead-based paint are completely removed or at the end of the shift, whichever comes first.

D. When applicable, separate metal lath and black iron from plaster walls and ceilings with lead-based paint. Metal that cannot be properly decontaminated shall be packaged appropriately and disposed of as lead waste. Metal that can be properly decontaminated shall be cleaned and removed from the work area and disposed of as general construction debris or recycled.

E. All removed plaster debris with lead-based paint, contaminated metal, and associated debris shall be packaged, sealed with duct tape, wet-wiped and transferred to secure waste storage for waste characterization.

3.07 REMOVAL OF LEAD CONTAINING SURFACES BY CHEMICAL REMOVAL

A. Removal of Lead containing surfaces shall be by a Chemical Removal System approved for use by the Environmental Consultant.

B. The Contractor shall provide additional security measures as necessary to ensure non-abatement workers cannot gain access to chemicals and chemically-treated surfaces.

C. Material safety data sheets for each chemical substance and product used shall be onsite at all times and available for review by workers and Environmental Consultant.

D. The Competent Person shall review the contents of the material safety data sheets and the safe removal procedures with the workers prior to chemical removal.

E. Workers shall wear chemical goggles, face shields, impervious gloves, aprons, and booties over the standard protective clothing prior to starting chemical removal.

F. Stage or install a temporary emergency eyewash capable of providing a 15-minute flush within the immediate Work Area if corrosive organic or corrosive inorganic paint removal (stripping) products are used. In addition, a shower shall be available onsite within 50 feet of the removal operation.

G. Chemical stripping agents (and neutralizers) shall be applied in accordance with the recommendations of the manufacturer. Remove all paint and/or glazing compounds down to the bare substrate. Ensure that the chemicals used, and the associated removal methods leave a clean and smooth surface capable of accepting a suitable primer/sealer coating after final cleaning.
H. Containerize all paint and chemical waste in impervious containers labeled as hazardous waste.

I. Package all contaminated rags and protective equipment, and disposable cleaning items and plastic sheets in labeled impervious containers and transfer waste containers to secure waste storage units. The Contractor shall assume all such waste to be hazardous unless proven otherwise by objective waste characterization data.

J. Clean and decontaminate the Work Area in accordance with the procedures outlined herein.

K. Decontaminate all tools and equipment before removing them from the Work Area. Seal or bag up such equipment for transfer to the next Work Area or operation.

3.08 REMOVAL OF LEAD CONTAINING SURFACES BY MECHANICAL REMOVAL

A. Removal of lead containing surfaces by mechanical removal shall be performed within negative pressure enclosures.

B. All mechanical removal equipment and systems shall be approved by the Environmental Consultant. Such equipment includes but is not limited to needle guns, abrasive wheels, and roto-peon equipment.

C. All power tools shall be designed and equipped with HEPA-filtered exhaust systems.

D. The Contractor shall submit a separate workplan for containment of fugitive dust and debris emissions.

E. Work Area preparation and Lead coating removal shall be in accordance with approved work plan.

3.09 DRILLING/ANCHORING/CUTTING/ABRADING LEAD CONTAINING SURFACES

A. Prepare the Work Area as specified herein for lead abatement.

B. Remove all interfering structures (security bars, etc.) and store for replacement when work is complete.

C. Where installation of materials requires drilling, cutting, anchoring or abrading the Lead containing surfaces, the Contractor shall take additional appropriate precautions including, but not limited to, use of protective drop cloths, clean-up and decontamination of Lead dust and debris as specified herein.

D. Place plastic drop sheet below area of impaction.

E. Lightly moisten lead containing surface to be impacted.
F. Conduct impaction operations (i.e. drilling, anchoring, abrading, etc.)

G. Continue misting lead containing surface during impaction to control airborne dust.

H. HEPA vacuum and wet-wipe frequently to prevent accumulation and spread of lead-containing dust and debris.

3.10 LBP AND LEAD GLAZING STABILIZATION

A. Prepare the Work Area as specified herein for lead abatement.

B. Remove all interfering structures (security bars, etc.) and store for replacement when stabilization work is complete.

C. Surface Preparation - Remove all loose, flaking, peeling and/or deteriorated paint and/or glazing compounds using wet methods and prepare the surface within the work area as follows:

1. Lightly moisten exposed Lead containing surfaces to be prepared;

2. Wet-scrape and/or wet-sand surfaces as necessary to remove all loose and deteriorated paint or glazing compounds to obtain a like new surface with any remaining coating soundly bonded to the substrate;

3. Periodically re-moisten as necessary to control airborne dust;

4. HEPA vacuum and wet-wipe frequently to prevent accumulation and spread of lead-containing dust and debris;

5. Promptly dispose of all spent cleaning materials in labeled impervious containers;

6. Surface preparation is complete when the surface is sound, smooth, clean and can be painted to provide a like new surface.

D. Surface Preparation Clean-up

1. Upon completion of surface preparation, wet-scraping, and/or wet sanding, clean and decontaminate the entire Work Area using procedures outlined herein;

2. Decontaminate all tools and equipment before removing them from the Work Area. Seal or bag up such equipment for transfer to the next Work Area or operation;

3. Visually inspect prepared surfaces and the cleaned Work Area prior to applying any paints or coatings to ensure all loose paint, dust and debris has been cleaned up and the surface is properly prepared for painting.
E. Painting - Apply primer and finish coats of paint to obtain a like new surface in accordance with the manufacturer's specifications and requirements of the contract.

F. Conduct preliminary cleaning and decontamination of the entire Work Area and notify the Environmental Consultant to arrange for a preliminary visual clearance inspection. The Work Area containments shall not be removed until the Contractor has been notified by the Environmental Consultant of a satisfactory preliminary visual inspection result.

G. Remove containments and conduct final cleaning and decontamination of entire Work Area. Notify Consultant at least 24 hours in advance to arrange for final clearance inspection and testing. A mutually agreeable date and time shall be established by the Environmental Consultant, District and the Contractor for clearance inspections.

3.11 CLEANING AND DECONTAMINATION OF WORK AREAS

A. Daily Clean-up: Perform the following clean-up procedures daily.

1. Clean Work Areas until they are free of loose dust and debris to the satisfaction of the Environmental Consultant and/or District using HEPA and/or wet-wiping after pick-up of large debris.

2. Wet debris with a fine mist of water and collect material. All material to be properly segregated, bagged in 6-mil plastic bags, sealed, and moved to a designated, secure, waste storage area for waste characterization.

3. At the end of each work day the Environmental Consultant and/or District and the Contractor's Competent Person shall inspect work performed that day to ensure the work has been completed and no dust or residue remains on the areas removed and/or in the Work Area.

B. Final Clean-up and Decontamination: At completion of abatement perform cleaning as follows:

1. Remove all visible dust and debris as specified above.

2. Clean all Work Areas where abatement was performed by vacuuming all surfaces with a HEPA vacuum followed by wet-wiping with a high phosphate (tri-sodium phosphate) wash. The Contractor shall spray surfaces with a 5-10 percent tri-sodium phosphate (or approved equivalent) cleaning solution applied with a garden sprayer and wipe or mop surfaces with frequently changed clean towels, rags or mops.

3. Disassemble and remove containment barriers at each Work Area location after cleaning as specified above. Place polyethylene sheeting and tape into waste bags and remove to the temporary waste storage area.
4. Remove six (6) mil polyethylene sheeting on immovable objects and floors (where present) after misting with a high phosphate wash and wet-wiping. Place polyethylene sheeting and waste rags in segregated six (6) mil plastic bags, seal and store in a designated, secure, waste storage area for waste characterization.

5. Detergent solutions shall be replaced after each individual room is washed unless the spray application is used. If the wet vacuuming method is used, waste water shall be contained and disposed of properly after waste characterization testing.

6. The cleaning procedure used shall prevent spread of contamination and effectively clean surfaces while producing minimal waste.

7. All tools and equipment shall be sealed in six (6) mil plastic bags after being decontaminated using a high phosphate wash and wet-wiping prior exiting the Work Area.

8. Liquid cleaning wastes shall be filtered prior to containerizing for temporary storage pending hazardous waste characterization. Filter systems shall be able to remove particulate two microns and larger in diameter. Permits, if required, are the responsibility of the Contractor.

9. At least eight hours prior to completion and again upon completion of final clean-up and decontamination, notify the Environmental Consultant to obtain a final clearance inspection and testing.

3.12 FINAL CLEARANCE INSPECTION AND TESTING

A. Interior Clearance Inspection and Testing.

1. After the final clean-up, the Contractor shall perform a complete visual inspection of the Work Area under adequate lighting to ensure the Work Area is free from visible debris, dust, waste bags, containers, and unnecessary equipment. The Contractor shall ensure that additional cleaning is completed if the area is not acceptably clean. The Contractor’s request for inspection will be recognized upon receipt of a completed and signed copy of the Asbestos and Lead Inspection Form (Section 01 11 00 – Appendix G). No inspections will be conducted without a completed and signed copy of the Asbestos and Lead Inspection Form (Section 01 11 00 – Appendix G).

2. Upon receipt of the Asbestos and Lead Inspection Form (Section 01 11 00 – Appendix G), the Environmental Consultant will perform the final visual clearance inspection. The clearance inspection will at minimum consists of the requirements as described in Chapter 15: Clearance, Sections II-VI, “Guidelines for the Evaluation and Control of Lead-based Paint Hazards in Housing,” dated June 1995.

3. If the Work Area is not visibly clean, as determined by the Environmental Consultant, the Contractor shall re-clean and decontaminate as described herein at his own cost until the work area passes inspection.
4. A minimum of two hours is required between cessation of clean-up procedures and clearance dust wipe testing.

5. All clearance dust wipe samples will be taken using the HUD sampling protocol by the Environmental Consultant.

6. Dust wipe samples will be collected using commercial wipes moistened with a non-alcohol wetting agent. When possible, areas of approximately one square foot will be selected from horizontal surfaces below or adjacent to where LBP components were removed.

7. One dust wipe sample will be collected per abated area (doorway, utility room) and sent under proper chain of custody protocol to an accredited AIHA or EPA-CPL laboratory or equivalent as specified by the Environmental Consultant.

8. All dust wipe samples will be analyzed for lead using either AAS or ICP-AES for lead and results will be provided to the Contractor within two days of receipt of sample results.

9. The Contractor shall be released from each Work Area when all dust wipe samples from the area are below the following levels of lead:
   a. Interior Floor Surfaces: 40 micrograms per square foot (µg/ft²)
   b. Interior Horizontal Surfaces: 250 µg/ft²
   c. Exterior Floor and Horizontal Surfaces: 400 µg/ft²

10. A Work Area shall be considered completed and cleared only after all areas within the Work Area have met the above criteria.

11. If any of the dust wipe samples exceed the clearance criteria, the entire Work Area must be cleaned and retested until the clearance criteria are met. As the building may be occupied, the Contractor shall coordinate with the District and Environmental Consultant to gain access for cleaning and re-inspection and clearance testing by the Environmental Consultant at the earliest time possible.

12. If a Work Area fails the clearance criteria specified above, the Contractor shall clean the entire Work Area at no additional cost nor increase to the contract sum and shall be responsible for associated additional Environmental Consultant fees. The Contractor shall pay all laboratory and delivery charges for additional dust wipe samples taken in each Work Area upon clearance failure.

B. Exterior Clearance Inspection. After the final clean-up by the Contractor, the Environmental Consultant shall conduct a visual inspection to ensure that all visible dust and debris has been properly removed. The Contractor must provide the Environmental Consultant at least 8 hours notice prior to scheduling final inspections. If the results of the final visual inspection are satisfactory to the Environmental Consultant, clearance dust wipe samples may be collected from exterior floor and exterior horizontal surfaces.
Upon obtaining acceptable clearance sample results, the exterior Work Area shall be released for unrestricted access. If the results of the inspection are unsatisfactory the contractor shall re-clean and decontaminate the Work Area prior to requesting another inspection by the Environmental Consultant.

C. Upon acceptance of the final results for clearance dust wipe sampling, the Environmental Consultant shall complete the Asbestos and Lead Inspection Form (Section 01 11 00 – Appendix G) and submit this information to the District and retain the original.

3.13 RE-INSTALLATION ON INTERFERENCE COMPONENTS

A. Upon completion of abatement and lead-related construction work, re-install fixtures, electrical utilities, telephone utilities and other components removed as construction interferences except for components scheduled for removal and disposal.

3.14 LEAD CONTAMINATION OF BUILDING OR ENVIRONMENT

A. In the event that removed paint dust or debris is not properly contained within the Work Area and thereby escapes, bypasses or penetrates established barriers, the Contractor shall stop work immediately, notify the Environmental Consultant immediately, and commence clean-up and decontamination procedures as described herein or directed by the Environmental Consultant.

B. For soil contamination, the Contractor shall remove all visible signs of paint dust and debris and, at minimum, the upper one-half inch of soil in the area contaminated and at least five feet beyond in each direction. Successful completion of soil decontamination shall be subject to evaluation by sampling at the discretion of the District and Environmental Consultant. Soil sample(s) with lead concentrations below pre-abatement composite soil sample results or 400 ppm if background samples were not collected shall be the criteria for completion of soil clean-up and decontamination. The Contractor shall be responsible for all costs associated with disposal of any debris and contaminated soil, including waste characterization testing.

3.15 WASTE STORAGE, SEGREGATION, AND CHARACTERIZATION

A. The Contractor shall provide for secure onsite temporary storage of Lead related waste. Waste storage location, equipment, containers and methods are subject to prior approval by the District and Environmental Consultant.

B. Construction materials removed from lead abatement must be evaluated to determine waste characteristics prior to disposal. Except intact Lead containing components, all waste streams and waste categories shall be considered hazardous until proven otherwise. The Contractor shall be responsible for segregating waste into the following categories and conducting appropriate waste testing for lead:
1. **Paint (LBP & non-LBP) and glazing, chips, dust and debris, HEPA vacuum waste, and used cleaning materials.** The Contractor shall handle, store and dispose of these items as a hazardous lead waste without further characterization.

2. **Plastic sheeting and tape.** Except for plastic sheeting from chemical removal areas, these used items, if properly cleaned, should be non-hazardous. However, they shall be considered hazardous unless proven otherwise by lead waste testing.

3. **Disposable Protective Clothing and Equipment (PPE).** Disposable work clothes and other items potentially contaminated with LBP or lead, if properly cleaned, should be non-hazardous. However, they shall be considered hazardous unless proven otherwise by lead waste testing.

4. **Intact Lead containing components.** Architectural debris with intact Lead coatings will be considered a special non-hazardous construction debris as long as the coating remains intact unless otherwise noted.

5. **Plaster debris.** Plaster debris with lead-based paint shall be considered hazardous pending laboratory results.

6. **Chemically Removed Paint/Glazing -** shall be considered hazardous waste.

C. Each Lead-related waste produced shall be placed in properly segregated, labeled and sealed, impervious containers.

D. Removed intact Lead containing components shall be properly segregated, wrapped in six-mil polyethylene sheeting, labeled and securely sealed with duct tape.

E. All waste containers, bags, and packaged waste shall be stored in a designated, secure, locked waste storage area and be labeled "PENDING ANALYSIS" with the following information:
   1. Waste Category
   2. Date Accumulated
   3. Name, address, District
   4. Origin of waste

F. HEPA vacuum and wet-wipe the exterior of all waste containers prior to removing them from the Work Area to the designated storage area.

G. All Lead-related waste, except architectural components with intact Lead coatings, shall be considered hazardous until waste characterization has been performed under the California Code of Regulations, Title 22. Architectural debris with intact coatings is a special category which may not be subject to testing as determined by the Environmental Consultant.
H. Each category of waste, except components with intact paint or coatings, will be tested and characterized by the Contractor using one or more of the following testing protocols:

1. Cal-EPA testing protocol:  
   a. Total Threshold Limit Concentration (TTLC): 1,000 ppm  
   b. Soluble Threshold Limit Concentration (STLC): 5 ppm  

2. Federal-EPA testing protocol:  
   a. Toxicity Characteristic Leaching Procedure (TCLP): 5 ppm  

I. All testing by the Contractor shall be subject to direct observation and review by the Environmental Consultant. At minimum, a TTLC shall be performed on each suspect waste stream. Based on the testing protocols, any waste greater than or equal to five (5) ppm lead using STLC or TCLP tests or any waste greater than or equal to 1,000 ppm lead using the TTLC test shall be considered a hazardous waste.

J. When the TTLC is less than 50 ppm lead, no further testing is required for that waste category sampled. It will be the responsibility of the Contractor to ensure representative samples are taken from each category of segregated waste.

K. The Contractor shall package, store, handle, transport and dispose of each category of waste generated based on the testing results obtained by the Contractor and reviewed by Environmental Consultant. Where landfills have more stringent requirements, the Contractor shall be responsible for all additional disposal costs. The proposed landfill shall be subject to approval by the Environmental Consultant.

L. Upon verbal request of the Environmental Consultant, the Contractor shall collect samples of Lead-related waste. The Contractor shall collect samples within full view and presence of the Environmental Consultant. Samples taken may entail cutting and removing sections of a component and clean-up of any resulting dust or debris.

M. The cost of all waste characterization or waste profiling required by the approved landfill will be the responsibility of the Contractor.

N. In the event that the Environmental Consultant has determined that waste is not properly segregated, additional waste testing may be conducted of the mixed waste stream. The Contractor shall be responsible for the costs associated with this additional testing.

O. The Contractor shall bear full responsibility for additional costs associated with waste disposal and characterization if waste is not properly segregated as required herein.

3.16 HAZARDOUS WASTE DISPOSAL:
A. Site Storage and Handling: The Contractor shall pay strict attention to the requirements of 40 CFR 262 and 265 and Title 22, Chapter 30 for the onsite handling of debris, with special attention given to the time of storage, amount of material stored at any one time, use of proper containers, and personnel training. All waste shall be stored in secure, locked, labeled, sealed impervious containers and not placed on the unprotected ground. All containers shall be shielded adequately to prevent dispersion of the debris by wind or rain and shall be labeled as hazardous waste. Any evidence of improper storage shall be cause for immediate shutdown of the project until a corrective action is taken.

B. Transportation and Disposal of Waste:

1. The Contractor shall arrange to have the Lead-related waste and debris transported from the site in accordance with the requirements of 40 CFR 263 and 264, and disposed of properly in accordance with 40 CFR 268, GISO 8 CCR Articles 40 and 41, 49 CFR Parts 172, 173, 178, and 179 and Title 22, Chapter 30, Articles 5, 6, 6.5 and 8.

2. The Contractor shall submit to the District and Environmental Consultant the Name, Class, and EPA I.D. Number of the waste disposal site(s) to be used for each waste category which has been determined by testing to exceed the hazardous waste thresholds provided in Article 3.14, Paragraph H and Paragraph I and any Intact LBP component waste.

3. Where Lead related construction debris is to be disposed of as non-hazardous, a waste shipping record is still required, and a copy shall be provided to the District and Environmental Consultant.

4. The Contractor shall prepare waste shipping manifests for review by the District. Upon waste or material pickup by the selected waste transporter, manifests shall be signed by the District or District's Representative and copies retained to verify that all steps of the handling and disposal process have been completed properly.

5. Copies of the landfill weight tickets shall be provided to the District and Environmental Consultant to verify the amount of waste disposed of at that site. The Contractor shall be responsible for all costs associated with transportation and disposal of all wastes generated at the result of this work.

C. No waste characterized as hazardous waste shall be stored onsite for more than 90 days prior to being properly transported for disposal.

D. All equipment, materials, and waste generated on this project must be removed offsite to their proper locations by the Contractor within seven (7) calendar days from successful abatement completion and receipt of final clearance wipe testing results for lead related work.
E. Containers to be loaded for transportation from the storage area must be removed by workers who have entered from uncontaminated areas, dressed in clean coveralls.

3.17 STOP WORK ORDERS

A. The Environmental Consultant has the authority to stop work in accordance with Section 01 11 00 Article 1.15. Examples of such conditions that might result in a work stoppage include but are not limited to:

1. Uncontrolled visible emissions which escape the established Work Area or breach physical protective barriers within the Work Area; and/or,

2. Ambient airborne levels of lead measured outside the construction area at more than 0.15 micrograms per cubic meters of air (µg/m³) of lead (rolling three-month average).

3. Unsecured Waste Storage Area and/or improper containment of abatement waste or LBP contamination.

3.18 PROJECT CLOSEOUT

A. Prior to approval of final payment request, the Contractor must provide the following information:

1. Copies of hazardous waste manifests, profile sheets and weight tickets for all hazardous wastes and manifests and weight tickets for non-hazardous wastes or recyclables consisting of architectural debris with intact paint.

B. All surfaces damaged during this work must be restored to their original condition except those surfaces scheduled for demolition as part of the renovation project.

END OF SECTION
SAN FRANCISCO UNIFIED SCHOOL DISTRICT
PROP 39 HVAC REPLACEMENT
1451 JACKSON STREET
SAN FRANCISCO, CA 94109
SAN FRANCISCO UNIFIED SCHOOL DISTRICT

SPRING VALLEY ELEMENTARY SCHOOL
1451 JACKSON STREET
SAN FRANCISCO
CA, 94109

Sheet Title:
PROJECT IDENTIFIER
MAP COMMENTS/ANNOTATIONS
TITLE SHEET

DRAWING TITLE
SCALE: M yok
DATE: MARCH 23, 2018
DRAWING No.

SPRING VALLEY ELEMENTARY SCHOOL
1451 JACKSON STREET
SAN FRANCISCO
CA, 94109

Title Sheet

GENERAL NOTES
1. UNLESS OTHERWISE STATED, ALL ITEMS ARE TO BE COMPLETED ACCORDING TO THE DRAWINGS AND SPECIFICATIONS ATTACHED.
2. UNLESS OTHERWISE STATED, ALL ITEMS ARE TO BE PROVIDED BY THE CONTRACTOR.
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