

All negative pressure units that are installed to the containment system but are shut off or not working, shall be sealed at both the exhaust location and the intake of the machine to prevent back draft which could allow asbestos fiber contamination from the HEPA filter back into the work area.

Part 13.2 - DOP Testing

Contractor shall provide differential air pressure systems for each work area in accordance with Appendix J of EPA "Guidance for Controlling Asbestos-Containing Materials in Buildings," EPA 560/5-85-024.

All HEPA filtered systems used on this project shall be tested and certified by an independent third party company on-site prior to use. Contractors may not test their own equipment. All vacuums and pressure differential units shall meet ANSI Z9.2, using an appropriate testing agent. Written copies or electronic copies of documentation of these tests shall be provided to the Owner's CAC prior to the use of any HEPA system.

DOP, or equivalent, testing shall be conducted on-site, unless stated otherwise in the Scope of Work. All HEPA filtered units, including but not limited to, vacuums and air pressure differential units (negative air units) shall be tested onsite. Testing of air pressure differential units must include testing of the wheel attachments, control panel, seam, rivets of the housing, as well as, the HEPA filter itself.

All HEPA equipped equipment to be used on the project must be delivered to the site empty of all debris, clean and free of dust, and in full operating condition. Covering dirty units with poly, other than the HEPA filter surface, will not be acceptable.

DOP or equivalent testing is required when any HEPA filters are changed during the project

Any negative pressure unit turned upside down, or on its side, must be returned to an upright position and re-DOP tested. Negative pressure units shall not be used on this project while laid on their side or upside down.

In case of a power outage, Contractor must seal exhaust ducts against back draft into containment.

All negative air units shall will have the filter sealed with poly and tape before being shutdown to prevent back drafting before it is moved from the work area.

Part 13.3 - Differential Pressure Recording Requirements

Differential air pressure shall be continuously monitored by using a manometer that measures down to at least three digits to the right of the decimal point. For example, the manometer shall be able to read and display -0.035" wp, which shows three digits to the right of the decimal point. Other manometers not meeting this minimum criteria are not acceptable. The location of the pressure measurement shall be approved in advance by the Owner's CAC. The location where the air tubing of the manometer is inserted into the work area will be determined by both the contractor competent person and the Owner's CAC.

The pressure differential shall be checked a minimum of every hour during the work shift by the contractor's competent person.

On some projects, it may be specified for the manometer to maintain a printed copy of the negative pressure readings. The manometer readings will require the correct date and time. It will be the contractors responsibility to write on the recording information the location of the reading, including project name and containment location.

Defective or non-operating manometers may require temporary stoppage of work until instrumentation is replaced.

For larger projects at least one manometer station shall be in place for each 25,000 square feet of containment space. Additional manometers may be required on large projects, where a second location is

needed for the Owner and representatives.

Part 13.4 - Differential Pressure System

The location of the air filtration units (negative air units) exhaust out of the work area shall require careful consideration with regard to the work being performed and needs of the owner. All air exhaust from negative air units shall be directed out of the building when possible. This can be accomplished through use of flexible and semi-rigid exhaust ducts from the negative air units extending to windows, doors or other openings in the building. The first choice should always be to direct PDU air exhaust out of the building through the Contractor supplied ducts. Any alternative exhaust location of negative air that cannot exhaust out the building shall be determined by the Owner's CAC.

When directing exhaust to a buildings exterior through the use of temporary supplied duct, the Contractor shall select a path of travel for these ducts which does not impede building occupants or other trades, result in creation of a hazard to building occupants, or restrict the closing of entry and exit doors to the building. The exhaust opening must not be within 10' of any air intake vents, open windows or open doors, and must not be directed at paths of travel into or out of the building.

In some very limited cases, it might be possible to exhaust air from a negative air unit into an existing building's exhaust system. When utilizing a dedicated exhaust duct system present within the building the system must be investigated to determine its capability of handling the volume of exhaust air expected to be produced by the pressure differential system. Sufficient air volume of the existing dedicated exhaust duct system should have a minimum of 5X but preferably up to about 10X the total volume capacity of the exhaust of the pressure differential air system. For example, if a single 2,000 cfm negative air unit is to be used, the dedicated exhaust fan system which will exhaust the air produced by the negative air unit should be capable of handling about 10,000 cfm of total exhaust air capacity. Use of permanent dedicated exhaust duct systems may also require temporarily sealing of adjacent registers in the same exhaust system to make up the difference in exhaust volume.

The owner shall provide approval prior to the contractor utilizing any existing dedicated exhaust systems which might be considered, since the dedicated exhaust systems will be required to operate at all times the pressure differential air system is operable, and sealing any adjacent registers may not be acceptable. It is critical to note that a dedicated exhaust system is not the same as a return air duct system which re-circulates air from a given building space back to the HVAC fan unit and ultimately is supplied back to the work space. Return air duct systems will not be allowed for exhaust from negative air units.

Directing exhaust air into an attic or above ceiling space may only be utilized in specific conditions and is limited to attic spaces with only exposed wood, metal or concrete undersides of roof or flooring systems. The space may not under any circumstances have any existing known or assumed asbestos containing materials present regardless of their condition.

Regardless of the exhaust system utilized, the system and its components shall be inspected daily by the Contractor to ensure compliance with the requirements of this specification, remains in good repair and is otherwise not compromised in any way which could negate its designed purpose. Any deficiencies found in the system being used shall be repaired immediately and if necessary all work will cease until those repairs can be accomplished.

The work area shall have a differential air pressure of at least -0.030 inches water whenever the work is being performed including removal, gross clean-up, encapsulation of surfaces, bag-out operations and worker entry and exit procedures. If pressure differential ever drops below -0.025 inches water differential, all work, other than cleanup of waste on the floor of containment, must be halted until reason for pressure differential drop has been determined and corrected.

Only unused pre-manufactured, reinforced flexible ducts shall be used within the containment area for exhausting of filtered air. Contractor may not construct ducts using poly or other materials that do not maintain

the rigidity in the exhaust duct.

All interior of containment PDU's and flexible ducts must be wrapped in poly during all abatement activities. This poly wrap is to be removed after "finish detail" work has been completed, but prior to clearance visual.

Flexible ducts must be supported by solid surface at the point of exit from containment. This may require the Contractor to install plywood, or similar, structure at the exhaust point.

SECTION 14. EXECUTION, WORK SCHEDULE

Part 14.1 - Execution

Owner Responsibilities

The Owner shall provide the Contractor with access to the building during scheduled work hours through their representative. This representative is expected to be the General Contractor in charge of the site. The Owner shall also be responsible for arming and disarming alarm systems on buildings where work will be performed.

The Owner shall also provide the Contractor access to water and electrical hook-ups.

Contractor Responsibilities

The Contractor is responsible for all connections, electrical cords, GFCI's, water hoses, and hose bibs necessary for attachment. GFCI's are required to be used by the Contractor on all electrical circuits in use.

The Contractor and Owner's CAC shall investigate the work area and agree (in writing if necessary) on the pre-abatement condition of the work area.

The Contractor shall post danger signs meeting the OSHA specifications at locations and approaches to locations where airborne concentrations of asbestos may exceed ambient background levels including all doors sealed as a critical barrier and at all entries to asbestos work containments.

When electrical supply within area of abatement poses a hazard, the Contractor, in conjunction with the Owner, shall shut down and lock out electric power to all work areas. The Contractor shall provide temporary power and lighting sources, ensure safe installation, including ground fault circuit interrupters of temporary power sources and equipment by complying with all applicable electrical code requirements and OSHA requirements for temporary electrical systems. The Contractor shall have a licensed electrician shut down and lock out electric power, and setup temporary power and lighting sources. All cost of electricity shall be paid for by the Owner unless specified differently in the Scope of Work. The cost for set-up of temporary power is the responsibility of the abatement contractor unless specified differently in the scope of work.

When plumbing is required to be altered or becomes damaged, the Contractor shall have a licensed plumber disconnect and cap all water as necessary within the work area. Water shall be provided by the Owner from a location near the work area, but not necessarily within the work area.

Shut down and lock out all heating, ventilating and air-conditioning-system (HVAC) components that are in, supply, or pass through the work area. Seal all intake and exhaust vents in the work area with tape and 6-mil polyethylene within the work area at both the interior and on the exterior of the building. Seal any seams in system components that pass through the work area.

Pre-clean all fixed objects in all work areas using HEPA-filtered vacuums and/or wet-cleaning techniques as appropriate and deemed necessary by the Owner's CAC. Careful attention must be paid to machinery behind grills or gratings where access may be difficult but contamination significant. After pre-cleaning, enclose fixed objects in 6-mil polyethylene sheeting and seal securely in place with tape.

Pre-clean all surfaces in all work areas using HEPA filtered vacuums and/or wet cleaning methods as appropriate. Do not disturb asbestos-containing materials during the pre-cleaning phase.

Unless otherwise stated in the scope of work or by agreement with the Owner's CAC all non-asbestos-containing materials left in the work area shall be covered by with 6-mil polyethylene sheeting. If any non-asbestos containing materials become contaminated with asbestos during removal activities these materials shall be disposed of as asbestos-containing materials by the Contractor. The Owner's CAC shall determine the friability of these materials prior to disposal.

Contractor shall seal all windows, doorways, elevator openings, corridor entrances, drains, ducts, grills, grates, diffusers, skylights and other openings between the work area and uncontaminated areas outside of the work area. These openings must be sealed with 6-mil polyethylene sheeting and tape. These protective layers shall be in addition to the two polyethylene layers on floors, ceilings and walls. These openings are referred to as critical barriers. Seal all cracks in critical barrier areas with tape, caulk, or foam prior to sealing critical barriers.

Prior to the Contractor covering critical barriers with additional layers of wall, floor, or ceiling poly, the installation and integrity of critical barrier seals must be approved by the Owner's CAC.

All items attached to asbestos-containing materials and items which cannot be removed without disturbing asbestos-containing materials shall be removed by the Contractor after establishment of containment and negative pressure. If these items are to be "saved and returned" or "reused" by the Owner, the Contractor must remove and clean them without damage. These items must be cataloged using the attached "Return Item Inventory Sheet" provided by the Owner.

Contractor shall cover floors in the work area with polyethylene sheeting. Floors shall be covered with a minimum of two layers of 6-mil polyethylene sheeting. Plastic shall be sized to minimize seams. A distance of at least six (6) feet between seams is sufficient. DO NOT locate any seams at wall/floor joints. Floor sheeting shall extend at least twelve inches (12") up the sidewalls of the work area. Sheeting shall be installed in a fashion so as to prevent slippage between successive layers of material. A layer of 10-mil polyethylene sheeting and/or plywood may be required by the Owner's CAC to protect certain flooring materials -- carpets, hardwood floors, tiles, etc. and will be specified in the scope of work if required. At no time will wall or ceiling materials be permitted to be dropped onto unprotected floors. This includes areas where the floor surfaces contain asbestos.

Contractor shall cover walls in the work area with polyethylene sheeting. Walls shall be covered with a minimum of two layers of 4-mil polyethylene sheeting. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet (6'). DO NOT locate any seams at wall/floor joints. Wall sheeting shall overlap floor sheeting by at least twelve inches (12") beyond the wall/floor joint to provide a better seal against water damage and for pressure differential maintenance. Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This may require additional support/attachment when pressure differential systems are utilized.

In some projects when specified in the scope of work, the Contractor shall cover ceilings in the work area with polyethylene sheeting. Ceilings shall be covered with a minimum of one layer of 4 mil polyethylene sheeting. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet (6'). DO NOT locate seams at wall/ceiling joints. Ceiling sheeting shall overlap wall sheeting by at least twelve inches (12") beyond the ceiling/wall joint to provide a better seal against water damage and for pressure differential maintenance. Ceiling sheeting shall be secured adequately to prevent it from falling away from the walls such as wires attached between walls to provide additional support. Additional support/attachment might be required when pressure differential systems are utilized.

The Contractor shall add clear viewing windows in the containment walls at least 1' x 2' in size. The Owner's CAC will approve quantity and placement of these inspection windows. The Owner's CAC has the right to require more clear viewing windows or require placement of windows to be altered.

The equipment room shall be used for storage of equipment and tools at the end of a shift after they have been decontaminated using a HEPA-filtered vacuum and/or wet-cleaning techniques as appropriate. A six-mil. disposal bag or a drum lined with a labeled 6-mil polyethylene bag for collection of disposable clothing and contaminated supplies shall be located in this room.

The Contractor shall be responsible for all clean-up and costs associated with the decontamination of occupied spaces adjacent to any containment where removal of asbestos-containing material is conducted.

The Contractor shall also be responsible for damage to building finishes and costs associated with removal of tape glue, staining of wall finishes, or destruction of wall surface integrity from spray glue application, staples, nails, hooks, etc. installed to support containment. It is the responsibility of the Contractor to identify with the General Contractor all aspects of the project requirements pertaining to these types of damages.

There shall be a sufficient number of negative air units in the work area to maintain a minimum -0.030 " water pressure in the regulated area. A sufficient number of negative air units shall be installed to maintain a minimum of four air changes per hour. All negative air units shall have pre-filters at the intake of the system which must be changeable from inside the containment area. Openings made in the enclosure system to accommodate these units shall be made airtight with tape and/or caulking as needed. They shall NOT be exhausted into occupied areas of the building. Twelve inch (12") extension ducts shall be used to reach from the work area to the outside when required. Careful installation, air monitoring and daily inspections shall be done to ensure that the ducts does not release fibers into uncontaminated building areas.

Once the containment has been constructed and reinforced as necessary with pressure differential units in operation as required, the Contractor shall test the enclosure for leakage utilizing smoke tubes. The containment shall be repaired or reconstructed as needed.

Contractor shall clearly identify and maintain emergency and fire exits from the work area.

Work shall not begin each day until:

- a. Enclosure systems, or modifications thereof, have been designed and built by the Contractor and each step approved by the CAC. If design of containment is to be altered in any way, after it is approved by the CAC, a written explanation of how and why the containment is to be altered must be submitted to the Owner's CAC for approval.
- b. Pressure-differential systems are functioning according to an acceptable design.
- c. All pre-abatement submissions, notifications, postings and permits have been provided and are satisfactory to the Owner or its representative.
- d. All equipment for abatement, clean-up and disposal is on hand.
- e. All current worker training documents are present.
- f. The Contractor has installed all required clear transparent viewing windows made of plastic or equivalent, in the containment so that activities can be visually monitored by the Owner's CAC from outside the containment. This window shall measure approximately 1' wide by 2' high. It shall be installed at a location approved by the Owner's CAC.
- g. All negative air units and vacuums have received and passed onsite DOP testing.
- h. Contractor has at least one competent person at each site in which work is taking place.
- l. All necessary documents and information have been posted or are on the work site.
See Section 2.

Part 14.2 - Power Outage Procedures

The following procedures shall be followed in the event of a power outage (no matter the source of the outage):

- 1. Immediately stop abatement activities.
- 2. Wet all debris and/or friable materials within the containment.

- 3. Depart containment area as soon as reasonable. Shower out or use Hudson type water sprayers to decontaminate worker if shower is inoperable due to power outage.
- 4. Seal containment area including:
 - A. Decontamination units
 - B. Makeup air ports
 - C. Bag out chambers

If a generator is required by the project conditions, made necessary due to extended power outages, or chosen to be used by the abatement contractor the following issues must be addressed:

- 1. Generator must not violate any local noise ordinances nor disturb adjacent building occupants.
- 2. Generator exhaust must not be allowed to contaminate the makeup air being pulled into the containment. It must, also, not be allowed to mix with HVAC air supplied to adjacent occupied buildings.

Part 14.3 - Work Schedule

Contractor shall schedule work as required to meet the needs of the project. During progress of work, it shall be the Contractor's responsibility to inform the Owner's CAC 48 hours or earlier of any and all work shifts to be performed. If at least 48 hours notice is not given, the proposed work shift may be canceled by the Owner's CAC.

Contractor shall be responsible for informing the Owner's CAC in writing at least 48 hours or earlier prior to the proposed addition of any off hours work, work expected to include more than one shift per day, or extend beyond 10 hours in a shift. If 48 hours notice is not given, work shift may be canceled by the Owner's CAC. The Owner's CAC reserves the right to deny any changes in the work schedule.

If the Contractor wishes to work on a Federal or State holiday, more than five days a week, or more than 9 hours a day, Contractor becomes responsible for cost of project management fees to cover extended hours. If the Contractor fails to appear on-site without notifying Owner's CAC at least 24 hours in advance of a scheduled work shift, the Contractor becomes responsible for all Owner's CAC travel fees, on-site time fees, and other associated project management fees for that day.

At no time shall a work shift extend beyond 12 hours in a day.

SECTION 15. REMOVAL PROCEDURES

Wet all asbestos-containing material with an amended water solution using equipment capable of providing a fine spray mist, in order to reduce airborne-fiber concentrations when the material is disturbed. Saturate the material to the substrate; however, do not allow excessive water to accumulate in the work area. Keep all removed material wet enough to prevent fiber release until it can be containerized for disposal. Maintain high humidity in the work area by misting or spraying to assist in fiber settling and reduce airborne concentrations. Wetting procedures are not equally effective on all types of asbestos-containing materials but shall be used in all cases.

Saturated asbestos-containing material shall be removed in manageable sections. Removed material should be containerized immediately. Surrounding areas shall be periodically sprayed and maintained in a wet condition until visible material is cleaned up. Gross debris shall be cleaned up and bagged prior to end of each shift.

Material removed from building structures or components shall not be dropped or thrown to the floor. Material should be removed as intact sections or components whenever possible and carefully lowered to the floor.

Waste containers shall be sealed when full. Double bagging of waste material into 6 mil plastic is required. Bags shall not be overfilled. They should be securely sealed to prevent accidental opening and leakage by tying tops of bags in an overhand knot or by taping in gooseneck fashion. Do not seal bags with wire or cord.

Asbestos-containing waste with sharp-edged components (e.g., nails, screws, metal lath, tin sheeting) will tear the polyethylene bags and sheeting and shall be placed into drums or burlap bags and then into leak tight containers for disposal.

After completion of all stripping work, surfaces from which asbestos-containing materials have been removed shall be wet-brushed and sponged or cleaned by some equivalent method to remove all visible residue.

After the work area has been rendered free of visible residues and verified clean by the CAC, a thin coat of a satisfactory encapsulating agent shall be applied to lock-down non-visible fibers on all surfaces in the work area including structural members, building components and plastic sheeting on walls, floors and covering non-removable items.

SECTION 16. WASTE CONTAINER PASS-OUT PROCEDURES

Asbestos-contaminated waste that has been containerized shall be transported out of the work area through the waste transfer airlock or through an approved pass-out arrangement.

Waste pass-out procedures shall utilize two teams of workers, an "inside" team and an "outside" team. The inside team, wearing appropriate protective clothing and respirators for inside the work area, shall clean the outside, including bottoms, of properly labeled containers (bags, drums, or wrapped components) using HEPA vacuums and wet-wiping techniques and transport them into the waste container pass-out airlock. Provisions for spray cleaning exterior of bags, equipment, and removable items shall be present in the waste pass-out. Waste water from this operation shall be collected and filtered as required through a 5.0 micron filter.

The three-chamber system is utilized in the following manner. Workers inside the work area place the waste in the leak tight waste container, which is usually a 6 mil bag. They then rinse the bag and seal it. They hand it to a worker in the dirty chamber room who inspects the bag and, if it is clean, places it in the second leak tight waste container. The second leak tight waste container is either another bag or a lined rigid-wall container such as a barrel or box. The worker then seals the second container and may attach the proper labeling. The worker places the container in the middle chamber (shower containment). The worker in the clean chamber then reaches in and lifts the container into the clean chamber. The worker inspects it and if not already labeled, attaches the proper labels. The worker then passes the container to the outside worker who transports the container either to the waste transport vehicle or to a holding area. At no time shall z-flaps of transfer system chambers be taped, held or otherwise blocked open. The Contractor must not allow more than one poly airlock doorway to be open at any one time. This prevents a tunnel system and a breakdown in the isolation of the work area. Negative pressure must be maintained during all waste load-out activities.

The contract documents or the Owner's CAC may in allow a one or two chamber system for waste pass out to be used for some projects, as long as the Owner's CAC agrees to the work practice. As with a three-chamber system, in a one or two chamber system, the Contractor may never allow more than one poly air flap doorway to be open at any one time. For example, a one chamber system would function in the following manner. Workers in the work area rinse and seal the initial waste container. They hand the initial container to a worker in the load-out chamber. That worker verifies that the container is clean and then places it into the second container which will be either another bag or lined ridged-wall container depending on the specifications. The load-out worker then seals the container and applies the appropriate labels. The sealed, labeled container is then passed to the outside workers who transport it to the waste transport container or holding area.

The exit from this airlock shall be secured to prevent unauthorized entry.

SECTION 17. CLEAN-UP PROCEDURE**Part 17.1 - Clean-up Procedure**

Remove and containerize all visible accumulations of asbestos-containing material and asbestos-contaminated debris utilizing rubber dust pans and rubber squeegees to move material around. DO NOT use metal shovels to pick up or move accumulated waste. Special care shall be taken to minimize damage to floor sheeting.

Wet-clean all surfaces in the work area using rags, mops and sponges as appropriate. Note: Some HEPA vacuums might not be wet-dry vacuums. To pick up excess water and gross wet debris, a wet-dry shop vacuum with HEPA filter may be used.

Airless sprayers and water hoses shall not be used in a "power washing" fashion on any surfaces unless approval is provided by the CAC.

The Contractor shall remove each cleaned layer of polyethylene sheeting from walls and floors. Windows, doors, HVAC system vents and all other critical barriers shall remain sealed. The pressure differential units shall remain in continuous operation. Decontamination enclosure systems shall remain in place and be utilized.

Remove all containerized waste from the work area. Decontaminate all tools and equipment and remove at the appropriate time in the cleaning sequence.

Contractor shall clean work area and conduct a pre-clearance visual. Once pre-visual has been passed by the Contractor, the containment shall allow time for the airborne dust to settle within containment for 24 hours, then return and re-clean by HEPA-vacuuuming and/or wet-cleaning all objects and surfaces in the work area again. At this point Owner's CAC will conduct the final visual. If the final visual inspection fails, the Contractor must re-clean area the work area until a final visual inspection is found acceptable to the CAC. Once the final visual inspection is passed by the CAC, Contractor will be allowed to encapsulate the containment area, unless encapsulation of containment has been disallowed in the scope of work or material specific specification.

The Contractor may request a reduction in the 24 hour waiting period, if personal samples collected during the abatement work and detail clean-up work have shown fiber levels below the PEL. Reduction of waiting period must be made in writing, accompanied by personal sample results from this project. The Contractor must acknowledge that reduction in waiting period may result in failed clearance air samples and that retaking and re-analyzing these air samples will be at the Contractor's expense. Any reduction in waiting time will be at the discretion of the Owner's CAC and client.

Part 17.2 - Visual Clearance Criteria

The **Contractor** shall perform a pre-final visual inspection of the regulated work area and adjacent surfaces prior to requesting that the Owner's representative conduct a final visual inspection. The pre-final visual performed by the Contractor shall verify that all materials have been completely removed from the work area, and that the work area meets the requirements specified in Section 17.

In addition, the level of cleanliness in all work areas where asbestos has been removed shall meet the final clearance criteria established in the ASTM E1368-90 Standard Practice for Visual Inspection of Asbestos Abatement Projects.

Upon completion of the pre-final visual inspection by the Contractor a final visual of the containment area will be performed by the Owner's representative. The CAC will determine the clearance criteria for the project. At a minimum, no three dimensional debris shall be left within the work area; all poly shall be wet wiped so that no visible dust or debris is left; the decontamination chambers shall be clean of all debris; the waste

transfer area shall be clean of all debris; all equipment and supplies shall be clean of all debris. The Contractor shall not be released to encapsulate the containment until receiving acceptance by the CAC stating the removal area and the containment have met the criteria of the CAC for completeness of removal and cleanliness of the containment barriers and surfaces.

The Owner's CAC will conduct the final visual inspection of the work area for visible residue. If any accumulation of residue is observed, it will be assumed to be asbestos and the 24 hour settling period/cleaning cycle will be repeated.

Additional cleaning cycles shall be provided by the Contractor, as necessary, at no cost to the Owner until the specified clean criteria have been met.

Owner's CAC has final say on whether or not an area meets these requirements.

Following the satisfactory completion of clearance-air monitoring, remaining barriers may be removed and properly discarded as non-asbestos containing waste. If contamination exists behind these critical barriers, additional cleaning will be required.

The Owner, Contractor and Owner's CAC shall jointly review the work area and make a damage assessment, after clearance air samples have passed and containment has been torn down.

SECTION 18. CLEARANCE AIR MONITORING

When required, clearance air sampling shall be performed following the requirements specified in Section 18 after encapsulation of the containment has taken place and a sufficient amount of time has passed to allow the encapsulant to dry. The Owner's CAC shall determine the method of analysis to be used based on the amount and type of material removed within a containment. If at a K through 12 site and the quantity of Asbestos-Containing Material (ACM) exceeds 160 square feet or 260 linear feet, analysis of air samples must be by transmission electron microscopy (TEM) per US EPA AHERA regulations.

Clearance-air monitoring shall proceed 24 hours after lock-down or when the area is dry, whichever is later.

Contractor may request a reduction in the 24 hour waiting period, if personal samples collected during the abatement work and detail clean-up work have shown fiber levels below the PEL. Reduction of waiting period must be made by the Contractor accompanied by personal sample results from this project. The Contractor must acknowledge that reduction in waiting period may result in failed, or overloaded (with encapsulant) clearance air samples and that retaking and re-analyzing these air samples will be at the Contractor's expense. Reduction in waiting time will be at the discretion of the Owner's CAC and the Owner.

Air samples will be taken using the "aggressive" air sampling techniques described in the AHERA regulations unless noted differently in the scope of work for non-AHERA sites. In the case aggressive samples cannot be collected (e.g. in a dirt floor area) this will be noted in the Owner's CAC's notes.

If PCM analysis is used for clearance air samples, all clearance samples at all locations shall indicate a fiber concentration of less than or equal to 0.01 f/cc for release of the work area.

If TEM analysis is to be used for clearance air samples, then the clearance criteria shall be the same as AHERA, unless otherwise specified in the scope of work.

Areas exceeding these levels shall be re-cleaned and, if appropriate, re-encapsulated at no additional cost to the owner. All areas where clearance air samples fail will be re-tested.

The Contractor shall be responsible for all subsequent air sampling costs if air samples fail to meet clearance criteria levels. This cost includes four hours of time for Owner's CAC personnel to collect the air samples

and the cost of laboratory analysis.

SECTION 19. MONITORING

Owner reserves the right to perform air and performance monitoring at any time.

Contractor shall provide personal air monitoring in accordance with Cal/OSHA regulations. Results shall be made available to the Owner's CAC within 72 hours of collection. Hard copies or electronic copies of these results shall be supplied to the Owner's CAC within 7 days of collection. Failure to supply these sample results in specified time may cause work to be stopped until all delinquent results have been submitted. Loss of Contractor work time because of non compliance with the provisions of this paragraph will not extend the date for work completion.

Owner's CAC may take air samples prior to, during, and after the project. Work shall not be considered complete until all air sampling has been completed and satisfactory levels have been obtained. Satisfactory levels shall be those established by AHERA, unless more stringent requirements have been identified in any other section of this Specification.

In areas where soil contamination may be present, soil samples must meet specified criteria in any other section of this specification prior to clearance air samples collection.

Owner, or Owner's CAC, shall be authorized to issue a STOP WORK order whenever the Contractor's work or protective measures are not in accord with published regulations or contract specifications.

SECTION 20. DISPOSAL PROCEDURES

Part 20.1 - Disposal Procedures

Disposal bags shall be of 6 mil poly, pre-printed with labels as required by DOT, Cal/OSHA and the Department of Toxic Substance Control (DTSC) regulations.

Disposal drums shall be metal or fiber board with locking ring tops to be used only if required and/or allowed by selected dump site.

Stick-on labels as per OSHA and DTSC requirements for disposal containers shall be provided. All containers shall be labeled in accordance with DOT, Cal/OSHA and the DTSC regulations that require a "Caution" label and a "Hazardous Waste" label with the generator's name, address, and Manifest Document number.

As the work progresses, to prevent exceeding available storage capacity on site, sealed and labeled containers of asbestos-containing waste shall be removed and transported to the prearranged disposal location.

Disposal shall be at permitted waste facilities for the type of waste. Transport vehicles shall be marked with the sign prescribed by OSHA during loading and unloading to warn people of the presence of asbestos.

All dump receipts, trip tickets, waste manifests, Waste Shipment Record (WSR) and other documentation of disposal shall be delivered to the Owner, for its records. The manifest shall be signed by the Owner, the waste transporter, and the Disposal Site Operator as the responsibility for the material changes hands. If a second waste transporter is employed, his name, address, telephone number and signature should also appear on the form. The WSR, if used, shall be signed by the Owner or its agent and the disposal site operator.

All manifests shall have asbestos waste identified as: "RQ, Asbestos, 9 NA2212, III". This requirement may be changed as new regulations are issued. See "Waste Disposal" requirements at end of "General

Requirements".

All manifests shall be accompanied by a "Notice and Certification". A signed copy of this must be provided to the Owner or its agent.

Part 20.2 - Transportation to the Landfill

Once drums, bags and wrapped components have been removed from the work area, they shall be loaded into a fully enclosed truck or waste container, which has been lined with 6 mil poly sheeting on the walls and floor. The exception to a fully enclosed waste truck is for roofing projects and when waste loads are generated and placed into open top lined waste trucks that will be "burrito wrapped".

When moving containers, utilize hand trucks, carts and proper lifting techniques to avoid back injuries. Trucks with lift gates are helpful for raising drums during truck loading.

Any debris or residue observed on containers or surfaces outside of the work area resulting from clean-up or disposal activities shall be immediately cleaned up using HEPA filtered vacuum equipment and/or wet methods as appropriate.

No waste containers shall be on site which contain other hazardous waste, or hazardous waste from any other source or job site. Waste from multiple sites of the Owner within the same waste container is acceptable; however, it must be manifested separately.

If Contractor is storing waste from various sites of one owner, all transportation vehicles shall be covered by the same regulations as the waste container or truck being used to haul the waste to the dump. If equipment or supplies are to be left in vehicles during hauling of waste to waste container or truck, waste and equipment/supplies must be separated by a solid (wood or metal) barrier which has been sealed as a critical barrier. A poly wall barrier is not sufficient.

Waste container, truck, or storage bin must be locked at all times except when being filled.

It is the Contractor's responsibility to see that all waste containers, trucks, and storage bins arrive on site completely free from debris.

The contractor shall provide a weight receipt that identifies the net weight of the material being discarded.

Part 20.3 - Disposal at the Landfill

Upon reaching the landfill, trucks are to approach the dump location as closely as possible for unloading of the asbestos-containing waste.

Bags, drums and components shall be inspected as they are off-loaded at the disposal site. Material in damaged containers shall be re-packed in empty drums or bags as necessary. Local requirements may not allow the disposal of asbestos waste in drums. Check with appropriate agency and institute appropriate alternative procedures.

Waste containers shall be placed on the ground at the disposal site, not pushed or thrown out of the trucks.

Personnel off-loading containers at the disposal site shall wear protective equipment consisting of disposable head, body and foot protection and, at a minimum, half-face, air-purifying, dual cartridge respirators equipped with high-efficiency filters.

Following the removal of all containerized waste, the truck cargo area shall be decontaminated using HEPA vacuums and/or wet methods to meet the no visible residue criteria. Poly sheeting shall be removed and discarded, along with contaminated cleaning materials and protective clothing, in bags or drums at the

disposal site.

SECTION 21. PATENTS AND PREVAILING WAGES

Part 21.1 - Patents

Contractor shall pay all royalties and license fees required for the performance of the work. Contractor shall defend suits or claims resulting from Contractor's or any Sub-contractor's infringement of patent rights and shall indemnify Owner and Owner's representative from losses on account thereof.

Part 21.2 - Prevailing Wage Requirements

The asbestos abatement contractor is fully and totally responsible at all times for compliance with payment of prevailing wage rates pursuant to provisions of the California Labor Code, for compliance with Division 2, Part 7, Chapter 1, California Labor Code, including but not limited to Section 1776; and for compliance with California Labor Code, Section 1777.5 for all apprentice able occupations.

SECTION 22. PERMITS AND FEES

If any permits are required to be issued for any of the Work to be performed by Contractor, Sub-contractor(s) or Sub-subcontractor(s) as part of the Project, it shall be the sole responsibility of the Contractor to expeditiously obtain all such permits and any costs incurred by the Contractor in obtaining such Permits shall be included within the Contract Price.

SECTION 23. SPECIFIC PROCEDURES AND REQUIREMENTS

NOTE: All Specific Procedures and Requirements listed in Section 23 shall be reviewed by the Contractor along with the Scope of Work issued for the project. If any perceived conflicts are present between the Scope of Work and these specifications or within the General Requirements specification itself, the Contractor shall ask for a written interpretation from the Owner's CAC prior to submission of his bid. If conflicts in the "Scope of Work" and this specification or with the General Requirements specification itself are discovered after the start of abatement, the more stringent specification and/or requirements will be enforced. The Owner's CAC shall make the determination as to what which requirements and/or specifications are more stringent.

Part 23.1 - General Repair of Damaged Thermal System Insulation (TSI)

Where TSI has been damaged, and it is feasible to repair the small nicks, cuts, and exposed ends, the following procedures shall be performed:

1. Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.
2. Place 4-6 mil poly sheeting directly under the area to be worked to collect any fallen debris or repair compound.
3. Half-face respirators and disposable coveralls shall be used during this work.
4. The area shall be restricted to those personnel involved in the work, so posting of the accesses is required. In some cases, poly shall be used to cover the access points.
5. A HEPA vacuum must be in the immediate area to pre-clean any debris observed surrounding the

damaged section, or in the event of a mishap.

6. If work is performed indoors, the ventilation system shall be off in the areas worked in to prevent fiber distribution. The ventilation supply, return and exhaust ducts shall be sealed with 6 mil plastic sheeting and duct tape.
7. It may be necessary to remove small sections of other insulation material, such as fiberglass, if debris from the damaged pipe covering has contaminated it.
8. In some cases HEPA vacuuming the damaged section will collect all loose, hanging, friable insulation material prior to any further repair work.
9. Very small cracks, holes, nicks, and cuts can be repaired with only a joint compound or with a single layer of wettable cloth and appropriate bridging encapsulant. Larger sections of damaged pipe covering, particularly where pipe hangers or metal channel have damaged the insulation, will require at least two layers of wettable cloth such as HardCast by Carlisle Industries.
10. Where the pipe covering cannot be removed completely from penetrations in the walls, floors, or ceilings, the pipe covering shall be removed at least 1" into the opening and sealed with a bridging encapsulant to grade. The Contractor may choose to fill large gaps with fiberglass insulation, prior to sealing with the encapsulant.
11. All of the Contractor's materials, including poly sheeting, tape, joint compound, etc. shall be removed at the completion of the work performed.

Part 23.2 - Glove Bag Technique Requirements

Where glove bag technique is specified for removal of Thermal System Insulation (TSI), or in those areas where the Contractor opts to use glove bags, all of the following conditions must be met:

1. Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.
2. The Contractor shall follow the procedures recommended by the manufacturer of the glove bags, and the specifications required by Federal OSHA and Cal/OSHA regulations.
3. All critical openings shall be sealed prior to set up of the containment.
4. At least one layer of 6 mil poly must be used to fully enclose/contain the abatement area.
5. Stationary objects in the immediate area of the room which cannot be removed from the work area must be covered with at least one layer of 4 mil poly sheeting after being pre-cleaned.
6. A minimum three stage decontamination unit with a shower shall be contiguous with the containment for areas requiring removal of more than 6 linear feet of TSI.
7. Negative pressure shall be established and a recording manometer shall be attached to the containment per Section 13.
8. A HEPA filtered vacuum shall be in the immediate area for use in conjunction with the bags or in case of a spill.
9. Glove bags may not be used on surfaces where temperatures exceed 150 degrees Fahrenheit.
10. Glove bags may be used only once, and may not be moved or slid for removal of a second section

of TSI.

11. At least two persons shall perform Class I glove bag removal as defined by Federal and Cal/OSHA.
12. Before beginning the operation, loose and friable material adjacent to the glove bag operation shall be wrapped and sealed in two layers of 6 mil poly sheeting or otherwise rendered intact.
13. The Contractor shall apply a sufficient volume of amended water to all pipe covering scheduled for removal while it is enclosed in the glove bag.
14. Prior to placement in the disposal bag, glove bags shall be collapsed by removing air within them using a HEPA filtered vacuum.
15. Upon detachment, the glove bag must be immediately placed into at least two 6 mil thick disposal bags. The disposal bags must be sealed using the "gooseneck" sealing technique.
16. Where pipes enter walls, floors, or ceilings which are not within the scope of the project, the pipe covering shall be removed at least 1" into the structure and the pipe covering end must be sealed with bridging encapsulant and/or wettable cloth.
17. If the Contractor chooses to use a Negative Pressure Glove Bag System, Negative Pressure Glove Box System, or Water Spray Process System in lieu of the traditional Glove Bag System, the Contractor shall submit to Owner's CAC detailed written procedures on those systems which will be used. In addition, air sampling data, generated by the Contractor, must be provided to Owner's CAC. Owner's CAC must provide prior approval to alternate techniques and approaches to those specifications detailed here.
18. The Contractor is responsible for salvage and decontamination of all pipe system supports, hangers, brackets, saddles, etc. These items shall be inventoried by the Contractor, and verified by the Owner's CAC before and after abatement. The Contractor will be responsible for replacement of any items lost or damaged.
19. The Contractor shall be responsible for ensuring the piping system remains adequately supported at all times. This may be achieved by readjusting existing hanger brackets as insulation is removed, or by other approved methods, such as inserting wood blocks to replace the thickness of the removed insulation.

Part 23.3 - Mini-Cube Enclosure Requirements

1. Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.
2. For the purposes of these specifications, "mini-cube enclosure", "enclosure", "mini-enclosure", and "mini-cube" are all used interchangeably and mean the same. The mini-cube enclosure is required to be constructed whenever small sections of walls, ceilings, or pipe insulation are to be removed for electrical, plumbing, mechanical, etc., work. The purpose is to create an enclosed and controlled work environment while removing asbestos or accessing an attic space which is contaminated.
3. Enclosure walls and floors must be constructed of at least one layer of fire-rated 6 mil poly sheeting. No visible holes, cracks, penetrations, etc. shall be within this enclosure. The upright frame shall be adjustable in order to butt the top of the enclosure to the wall or ceiling area. A single drop layer of 6 mil poly sheeting shall be put down and removed daily at the end of the work shift.
4. Since the top of the enclosure must be open in the chamber where ceiling access will take place, special care must be taken prior to moving the enclosure. If the mini-enclosure is designed to be

portable, the enclosure must be sealed at the top prior to being moved to the next location. This may be achieved by temporarily sealing the top with poly and tape from the inside.

5. For access to an attic space, position the enclosure at the location to be worked. The enclosure must be butted up to the ceiling surface to form a semi-seal between the top of the enclosure and the ceiling. The enclosure can then be completely sealed to the ceiling, using tape. After a seal has been established, access into the ceiling can then proceed.
6. A HEPA vacuum shall be used to establish "negative pressure" or airflow into the enclosure. This shall be verified by using ventilation smoke tubes.
7. The following equipment and materials, at a minimum, must be present inside the mini-enclosure "dirty" chamber:
 - 6 mil poly bag for waste.
 - Flashlights or drop light as appropriate.
 - Daily change of 6 mil poly sheeting drop layer.
 - Other tools needed to perform task.
 - Clean potable water in a Hudson-like sprayer.
 - HEPA Filtered Vacuum
8. The outside of the poly-flapped entry to the mini-cube must be posted with the CAL/OSHA required warning signs.
9. Clean disposable coveralls must be worn entering the mini-enclosure, and must be removed prior to leaving the mini-enclosure. Depending upon the work being performed, the Contractor may choose to "double suit" in disposable coveralls.
10. For work involving removal of greater than 25 linear feet of TSI, or greater than 10 square feet of asbestos containing surfacing material, regardless of method to be used, a shower must be attached to the mini-cube enclosure and be contiguous with the work environment, and comply with all other requirements in related sections of this Specification.
11. If there is removal of greater than 3 linear feet of TSI, or greater than 3 square feet of surfacing material, regardless of the method used, the enclosure must remain in place until a final visual is passed. Clearance air samples may be required and if so will be collected by the Owner's CAC. Where work involves less than these quantities, only a final visual inspection by Owner's CAC will be required prior to removal of the mini-enclosure.

Part 23.4 - Roofing Abatement Requirements

General Requirements

1. Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.
2. The work shall be coordinated and scheduled when there are favorable weather conditions, such as, performing the abatement work when the forecast is for "clear skies" and no rain for three or more consecutive days. The Contractor shall remove only that amount of roofing material which can be re-

roofed or covered, and secured from the weather.

Work may be halted at the discretion of the Owner’s CAC if wind conditions occur which can or does cause removed roofing materials to be blown off the roof area, or beyond the designated removal area perimeter. All roofing work shall be coordinated to allow other trades to work at the same time as long as their work is located in areas where contamination cannot occur. No cutting, sanding, grinding, or removal of any type will take place until all preparations for removal have been completed and inspected by the Owner’s CAC. This section may be amended in other sections of this Specification for this project.

The words “clear skies” are used as a means of indicating favorable weather conditions. These two words do not mean, nor are they intended to require skies be clear and free of clouds, fog, or other meteorological conditions which are not expected or forecast to produce measurable rain. The follow up requirement of no rain for three or more consecutive days is to help clarify the favorable weather condition requirement. The Contractor should not to be over optimistic and create more open roof areas than can be re-roofed, secured, or properly protected from weather in case the forecast changes unexpectedly or without warning.

3. All work hours at the site shall be determined by the Owner or as defined in other sections of this Specification.
4. All work shall be coordinated with the other trades involved on this project, with central coordination being primary between the abatement Contractor and the General Contractor for the project. However, Owner’s CAC must be notified of projects in advance as stated in other sections of this Specification.
5. The Contractor shall provide all necessary equipment, tools, materials, lighting, labor, etc. to perform the work. Sufficient lighting shall be provided to illuminate the entire removal and transit areas for removal of roofing material, and for the final visual inspection by the Owner’s CAC if the work is to be performed at night.
6. All HEPA equipment to be used on the project must be delivered to the site empty of all debris, clean, free of dust, and in full operating condition. HEPA equipment to be used inside any building must have been DOP tested within the last 90 days. This DOP certification must be verified by Owner’s CAC prior to its use.
7. The Contractor shall provide worker safety according to all OSHA regulations (Title 8), including use of tie-offs, harnesses, and lanyards. Particular attention shall be given to the placement and securing of accesses (ladders, etc.) to the roof.
8. All ladders used shall conform to Cal/OSHA requirements. The ladders shall extend at least three feet above the roof line, and shall be tied off to the building to prevent them from sliding.

Contractor Responsibilities

1. The Contractor will be responsible for all clean-up and costs associated with the decontamination of occupied spaces in the event of contamination of an occupied space.
2. The Contractor is responsible for any contamination of the attic space above the existing ceilings inside the buildings caused by their work, except as noted specifically in Section 24, Asbestos Specification/Procedures.
3. The Contractor is responsible for removal of all roofing layers and associated materials such as roofing nails, insulation, fiberboard, etc. down to the wood or metal substrate regardless of asbestos content, unless otherwise noted in Section 24, Asbestos Specification/ Procedures. When it is

unknown how many layers of roofing materials exist, it must be assumed that there are multiple roofing layers present. The Contractor may, upon request and approval by the Owner, collect core samples of any roof to be removed for the purpose of determining its depth and structure. If coring is conducted, it is the responsibility of the Contractor to repair to industry standards using non-asbestos materials the areas affected.

4. The Contractor is responsible for removal and replacement of wood block or metal supports which may be present under conduit, gas lines, piping, HVAC units, ducts, etc. in order to perform the work. The Contractor is also responsible for temporarily installing wood blocks for any existing roof structures during the roofing removal, when it is necessary to remove existing support members to accomplish the work.
5. The Contractor is responsible for damage to all equipment and existing cables which are present on the roof. The Contractor is responsible for damage to electrical wiring, telephone lines, antenna wires, and other conduits which are present. An inspection for pre-existing conditions is the responsibility of the Contractor, but may also be conducted by Owner's CAC.
6. The Contractor is responsible for obtaining all necessary permits to perform this work, including any local permits for work in the evening/night hours.

Owner Responsibilities

1. The Owner is responsible for closing all windows in the building where the asbestos roofing material will be removed. This must be done prior to the asbestos abatement contractor arriving onsite for the work shift, in order to prevent delays.
2. The Owner shall also be responsible for cutting or trimming back all trees, limbs and other vegetation which may impact the removal of the existing roofing materials.
3. It is assumed that the buildings associated with this project have roof decking which may include any number of construction methods which allow for roofing debris to sift into joist spaces, or attics located beneath areas where roofing may have previously been removed. Therefore, it must be assumed that all inaccessible and accessible attic spaces, joist spaces, and even flutes of metal decks involved with this project will become, or have already been contaminated with asbestos, and shall be noted.

General Roof Removal Instructions and Requirements

1. Removal of non-friable asbestos-containing roofing is designated as Class II work. Half-face respirators and disposable coveralls shall be used at a minimum by all workers, at all times, when within the regulated area.
2. No personnel will be allowed into the regulated area during actual removal work without proper respiratory and personal protective equipment. Work boots with hard soles are required to be worn by all abatement personnel. No athletic, street, or dress shoes are to be worn during work activities.
3. All roofing material shall be removed in an intact state to the extent feasible.
4. All roofing is to be removed wet by an amended water solution or encapsulant as necessary.
5. The abated roof area shall be HEPA vacuumed after roofing materials have been removed. Particular attention shall be directed at the flute channels of metal decks.

Additional Requirements for Removal of Nicolite (Nicolet) Roofing Felts

1. Set up of perimeter barriers shall be extended to 30 feet from roof edge at ground level. Contractor shall be required to use barrier tape stamped with, "DANGER ASBESTOS HAZARD" in black letters on a solid red background or equivalent.
2. Pre-wetting of materials utilizing amended water must attain complete and thorough penetration of the felts prior to their removal, and additional application of amended water shall be performed as necessary throughout the removal and bagging process.

Pre-Abatement Preparation Requirements

1. The Contractor shall seal all air intakes associated with the HVAC units which are on or near the roof under abatement, and at adjacent HVAC units, particularly downwind from roofing removal activity. In addition, all louvers, window mounted fan systems, attic openings, etc., shall be sealed as critical barriers. The Contractor is responsible for sealing all HVAC openings as critical barriers using one layer of 6 mil poly. These critical barriers shall be installed at the beginning of each shift, and removed at the end of each shift prior to reuse by the Owner. If the building will not be reoccupied daily, the barriers may stay in place.

The perimeter of the roof where removal is to be conducted, shall be posted with barrier tape at a distance of at least 20 feet from the edge of the removal area. This barrier tape will provide a buffer zone, and assist in the restriction of non-abatement personnel.

Poly sheeting shall be placed on the ground directly below the work area or on the adjacent roof surfaces at least 10 feet. The Contractor shall secure the poly to the ground using tape, weights, or other means to secure the poly from being picked up by wind or becoming a trip hazard. The Contractor shall secure the poly to the adjacent building surfaces with tape, etc.

Waste containers and Waste container Preparations

1. The Contractor is responsible for inspecting all waste containers delivered to the job site for load worthiness. The Owner's CAC reserves the right to refuse any waste container without any additional cost to the client, which upon examination, and in the opinion of the site representative, has a high probability of failure of doors, skids, walls, floors, or which contains other debris.
2. The Contractor shall be required to place footing materials of sufficient thickness, strength, and size under the casters, footings, and/or runners of waste container(s) to prevent damage of property surfaces. The Contractor is responsible for all damages to Owner's property caused by the delivery, placement, or removal of a waste container. Damaged property shall be repaired to equal or better condition than was present prior to the activity causing the damage. This section may be amended in Section 24, Asbestos Specification/Procedures for this project.
3. Unless the roofing material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane, or hoist. All waste shall be sufficiently wetted with amended water to prevent fiber release. If fiber release cannot be prevented, then the chute and bin must be within a negative pressure enclosure. In no case shall roofing materials be dropped or thrown into bins or waste containers from the roof.

Posting and Label Requirements for:

Regulated Area Entry Points and Waste container Perimeters

Access to regulated areas shall be posted as outlined by Cal/OSHA Title 8, 1529 (k)(7)(B) 1 and 2 with warning signs. Perimeters of waste container(s) shall also be posted as outlined by Cal/OSHA

Title 8, 1529 (k)(7)(B) 1 and 2 with barrier tape bearing the following information:

DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY
WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

These postings are required to warn non-abatement personnel of the restricted access, and potential hazard which exists in the vicinity of the regulated areas and waste container(s).

Building Perimeter at Ground Level

Building perimeters shall be posted with barrier tape bearing one of the following descriptions:

- CAUTION** in black letters on a solid yellow background.
- DANGER** in black letters on a solid red background.
- DANGER ASBESTOS HAZARD** in black letters on a solid red background.

Waste Material Containers

Waste material containers, including the "burrito wrapped" material, shall have warning labels affixed in accordance with Cal/OSHA Title 8, 1529 (k)(8)(A-D).

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

Waste Disposal and Documentation Requirements

1. Roofing waste may be disposed as non-hazardous asbestos waste, in a landfill permitted to accept non-friable, non-hazardous asbestos roofing material. If the asbestos roofing material is currently friable, or becomes friable during its removal, it shall be disposed of in a landfill permitted to accept friable asbestos waste.

It is acceptable to dispose of bagged or sealed roofing waste into open topped waste containers lined with a single layer of 10 mil poly sheeting. The Contractor shall completely enclose all roofing waste material commonly known as "burrito wrap" in the waste container using 10 mil poly sheeting. Upon being lowered, unwrapped material shall be transferred to a closed receptacle in such a manner as to preclude the dispersion of dust. In addition to the 10 mil poly sheeting, the top of the waste container shall be completely enclosed with a tarp which is secured to the vehicle for transport or storage on-site if left overnight. The type of material for the tarp shall meet all requirements for transport of hazardous materials.

2. The Contractor is required to provide to Owner's CAC a copy of the "trip tickets" indicating the actual weight of waste material.

Protection of Accessible Attic Areas

Any plumbers plenums which may be located below areas where roof removal will take place and the roof deck is not constructed of plywood or solid sheet metal, shall be protected with poly barriers prior to work

being performed. Any and all debris which may get into a plumbers plenum will be the responsibility of the Contractor and must be cleaned up by the abatement contractor. A final visual inspection by Owner's CAC will be required prior to allowing the abatement contractor to move to the next designated removal location.

Removal of interior ceiling finishes to collect roofing debris is also permissible on this demolition project.

Part 23.5 - Vinyl Floor Tile (VFT) & Associated Adhesive Abatement Requirements

General Requirements

Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.

For the purposes of this project any direction to remove asbestos-containing or assumed asbestos-containing VFT shall include the removal of the base cove, as well as, the adhesive/mastic used to secure the VFT and/base cove regardless of its asbestos content. Any mastic which has not been tested for asbestos content must be assumed to contain asbestos and removed by the abatement contractor prior to the performance of a final visual by the Owner's CAC, and final air testing of the containment.

Removal of asbestos-containing VFT shall require a negative pressure enclosure/containment be constructed prior to removal, including installation of critical barriers, a splash guard of plastic at the lower 3' of wall from floor level, a sufficient number of DOP tested negative air units to attain a level of at least -0.030" of negative air pressure within the containment, a manometer, and at a minimum, a three-stage decontamination unit with an operational shower and water filtration system. Smaller areas of floor tile and mastic removal may only required a single stage decontamination area without the shower and will be described in the scope of work.

Whenever and wherever possible, the Contractor shall enclose multiple rooms within a building or wing into a single containment. Where rooms are joined by a common interior hallway or have a common exterior walkway, multiple spaces shall be joined together creating one containment using poly enclosures. Where multiple rooms in a building do not have a common interior hallway, multiple rooms shall be joined using a common work chamber built by the Contractor. The common work chamber shall be constructed of wood studs and plywood sheeting for security purposes, and shall be part of the decontamination chamber. Decontamination units and joined "common areas" outside of a building shall have lockable doors or gates created with temporary fencing for security during off-hours.

Bead blasting of materials will only be allowed with approval of Owner. Contractor must declare use of bead blasting to Owner/Owner's Representative prior to use of this method, since this is a mechanical method. If a solvent is used, the negative air unit exhaust shall be directed down wind of make-up air vents a sufficient distance to preclude the re-entrainment of vapors back into the building. Any solvents used for removing adhesive/mastic shall be non-toxic, low odor, non-flammable, and compatible with the new flooring adhesive/mastic.

A safety data sheet for the solvent(s) proposed for use shall be provided in the pre-construction submittal package, all solvent(s) must be approved by the Owner's CAC prior to their use.

Except as amended here and in the "Scope of Work" Section, all other Sections of these specifications shall be followed.

Contractor Responsibilities

1. The Contractor shall provide all necessary notifications, equipment, tools, materials, lighting, labor, etc. to perform the work. Notification as appropriate to OSHA, EPA, or the delegated Air Quality Management District is the responsibility of the Contractor.
2. All HEPA equipment to be used on the project must be delivered to the site empty of any debris,

clean, free of dust, and in full operating condition. HEPA equipment shall be DOP tested at the beginning of the set-up phase and prior to installation into the containment or use on the project. Any equipment removed from the site for more than 10 working days must be DOP tested again prior to re-use on the project.

3. DOP certification testing shall be observed and witnessed by an Owner's CAC. Copies of DOP test results and certification must be submitted to Owner's CAC within 24 hours of the testing being performed.
4. All poly sheeting to be used for the construction of full enclosures/containments must be fire retardant. SDS information reflecting this requirement must be submitted prior to use.
5. The Contractor shall be responsible for all clean-up and costs associated with the decontamination of occupied spaces adjacent to any containment where removal of asbestos-containing material is conducted. The Contractor shall also be responsible for damage to building finishes and costs associated with removal of tape glue, staining of wall finishes, or destruction of wall surface integrity. It is the responsibility of the Contractor to identify with the General Contractor all aspects of the project requirements pertaining to these types of damages.

General VFT & Adhesive/Mastic Removal Instructions and Requirements

1. For the purposes of this project, removal of VFT and associated adhesive/mastic by any method shall be performed by personnel who are properly trained and accredited to perform Class II work.
2. No personnel are allowed into the containment area during actual removal work without proper respiratory and personal protective equipment. At a minimum, this shall include half-face negative pressure respirators, full body coveralls, rubber boots, and gloves. During removal of adhesive/mastic with solvent or other organic based liquid, combination respiratory cartridges (organic vapor/HEPA) shall be worn, by workers to protect against asbestos and the solvent. Rubber gloves shall also be worn to protect workers skin from the solvent material. No street clothes or shoes shall be worn inside containment during the removal process.
3. All doors, windows, and penetrations into the room(s) shall be sealed with poly sheeting. All ventilation systems shall be locked-out and sealed with critical barriers of either poly sheeting or plywood sheeting. No spray glue may be used on any Owner property or building surface.
4. The splash guard shall be a minimum of 3 feet in height from the base of the wall upward.
5. Based on the size of the enclosure/containment, a three stage decontamination unit shall be put into place and be fully operable.
6. Sufficient negative air units shall be installed which will provide a minimum of four air changes per hour and -0.030" air pressure differential. A manometer with an recording chart shall be installed and operational. The manometer chart shall reflect the location, times, and dates of all measurements recorded. Once these requirements have been met and the negative pressure has been established, the Contractor shall request a pre-start visual inspection from Owner's CAC.
7. When the Contractor has passed the pre-start visual inspection, removal of base cove/boards may be conducted. Base cove adhesive shall be removed completely on hard surfaced walls where damage to the substrate will not occur, or only to a point of smoothing out high spots on walls which will become damaged due to the work to be performed. Full removal is not expected unless the Contractor is notified in writing on these types of soft substrate surfaces and if required in the scope of work.
8. Sufficiently wet VFT with amended water prior to and during the removal phase of work, and place

into waste containers for disposal. Acceptable methods of containing VFT waste materials include placing VFT into clear properly labeled 6 mil poly bag and deposit this bag into a lined fiberboard drum. The drum shall be sealed when filled and placed into a waste container for disposal.

9. Method of removal pertaining to asbestos-containing adhesive/mastic shall be at the discretion of the Contractor, except methods which are noted in this Exhibit that are prohibited. Hand scraping, solvents, and wet buffing with solvents are acceptable methods. If the Contractor chooses to use solvents, exhaust of negative air units shall be directed downwind as much as possible, or a sufficient length of exhaust hose will be required to prevent re-entrainment of the vapors.
10. To minimize damage to the existing paint above the base cove, the contractor shall use a utility knife to cut score the paint at the intersection of the base cove. This will allow removal of the base cove with minimal damage to the paint layer.
11. Any solvents used for removing adhesive/mastic shall be non-toxic, low odor, and non-flammable. A SDS for the solvent shall be provided and subject to approval by the Owner's CAC prior to use.
12. Upon completing the removal of all floor tiles and adhesive/mastic, the Contractor shall remove the splash guard from the containment walls, and conduct wet wiping on all surfaces within the containment/enclosure.
13. If a solvent was used to remove any VFT adhesive/mastic, the Contractor shall wash the floors thoroughly using a solution of trisodium phosphate (TSP), or equivalent, and water. Sufficient water shall be used for final rinsing of the floor for a clean finish.
14. It is the sole responsibility of the Contractor to reduce concentrations of any solvents used to a level which will allow new adhesive/mastic to be applied, if new flooring is to be installed. Owner's CAC will not test the floor for PH levels, and will not attest that the solvents used have been reduced in any way.
15. Solvent removal may only be performed on substrate that will be demolished. District requires the use of media blasting or abrasive grinding with HEPA vacuum attachment on any concrete substrate that will remain to accept new flooring.

Final Visual Inspection

1. Upon the completion of all activities listed above, the asbestos contractor shall provide their own visual inspection prior to Owner's CAC, and shall be present during the inspection by Owner's CAC to remove/clean additional surfaces as needed, prior to encapsulation.
2. The final visual inspection will include an evaluation of all surfaces within the containment area, with emphasis placed on the completeness of materials removed from the floor area. Any three dimensional debris identified by the Owner's CAC, which can be seen using a flashlight placed on the floor and directed across the floor, shall be removed as directed with the use of a HEPA vacuum and other tools as necessary to remove the material. The Contractor shall thoroughly clean all equipment inside the containment, including all parts of the negative air units, and new pre-filters shall be installed into all negative air units.

Disposal Requirements

1. Asbestos containing floor tile and mastic waste may be disposed as a non-friable non-hazardous waste stream if they are removed by manual methods. If the materials are removed by mechanical means, the waste stream shall be disposed as friable hazardous asbestos waste and will require a Uniform Hazardous Waste Manifest. Package all solvent/mastic waste created during the project in sufficient absorbent to eliminate all free liquids, and place in a D.O.T. 7A Type A approved steel drum (49 CFR 178.350). Label the drum as required, and transport to an approved Class 1 landfill with a

separate Uniform Hazardous Waste Manifest and Waste Profile Documentation.

2. The Contractor SHALL NOT sign any Hazardous Waste Manifests for the Owner. It shall be the responsibility of the Contractor to notify the Owner's CAC and coordinate having any manifest properly signed by a Owner representative.

Part 23.6 - Carpet Removal over Vinyl Floor Tile (VFT)/Tile Adhesive Requirements

General Requirements

Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.

The following requirements are for use when the only removal to be performed is of carpet applied over existing VFT or bare VFT mastic. If the intended removal includes the underlying materials and/or any associated base cove refer to and follow the requirements as set forth in Part 23.5 Vinyl Floor Tile (VFT) and Associated Adhesive Abatement Requirements.

For the purposes of this project any direction to remove carpet from over known or assumed asbestos containing VFT or bare VFT mastic where the carpet is found to be directly adhered to those surfaces by carpet glues or carpet mastic the following requirements shall apply. These requirements shall be enforced regardless of the amount of floor tile/mastic expected to be impacted by the removal process.

1. The Contractor shall provide all necessary notifications, equipment, tools, materials, lighting, labor, etc. to perform the work. Notification as appropriate to OSHA, EPA, or the delegated Air Quality Management District is the responsibility of the Contractor.
2. All HEPA equipment to be used on the project must be delivered to the site empty of any debris, clean, free of dust, and in full operating condition. HEPA equipment shall be DOP tested at the beginning of the set-up phase and prior to installation into the containment or use on the project. Any equipment removed from the site for more than 10 working days must be DOP tested again prior to re-use on the project.
3. DOP certification testing shall be observed and witnessed by an Owner's CAC. Copies of DOP test results and certification must be submitted to Owner's CAC within 24 hours of the testing being performed.
4. All poly sheeting to be used for the construction of enclosures/containments must be a fire rated material. SDS information reflecting this requirement must be submitted prior to use.
5. The Contractor shall be responsible for all clean-up and costs associated with the decontamination of occupied spaces adjacent to any containment where removal of ACM is conducted. The Contractor shall also be responsible for damage to building finishes and costs associated with removal of tape glue, staining of wall finishes, or destruction of wall surface integrity, unless the building is to be demolished. It is the responsibility of the Contractor to identify with the General Contractor all aspects of the project requirements pertaining to these types of damages.
6. Whenever vinyl floor tiles are to be removed, the base cove shall also be removed as part of the project. When the Contractor has passed the pre-start visual inspection, removal of base cove/boards may be conducted. Base cove adhesive shall be removed completely on hard surfaced walls where damage to the substrate will not occur, or only to a point of smoothing out high spots on walls which will become damaged due to the work to be performed. Full removal is not expected unless the Contractor is notified in writing on these types of soft substrate surfaces.
7. To minimize damage to the existing paint above the base cove, the contractor shall use a utility knife

to cut score the paint at the intersection of the base cove. This will allow removal of the base cove with minimal damage to the paint layer.

General Carpet Removal Instructions and Requirements

1. No personnel are allowed into the containment area during actual removal work without proper respiratory and personal protective equipment. At a minimum this shall include half-face negative pressure respirators with P-100 (HEPA) cartridges and full body coveralls.
2. All ventilation systems shall be locked-out and sealed with critical barriers of poly sheeting. Other penetrations such as doors, vents, etc. must also be sealed with either tape or poly sheeting as appropriate to secure the work area. A single stage cubicle unit of appropriate size for the work to be performed shall be placed on the entrance to the room. At a minimum this unit must be 3' X 3' X 6' in height. No spray glue may be used on any Owner property or building surface, unless the building is being demolished.
3. A remote clean-up and decontamination unit shall be put into place in a location considered to be central to the work being performed. This decontamination unit shall be equipped with a full shower unit, overflow pan, filtration unit, soap, warm and cold water, towels, etc. as required in other sections of this specifications. Decontamination procedures will be based on the actual amount of asbestos-containing materials impacted during the carpet removal. As a guide, if more than 100 square feet of VFT are impacted during carpet removal, the personnel performing the work shall shower at the end of each work period. If less than 100 square feet of VFT or VFT mastic are impacted during the process modified worker decontamination practices may be used.
4. A sufficient number of negative air units shall be installed which will provide a negative air pressure of at least -0.030" wp measured with a manometer.
5. When the Contractor has passed the pre-start visual inspection, removal of carpet may be conducted.
6. VFT adhered to the surface of the existing substrate will be removed from the carpet utilizing hand methods and hand tools as needed. These tiles shall be placed into waste containers for disposal. If all VFT has been removed from the carpet the carpet may be disposed as regular waste with no restrictions.
7. Any carpet removed from bare VFT mastic and the asbestos containing mastic remains adhered to the carpet will require the carpet be wrapped in two layers of polyethylene sheeting, properly labeled to meet Cal/OSHA requirements, and disposed as a non-hazardous asbestos containing waste in an appropriate landfill permitted to accept such asbestos waste.

Part 23.7 - Boiler Unit Removal Requirements

Not Applicable

Part 23.8 - Sheetrock and Joint Compound Abatement Requirements

General Requirements

Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.

Removal of sheetrock and joint compound wall and ceiling system materials known to contain <1% asbestos as a composite material verified by the 400 Point Count method shall include the removal of all nails, screws, or other fastening units which have visible sheetrock and/or joint compound remaining, as well as, all dust, debris, and waste generated by the removal work.

Removal shall require a full enclosure/containment under negative pressure following all of the requirements in these specifications including a three stage worker decontamination unit.

Removal of less than 100 square feet of asbestos containing sheetrock and joint compound wall and/or ceiling system materials shall require a negative pressure enclosure, however, the use of a one stage decontamination unit without a shower will be permitted. All other containment requirements apply.

General Sheetrock and Joint Compound Wall and Ceiling Systems Removal Instructions and Requirements

1. No personnel are allowed into the containment area during actual removal work without proper respiratory and personal protective equipment. At a minimum this shall include half-face negative pressure respirators, full body coveralls, rubber boots, and gloves. No street clothes or shoes shall be worn inside containment during the removal process.
2. All doors, windows, and penetrations into the room(s) shall be sealed with poly sheeting. All ventilation systems shall be locked-out and sealed with critical barriers of either poly sheeting or plywood sheeting.
3. Full enclosure of the walls and ceiling with poly sheeting (as applicable) will be required, no matter what method of removal is used. Support of ceiling poly will be at the discretion of the Contractor. Ceiling may be constructed of one layer of 4 mil poly sheeting. Walls shall be constructed of one layer of 4 mil poly.
4. Based on the size of the enclosure/containment, a three stage decontamination unit shall be put into place and be fully operable.
5. A sufficient number of negative air units shall be installed which will provide a negative air pressure of at least -0.030" wp measured with a manometer.
6. Sufficiently wet sheetrock and joint compound wall and ceiling systems to be removed with amended water prior to and during the removal phase of work, and place into waste containers for disposal.
7. Upon completing the removal of all sheetrock and joint compound wall and ceiling systems, the Contractor shall conduct wet wiping on all remaining surfaces within the containment/enclosure.

Disposal Requirements

1. All sheetrock and joint compound wall and ceiling system waste that has been tested and found to contain <1% asbestos by the 400 Point Count method may be disposed as non-hazardous asbestos waste, in a landfill permitted to accept non-friable, non-hazardous asbestos containing material.
2. Waste material containers, including "burrito wrapped" material, shall have warning labels affixed. Contractor may either use the Cal/OSHA Title 8, 1529 (k)(8)(A-D) warning:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

3. All non-hazardous asbestos containing waste shall be tracked utilizing some form of system which at a minimum includes: date, document number, generator name and mailing address, description of the waste, waste generating site address, contractor company name and address, special handling

instructions, transporter company name, as well as name and address of facility accepting the waste

- 4. Any drywall systems with skim coat or texture coat that contains >1% asbestos shall be handled, packaged and disposed as a friable hazardous asbestos waste..

Part 23.9 - Impact to and Removal of Transite Pipe, Shingle, or Sheeting Materials

Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.

Where transite pipe, shingles, or sheeting is to be impacted or removed the following procedures shall be performed:

- 1. All requirements of Cal/OSHA Section 1529 and US EPA AHERA regulations apply, and shall be followed, as well as, other applicable Federal, State, and local regulations as they pertain to training, work practices, air monitoring, waste disposal, etc.
- 2. Personal air monitoring shall be performed in accordance with Cal/OSHA Section 1529
- 3. Establishment of a work area restricting access to those personnel involved in the work, and posting of the work area is required.
- 4. An appropriately sized drop cloth of 6-10 mil poly sheeting sufficient in size to contain any debris generated during the removal shall be placed directly under the area to be worked to collect any fallen debris generated during the work.
- 5. Half-face and disposable coveralls shall be used during this work.
- 6. A HEPA vacuum must be in the immediate area ready for use.
- 7. Where the pipe must be cut the contractor may use any method applicable to performing the work. Any use of hand or mechanical saws, or other method which will produce dust and will require the use of the HEPA vacuum and engineering controls which will collect any and all dust generated during the sawing process.
- 8. The Contractor shall apply a sufficient amount of amended water to all pipe surfaces to be impacted during the work to keep them adequately wet.
- 9. All of the Contractor's materials, including poly sheeting, tools, etc. shall be properly decontaminated of visible dust and pipe debris utilizing wet cleaning methods and HEPA vacuuming prior to being removed at the completion of the work performed. Disposable materials must be properly disposed.
- 10. Intact transite waste generated may be disposed as non-friable non-hazardous asbestos waste, in a landfill permitted to accept non-friable, non-hazardous asbestos material. If the transite material is currently friable, or becomes friable during its removal, it shall be disposed of in a landfill permitted to accept friable hazardous asbestos waste.

It is acceptable to dispose of non-friable transite waste after placing it into two 6 mil thick polyethylene bags properly sealed and marked to meet current OSHA requirements.

- 11. The Contractor is required to provide to Owner's Agent a copy of the "trip ticket" indicating the actual weight of waste material and the landfill accepting the waste.

Part 23.10- Demolition with Selected Asbestos Containing Materials Left in Place

Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.

Under some circumstances, asbestos-containing materials may remain in or on a building during the building's demolition. This section describes the work practices and requirements for the demolition of a building with asbestos-containing materials remaining in place in or on the structure.

All friable, Category II non-friable materials, and all Category I non-friable materials that are expected to become friable during the demolition must be removed prior to the start of the demolition process. For example, surfacing materials, thermal system insulation, vinyl sheet flooring and associated backings, vinyl floor tiles and asbestos cement products must be removed from a building prior to its demolition. Should there be any question as to whether or not a material may remain in or on the building during the demolition, the Contractor shall ask for an opinion in writing from the Owner's CAC. The determination of whether or not a material may remain in a building during the demolition is left solely to the determination of the Owner's CAC.

The only asbestos-containing materials that may remain in or on a building during the building demolition include non-friable materials that the local Air Quality Management District or US EPA has determined may remain in or on the building during the demolition. Approval of this method is determined by the US EPA with the California Air Resources Board having jurisdiction. In general, this will be limited to Category I non-friable materials such as roofing, cove base mastic, paint, and other adhesives. Drywall systems that have a 400 Point Count testing to demonstrate material is ,1% are also materials the EPA allows to be left in place. In order to be considered for being left in or on the building during demolition, there must be a reasonable assumption that these materials will remain non-friable during the demolition.

The black floor mastic containing greater than 1% asbestos on the concrete may be left in place and demolished with the rest of the building as a non-hazardous asbestos waste, as long as, the materials do not become friable. The US EPA NESHAP has determined if this type of flooring mastic becomes friable during the course of the demolition, then it would be considered RACM. Removal of the concrete sections of floor containing the floor mastic using an excavator would not be considered a mechanical action that renders the floor mastic friable. Running over the concrete floor covered with the mastic using an excavator or other heavy equipment with metal tracks will render the concrete and mastic friable and shall not be allowed. The contractor can use an excavator or other heavy equipment with rubber tires on the concrete and is generally not considered to render the mastic friable. If a contractor uses a heavy equipment with metal track on this project, it will not be allowed to go onto the concrete floor that has black mastic, whether the concrete is covered with carpeting, linoleum, vinyl flooring, or other materials. All work will stop at the direction of the CAC if the contractor uses mechanical means that renders the asbestos containing materials left in place friable.

Should the building and materials meet the criteria listed above, the building may be demolished without the prior removal of those materials. However, if previously unidentified materials are discovered during the demolition process, the Contractor must stop demolition and notify the Owner's CAC of the existence of the new material. Under no circumstances may the Contractor continue to disturb the new material until the new material has been properly investigated and the Contractor given permission to proceed by the Owner's CAC.

The demolition of any building on this project with ACM, ACBM, or ACCM remaining in place must be conducted by a California licensed asbestos contractor with current and valid registration with the California Division of Occupational Safety and Health Asbestos Contractors' Registration Unit.

The Federal Occupational Safety and Health Administration (OSHA) has defined the demolition of buildings that contain Class II materials (non-friable materials) to be Class II work. Therefore the training, work practices, and procedures of Class II work must be followed. The following requirements summarize the requirements for Class II work as listed in the Asbestos Standard for the Construction Industry (Title 8 CCR 1529) for work such as demolition where specific controls have not been listed in the standard.

The supervisor must meet the training requirements for a “competent” person for Class II work as listed in Title 8 CCR 1529 (o)(4)(A). In summary, the supervisor must be an accredited supervisor as set for in the EPA’s Model Accreditation Program (40 CFR Part 763, Subpart E). A Competent Person must be present during the course of the asbestos related work. An AHERA accredited asbestos Contractor/Supervisor meets the training and definition of a Competent Person.

The workers must at a minimum meet the training requirements as listed in Title 8 CCR 1529 (8)(k)(9)(D). In summary, they must have a minimum of eight hours of training that includes the subjects listed in Title 8 CCR 1529 (k)(9)(H).

The following procedures must be followed:

1. The work shall be performed using wet methods. At a minimum, one worker must direct a water spray onto the portion of the building being demolished. The amount of water utilized must be adequate to prevent any release of visible dust into the air. The Contractor is responsible for controlling and channeling the flow of the waste water in a manner that meets local ordinances and regulatory agency requirements. The debris generated during the demolition process must be visually wet at all times prior to and while it is being containerized.
2. Effort should be made to remove the sections of asbestos-containing materials in as intact a condition as possible.
3. Debris must be containerized as described below. Debris must be containerized or kept wet during any work breaks. No loose debris may be left on the site overnight. Any building partially impacted by the work which will not be totally demolished by the end of the day must be completely wetted prior to the end of the shift.
4. Debris must be placed in a container that can be closed or sealed with poly sheeting. The container must have the inside lined with a minimum of two layers of reinforced ten millimeter thick poly sheeting with enough sheeting remaining on all sides to allow for burrito wrapping of the load. The two layers of poly sheeting must be independently closed and sealed with tape and spray glues. This wrapped material must then be labeled with the sign described in Title 8 CCR 1529 (k)(8) DANGER, CONTAINS ASBESTOS FIBERS, AVOID CREATING DUST, CANCER AND LUNG DISEASE HAZARD
5. Nonhazardous waste data forms for each container must be supplied to the Owner’s CAC no later than the end of each day.
6. Contractor shall provide personal air monitoring for Class II as described in Title 8 CCR 1529 (f)(3)(A).
7. The Contractor shall develop a regulated area that keeps unauthorized persons out of the work area.
8. All personnel in the regulated area must wear, at a minimum, disposable clothing and a half-face respirator with P-100 (HEPA) cartridges.
9. Regardless of any exposure monitoring, the Contractor will require all workers to wear at a minimum protective suits and half-face negative pressure respirators. This requirement does not relieve the Contractor of performing personal monitoring of its workers.

Part 23.11 - Contaminated Attic Space Procedures

Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.

The Owner considers existing attic spaces to be contaminated with asbestos containing roofing debris unless otherwise determined or reported. The Owner has restricted access to all attic spaces to properly trained and protected personnel. Excluded from this restriction is opening a ceiling access hatch and entering the attic space with the upper body. Physical access into an attic space which includes a person placing their entire body in the attic space with intent to access other areas of the attic space is prohibited by unprotected and untrained personnel. No entry into these spaces shall be made regardless of duration of time or intent without compliance with the requirements outlined in these specifications.

Activities expected to take place in contaminated attic spaces most closely resemble the definition of "Class IV" work which is defined by Cal/OSHA in CCR; Title 8, Section 1529, as maintenance and custodial activities during which employees contact but do not disturb asbestos containing material (ACM) or presumed asbestos containing material (PACM).

To comply with the various regulations pertaining to this type of work in contaminated attic spaces, the following procedures are to be followed by individuals entering these areas.

1. Personnel assigned to enter contaminated attic spaces shall receive a minimum of two hours of asbestos awareness training pursuant to Title 8 1529.
2. Personnel assigned to wear respirators must be included in a respirator protection program as outlined in California General Industry Safety Order 8 CCR 1544. If the person must enter the attic space it will require use of at least a half-face negative pressure respirator with HEPA filters and disposable coveralls.
3. Prior to entry of a contaminated attic space each employee must pass a medical evaluation to ensure their fitness to wear a respirator.
4. A certified asbestos competent person must select the appropriate type of respirator(s) for the airborne asbestos levels anticipated to be encountered during such work.
5. Each employee assigned a respirator must successfully pass a qualitative or quantitative fit test prior to entry of a contaminated space.
6. A six (6) mil poly drop sheet must be placed at the entry to the space (approximately 6' X 6' in size) prior to entry.
7. Clean, potable water must be made available at the entry/exit for use to wash hands, faces, and equipment upon exiting from the space.
8. Employees entering contaminated attic spaces shall don two (2) sets of whole body coveralls, including head and foot covering. Appropriate type gloves for the work to be conducted must also be worn.
9. Disposal bags (6 mil poly), with the appropriate labeling, shall be made available at the entry/exit for disposal of contaminated protective clothing. One bag to be placed inside the space at the exit point and one shall be placed outside the space at the exit point.
10. Personnel working in contaminated attic spaces shall be instructed not to touch or disturb any suspect asbestos debris or materials encountered. If the extent of contamination is such that the employees can not perform their work without disturbing the material or debris, they shall exit the space until such time a certified asbestos abatement contractor has removed the material or debris and thoroughly encapsulated the area.
11. All tools or other equipment used in the course of the work shall be wiped down with clean, damp rags, prior to being removed from the space.

12. Prior to exiting the contaminated attic space, personnel shall remove their outer set of coveralls immediately adjacent to the exit point, leaving their respirator in place and dispose of the used coveralls in the waste bag.
13. Upon exiting the contaminated attic space, personnel shall remove the inner (or remaining) set of coveralls and place these in the waste bag provided for this purpose.
14. Personnel shall wash their hands prior to carefully removing their respirator and disposing of the filters in the waste bag provided.
15. Personnel shall at this time wash their faces and complete the decontamination of their respirators.

Part 23.12 - Non-Friable, Non-Hazardous, Glazing Abatement Requirements

General Requirements

1. Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.
2. Removal of non-friable, non-hazardous, asbestos-containing glazing materials shall be coordinated and scheduled to be performed when there are favorable weather conditions, such as, low winds and no rain. If possible the work should be conducted when the interior space adjacent to the removal area is unoccupied.
3. Work should be halted if wind conditions occur which can or does cause removed glazing materials to be blown off the perimeter poly sheeting, or beyond the designated removal area perimeter.
4. No cutting, sanding, grinding, or removal by any other method which will result in the glazing being crumbled, crushed, or turned in to powder is to be used without review and approval by the Owner and the Owner's Representative.

General Glazing Removal Instructions and Requirements

1. Removal of non-friable, asbestos-containing, glazing materials, is designated as Class II work. Half-face, negative pressure respirators and disposable coveralls shall be used at a minimum by all workers, at all times, when within the regulated area.
2. All glazing materials shall be removed in an intact state to the extent feasible utilizing hand tools such as a hammer and chisel, or other implement or tool suitable for this type of work. At no time may power tools be used while following these removal requirements.
3. All glazing materials are to be pre-wet with an amended water solution or liquid encapsulant prior to removal, and as needed during removal.
4. All associated surfaces where removal of glazing has taken place shall be wet wiped and HEPA vacuumed prior to removal of the regulated area or any interior poly sheeting/critical barrier. Particular attention shall be directed at assuring all loose debris has been cleaned from the removal surfaces.
5. Upon completion of all activities worker shall clean exposed skin with hot soap and water, and check clothing for any glazing chips. Remove chips by hand or utilize a HEPA filter equipped vacuum.

Pre-Abatement Preparation Requirements

1. The worker may either seal the interior window surface with poly sheeting to create a critical barrier,

or place one layer of 6 mill poly sheeting on the floor beneath the window incase a window pane is broken during removal. These critical barriers or floor coverings shall be installed prior to the initiation of the removal work, and removed upon completion of the removal work as appropriate.

- 2. If the interior space must remain occupied a critical barrier must be installed on the interior surface of the window or opening where removal must occur. This may be waived and a layer of sheeting may be placed on the floor or adjacent surfaces if the interior space is going to remain unoccupied during the entire removal operation.
- 3. The perimeter of the work area where glazing removal is to be conducted, shall be posted with barrier tape at a distance of at least 20 feet from the edge of the removal area. This barrier tape will provide a buffer zone, and assist in the restriction of non-removal personnel.
- 4. Poly sheeting shall be placed on the ground directly below the work area or on adjacent surfaces for a distance sufficient to contain all debris which may be generated during the work. The poly sheeting should be secured to the ground using tape, weights, or other means to assure the poly will remain in place and not be picked up by wind or become a trip hazard.

Posting and Label Requirements for:

Regulated Area

Access to regulated areas shall be posted as outlined by Cal/OSHA Title 8, 1529 (k)(7)(B) 1 and 2 with warning signs and barrier tape bearing the following information:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING ARE
REQUIRED IN THIS AREA

These postings are required to warn non-abatement personnel of the restricted access, and potential hazard which exists in the vicinity of the regulated area.

Work Area Perimeter

Work area perimeters shall be posted with barrier tape bearing one of the following descriptions:

- CAUTION** in black letters on a solid yellow background.
- DANGER** in black letters on a solid red background.
- DANGER ASBESTOS HAZARD** in black letters on a solid red background.

Waste Material Containers

Waste material containers, shall have warning labels affixed in accordance with Cal/OSHA Title 8, 1529 (k)(8)(A-D).

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

Waste Disposal

1. Glazing waste may be disposed as non-hazardous asbestos waste, in a landfill permitted to accept non-friable, non-hazardous asbestos-containing material as long as the removal work was performed by hand utilizing hand tools, and the materials were not crushed, pulverized, or turned into powder during the removal process. If this does occur the waste must be reclassified as friable. If the asbestos-containing glazing material is currently friable, or becomes friable during its removal, it shall be disposed of in a landfill permitted to accept friable hazardous asbestos waste.

Part 23.13 - Subfloor Crawl Space Dirt Removal Requirements

Not Applicable

Part 23.14 - Subfloor Enclosure Requirements

Not Applicable

Part 23.15 - Installation of "Rat Slab" in Subfloor Crawl Space Requirements

Not Applicable

Part 23.16 - Stucco/Texture Removal and Containment Requirements

General Requirements

Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.

Stucco/texture surfacing materials regardless of asbestos content from exterior building components shall be removed by either by hand or by other mechanical methods within a negative pressure enclosure with a manometer and following all requirements in these specifications including a three stage worker decontamination unit.

1. Removal of stucco/texture regardless of asbestos content over a surface area greater than 25 square feet will require the construction and use of a three stage decontamination unit. This decontamination unit must be directly attached to the entrance of the containment and fully operable with working shower and hot water heater, as well as properly stocked with towels, soap, and shampoo.
2. Sufficient negative air units shall be installed which will provide a minimum of 4 air changes per hour and -0.030" air pressure differential measured with an attached manometer.
3. Upon completing removal of all stucco/texture, the Contractor shall conduct wet wiping of all remaining wall surfaces, poly barriers, scaffolding, etc. to remove settled dust from those surfaces.

Final Lockdown-Encapsulation

1. Lock down-encapsulation of the containment shall be performed using one of two methods based on the needs of the project.
 - A. **Hand Wipe Method:** The needs of the project may require the remaining building component surfaces have no new film materials applied to them. If this is required the asbestos abatement contractor shall use clean wet cloths/towels to wipe existing surface dust off of remaining building components. These cloths/towels will be wetted with clean water and no chemicals or treatments will be added. All poly sheeting scaffolding and other components used to create the containment will be hand wiped with wetted cloths/towels which are treated

with lock down-encapsulation chemicals to remove possible surface dust and lock down-encapsulate the surfaces of these items. This method can be used prior to the final visual to complete the final cleaning process.

- B. **Air-less Spray Method**: The asbestos contractor shall lock down-encapsulate the entire containment area upon completion of the final visual inspection by the Owner's CAC, and acceptance of the work as complete.

Disposal Requirements

1. All waste containing less than 1% asbestos shall be properly disposed as a non-hazardous asbestos containing waste at an appropriate landfill. All waste containing greater than 1% asbestos shall be properly disposed as hazardous asbestos waste, in a landfill permitted to accept friable, hazardous ACM.
2. All waste containers shall have labeling in accordance with OSHA, DOT, EPA and DTSC requirements. All "Hazardous Waste" shall also include a Waste manifest with the generator's name, address, and Manifest Document number.

Part 23.17 - Fireproofing Abatement Requirements

General Requirements

Except as amended here and in Section 24, Asbestos Specification/ Procedures, in all other Sections of this Exhibit shall be followed.

All fireproofing material regardless of amount shall be removed in a negative pressure enclosure/containment. The enclosure shall include critical barriers, two layers of plastic on walls if the walls are not being removed, a sufficient number of DOP tested negative air units to attain a level of at least -0.030" of negative air pressure within the containment, a digital recording manometer with a minimum of displaying three digits after the zero (0.000). At a minimum, a three-stage decontamination unit with an operational shower and water filtration system.

1. Removal of fireproofing by multiple methods and techniques shall be performed by personnel who are trained and accredited to perform Class I work.
2. Water blasting of fireproofing is not allowed.
3. No personnel are allowed into the containment area during actual removal work without proper respiratory and personal protective equipment. At a minimum this shall include full-face powered air purifying respirators, and full body coveralls.
4. All doors, windows, and penetrations into the room(s) shall be sealed with poly sheeting. All ventilation systems shall be locked-out and sealed with critical barriers of either poly sheeting or plywood sheeting.
5. Full enclosure of the walls and ceiling with poly sheeting (as applicable) will be required, no matter what method of removal is used. Support of ceiling poly will be at the discretion of the Contractor. Ceiling may be constructed of one layer of 4 mil poly sheeting. Walls shall be constructed of two layers of 4 mil poly.
6. A three stage decontamination unit is required and shall be comprised of zippered doors between the chambers. Flapped doors will not be acceptable. The decontamination unit shall be cleaned daily of all debris, bags, tape, towels, etc. and shall remain clean during the day..

7. Since all asbestos workers will be required to shower upon leaving the work area, all workers shall wear a bathing suit under the full body coverall. The shower shall have hot and cold water, shampoo, soap and clean dry towels for drying. **No street clothes or shoes shall be worn inside containment by the asbestos contractor employees during the removal process.** The contractor cannot wear leather work boots in the shower, so steel toed rubber boots are required to be worn. Rubber boots shall be left in the equipment room before entering the shower and they can be washed at the end of the work day and placed inside of asbestos waste bag, taped closed and removed.
8. Sufficient negative air units shall be installed which will provide a minimum of 4 air changes per hour and a minimum of -0.030" air pressure differential, while the zippered doors are opened for bag-out of waste. A digital manometer recording shall be made of all days when in use. The manometer tapes shall reflect the location, times, and dates of all measurements recorded.
9. When the Contractor has passed the pre-start visual inspection by the asbestos consultant, removal of fireproofing may be conducted.
10. Sufficiently wet fireproofing to be removed with amended water prior to and during the removal phase of work, and place into waste containers for disposal.
11. No fireproofing shall be allowed to remain on the floor of the containment at the end of each work shift. All fireproofing removed on a shift shall be placed in waste containers. During asbestos removal, all floors of the containment shall remain wet by frequent wetting with amended water. At no time shall the floor of the containment be dry.
12. The contractor shall clean all surfaces of the substrate using whatever tools to effectively clean and remove the material. On metal fluted decks where fireproofing material is removed, all fluted openings shall be cleaned of debris using small tools rags, brushes, etc. as necessary to reach the remove the material. Upon completing the removal of all fireproofing, the Contractor shall conduct wet wiping on all remaining surfaces within the containment/enclosure. Use of an airless spray to detail clean the fluted openings is an acceptable cleaning technique.

Disposal Requirements

1. All fireproofing waste shall be disposed as friable hazardous asbestos waste at a landfill permitted to accept friable, hazardous asbestos containing material.

SECTION 24. ASBESTOS SPECIFICATIONS/PROCEDURES

Part 24.1 - Contacts

Blake Howes, Entek Consulting Group, Inc. 916-632-6800

Part 24.2 - Removal Locations

Refer to architectural drawings for this site identifying the buildings and work included in the project and scope of work outline. The General Contractor and his Sub-contractor are responsible for estimating the amount of asbestos-containing materials to be disturbed or removed as revealed on the mandatory bid walk, and provided in the project specifications and architectural drawings. The drawings will also provide the Contractor with locations where work is to be performed to allow computation of the quantities of materials to be impacted or removed.

The asbestos contractor shall provide a complete copy of this specification to their onsite competent person for reference while conducts work on the project. A copy of these specifications shall remain onsite by the

asbestos contractor for the duration of the project.

Part 24.3 - Materials to be Abated

Refer to the architectural drawings and project specifications for designations and instructions pertaining to what materials are to be removed or impacted during this project. Directions pertaining to materials to be impacted or removed during this project are **NOT** included in this Exhibit. This exhibit includes work practices and procedures for those materials that are impacted by the planned renovation/demolition.

Areas of roofs, walls, floors, and/or ceilings may require penetrations be made during the project which may involve asbestos containing materials (ACM) depending upon the location of penetrations. Prior to impacting any building materials which are listed as "suspect" for containing asbestos by the US EPA the Contractor should refer to Section 25, Asbestos Results List for information pertaining to specific Asbestos Containing Materials (ACM) or products known to exist on the site. Materials suspected of containing asbestos but which have not been tested are "assumed" to contain asbestos.

A hazardous materials inspection was conducted by Entek Consulting Group, Inc. for Oak Ridge Elementary School, in preparation of this project. The contractor shall refer to the Hazardous Materials Survey report prepared on May 3, 2023, which includes all suspect building materials that were sampled and analyzed for asbestos and included an assessment for lead in paint and ceramic products. The report also includes discussion on Freon, PCB in ballasts, and fluorescent light tubes.

Materials commonly excluded from being suspected for containing asbestos include but are not limited to: unwrapped pink and yellow fiberglass insulating materials or products, foam insulation, wood, metal, plastic, or glass. All other types of building materials or coatings on the materials listed above are commonly listed as "suspect" and must be tested prior to impact by a Contractor.

Attic spaces at this site may already be contaminated with asbestos roofing debris from prior roofing replacement projects, but is unknown. If ceiling systems are removed and it is discovered that suspect roofing debris is present, the contractor shall stop work and bring it to the attention of the project manager to assess the potential for asbestos.

Part 24.4 - Containment and Abatement Requirements

The general guidelines in these specifications shall be followed by the asbestos abatement contractor for all work on this project. All requirements of Cal/OSHA Section 1529 and US EPA AHERA regulations apply, and shall be followed, as well as, other applicable regulations.

The Contractor shall follow all requirements set forth in Section 23, Specific Procedures and Requirements when disturbing or removing specific asbestos containing materials.

All asbestos related work shall be performed within negative pressure work enclosures for any class of asbestos work. The term "containment" or "enclosure" shall be construed to mean a containment which is constructed to enclose a work area (as defined in Section 2), and meet all applicable requirements set forth in Sections 2 through 22 of this Specification and all governing regulatory agency requirements. Each containment shall be tailored to meet the needs of the "work area" to be enclosed and include all requirements as set forth in the above related sections and government regulations applicable to asbestos related work.

Sufficient negative air units shall be installed which will provide a minimum of 4 air changes per hour and a minimum of -0.030" air pressure differential, while the zippered doors are opened for bag-out of waste. A digital manometer recording shall be made of all days when in use. The digital recording manometer shall have at a minimum the ability of displaying three digits after the zero (0.000). The manometer tapes shall reflect the correct location, times, and dates of all measurements recorded. Once these requirements have been met and the negative pressure has been established, the Contractor shall request a pre-start visual inspection from Owner's asbestos consultant.

A three stage decontamination unit is required and shall be comprised of zippered doors between the chambers. Flapped doors will not be acceptable. The decontamination unit shall be cleaned daily of all debris, bags, tape, towels, etc. and shall remain clean during the day. The clean room of any three stage decontamination unit shall be at least 5' in width, 5' in length, and 7' in height. Multiple showers are required if the number of asbestos workers exceeds ten per Title 8 3366 Washing Facilities. When there are less than five employees, the same shower may be used by both sexes if the shower room can be locked from the inside.

Part 24.5 - Contractor Assist Requirements

The asbestos contractor shall provide "contractor assist" services for electrical, plumbing, mechanical, and other trades as necessary and agreed to with the General Contractor, for work to be conducted in spaces such as attics, wall cavities, and mechanical rooms where asbestos contamination is present, or where ACM are to be disturbed in order to perform the work.

Contractor assist work shall require the asbestos contractor to construct a mini-cube enclosure, create access to the contaminated area, and wet wipe or HEPA vacuum all dust and debris from the immediate work area as needed to create a "clean" environment for the trade workers to work. All procedures specified in Section 23 shall be followed.

Part 24.6 - Worker Protection

At a minimum half-face respirators with P-100 (HEPA) cartridges, disposable coveralls, and hard sole shoes shall be used during the removal and disposal of all asbestos containing material. Full-face powered air purifying respirators (PAPR) with P-100 cartridges are required for all Class I work. Workers wearing tennis shoes, sandals, or soft sole type shoes will not be allowed to work on roofs or inside containments regardless of the activity being performed. Worker protection for all other work areas shall be in compliance with Cal/OSHA requirements and shall follow the respirator selection as specified in Title 8 section 5144.

Part 24.7 - Electrical and Water Hook-Ups

The Owner shall provide access for electrical and water hook-ups. The Contractor shall install a temporary electrical spider box to an existing electrical panel using a licensed qualified electrical contractor. The Contractor is responsible for all hook-ups, electrical cords, water hoses, and hose bibs necessary for attachment.

Part 24.8 - Visual and Air Clearance Criteria

The Contractor shall perform a pre-final visual of the removal area and adjacent surfaces prior to requesting that Owner's asbestos consultant (CAC) conduct a final visual inspection. The pre-final visual performed by the Contractor shall verify that all materials have been completely removed from the work area, and that the work area meets the requirements specified in Section 17.

Upon completion of the pre-final visual inspection by the Contractor, a final visual of the containment area will be performed by Owner's asbestos consultant. The Contractor shall not be allowed to encapsulate the containment until receiving acceptance by Owner's asbestos consultant confirming the removal area and the containment have met the criteria of Owner's asbestos consultant for completeness of removal of asbestos materials and cleanliness of the containment barriers and surfaces.

Clearance air sampling will be performed following passing the visual inspection, encapsulation of the containment has taken place and a sufficient amount of time has passed to allow the encapsulant to dry. All clearance air samples will be analyzed by transmission electron microscopy (TEM), and performed by a NIST/NVLAP accredited laboratory. The clearance criteria for releasing the Contractor is the AHERA Standard, with the average of all air samples less than 70 asbestos structures per square millimeter. Aggressive air sampling will be used, which includes using a leaf blower in conjunction with fans to dislodge

any remaining dust within the containment.

Part 24.9 - Owner's Responsibility

Not Used

Part 24.10 - Disposal Requirements

Disposal of all friable hazardous asbestos containing waste must be tracked utilizing a current copy of a Uniform Hazardous Waste form. These forms are to be properly filled out by the Contractor and signed by an authorized Owner's representative. All non-friable non-hazardous asbestos waste shall be tracked using a Bill of Lading or equivalent and signed by an authorized Owner's representative. No individual or representative other than the Owner's designated representative is permitted to sign Uniform Hazardous Waste forms or bill of Lading or equivalent for the Owner.

It shall be the responsibility of the Contractor to notify Owner's CAC and coordinate having a hazardous waste manifest properly signed by a Owner representative.

Part 24.11 - Work Periods

Work periods shall be scheduled with Owner's CAC at least 48 hours prior to the start of any shift. If weekend work is to be conducted, shift times are to be established and approved by Owner's CAC. All shifts are to consist of 8 hours and will begin at the time specified and agreed to by Owner's CAC and the abatement contractor.

PREPARED BY:

Blake Howes
Vice President
Entek Consulting Group, Inc.
CAC#13-5015
May 3, 2023

Part 24.12 - Pre-Construction Submittal List

- 1. _____ Copy of State of California - Contractor's State License
- 2. _____ Copy of State of California CSLB Active License
- 3. _____ Copy of State of California CSLB Asbestos Certification
- 4. _____ Copy of Department of Industrial Relations; Division of Occupational Safety and Health; Certificate of Registration for Asbestos-related Work
- 5. _____ Copy of signed statement from company officer listing citations and pending proceedings against the Contractor, or if there have been no citations, a copy of the statement that no actions by regulatory agencies have occurred in the last three years signed by an officer of the company.
- 6. _____ General Liability Insurance Certificate
 - a) ___ Occurrence
 - b) ___ Asbestos/Lead Activities or Abatement Certificate
 - c) ___ Owner Named as Additional Insured
 - d) ___ Consultant Named as Additional Insured
- 7. _____ Auto Insurance
- 8. _____ Workers' Compensation Insurance
- 9. _____ Statement of Non-use of Sub-contractors or
 - a) ___ Name of Each Sub-contractor
 - b) ___ License Number for Each Sub-contractor
 - c) ___ General Liability Insurance Certificate for Each Sub-contractor
 - 1) ___ Minimum Coverage of \$1,000,000.00
 - 2) ___ Owner Named as Additional Insured
 - 3) ___ Consultant Named as Additional Insured
 - d) ___ Auto Insurance Certificate for Each Sub-contractor
 - e) ___ Workers' Compensation Insurance Certificate for Each Sub-contractor
 - 1) ___ Owner Named as Additional Insured
 - 2) ___ Consultant Named as Additional Insured
- 10. _____ Written Notification to CAL/OSHA
- 11. _____ Written Notification to SMAQMD, EPA NESHAP Region IX
- 12. _____ Copies of City Permits (e.g. Parking or Waste container) or Statement That no Permits are Required
- 13. _____ Statement That no Equipment Will be Rented for use With Asbestos or a Statement From Each Rental Company Acknowledging Their Equipment Will be Exposed to Asbestos

- 14. _____ Non-Emergency Telephone Numbers
 - a) ___ Local Police Department
 - b) ___ Sheriff Department
 - c) ___ Fire Department
 - d) ___ Emergency Medical Facility and Directions to That Facility From the Site
- 15. _____ Written Emergency Plans
- 16. _____ Written Work Plan
- 17. _____ Written Schedule
- 18. _____ Worker Documentation (Must Include at Least One Supervisor)
 - a) ___ Training Records for Asbestos - AHERA (Supervisor and Worker)*
 - b) ___ Medical Examination Written Opinion Final Report for Each Employee*
 - c) ___ Respiratory Fit Tests for Each Employee*
- 19. _____ Equipment list, SDS for all materials to be used on the project, including but not limited to, spray glue, encapsulants, wetting agents, mastic remover, etc.
- 20. _____ Name of laboratory/person used for PCM analysis and copy of current NVLAP Certificate of Accreditation (if applicable), and most recent AIHA Proficiency Analytical Testing (PAT) Program results.
- 21. _____ Written Statement That OSHA Monitoring Will be Performed During the Project
- 22. _____ Manufacturers documentation of 5.0 micron filter capability required for waste water
- 23. _____ Name of Transporter
- 24. _____ Hazardous Waste Transporter Registration (if applicable) **Is required only if work to be conducted involves the removal and disposal of "hazardous" asbestos waste as determined either by definition or designated within the Asbestos Abatement Specifications/Procedures and associated attached Exhibits.**
- 25. _____ Waste Facility Documentation
 - a) ___ Name and Site Address
 - b) ___ EPA Identification Number (if applicable)
 - c) ___ Copy of Current Permit Authorizing Asbestos Waste Receipt and Disposal
- 26. _____ Signed Copy of Competent Person Form Acknowledging Reading and Understanding the Specifications (Last Page of Forms Sections of Document) This must be signed by the asbestos Contractor/Supervisor who will onsite, not in the contractor's office.

Note: Items 9, 12, 13, and 21 may be addressed in a single letter as applicable.

* No Contractor's worker will be allowed to conduct asbestos related work, enter a containment, or regulated area prior to verification of AHERA, respirator, and medical documentation. This verification must either be onsite or faxed to Owner's CAC prior to entry.

Part 24.13 - Interim Construction Submittals

Upon request by the Owner or Owner’s Representative, the Contractor shall provide copies of documentation identified to be pertinent to the project.

Part 24.14 - Post Construction Submittal List

Contractor shall provide the following post-construction submittals to Owner’s Representative within thirty (30) days of the completion of asbestos abatement work.

1. _____ Copies of revised notifications to regulatory agencies.
2. _____ Information on all new workers not covered by the pre-construction submittals and not submitted during the project.
3. _____ A copy of worker exposure monitoring results collected in compliance with DOSH regulations (Title 8 CCR, Section 1529) including daily/representative/full-shift/breathing-zone air samples, and 30-minute excursion samples.
4. _____ A copy of the worker/visitor log showing the following for all persons entering the work area: date, name, social security number, entering, and leaving times, company or agency represented, and reason for entry. The Contractor's time records will not be accepted in lieu of a worker/visitor log.
5. _____ Copies of all accident reports submitted during the course of work. **If no accidents occur during the project this should be stated in writing by the Contractor.**
6. _____ Receipts from the landfill operator acknowledging the Contractor's delivery of wastes, including dates, container types and quantities, tare weights or material delivered, and all appropriate signatures.
7. _____ A complete record of the air filtration devices used certifying DOP testing (if performed) and a circular chart recording, indicating continuous operation and documenting differential air pressure.
8. _____ Copies of DOP Testing Performed on HEPA Equipment not Previously Submitted
9. _____ Manometer graphs identifying project name, date, and location.
10. _____ A copy of the asbestos waste record showing dates, times, manifest numbers, quantities of wastes, types of containers removed from the work area, the hauler, and the signature of the recorder.
11. _____ A Land Disposal Restrictions Notification and Certification
12. _____ Completed Uniform Hazardous Waste forms
13. _____ Other Documents as Requested

SECTION 25. ASBESTOS RESULTS LIST

Any material not specified on the following list which the Contractor encounters at this site must be considered as “suspect” and “assumed” to contain asbestos per US EPA. The only items excluded from this statement are; bare wood, glass, and metal.

Suspect Materials Found or Assumed TO Contain Asbestos Administration/MPR Building					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
01A-C	Black Carpet Mastic, Yellow Carpet Mastic	1-2% CHRYSOTILE (Black Mastic) NONE DETECTED (Yellow Mastic)	Beneath Carpet Throughout Administration Area & Offices	CAT-I	900 Sq.
02A-B	Blue/Gray Mottled 12" Vinyl Floor Tile, Yellow Mastic, Black Mastic	NONE DETECTED (Floor Tile) NONE DETECTED (Yellow Mastic) 1-2% CHRYSOTILE (Black Mastic)	Admin Area Storage Room	CAT-I	50 Sq.
04A-B	Blue/Gray Mottled 12" Vinyl Floor Tile, Yellow Mastic, Black Mastic	NONE DETECTED (Floor Tile) NONE DETECTED (Yellow Mastic) 1-2% CHRYSOTILE (Black Mastic)	Admin Area Entry	CAT-I	50 Sq.
13B	Red 6" Clay Floor Tile, Brown Grout & Mortar, Black Mastic	NONE DETECTED (Clay Tile) NONE DETECTED (Grout & Mortar) >1% CHRYSOTILE (Black Mastic)	Kitchen Area Addition	CAT-I	250 Sq.
Please note sample 13B was not confirmed to contain <1% asbestos via 400 point count analysis and must be assumed to contain >1% asbestos for removal and disposal purposes.					
24A-E 36A-C 49A-B 59A-B	Roofing Debris, Black Felt, Silver Paint	NONE DETECTED (Black Debris) 20-30% CHRYSOTILE (Black Felt) NONE DETECTED (Silver Paint)	Attic Spaces over Admin Area, Hallways, Kitchen	CAT-I	3,500 Sq.

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 5-8					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM/PC	Location	NESHAP Classification	Total Estimated Quantity
26A-C	Green 9" Vinyl Floor Tile, Black Mastic	1-5% CHRYSOTILE (Floor Tile)	Rooms 5-7	CAT-I	2,700 Sq.
		1-5% CHRYSOTILE (Black Mastic)		CAT-I	2,700 Sq.
29A	Beige Streaked 9" Vinyl Floor Tile, Black Mastic	1-2% CHRYSOTILE (Floor Tile)	Room 8	CAT-I	900 Sq. Total Floor Tile
		1-5% CHRYSOTILE (Black Mastic)		CAT-I	
30A-B	Beige Streaked 12" Vinyl Floor Tile, Black Mastic	1-2% CHRYSOTILE (Floor Tile)	Room 8	CAT-I	900 Sq. Total Mastic
		1-2% CHRYSOTILE (Black Mastic)		CAT-I	
24A-E 36A-C 49A-B 59A-B	Roofing Debris, Black Felt, Silver Paint	NONE DETECTED (Black Debris) 20-30% CHRYSOTILE (Black Felt) NONE DETECTED (Silver Paint)	Attic Spaces over Rooms 5-8	CAT-I	3,600 Sq.

Suspect Materials Found or Assumed TO Contain Asbestos East Restroom/Storage Building					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
39A-B	Light Brown Streaked 9" Vinyl Floor Tile, Yellow Mastic, Black Mastic	1-2% CHRYSOTILE (Floor Tile)	South Large Storage Room & Small Restroom	CAT-I	200 Sq.
		NONE DETECTED (Yellow Mastic) 1-2% CHRYSOTILE (Black Mastic)		CAT-I	200 Sq.
40A-B	Dark Brown Mottled 12" Vinyl Floor Tile, Yellow Mastic, Black Mastic	NONE DETECTED (Floor Tile) NONE DETECTED (Yellow Mastic) 1-5% CHRYSOTILE (Black Mastic)	North Large Storage Rooms	CAT-I	400 Sq.

Suspect Materials Found or Assumed TO Contain Asbestos East Restroom/Storage Building					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
41A	Yellow Pebble Sheet Vinyl Flooring, Black Mastic, Yellow Mastic	15-20% CHRYSOTILE (Sheet Vinyl)	Small Restroom at North Large Storage Room	RACM	50 Sq.
		1-5% CHRYSOTILE (Black Mastic) NONE DETECTED (Yellow Mastic)		CAT-I	50 Sq.
24A-E 36A-C 49A-B 59A-B	Roofing Debris, Black Felt, Silver Paint	NONE DETECTED (Black Debris) 20-30% CHRYSOTILE (Black Felt) NONE DETECTED (Silver Paint)	Attic Space over All Rooms	CAT-I	1,000 Sq.

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 31-34					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
51A-C 54A-B	Green 9" Vinyl Floor Tile, Black Mastic, Yellow Mastic	1-5% CHRYSOTILE (Floor Tile)	Rooms 31-34	CAT-I	3,600 Sq.
		1-5% CHRYSOTILE (Black Mastic) NONE DETECTED (Yellow Mastic)	(Beneath Carpet & Sheet Vinyl in Room 34)	CAT-I	3,600 Sq.
24A-E 36A-C 49A-B 59A-B	Roofing Debris, Black Felt, Silver Paint	NONE DETECTED (Black Debris) 20-30% CHRYSOTILE (Black Felt) NONE DETECTED (Silver Paint)	Attic Space over Rooms 31-34	CAT-I	3,600 Sq.

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 1-4					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
68A	Gray Stone Pattern Sheet Vinyl, Yellow Mastic 1, White Sheet Vinyl, Yellow Mastic 2	NONE DETECTED (Gray Sheet Vinyl) NONE DETECTED (Yellow Mastic 1) 15-20% CHRYSOTILE (White Sheet Vinyl) NONE DETECTED (Yellow Mastic 2)	Room 2, Child Restroom (Sublayer of Visible Flooring)	RACM	40 Sq.
70A	Gray Vinyl Floor Tile (Bottom Layer), Yellow Mastic	1-2% CHRYSOTILE (Floor Tile) NONE DETECTED (Yellow Mastic)	Room 2 Restroom Vestibule (Sublayer of Visible Flooring)	CAT-I	100 Sq.
72A	Beige Vinyl Floor Tile (Bottom Layer), Black Mastic, Yellow Mastic	1-2% CHRYSOTILE (Floor Tile) NONE DETECTED (Yellow Mastic) NONE DETECTED (Black Mastic)	Room 2 Entry (Sublayer of Visible Flooring)	CAT-I	100 Sq.
73A	Green 9" Vinyl Floor Tile, Black Mastic, Yellow Mastic	1-5% CHRYSOTILE (Floor Tile) 1-5% CHRYSOTILE (Black Mastic) NONE DETECTED (Yellow Mastic)	Room 2 Restroom Area Storage	CAT-I CAT-I	40 Sq. 40 Sq.
76A-B	Light Brown Streaked 9" Vinyl Floor Tile, Black Mastic, Yellow Mastic	1-2% CHRYSOTILE (Floor Tile) 1-5% CHRYSOTILE (Black Mastic) NONE DETECTED (Yellow Mastic)	Room 4 Restroom Vestibule & Entry	CAT-I CAT-I	200 Sq. 200 Sq.
77A	Gray Vinyl Floor Tile (Bottom Layer), Black Mastic Yellow Mastic	1-2% CHRYSOTILE (Floor Tile) 1-5% CHRYSOTILE (Black Mastic) NONE DETECTED (Yellow Mastic)	Room 1 Restroom Vestibule (Sublayer of Visible Flooring)	CAT-I	100 Sq. 100 Sq.
Please note that due to the large amount of different flooring materials found in rooms 1-4 at entry areas, restroom, restroom vestibules, and possible other areas of flooring, Entek recommends treating all vinyl floor tile and associated black mastic as asbestos containing in this entire classroom block. Estimated square footage of entire area is 4,800 square feet.					

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 1-4					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
81A	Gray 4" Vinyl Base Cove, Yellow Mastic, Tan Mastic, Brown Mastic	NONE DETECTED (Base Cove) NONE DETECTED (Yellow Mastic) NONE DETECTED (Tan Mastic) >1% FIBROUS TREMOLITE (Brown Mastic)	Rooms 1-4	CAT-II	200 Sq.
Please note sample 81A was not confirmed to contain <1% asbestos via 400 point count analysis and must be assumed to contain >1% asbestos for removal and disposal purposes.					
87A-B	Composition Asphalt Rolled Roofing, Black Felt	NONE DETECTED (Asphalt Roofing) 20-30% CHRYSOTILE (Black Felt)	All Roof Areas	CAT-I	6,000 Sq.

Suspect Materials Found or Assumed TO Contain Asbestos South Restroom Building					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
92A	Drywall & Joint Compound	NONE DETECTED (Drywall) <1% CHRYSOTILE (Joint Compound 1) <1% CHRYSOTILE (Joint Compound 2) <1% CHRYSOTILE (Composite)	Ceilings (Assumed to also be present behind plastic wall panels at walls)	Cal/OSHA ACCM Confirmed by 400 Point Count Analysis	2,000 Sq.

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 9-15					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
102A 110A	Gray Vinyl Floor Tile, Black Mastic, Yellow Mastic	NONE DETECTED (Floor Tile) 1-2% CHRYSOTILE (Black Mastic) NONE DETECTED (Yellow Mastic)	Rooms 10 & 15 (Beneath Carpet & Visible Tile)	CAT-I	1,800 Sq.
104A 105A-B 106A	Light Brown 9" Vinyl Floor Tile, Black Mastic	1-5% CHRYSOTILE (Floor Tile) 1-5% CHRYSOTILE (Black Mastic) NONE DETECTED (Yellow Mastic)	Rooms 11-13 (Beneath Visible Flooring in Most Areas)	CAT-I CAT-I	2,700 Sq. 2,700 Sq.
108A	Brown Streaked 12" Vinyl Floor Tile, Black Mastic, Yellow Mastic	1-2% CHRYSOTILE (Floor Tile) 1-5% CHRYSOTILE (Black Mastic) NONE DETECTED (Yellow Mastic)	Room 14	CAT-I CAT-I	900 Sq. 900 Sq.
N/a	Roofing Debris	UNKNOWN	Rooms 9-15 in Attic Spaces	CAT-I	Unknown if Present
PLEASE NOTE THE SUBSTRATE IN ROOMS 9-15 IS PLYWOOD FLOORING					

Suspect Materials Found or Assumed TO Contain Asbestos Portables 16-18					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
None	None	None	None	None	None

Suspect Materials Found or Assumed TO Contain Asbestos Portables 19-20					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
None	None	None	None	None	None

Suspect Materials Found or Assumed TO Contain Asbestos Portables 21-22					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
None	None	None	None	None	None

Suspect Materials Found or Assumed TO Contain Asbestos Portables 23-25					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
None	None	None	None	None	None

Suspect Materials Found or Assumed TO Contain Asbestos Portables 26-28					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
None	None	None	None	None	None

Suspect Materials Found or Assumed TO Contain Asbestos Rooms 29-30					
Sample ID#'s	Suspect Material	Asbestos Content/Type (%) by PLM	Location	NESHAP Classification	Total Estimated Quantity
None	None	None	None	None	None

Note 1.: **Category I Non-friable ACM** is asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing products containing more than one percent asbestos by area.

Note 2.: **Category II Non-friable ACM** is any material, excluding Category I non-friable ACM, containing more than one percent asbestos, which is non-friable such as transite and other concrete based products.

Note 3.: **Regulated Asbestos-Containing Material (RACM)** is any friable material, any Category I non-friable ACM which has become friable, any Category I non-friable ACM which will be or has been subjected to sanding, grinding, cutting, or abrading, any Class II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to a powder by the forces expected to act on the material in the course of demolition or renovation operations.

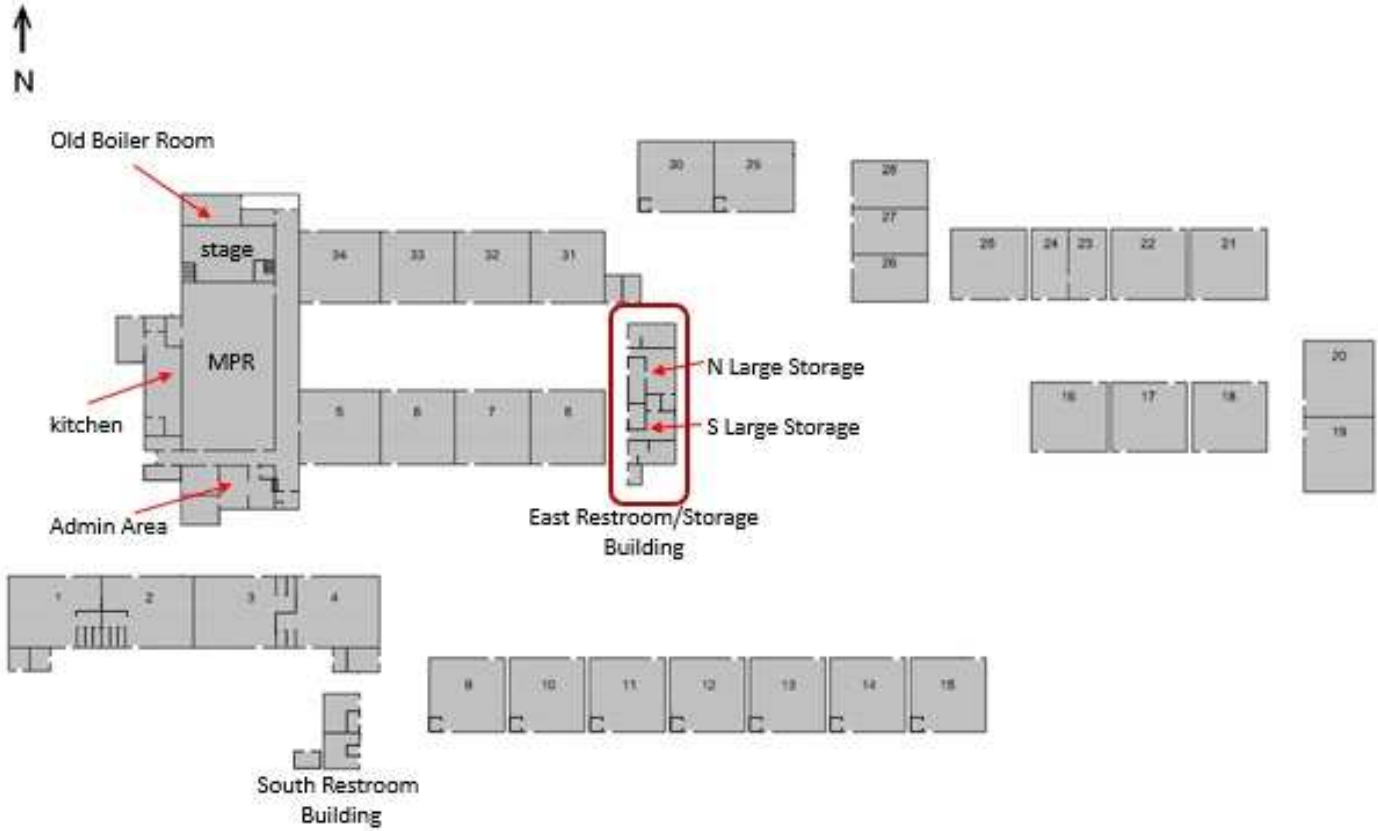
Note 4.: **Asbestos Containing Construction Materials (ACCM)** is a manufactured construction material containing greater than 0.1% asbestos by weight by the PLM method.

Note 5.: The terms “assume” and “presume” mean the named material is considered positive for containing asbestos and must be treated accordingly, until properly sampled in compliance with 40 CFR, Part 763 Asbestos-Containing Materials in Schools; Final Rule and Notice.

OAK RIDGE ELEMENTARY SCHOOL

EXHIBIT A

SECTION 26. SITE MAP



SECTION 27. FORMS

Competent Person Acknowledgement

The Cal/OSHA standard for asbestos related construction work, found in 8 CCR, 1529, outlines specific duties and qualifications of the "Competent Person." Find below a overview of these qualifications and responsibilities. The competent person must be authorized by their employer to take prompt corrective measures to eliminate hazards on the job and protect their workers safety. The competent person must be the Supervisor onsite who is capable of:

- Identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees.
- Identifying existing asbestos hazards in the work place and selecting the appropriate control strategy for asbestos exposure.

The duties of the competent persons include, but are not limited to:

- Frequent and regular inspections of the job site, materials, and equipment.
- Supervise or perform the set-up of the regulated area and/or containment.
- Ensure the integrity of the regulated area and/or containment.
- Set up procedures to control entry to and exit from the regulated area and/or containment.
- Supervise all employee exposure monitoring and assure it is conducted according to regulatory requirements.
- Ensure that employees working within the regulated area(s) wear respirators and protective clothing as required by regulation.
- Ensure that employees working set up, use, and remove engineering controls, use work practices and personal protective equipment in compliance with the regulations.
- Ensure that employees use hygiene facilities and observe the decontamination procedures specified in the regulation.
- Ensure through continuing onsite surveillance that engineering controls are functioning properly and employees are using proper work practices.
- Ensure that notification requirements of the regulation are met.

Additionally, the EPA requires the competent person to be trained in the Federal NESHAP regulations, the means to comply with them, and be on site during all removal operations.

I _____ have the authority to take prompt corrective measures to eliminate hazards on the job and protect workers safety. Furthermore, I have read and understand my duties as outlined above and under the applicable regulations, and will exercise them to best of my ability.

Signature of Competent Person Who Will Be Onsite Date: _____ Employer: _____

Printed Name of Competent Person Who Will Be Onsite

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REQUIREMENTS FOR THE DISTURBANCE OF LEAD IN CONSTRUCTION

PART 1.0 GENERAL REQUIREMENTS

1.1 Introduction

These specifications are designed to minimize and control potential lead hazards during the disturbance of materials that contain lead. These procedures and precautions apply to the disturbance of lead that may result from the preparation of surfaces prior to painting, from the drilling into, cutting into, or removal of building components containing or covered with lead, or the demolition of buildings and/or structures that contain lead either in or on their surfaces.

The primary focus of these specifications is to address the work practices and procedures that the Contractor and/or other subcontractors must follow when conducting activities that may disturb lead in paint or other coatings or lead in ceramic tile glaze.

An asbestos inspection was conducted by Entek Consulting Group, Inc. for the Oak Ridge Elementary School Project and a report was prepared on May 3, 2023. The report includes all suspect building materials that were sampled and analyzed for asbestos and included an assessment for lead in paint. Limited testing was conducted at the site to determine concentrations of lead on building surfaces. Attached are the results of the testing of paint chips of the project area in Part 5.0 Results of Lead Testing.

Given the age of the building on this project, lead in measurable amounts is common in paint, varnish, stains, and ceramic tile. Limited testing was conducted at the site to determine concentrations of lead on building surfaces or materials. All interior and exterior painted, stained or varnished building surfaces are assumed to contain various concentrations of lead unless proven otherwise via laboratory analysis. The Contractor or other subcontractors may also encounter other building products such as lead sheeting, roof flashing or roof vents that may, in his or her judgement, be assumed to contain lead until proven otherwise.

The Contractor and other subcontractors working on this project must treat these suspect lead-containing products as containing lead unless the material is tested and proved to not contain lead by Entek Consulting Group, Inc. (Entek). Unless tested, Cal/OSHA regulations will apply if any of these surfaces or materials will be disturbed during the project work.

Entek anticipates enforcing Cal/OSHA and California Department of Public Health (CDPH) regulations regarding the training of workers disturbing lead and the containment and work practices utilized during that disturbance. The training requirements for workers and supervisors on this project are summarized in Part 1.5. Lead Training Requirements. The Contractor and other subcontractors disturbing lead must be familiar with the CDPH requirements regarding containment of lead debris and the Cal/OSHA lead in construction standard. Those requirements are summarized below in Part 1.3 Regulatory Compliance.

In summary, the Contractor and subcontractors shall utilize engineering controls to limit the release of lead dust or debris. These engineering controls may include, but are not limited to, using wet methods, using tools with vacuum recovery systems with High Efficiency Air Particulate (HEPA) filtration, using vacuums with HEPA filtration, using negative air pressure differential systems, and by the prompt clean up of any lead-containing debris that the work might produce. Dry scraping, sanding, grinding, or abrading lead-containing materials is not permitted. All work that disturbs lead will require a containment. The containment may be as simple as plastic sheeting on the floor or ground when drilling minor penetrations or scraping paint on exterior surfaces. Or, for the demolition of ceramic tile and any painted wall systems, it is likely to require the Contractor construct a full containment for the area and utilize a negative air pressure differential system. The requirements for work practices and containment are described in Part 3.5 Work Site Preparation & Containment Requirements.

The requirements of this specification apply to all employers who have employees who may reasonably be exposed to lead on this project. This includes the Contractor, who will normally be an environmental contractor such as an asbestos abatement contractor, or a painting contractor utilizing CDPH lead certified workers and supervisors. In addition, this specification applies to all subcontractors conducting work on this project who have employees who may disturb lead by drilling, cutting, scraping, or demolishing materials containing lead.

No Contractor shall begin work which will disturb known or suspect lead-containing surfaces or materials in a manner that may expose a worker to lead containing dust, create a potential for building contamination, or create possible lead containing waste, until all required pre-construction documentation has been reviewed and written approval has been received from the Owner and/or Project Monitor.

Activities expected to disturb lead-containing materials include, but are not limited to, painting preparation work such as scraping or sanding, penetration of painted surfaces through drilling or cutting, demolition of painted surfaces, removal of painted building components, and removal, drilling, or cutting of ceramic wall tiles. If the Contractor or subcontractors are observed conducting such activities without having written approval from the Owner and/or Project Monitor, they will be instructed to stop work. Work will not be allowed to resume until the Owner and/or Project Monitor provides approval for the work to begin.

This project involving potential disturbance of lead in the various painted materials is not considered a lead abatement project. The renovation project at this site would be considered "lead related construction work"; therefore, it is Entek's opinion the contractor is not required to submit a CDPH Form 8551 for this project.

1.2 Definitions

Action Level - Airborne exposure to lead at or above $30 \mu\text{g}/\text{m}^3$ over an eight-hour-time-weighted average as discussed in 8 CCR 1532.1. Typically, when employees are exposed over the Action Level, the employer must provide blood testing, training in compliance with 8 CCR 1532, and air sampling.

Air Filtration Unit - A portable exhaust system equipped with HEPA filtration and capable of maintaining a constant low velocity air flow into contaminated areas from adjacent uncontaminated areas. At a minimum, the air intake for the air filtration device must have a pre-filter on it which can be changed within the containment area. In most cases, air filtration devices will need to pass challenge testing by DOP before they are allowed to be used on site.

Airlock - A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways separated by a distance of at least three feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.

Air Monitoring - The process of measuring the content of a known volume of air collected during a specific period of time.

Blood Testing - Blood testing for lead and zinc protoporphyrin in compliance with the requirements for medical surveillance as listed in 8 CCR 1532.1.

Cal/OSHA - California Division of Occupational Safety and Health. A California agency that implements and enforces numerous health and safety standards regarding lead.

Certified Lead Supervisor and Worker - Supervisors and workers currently certified by the California Department of Public Health (CDPH).

Challenge Testing - Process used to verify that HEPA-filtered equipment does not leak or exhaust asbestos, lead, or other particulate. This testing must be done by a testing company, not affiliated with the Contractor, and approved by the Owner and Project Monitor. Challenge testing normally uses an oil mist as the challenge agent and measures how much, if any, of the agent is exhausted from the machine being tested.

Clean Room - An uncontaminated area or room which is a part of the worker decontamination enclosure system with provisions for storage of workers' street clothes and clean protective equipment. The term also includes the uncontaminated area or room of a Waste Transfer Airlock.

Containment - Isolation of the work area from the rest of the building to prevent escape of lead in dust, debris or in the air.

Contractor - The Contractor is the person or entity identified as such in the Contract Documents as being responsible for the environmental work as done in response to and in accordance with this document. References to the "Contractor" include the Contractor's authorized representatives. The Contractor may be a sub-contractor to the Primary Contractor. The Contractor normally will be responsible for paint preparation work that disturbs lead, paint scraping done prior to the demolition of structures, or the demolition of ceramic tile. The Contractor will typically need to use CDPH certified lead workers and supervisors to conduct their work that disturbs lead. Those employers disturbing smaller amounts of lead such as through drilling, cutting, or small component removal are typically known as a subcontractor for the purposes of this specification.

Critical Barrier - Critical Barriers are used to restrict water and airflow. Critical Barriers are the barriers placed over openings in the walls and ceilings of a work area in order to ensure that lead dust cannot escape the work area via these openings. Unless otherwise specified in these Specifications, critical barriers shall be constructed of at least one layer of six-mil thick poly.

Curtained Doorway - A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms. These are typically constructed by placing two overlapping sheets of plastic over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one sheet along one vertical side of the doorway and securing the vertical edge of the other sheet along the opposite vertical side of the doorway. Other effective designs are permissible as long as they are approved by the Project Monitor.

Decontamination Enclosure System - A series of connected rooms, separated from the work area and from each other by air locks, for the decontamination of workers, containers, and equipment. This unit shall be constructed with at least two layers of six mil poly for the floors, walls, and ceiling. The floor of the dirty room shall consist of two layers of six mil poly plus a third layer of poly, four mil or thicker, to be used as a removable drop layer. Drop layer is to be removed as needed, but at least daily.

CDPH - California Department of Public Health. State agency that regulates the disturbance of lead in public buildings and on all structures in California. This agency and relevant regulations are primarily concerned with preventing childhood lead poisoning.

DOP - Dioctylphthalate particles, a testing agent for the efficiency of HEPA filters.

DOT - Department of Transportation, a Federal agency which has regulations and labeling requirements for the transportation of hazardous waste.

DTSC - Department of Toxic Substances Control, a department within the California Environmental Protection Agency charged with implementing and enforcing hazardous waste regulations.

Dust or Debris - Any visible dust or debris remaining in work area will be considered lead-containing residue.

Entek - Entek consulting Group, Inc. This is the Lead Project Monitoring/Management Firm for this project, and is the employer of the Project Monitor used on this project.

EPA - U.S. Environmental Protection Agency, a Federal agency that developed and enforces various asbestos and lead regulations.

HVAC - Heating, ventilation and air conditioning system.

HEPA Filter - A high efficiency particulate air filter capable of removing particles 0.3 microns in diameter from an air stream with 99.97% efficiency.

HEPA-Filtered-Vacuum Recovery System - This is a mechanical tool that has a shroud or covering over the area of a surface disturbed by a mechanical system in order to eliminate or significantly reduce the amount of dust released to the ambient air by the mechanical process. The shroud must be attached to a working vacuum with HEPA filtration.

HEPA Vacuum - A vacuum system equipped with HEPA filtration. Typically these units will need to be challenge tested before being allowed to be used inside of buildings on this project.

Lead-Based Paint - Materials meeting the definition of lead-based paint as defined by the California Department of Public Health and the United States Environmental Protection Agency. Currently defined as containing lead in concentrations equal to or greater than 1.0 mg/cm², 5000 ppm, or 0.5% by weight.

Lead-Containing Material - Materials that contain measurable, quantifiable amounts of lead. The disturbance of these materials is regulated by Cal/OSHA.

Lead-Containing Hazardous Waste - Materials required by the State of California to be packaged, labeled, transported, and disposed of as a lead hazardous waste.

Lead-Containing Waste Material - Lead-containing waste material that does not need to be treated as a lead-containing hazardous waste.

Lead Project Management or Monitoring Firm – The firm hired by Owner to provide third-party oversight of the disturbance of lead performed on the Owner’s property by the Contractor or subcontractors.

Mil - A unit of length or thickness equal to one thousandth of an inch. Generally used when referring to the thickness of plastic (poly) sheeting used to contain the regulated area.

Movable Object - An unattached piece of equipment or furniture in the work area which can be removed from the work area.

Negative Air Machines - See Air Filtration Units.

NIOSH - The National Institute for Occupational Safety and Health. All respirators used on this project must be approved by NIOSH.

Outside Air - The air outside buildings and structures.

OAK RIDGE ELEMENTARY SCHOOL

EXHIBIT B

Owner - Property owner where the disturbance of lead will take place. For example, this may be a private building owner or manager, a government body such as a city or county agency, a military base, or a Owner district. This includes the Owner's authorized representatives and employees.

PEL - Permissible Exposure Limit (as used in 8 CCR 1532.1)

Permissible Exposure Limit (PEL) - Airborne exposure to lead above 50 µg/m³ over an eight-hour, time-weighted average as discussed in 8 CCR 1532.1. Typically, when employees are exposed over the PEL, the employer must provide blood testing, respirators, protective clothing, shower decontamination, CDPH certification, regulated areas, and air sampling.

Poly - Flame-retardant polyethylene sheeting used to seal critical barriers, create cleaning barriers and drop layers, and to protect surfaces from damage or contamination.

Primary Contractor - The Contractor may not work directly for the Owner but instead subcontract with another contractor such as a general contractor or demolition contractor. The Primary Contractor is the entity responsible for hiring the Contractor if it is not the Owner.

Pre-start Meeting - Meeting held before the beginning of the project in which final details of the project are discussed and Contractor provides project monitor with pre-job submittal packet.

Project Monitor - An individual qualified by virtue of experience and education, designated as the Owner's representative and responsible for overseeing the work that disturbs lead on this project.

Project Monitoring - Activities undertaken by the Project Monitoring Firm for the purpose of monitoring the work done by the Contractor on this project in regards to the disturbance of lead.

Regulated Area - Term used by Cal/OSHA in 8 CCR 1532.1 to indicate a work area where exposure to airborne lead might exceed the Permissible Exposure Limit or where "Trigger Activities" may be performed. The area must be demarcated with signs and barriers designed to keep unauthorized people out of the area. Additionally "Regulated Area" means any measure used to restrict access to an area where personnel impacting lead-containing materials are required to wear respiratory protection and/or protective clothing by the project specifications regardless of airborne concentration of lead.

Renovation, Repair and Painting Program (RRPP) - US EPA 40 CFR Part 745 Lead-Based Paint (LBP) Poisoning Prevention in Certain Residential Structures. Regulations apply where there will be disturbance to lead-based paint in homes, child care facilities and pre-schools in child occupied facilities.

Shower Room - A room between the clean room and the equipment room in the decontamination enclosure with hot and cold or warm running water controllable at the tap and suitably arranged for complete showering during decontamination. Unless specified elsewhere in these specifications, or determined otherwise by the program monitor, the shower shall be on a metal pan to contain water splashed, leaked or spilled out of the shower unit.

Specifications - These written requirements describing procedures the Contractor must follow for this project.

Subcontractor - Contractors working for the Primary (General) Contractor but who are not primarily responsible for environmental work. For example, they may be responsible for, demolition, electrical, plumbing, general construction, minor painting, or other special trades.

Submittals - Pre-construction, interim construction, and post construction documents submitted by the contractor to the Owner as indicated in General Requirements and Bidding Requirements.

Trigger Task - Term commonly used to describe the tasks described by Cal/OSHA in 8 CCR 1532.1 (d)(2). These are tasks or activities that Cal/OSHA believes are expected to result in airborne exposures over the PEL until air monitoring proves otherwise. In brief, trigger tasks include manual demolition, scraping, sanding, using HEPA-attached equipment, using heat guns to remove lead paint, welding, torch cutting, and using other more aggressive techniques. (This is a summary list and does not list all tasks that are considered trigger tasks.) In addition, trigger tasks include any activity reasonably expected to result in airborne exposures to lead above the Permissible Exposure Limit.

View Ports - Clear windows into the regulated work area that allow authorized persons to view work activities inside the regulated area without entering the area. The view ports must be of sufficient number, constructed of materials of sufficient clarity, and be located in areas determined and/or approved of by the Project Monitor. All regulated work areas including mini-enclosures will require view ports unless specifically determined not to be feasible by the Project Monitor.

Visible Emissions - Any emissions containing particulate material that are visually detectable without the aid of instruments. For example, dust, debris, and water leaks are considered visible emissions.

Waste Load-out/Transfer System - A decontamination system utilized for transferring containerized waste from inside to outside of the work area. A series of connected rooms used for the load-out of lead-containing materials that have been properly containerized.

Waste Bags - Waste bags for lead-containing waste must be a minimum of six-mil thickness. In general, double bagging will be required.

Waste Containers - Waste containers are the containers into which lead-containing waste is placed. They may be bags of at least six-mil thickness, metal or fiber barrels, or other containers such as cardboard boxes approved by the Project Monitor. The Contractor is responsible for assuring that the type of container chosen is acceptable to the waste landfill to which the waste will be transported. Waste containers must be labeled according to the requirements of the California Department of Occupational Safety and Health (Cal/OSHA), Department of Toxic Substances Control (DTSC), Department of Transportation (DOT), and the Environmental Protection Agency (EPA).

Waste Transfer Airlock - A decontamination system utilized for transferring containerized waste from inside to outside of the work area.

Wet Cleaning - The process of eliminating lead contamination from building surfaces and objects by using cloths, mops, or other utensils which have been dampened with water and afterwards thoroughly decontaminated or disposed of as lead-contaminated waste.

Work Area - Designated rooms, spaces, or areas of the project in which the disturbance of lead is to be undertaken or which may become contaminated as a result of such action. A contained work area is a work area which has been sealed off from adjacent areas.

Work Plan - Contractor's written plan describing how the Contractor will perform the work in compliance with these specifications. The work plan shall include information on preparation of the work area, personal protective equipment, employee experience, training and assigned responsibilities during the project. It will also list decontamination procedures for personnel, work area and equipment, removal methods and procedures, required air monitoring program, procedures for handling and disposing of waste materials and procedures for final decontamination and cleanup.

Worker - A person who successfully meets the training requirements for the disturbance of lead as described in these specifications.

8 CCR 1532.1 - Chapter 8 of the Labor Code, California Code of Regulations, Section 1532.1: Lead (Known as the Lead Standard for the Construction Industry)

8 CCR 1544 - Chapter 8 of the Labor Code, California Code of Regulations, Section 1544: Respiratory Protection Standard.

1.3 Regulatory Compliance

Various agencies regulate work that disturbs lead-containing materials. The following is a summary of the most important agencies and regulations that apply during the disturbance of lead during construction work. This list is not to be considered comprehensive. The Contractor is responsible for complying with all applicable federal, state, and local regulations that may apply to the specific work they are conducting.

1.3.1 Environmental Protection Agency (EPA)

Lead: Identification of Dangerous Levels of Lead; Final Rule (40 CFR Part 745 Subpart D)

The EPA defines lead-based paint as paint and coatings that contain lead in concentrations equal to or more than one milligram per square centimeter (1 mg/cm²), 5000 parts per million (5000 ppm), or one half of one percent (0.5%) by weight. EPA regulations apply to all housing and child-occupied facilities built before 1978. When the term “lead-based paint” is used in the context of these specifications, the term is used only to refer to paint that contains lead in concentrations equal to or greater than that defined by the EPA as lead-based paint. This is to differentiate lead-based paint from the term “lead-containing paint” as used for compliance with Cal/OSHA.

1.3.2 Housing and Urban Development (HUD)

Requirements for Notification, Evaluation and Reduction of Lead-Based Paint Hazards in Federally Owned Residential Property and Housing Receiving Federal Assistance (24 CFR Part 35)

The HUD Rule for Federal Housing (shortened name) applies to all residential properties built before 1978 that receive Federal financial assistance. This regulation uses the same definition of lead-based paint as the EPA. The work practices and procedures described in these specifications are designed to comply with occupant and worker protection regulations as mandated by OSHA and Cal/OSHA regulations for work that disturbs lead and **are not** designed to comply with all the requirements of 24 CFR Part 35. Should this project be covered by this regulation, the Owner may require additional practices and procedures in the scope of work for activities conducted in properties covered by the HUD Rule for Federal Housing.

1.3.3 California Department of Public Health (CDPH)

Accreditation, Certification, and Work Practices For Lead-Based Paint And Lead Hazards (Title 17, CCR, Division 1, Chapter 8, Sections 35000-361000)

This regulation primarily applies to residential and public buildings located in California. The definition of a public building is one that is “generally accessible to the public.” Some aspects of this regulation, particularly those that pertain to the definition of “presumed lead-based paint” and the containment requirements for disturbing lead-based paint **apply to all structures** in California.

This CDPH regulation definition of lead-based paint is identical to the EPA/HUD definition of 1 mg/cm², 5000 ppm, and 0.5% by weight. In addition, this regulation requires all paint on structures in California to be treated as “presumed lead-based paint” unless the paint is on a home built after

1978 or a Owner built after 1992. Therefore, the paint in all owner's buildings covered by this project that were constructed before 1993 must be treated as lead-based paint unless tested and proved otherwise as described elsewhere in these specifications.

The CDPH regulation differentiates between work that disturbs lead as part of renovation or maintenance work and work that disturbs lead as part of "abatement" work as defined in Title 17. The work practices and procedures described in these specifications are designed to comply with occupant and worker protection regulations as mandated by Cal/OSHA regulations for work that disturbs lead as part of renovation, demolition, and maintenance work. These specifications are not designed to comply with the requirements for abatement as defined in the CDPH Title 17 regulation. Unless stated specifically otherwise in these specifications, the Owner does not anticipate any work being done as part of this project that meets the definition of abatement as used in Title 17. Therefore, unless specifically directed otherwise by this specification or by the direction of the Owner and/or Project Monitor, the Contractor and/or subcontractors shall NOT submit Form 8551, "ABATEMENT OF LEAD HAZARDS," to the CDPH since that form provides inappropriate notice for the work done on this project. The Contractor may be required to complete and submit this form should the scope of the work or the work practices change.

This regulation has significant penalties associated with the creation of "lead hazards." Lead hazards are defined as: "...disturbing lead based paint or presumed lead-based paint without containment, or any other nuisance which may result in persistent and quantifiable lead exposure." The requirements discussed in Part 3.5 Work Site Preparation & Containment Requirements are designed to meet CDPH requirements. Should a Contractor and/or subcontractor conduct work without a containment or release lead-contaminated dust or debris outside of the containment, they are in violation of this regulation. The Project Monitor will stop all work, consider the Contractor and/or subcontractor to be in violation of these specifications and the contract documents. Work will not be allowed to begin again until the Contractor and/or subcontractor takes adequate steps to correct their violation and convinces the Owner and/or Project Monitor that the violation will not occur again.

1.3.4 California Occupational Safety and Health Administration (Cal/OSHA)

Lead Standard for the Construction Industry (8 CCR 1532.1)

This standard regulates work done by employees who may disturb lead as part of demolition, construction, renovation or maintenance work. Painting activities that may disturb lead are covered by this standard. General construction work that disturbs lead is covered, as is the demolition of building components or entire structures.

Cal/OSHA regulates lead whenever lead is determined to exist in a material. When the term "lead-containing paint" is used in the context of these specifications, the term is used to refer to paint that contains lead in an amount equal to or above the reporting limit for the laboratory analysis or that detected by an X-ray Fluorescent Analyzer (XRF).

In addition, Cal/OSHA uses the EPA/HUD/CDPH definition of lead-based paint (1.0 mg/cm², 5000 ppm, or 0.5% by weight) for their pre-job notification requirements discussed in Part 1.4 Lead-Work Pre-Job Notification Requirements.

The following information summarizes the significant requirements in the Cal/OSHA standard. This summary is not meant to substitute for the Contractor reading and being familiar with the Cal/OSHA requirements.

- a. The Cal/OSHA lead standard is very complex. Cal/OSHA regulates lead in materials when a laboratory can quantify the amount of lead. This means materials are regulated even when

they contain very small amounts of lead. The standard sets an "Action Level" for airborne lead at or above $30 \mu\text{g}/\text{m}^3$ over an eight-hour-time-weighted average. Typically, if employees are expected to be exposed to this airborne lead level, the employer must conduct air sampling, provide blood lead testing, and provide specialized training. The standard sets a "Permissible Exposure Limit" or "PEL" for airborne lead at or above $50 \mu\text{g}/\text{m}^3$ over an eight-hour-time-weighted average. The employer must continue the requirements needed at the Action Level but must now provide respirators, protective clothing, a shower decontamination system, and a written compliance program.

- b. In 8 CCR 1532.1 (p), employers are required to notify Cal/OSHA before employees conduct a trigger task that will disturb more than 100 square or linear feet of material that contains lead in concentrations equal to or above $1.0 \text{ mg}/\text{cm}^2$, 5000 ppm, or 0.5% by weight. The notification also applies to welding or torch cutting that takes more than one hour in a shift. Trigger tasks are described in 8 CCR 1532.1 (d)(2). In brief, they include manual demolition, scraping, sanding, using HEPA-attached equipment, using heat guns to remove lead paint, welding, torch cutting, and using other more aggressive techniques. This is a summary list and does not list all task that are considered trigger tasks.
- c. The California standard defines lead-containing paint at the Consumer Product Safety Commission's (CPSC) level of 0.06% by weight or 90 ppm for non-trigger tasks. The lead standard would not apply if the paint contains less than 90 ppm and the employees do not conduct trigger tasks. However if the employees do conduct trigger tasks, the entire standard applies.
- d. Cal/OSHA requires CDPH lead training and certification for any supervisors or workers who are "shown to be exposed" to airborne lead levels above the PEL in residential or public buildings. The Owner and Project Monitor believe that there is a reasonable expectation that those workers scraping paint prior to repainting, and those demolishing ceramic tile are likely to be exposed over the PEL. Therefore, on this project, that work must be done by CDPH certified workers and supervisors.
- e. Cal/OSHA requires the supervisor to establish a "regulated area" whenever employees may be exposed to airborne lead over the PEL or if they will perform trigger tasks as defined in 8 CCR 1532.1 (d)(2). The establishment of regulated areas is discussed in Part 3.5 Work Site Preparation & Containment Requirements.

1.4 Lead-Work Pre-Job Notification Requirements

The Contractor is responsible for complying with the Lead-Work Pre-Job Notification as specified in 8 CCR 1532.1 (p). If notification is required for this project, the Contractor must provide the notification to Cal/OSHA and provide a copy of this notification to the Owner and/or Project Monitor as part of the Contractor's pre-work submittal package.

Unless the material is tested as described elsewhere in these specifications, the Contractor and subcontractors must anticipate notifying Cal/OSHA if they plan to manually demolish or perform another type of trigger task (such as paint scraping or sanding) on any painted surface or ceramic wall surface on this project if the amount of material to be disturbed equals or is greater than 100 square feet.

Notification to Cal/OSHA is not required if the paint on the painted surface is primarily intact (not loose and peeling) and the painted material is removed in a manner that does not disturb the paint. For example, door or window frames may be removed without providing the notification if the paint or coating on the frames is intact and the building components can be removed without significantly disturbing the coating.

Unless stated otherwise in these specifications, or directed otherwise by the Project Monitor, the Contractor and/or subcontractors shall NOT submit Form 8551, "ABATEMENT OF LEAD HAZARDS," to the CDPH since that form provides inappropriate notice for the work done on this project since no lead "abatement" as defined by CDPH will be conducted as part of this project.

1.5 Lead Training Requirements

At a minimum, the Contractor and subcontractors must meet the lead training requirements as specified by 8 CCR 1532.1. This will include training all employees who drill, cut, scrape, abrade, remove, clean up debris, or in any other way are exposed to lead from painted surfaces or ceramic tile found on the buildings or structures covered by this project. The different types of training are summarized below for the typical types of work that are expected to disturb lead on this project.

1.5.1 Minimal Training Required For All Workers Exposed To Lead

This training will be sufficient for those who disturb lead in only minor ways. Those disturbing lead in more significant amounts will need to meet the training requirements stated in Part 1.5.2 or 1.5.3.

For example, this training applies to those workers who, for a total of less than one hour in an eight-hour shift, will drill or cut through painted surfaces, remove painted components (when the paint is intact), or remove ceramic tile significantly intact. *This time frame is guidance and not an official Cal/OSHA time frame. This time frame is suggested because it is thought that these tasks, done for such a short time frame, do not pose a realistic chance that workers will be exposed over the Action Level based on an eight-hour time-weighted average.* In some cases, however, depending on the surface and type of work being conducted, the Project Monitor may determine that more training is needed even if the worker disturbs lead for less than an hour. In general, workers with this training conducting this type of minimal disturbance of lead will not need to wear respirators while conducting this work.

The training must comply with the training requirements as listed 8 CCR 1532.1(l)(1)(A). In summary, this training must comply with Hazard Communication Training for lead as discussed in 8 CCR 5194. This training is also known as "hazard communication," or "lead awareness" training and is usually done in less than hour depending on the work the employee will conduct.

The Contractor and subcontractors will need to provide the Owner and/or Project Monitor written proof that this training has been provided before workers will be allowed to conduct work that disturbs lead even in minimal amounts. Entek can provide this training for the Contractor and/or subcontractors or they can obtain this training from any source the employer believes is qualified.

Proof of this training is not required if the employees are trained to the levels listed in Part 1.5.2 and/or 1.5.3.

1.5.2 Required Training For Those Exposed Over the Action Level Or Who Conduct Trigger Tasks

This training must be done for all those workers who conduct trigger tasks or are expected to be exposed above the Action Level. Typically, this training will be required for workers who conduct a trigger task such as paint scraping or manual demolition of painted components and the work will take more than one hour in an eight-hour shift. *This is a guidance and not an Cal/OSHA time frame.* The Project Monitor may determine that this training is needed for some workers who conduct tasks for even less than an hour.

The training must comply with the training requirements as listed 8 CCR 1532.1 (I)(1)(B) and (I)(2)(A-H). In summary, the standard requires the worker to be trained in series of subjects. The length of training depends on the experience and previous training of the worker, the type of work they will conduct, and whether or not they already have been trained and approved to wear respirators. Workers receiving this training and conducting this type of work will typically need to wear respirators and protective clothing while they conduct the work.

An environmental contractor, or a contractor with environmental work experience, previous training, and a written respiratory protection program generally conducts this type of work. The Owner and Project Monitor do not recommend subcontractors attempt this type of work. However, subcontractors will be allowed to conduct this type of work on this project if they can demonstrate proof of training and carry out the work according to these specifications.

The Contractor and subcontractors will need to provide the Owner and/or Project Monitor written proof that this training has been provided all workers conducting the tasks that require this training. Entek can provide this training for the Contractor and/or subcontractors or they can obtain this training from any source the employer deems is qualified.

This training is not required if the employees are trained to the levels listed in Part 1.5.3.

1.5.3 Required Training For Those Who Are Reasonably Expected To Be Exposed Over The PEL And/Or Conduct Trigger Tasks On Over 100 Square Feet of Material

Workers and supervisors must be CDPH Certified Lead-Related Construction Workers or Supervisors if they will conduct trigger tasks or other work reasonably expected to exceed the PEL and/or conduct this work on over 100 square feet of material. *This is a guidance amount and not a Cal/OSHA regulatory requirement. However this amount of material and type of work is reasonably expected to potentially release airborne exposures over the PEL and thus trigger the CDPH certification requirement.* This includes work such as the manual demolition of painted surfaces, ceramic walls, paint preparation work (sanding and scraping), and other tasks as described in 8 CCR 1532.1 (d)(2). Proof of training will be a currently valid CDPH certification card. Workers who can show a completed course completion form and a completed application form for certification will be allowed to work pending their being fully certified.

Exception: Licensed asbestos contractors performing paint scraping work on the outside of buildings only for the purpose of removing loose and peeling paint prior to the demolition of the building, or the demolition of a structure, will not be required to have the workers or on-site supervisor be CDPH certified. They must, however, show proof of training in compliance with 8 CCR 1532.1 (I)(2) for employees who may be exposed above the Action Level. In summary they must meet the training requirements of this specification as stated in Part 1.5.2. In addition, however, the Contractor must have a CDPH certified supervisor approve the containment setup at the start of each shift that will disturb lead, approve the work practices and personal protective equipment worn by the workers, verify that proper air monitoring is being collected, must be able to return to the site within two hours if requested by the Project Monitor, and must approve the final cleanup of the work area prior to a visual inspection of the work area being conducted by the Project Monitor. The certified supervisor will always be required to approve the initial set up of the containment, personal protection, and work practices at the start of the job, but then depending on the quality of the work demonstrated, the Project Monitor may not require the certified supervisor to inspect the work site at the start of each shift. This exemption will be revoked should air sampling on this project demonstrate airborne lead levels above the Action Level on workers or supervisors.

1.5.4 Required Training for Projects Involving Disturbance of Lead-Based Paint in Child Occupied pre-1978 Homes, Child Care Facilities and Pre-schools

Workers and supervisors must be trained in accordance with the US EPA RRP regulations for painting activities.

1.6 Required Submittal Documents

While additional documents may be required by the scope of work for this project, at a minimum, the Contractor will be required to provide the Owner and/or Project Monitor with the following documents regarding the Contractor's ability to safely disturb lead-containing materials.

1.6.1 Submittals Prior To The Start Of Work

All Contractors and subcontractors who will have employees disturb lead on this project must, at a minimum, provide proof of item number 1.6.1.e.1., lead hazard communication training in compliance with 8 CCR 1532.1 (l)(A)(1). This is the only submittal that must be provided by these employers as long as they do not disturb conduct more disturbance of lead than is described in Part 1.5.1.

The following submittals must be provided by all Contractors and subcontractors who will, at a minimum, have employees who will conduct trigger tasks for more than one hour per shift, will potentially be exposed above the Action Level, or will conduct other activities as determined by the Project Monitor that may result in significant exposure to lead.

- a. A written lead compliance plan in compliance with 8 CCR 1532.1 must be provided that includes the following:
 - 1. A description of equipment and materials, controls, crew size, job responsibilities, and operations and maintenance procedures for each activity in which lead is disturbed and potentially emitted;
 - 2. A description of specific control methods (wet methods, engineering controls, etc.) that will be used to ensure workers are not exposed above the PEL;
 - 3. Technology considered in meeting the Cal/OSHA permissible exposure level (PEL);
 - 4. Air monitoring data documenting sources of lead emissions;
 - 5. A detailed implementation schedule for the compliance plan, including the schedule for inspections by a competent person;
 - 6. A description of the lead work practice program which will be used to control worker exposures. This includes the use of protective work clothing, equipment, hygiene facilities and practices, and housekeeping practices;
 - 7. A description of the steps the Contractor or subcontractor will take to minimize the generation of hazardous waste produced on this project. This includes, but is not necessarily limited to how the contractor will separate waste streams. For example, how will the Contractor or subcontractor keep potentially hazardous waste such as paint chips and dust from being disposed of with other potentially non-hazardous construction materials and debris?

Note: If a Contractor or subcontractor is found conducting lead-related work not specifically mentioned and described in the compliance plan, the work will be stopped until a compliance plan including that work is submitted, reviewed, and approved by the Owner and/or Project Monitor.

- b. Copy of the Contractor or subcontractor's written respirator program in accordance with the requirements of 8 CCR 1544.
- c. Proof that all employees expected to wear respirators on this project have medical approval to wear a respirator.
- d. Copies of respiratory fit-tests for all workers expected to wear a respirator on this project. Fit testing must be done as required by and in accordance with 8 CCR 1544.
- e. Proof of training required by Part 1.5 for type of work employee will do.
 1. Proof of Hazard Communication Training for Lead done within the last calendar year for those exposed to lead or who will perform trigger tasks for less than one hour. *Proof may be a certificate or written statement stating training was completed and a list of names of those individuals who were trained. Proof of this training is not needed if employee provides proof of training required by items e. 2, or e 3.*
 2. Proof of training in compliance with 8 CCR 1532.1 (l)(2) done within the last calendar year for all employees who will conduct trigger tasks as defined in 8 CCR 1532.1 (d)(2) for more than one hour or who will reasonably be expected to be exposed to lead above the Action Level. *Proof may be a certificate or written statement stating training was completed and a list of names of those individuals who were trained.*
 3. Proof of CDPH lead certification for those workers who will conduct trigger tasks as defined in 8 CCR 1532.1 (d)(2) or will reasonably be expected to be exposed to airborne levels of lead above the PEL on projects that will disturb more than 100 square feet of lead-containing material. *Proof of certification will be a currently valid CDPH certification card as a worker or supervisor. Workers who can show proof of a valid course completion form and application being submitted to CDPH, will be allowed to work while awaiting full certification from CDPH.*
 4. Proof of current CDPH certification as a lead supervisor for the on-site competent person for projects involving the conduction of trigger tasks or other activities reasonably expected to exceed the PEL on all projects that will disturb more than 100 square feet of lead-containing material. *Proof of valid certification will be a currently valid CDPH certification card a worker.*
 5. If exception to requirement for CDPH certified supervisor listed in Part 1.5.3 is requested, then provide proof of CDPH certified supervisor who will verify containment, personal protection and work practices, and will be able to respond to the project within two hours of request by the Project Monitor.
 6. Proof of training meeting the requirements of the US EPA RRP regulations if applicable.
- f. Copies of all current SDS for chemicals used on this project.

OAK RIDGE ELEMENTARY SCHOOL

EXHIBIT B

- g. Manufacturers' certifications that high efficiency particulate air (HEPA) vacuums, pressure differential units and other local exhaust ventilation equipment conform to ANSI Z9.2-79 for all HEPA-filtered equipment that will be used on this project. *This is proof that the equipment is actually HEPA filtered. This is separate from the challenge testing requirement needed for equipment used in interior spaces.*
- h. Name and contact information of independent testing company who will challenge test all vacuums and air filtration devices used on this project.
- i. Statement regarding compliance with all Cal/OSHA exposure monitoring required for this project.
- j. Name and contact information for laboratory who will analyze air samples or waste samples and documentation of their certification to conduct such analysis.
- k. Name of Waste Transporter who will transport hazardous waste on this project and documentation that the Transporter is allowed to transport lead hazardous waste.
- l. Name of Waste Landfill to which lead hazardous waste will be sent and documentation that such landfill is allowed to accept such waste.
- m. Should waste water filtration be required on this project, submit manufactures documentation pertaining to the capability of waste water filters to filter particles of, at a minimum, five micrometers in size.
- n. List of all rented equipment to be used within a lead regulated area, or a statement that no rental equipment will be used on this project.
 - 1. If rental equipment is to be used, submit written statements from each rental company indicating the rental company's acknowledgment that the equipment is provided for and may be used in areas where airborne levels of asbestos and/or lead may be present.
- o. Submit emergency plans. At a minimum submit the following:
 - 1. Submit non-emergency telephone numbers, other than 911, for the appropriate Police, Sheriff, and Fire Departments.
 - 2. Name, pager or cell phone numbers of the on-site supervisor and his immediate company supervisor.
 - 3. Submit detailed written directions from the project site to the medical facility to be used in case of an emergency. Include a map which sufficiently shows the route to be taken from the site to the designated medical facility.
 - 4. Submit written emergency procedures pertinent to the work to be performed and which can be implemented by site personnel if the need arises.
- p. Local sanitation district Wastewater Discharge Permit for Surface Washers (if required).

- q. Cal OSHA Notification. This is required for this work on all projects that will disturb more than 100 square or 100 linear feet of lead in materials containing greater than 0.5%, 5,000 parts per million (weight by weight), or 1.0 mg/cm².

The above listed documents must be provided prior to the start of work that will disturb lead. Under no circumstances will workers or supervisors be allowed to work on this project prior to the receipt, review, and acceptance of this documentation by the Owner and/or Project Monitor. In addition, documentation for rental equipment must be provided before the equipment may be used in a lead regulated area. All delays resulting from the failure of the Contractor and/or subcontractors to provide this information in the required time frame is solely the responsibility of the Contractor and/or subcontractor.

The Contractor must use the Pre-Work Submittal Checklist provided at the end of these specifications to provide the Owner and/or Project Monitor these submittals. Failure to use the form will likely lead to the rejection of the submittal package and a delay in the project that will be the sole responsibility of the Contractor and/or subcontractor.

The Contractor is responsible for maintaining current documents and resubmitting copies to the Owner and/or Project Monitor for any worker whose documents expire during the project. Any worker observed on a job site who either is not approved to conduct work by the Owner and/or Project Monitor or has been approved but documentation pertaining to training, medical evaluation, or respiratory fit testing has expired, will be instructed to stop work until these documents are received by the Owner and/or Project Monitor and the worker is approved to perform work that disturbs lead.

1.6.2 Submittals Provided During The Work Or Following Completion Of The Work If Applicable

Depending on the document, these documents must be provided the Owner and/or Project Monitor on an ongoing basis during the work, or if appropriate following completion of the physical activities associated with the project. The documents must be received and approved by the Owner and/or Project Monitor before the work is considered complete. Failure to provide these documents means the work is not complete, even though the physical activities may be completed.

- a. Daily sign-in sheet for each worker entering a lead regulated area.
- b. The Contractor must provide the results of exposure sampling done to comply with the requirements of 8 CCR 1532.1 (d) and the requirements of this specification.
- c. The Contractor must provide blood sampling and analysis results of lead (BLL) and zinc protoporphyrin (ZPP) levels for all workers who are represented by air monitoring results that exceed the Action Level. Typically, the Project Monitor will require blood lead sampling for all workers on a work shift if one or more air sampling results for that shift is above the Action Level.

The written results of the blood sampling analysis must be provided the Owner and/or Project Monitor within 21 days of the exposure over the Action Level or within 12 days of the completion of the project, whichever comes first.

- d. Copies of job progress reports and project documentation. This must include the names of all employees onsite, the hours worked and a brief description of the work completed at the site(s).
- e. The Contractor must provide all waste disposal documentation.

1.7 Third-party Oversight

The Owner is utilizing the services of Entek Consulting Group, Inc. (Entek) as an independent third-party consultant to provide oversight of all work that disturbs lead on this project. The Contractor shall treat this third-party consultant as a designated representative of the Owner. The third-party consultant for this project is known as the Project Monitor. The Project Monitor is expected to perform some or all of the following activities on this project, but may also conduct other activities as needed:

- a. Visually monitor the work practices of the Contractor's employees to determine that the work is being done in compliance with these specifications. The Project Monitor may conduct this activity on a continual basis or may make unannounced random visits to the project site to check on the Contractor's performance.
- b. Visually inspect for the presence of visible emissions suspected to contain lead.
- c. Conduct personal and area air monitoring in accordance with accepted methods.
- d. Collect bulk samples of relevant materials to determine the presence or absence of lead.
- e. Visually inspect the work area for cleanliness after completion of the work.

1.8 Air Sampling By The Owner and/or Project Monitor

The Owner and/or Project Monitor may determine it appropriate to collect air samples to evaluate the effectiveness of the Contractor's engineering controls and work practices. The Contractor and/or subcontractors shall allow the Project Monitor to attach and collect personal air samples on the workers and shall instruct the workers to comply with the directions for that sampling as given by the Project Monitor.

Air sampling may also be used to verify the effectiveness of the Contractor's containment system. The Project Monitor may choose to collect area air samples within the work area. These samples results may be used to generate an eight-hour, time-weighted average. The result of area samples in a lead work area should normally be far below what the workers are breathing. Therefore should the Project Monitor collect area air samples within the work area that result in exposures above half the Action Level ($15 \mu\text{g}/\text{m}^3$), the Project Monitor will require the Contractor and/or subcontractors to re-evaluate their work practices, engineering controls, and containment system.

The Project Monitor may also choose to collect area samples downwind, outside of the regulated work area. These sample results will be compared to background air samples upwind or samples collected prior to the beginning of work. Sample results indicating airborne lead emissions at or above $5 \mu\text{g}/\text{m}^3$ above background levels will be interpreted to mean that the Contractor and/or subcontractors containment or engineering controls are inadequate. This may result in the temporary stoppage of work until the Project Monitor is assured that airborne lead levels will significantly diminish by the change in work practices or engineering controls.

1.9 Notification of Employers of Employees in Adjacent Areas

The Contractor and subcontractors who will disturb lead are responsible for ensuring that employers of employees in areas adjacent to the work being conducted have been notified that work disturbing lead will take place.

Typically this notification is in addition to the posting of lead regulated area signs. In summary, this notice shall be provided to all other contractors and subcontractors in areas adjacent to the work. Those employers must be notified in advance of any upcoming work that will disturb or impact lead in a manner that may generate airborne levels of lead that could present a potential exposure to workers at or above the Permissible Exposure Limit (PEL) as defined in 8 CCR 1532.1. This notice shall also provide information on the control measures being implemented and a warning that the employer's employees are to remain outside of the posted regulated areas. The Contractor and/or subcontractors anticipating the need for such notification shall coordinate this notification with the Owner and/or Primary Contractor.

1.10 Suspension Of Work

The Owner and/or Project Monitor may suspend all work that disturbs lead if any controls (such as barriers) fail, if debris known or suspected to contain lead is detected outside the containment, or if work is on the exterior of a structure and wind speeds are more than fifteen miles per hour, or if in the judgement of the Project Monitor, other factors exist that determine the work must be stopped because of the potential for the creation of lead hazards. For example, the Project monitor may conduct perimeter monitoring and discover that lead is being released in concentrations at $5 \mu\text{g}/\text{m}^3$ above background levels or work area air monitoring that is above half the Action Level. In either case, the Owner and/or Project Monitor may suspend work until more effective containment, work practices, and engineering controls are utilized.

1.11 Pre-Start Meeting

The Project Monitor typically recommends that there be a pre-start meeting with the Contractor or subcontractor's representative and the Project Monitor approximately five days prior to the expected start of work. The Contractor will be expected to provide the majority of pre-work submittals described in Part 1.6.1 at that meeting. This meeting is designed to answer questions about the project and address issues of concern of either the Contractor, subcontractor, or Project Monitor. Should this meeting be determined not to be necessary, the submittals must be delivered to the Owner and/or Project Monitor no later than five working days in advance of the work.

1.12 Testing For Lead In Paints, Coatings, Ceramic Tile, And Other Materials

The Owner believes lead is common in the paint in the buildings on this project based on age or limited testing. Therefore the Owner does not anticipate paying for additional testing of paint. However, in some cases, it may be in the interest of the contractor and/or subcontractors to determine the exact concentration of lead in the paint or coating since that will affect Cal/OSHA and CDPH compliance issues. For example, many interior surfaces will contain paint which contains less than 600 parts per million lead. Should the paint be tested and that discovered, much of the Cal/OSHA lead standard and all of the CDPH Title 17 standard won't apply.

For example, should the paint contain less than 600 parts per million lead, the contractor and/or subcontractors could drill into or conduct other non-trigger tasks on this material without extensive training. Also, the demolition of these surfaces would not trigger prior notification to Cal/OSHA.

Should the contractor and/or subcontractor wish the paint or ceramic tile to be tested, they will need to request this of the Project Monitor. This testing must be done by the Owner's representative. The Project Monitor will

be able to assist the contractor and/or subcontractor in determining if testing the material is likely to be worthwhile for the contractor and/or subcontractor.

PART 2.0 MATERIALS AND EQUIPMENT

2.1 Fire Resistant Plastic Sheeting (Poly)

All plastic sheeting used on this project must be fire resistant whether used inside or outside of buildings.

2.2 Challenge Testing Of HEPA Filtration Systems

All HEPA-equipped vacuums and air filtration units to be used on this project in interior spaces during operations that may disturb lead must be challenge tested and meet ANSI requirements using DOP or an equivalent testing agent. Except for HEPA air filtration units used to create negative pressure differentials for the demolition of ceramic tile, this testing must take place within ten calendar days prior to their use and after replacement of any HEPA filter removed from previously tested equipment. Air filtration units used in conjunction with the demolition of ceramic walls must be challenge tested on site. They do not need to be retested as long as they remain on site. They will need to be retested if they are moved off site. Copies of all testing certifications must be provided to the Owner and Project Monitor prior to use of the equipment.

Exception: Subcontractors using HEPA vacuums for incidental cleanup of lead dust resulting from the minimal disturbance of lead as discussed in Part 1.5.1 are exempt from the challenge testing requirement unless, in the judgement of the Project Monitor, there is a reasonable expectation that the subcontractor's HEPA vacuums are leaking.

2.3 Vacuum-Assisted Tools

When using power tools to disturb lead, the Contractor shall only use tools that have a HEPA-filtered-vacuum recovery system.

2.4 Power Washing

No high pressure or water blasting tools may be used if the spray will contact lead-containing paint.

For the purposes of this specification, power washing is defined as: The use of a low pressure "power washer" to rinse and/or wash stable, painted or coated surfaces to remove dust, dirt, grime, and other foreign matter in preparation for re-painting." Under no circumstance may power washing be used to remove lead-containing paints or coatings from surfaces. Before using power washing, all areas of loose, peeling, cracking, or unstable coatings must first be prepared for re-painting using the appropriate methods and personnel protective equipment as specified by Cal/OSHA and CDPH regulations, and these specifications. Typically this means all loose and peeling paint must be removed by hand scraping and sanding or the use of mechanical tools equipped with HEPA filtration.

Should a Contractor or subcontractor use power washing in a manner that releases paint from the surface, and that paint also not be contained, the Contractor or subcontractor will be responsible for all costs associated with the Owner hiring and environmental contractor to clean up the area. The area to be cleaned will be determined by the Project Monitor and will extend past the point of visually apparent debris.

Prior to performing power wash operations the Contractor must determine if the local sanitation district requires a Wastewater Discharge Permit for Surface Washers. Should this permit be required, the Contractor is responsible for obtaining it, accurately completing it and adhering to the permit requirements.

2.5 Personal Protective Equipment

The Contractor shall use NIOSH approved respirators and personal protective equipment as required by 8 CCR 1532.1 and as appropriate based on personal air monitoring results.

Respirator fit test records and the respiratory protection program shall be retained on site as part of the project documentation if respiratory protection is used on this project. Disposable dust/mist respirators shall not be used.

At a minimum, half-face respirators with P-100 (HEPA) cartridges will be required during surface preparation where there is manual scraping or sanding that will take more than one hour to complete. Dry scraping or sanding, mechanical scraping, abrading, sanding, or similar actions will trigger the need for respirators regardless of the duration of the activity.

Regardless of the duration of the work, all workers scraping lead-containing paint or removing or demolishing ceramic tile must wear disposable protective clothing over their wear home clothes. Workers demolishing surfaces that contain ceramic tile must wear full body protective clothing including hoods and gloves.

At a minimum, the Contractor and subcontractors must ensure that no lead dust or debris is tracked out of the contained, regulated area. The Contractor and subcontractors must ensure that all those allowed into the regulated area wear adequate foot coverings that ensure that they will not track contaminated material out of the area when they leave.

2.6 Rental Equipment

Any equipment rented for the purpose of disturbing lead or used within a lead regulated area must be accompanied with documentation verifying that the rental agency has been notified, and acknowledges receipt of notification that the equipment being rented will be used for work inside a lead regulated area. This documentation must be submitted to the Project Monitor prior to the equipment being used on the job site.

PART 3.0 EXECUTION**3.1 Summary**

Contractors and subcontractors conducting lead related construction work will be evaluated on a performance standard which includes, but is not limited to, cleanliness of work area, work practices as verified by exposure monitoring, containment set up, and ultimately, the clean up of paint chips, dust, and debris.

Any work practice that creates paint chips, dust, glazed ceramic or painted debris must be conducted within a regulated area as defined in 8 CCR 1532.1 and within a containment at least as stringent as required by Title 17 and/or described in these specifications.

The containment system shall be designed and constructed to prevent visible dust or debris from escaping the work area as well as the escape of airborne lead emissions at or above $10 \mu\text{g}/\text{m}^3$ above background levels. Should dust or debris generated by the work be found outside the containment, or the airborne lead outside the containment exceed background levels, the Project Monitor will determine that the containment is inadequate, in violation of Title 17 requirements, and work will be stopped until the Contractor and/or subcontractors redesign the containment to be more effective.

3.2 Compliance With Requirements For The PEL and Action Level

Contractors and subcontractors strictly adhering to the requirements listed in these specifications who conduct minimal disturbance of lead such as by the conduction of trigger task work amounting to less than one hour, may begin work assuming the Cal/OSHA Permissible Exposure Limit (PEL) will not be exceeded.

Contractors and subcontractors not strictly conforming to suggested work practices must start work assuming the PEL will be exceeded. This means they must comply with all OSHA requirements specified for work that results in exposures over the PEL. This will include, but is not limited to, complying with requirements for training, personal protection, regulated area development, blood testing, personal air monitoring, the development of a written compliance plan, and the notification of employers in adjacent areas.

Contractors and subcontractors must assume the PEL will be exceeded each time they conduct trigger activities that will exceed one hour in duration. This will trigger the need to wear respirators and protective clothing, meet the training requirements specified earlier in these specifications, conduct personal air sampling, develop a written compliance plan and all other actions described as necessary by 8 CCR 1532.1 and these specifications.

3.2.1 Personal Air Sampling

The Contractor and subcontractors are responsible for conducting personal air monitoring during disturbance of lead in compliance with the requirements of 8 CCR 1532.1. At a minimum, Contractors and subcontractors shall conduct representative exposure monitoring on workers on a daily basis whenever those workers will conduct trigger task activities that will take longer than one hour to complete in an eight-hour shift. In addition, air sampling must be done for any work for which the Project Monitor believes has a reasonable potential for generating airborne lead at or above the Action Level. The Project Monitor will not allow work to proceed if the Contractor is not prepared to conduct the necessary air monitoring.

Sample information must include (but is not restricted to) the name of the individuals wearing the samples, the individuals' Social Security Number or Company ID number, the date the samples were collected, identification by unique method of the area where the work is being performed, and identification of the work being performed. EXAMPLE: James Black, 000-11-222, 06/25/03, Bill Jackson Elementary Owner, Building H, Classroom 5, East covered walkway, paint surface preparation work.

Laboratory results shall be provided to the Owner and/or Project Monitor within 72 hours of sample collection. Electronic copies must be received within 14 days of the Contractor receiving the results from the laboratory. Contractor and/or subcontractor must submit proof that laboratory has the required licenses to analyze air samples for lead.

Should they wish to make use of the exceptions to air sampling stated in 8 CCR 1532.1 (d)(3)© & (D), the Contractor and/or subcontractors must submit the required information to the Owner and/or Project Monitor and receive written approval from the Owner and/or Project Monitor prior to reducing the personal protection, containment, or engineering controls stated in this specification. In general, air sampling results that are intended for use to reduce personal protection requirements must be collected on this project. Air sampling results from other projects will not be allowed to create a negative exposure assessment for use on this project.

3.3 Work Involving Whole Component Removal Or Demolition Of Entire Structure

Intact lead-containing paint on construction debris is generally not considered a hazardous waste in California. However, loose and peeling paint on structures may result in all construction debris from that site being considered a hazardous waste.

Therefore prior to the demolition or removal of painted material and the disposal of that material, all loose, peeling or flaking paint must be removed. This includes objects such as fences, built-in furniture or cabinets, other similar structures, as well as entire structures being demolished.

Any paint debris generated during this work must be separated into appropriate waste streams and handled as a hazardous waste, or as deemed appropriate as discussed in Part 3.11 Lead Waste Management.

3.4 Prohibited Work Practices

The following work activities are prohibited on the project:

- a. Open-flame burning or torching.
- b. Machine sanding or grinding of lead materials or surfaces coated with lead unless the machine is equipped with a HEPA-filtered-vacuum recovery system.
- c. Un-contained hydro-blasting or high-pressure washing.
- d. The use of power washing to remove loose and peeling paint.
- e. Abrasive blasting or sandblasting without a HEPA-filtered-vacuum recovery system or done outside of a negative pressure enclosure.
- f. Heat guns operating above 1,100 °F.
- g. Dry scraping, except for limited areas where electrical hazards create a higher risk than lead or unless specifically approved by the Project Monitor.
- h. Use of methylene chloride based paint strippers.

3.5 Competent Person

The Contractor and/or subcontractors disturbing lead shall have a competent person (as defined by Cal/OSHA for construction activities) onsite at all times to supervise and oversee all activities which may disturb materials containing lead.

The above requirement is not required for environmental contractors conducting work limited to the removal of loose and peeling paint on structures scheduled for demolition. In those situations, the on-site supervisor must meet the lead training requirements as stated in Part 1.5.2 Required Training For Those Exposed Over the Action Level Or Who Conduct Trigger Tasks. In addition, the Contractor must have a CDPH certified supervisor approve the containment setup at the start of each shift that will disturb lead, approve the work practices and personal protective equipment worn by the workers, verify that proper air monitoring is being collected, be able to return to the site within two hours if requested by the Project Monitor, and approve the final cleanup of the work area prior to a visual inspection of the work area being conducted by the Project Monitor. *The certified supervisor will always be required to approve the initial set up of the containment, personal protection, and work practices at the start of the job, but then depending on the quality of the work*

demonstrated, the Project Monitor may not require the certified supervisor to inspect the work site at the start of each shift. This exemption will be revoked should air sampling on this project demonstrate airborne lead exposures to workers or supervisors are above the Action Level.

3.6 Work Site Preparation & Containment Requirements

The Contractor and/or subcontractor is required to contain the disturbance of lead in a manner that prevents lead-contaminated dust, debris, water, or air from leaving the regulated work area in an uncontrolled fashion. The containment must be developed in compliance with the requirements of Title 17 and these specifications. The presence of lead dust, debris, or air above background levels will indicate that the containment is inadequate. Work will be stopped and the Contractor and/or subcontractor must adjust work practices, engineering controls, or the containment in a manner that convinces the Project Monitor that the material will no longer be able to escape the regulated work area.

3.6.1 Exterior Work Site Preparation & Containment

The Contractor and subcontractors are responsible for ensuring that building occupants and those in adjacent areas are not exposed to lead dust or debris as they enter or exit buildings. The Contractor and subcontractors shall ensure that building occupants and others in the adjacent area do not enter the lead regulated area and have a safe means of access and egress to the building. Close all doors and windows within 20 feet of the renovation. On multi-story buildings, close all doors and windows within 20 feet of the renovation on the same floor as the renovation, and close all doors and windows on all floors below that are the same horizontal distance from the renovation.

Ensure that doors within the work area that will be used while the job is being performed are covered with plastic sheeting or other impermeable material in a manner that allows workers to pass through while confining dust and debris to the work area.

Cover the ground with plastic sheeting or other disposable impermeable material extending 10 feet beyond the perimeter of surfaces undergoing renovation or a sufficient distance to collect falling paint debris, whichever is greater, unless the property line prevents 10 feet of such ground covering. Ground containment measures may stop at the edge of the vertical barrier when using a vertical containment system.

The poly must be secured to the side of the building or structure with tape, or other anchoring system, so that there is no gap between the poly and the building or structure. The poly installed to cover ground or landscaping shall be installed in a manner to ensure that it will not blow away or billow from the wind. The use of weights such as wood is acceptable as long as the poly does not billow or blow in a manner that releases lead dust or debris off of it.

If the renovation will affect surfaces within 10 feet of the property line, the renovation firm must erect vertical containment or equivalent extra precautions in containing the work area to ensure that dust and debris from the renovation does not contaminate adjacent buildings or migrate to adjacent properties. Vertical containment or equivalent extra precautions in containing the work area may also be necessary in other situations in order to prevent contamination of other buildings, other areas of the property, or adjacent buildings or properties.

The exterior of all windows located within ten feet of any disturbance of lead must be sealed by covering them with at least one layer of six-mil thick poly sheeting. All ventilation machinery within 20 feet of the disturbance should be sealed by at least one layer of six-mil thick poly sheeting. Keep all windows within 20 feet of working surfaces closed, including windows of adjacent structures.

Should the disturbance of paint involve removing paint from the exterior of a window, then the Contractor or subcontractor must seal the inside of the window with two layers of six-mil thick poly. The Project Monitor will typically waive the requirement to seal the inside of the window with two layers of poly if the disturbance of lead involves less than 5% of the painted surface area of an exterior window.

Those in adjacent areas must be kept a sufficient distance from any chance of encountering lead dust and debris. Therefore the Contractor shall erect barrier tape at a distance sufficient enough from the poly barriers to ensure that those passing by the area are not directly adjacent to the poly containment barriers. In general, the barrier tape should be at least five feet from the edge of the poly placed on ground surfaces if those surfaces are accessible to unauthorized persons. The area off the poly sheeting, but inside of the barrier tape, is still part of the regulated area however and is not allowed to have any lead dust or debris present at any time.

The Contractor and/or subcontractor must post the regulated area sign as described in 8 CCR 1532.1 (m) (WARNING, LEAD WORK AREA, POISON, NO SMOKING OR EATING.) The posting may be done by wording on the barrier tape or by suspending OSHA-approved signs with the wording on the tape barriers or on readily apparent surfaces visible to persons outside the area.

All those entering the regulated area must sign in on a roster that documents their presence in the area. This roster must be provided the Owner and/or Project Monitor on a daily or weekly basis as determined by the Project Monitor.

Work disturbing lead shall not be conducted on exterior surfaces if wind speeds are greater than 15 miles per hour or, in the judgement of the Project Monitor, pose a risk of blowing lead dust or debris out of the regulated area.

In addition, for work done on ladders or man lifts, the Project Monitor is likely to require the workers to scrape loose and peeling paint directly into a container, rather than let the loose debris float down and possibly off the containment barrier. Typically the Project Monitor will allow the workers to scrape loose and peeling paint into a cardboard box held in one hand while scraping with the other hand.

Work must stop and cleanup occur before rain begins.

The Contractor shall not leave debris or poly sheeting out overnight if work is not completed. The Contractor shall keep all debris in a secured area until final disposal.

3.6.2 Interior Site Preparation & Containment

For interior work site preparation, one layer of six-mil poly sheeting must be placed on the entire floor. However, the entire floor area need not be covered by poly for large interior areas where the disturbance of lead is limited to the perimeter of the area. If the entire floor area is not covered with poly, the poly must extend out a minimum of ten feet from those areas where lead will be disturbed. The poly sheeting must be secured to the wall using tape so there is no gap between the floor and the wall. The poly must also be secured to the floor.

If individual rooms are being worked in, seal all doorways with a primitive airlock flap to prevent contamination of other areas of the building. Post the regulated area signs, as required by 8 CCR 1532.1 (m), at the entrance to the regulated area and all other entry points to the area.

All those entering the regulated area must sign in on a roster that documents their presence in the area. This roster must be provided the Owner and/or Project Monitor on a daily or weekly basis as determined by the Project Monitor.

If feasible, turn off all HVAC systems in the regulated work area. In addition, seal all ventilation systems in the regulated work area with a minimum of one layer of six-mil poly. Any exceptions to this requirement must be approved by the Project Monitor. Typically, the Project Monitor will require all ventilation system ducts and/or registers to be sealed with poly if they are within 20 feet of the disturbance of lead even if they are turned off. Seal all furniture or other equipment that must remain in place with a layer of four or six-mil poly. A minimum of six-mil poly is required for all work disturbing ceramic tile.

Small amounts of ceramic tile, such as covering less than two square feet, may be removed using this type of interior containment if the tiles are removed using hand tools and remain substantially intact during the removal process. Additional requirements for interior site preparation are required when surfaces covered by lead-containing ceramic tile are demolished. Those requirements are discussed in Part 3.6.3.

3.6.3 Additional Containment Requirements For Demolition Of Ceramic Tile And/OR Mechanical Disturbance Or Blasting Of Lead-Containing Materials Without A HEPA-Filtered-Vacuum Recovery System

This part primarily addresses work that will involve the demolition of building surfaces covered by lead-containing ceramic tile. These requirements shall also apply shall the Contractor and/or subcontractors disturb lead-containing material, in an interior space, using mechanical or blasting methods without a HEPA-filtered recovery system approved by the Project Monitor.

In addition to the requirements stated in Part 3.6.2, the demolition of ceramic tile that involves the breakage or cutting of the tile must be done inside a negative air pressure containment system. The negative air pressure must be generated using an air filtration unit that has been challenge tested on site as described in Part 2.2 Challenge Testing Of HEPA Filtration Systems.

Seal all critical barriers between the work area and the adjacent areas with a minimum of six-mil thick poly. Critical barriers are any openings in the surface areas of the regulated work area through which air, dust, or water might pass. This includes, but is not necessarily limited to all windows, doors, HVAC vents and units.

All objects or equipment that cannot be removed from the area must be covered and tape sealed with a minimum of six-mil thick poly. Any exceptions to this requirement must be specifically approved by the Project Monitor.

Typical decontamination requirements for paint scraping and most manual demolition are discussed in Part 3.6.4 Decontamination Procedures. However, the decontamination procedures surrounding the demolition of ceramic tile are much more stringent and are described below.

All regulated work areas where ceramic tile will be broken, or other tasks that will, in the opinion of the Project Monitor, generate significant amounts of lead dust, must include a personal decontamination area and the supervisor must ensure that, at a minimum, the following procedures are followed.

- a. Work That Disturbs Less Than 100 Square Feet Of Lead-Containing Material

Work involving the demolition of less than 100 square feet of lead-containing material, including ceramic tile, is not expected to result in airborne exposures over the PEL. Therefore the personal decontamination system may, at a minimum, be a one stage decontamination system that separates the work area from the adjacent areas.

1. This must, at a minimum, include an airlock chamber between the work area and the adjacent areas. Each side of the air lock must be covered by poly curtains. At no time, including during the removal of waste containers, may the poly doors be open on both sides of this chamber at the same time. This chamber must be a minimum of three feet by three feet by six feet tall. There must be a clean poly drop cloth measuring at least five feet by five feet immediately outside this air lock onto which workers will step after exiting the air lock. This poly drop cloth must be kept visually clean of dust and debris at all times. This poly drop cloth shall be removed at the end of the work shift and replaced with a new clean poly drop cloth at the start of the next shift.
 2. The workers must be able to remove their protective clothing and wash off their respirator before leaving the work area. The supervisor must ensure that they do not track lead containing materials out of the work area on their feet. Footwear worn out of the work area must have been covered by protective booties if worn in the work area. Following removal of the protective covering over the footwear, all footwear worn in the work area must be HEPA vacuumed before allowing it to be worn out of the regulated area. Footwear that can be washed before leaving the work area does not need to be covered by protective booties as long as the exterior of the footwear is thoroughly washed prior to being worn outside of the regulated area.
 3. After they leave the decontamination chamber, workers must go directly to a nearby location where they must thoroughly wash their hands and face. Cal/OSHA specifically states that the supervisor must ensure this washing takes place.
 4. Special attention must be given that workers do not track lead dust out of the work area on the soles of their feet or shoes.
 5. Following the exit of workers from the work area, whether leaving for breaks or at the end of the day, the supervisor must visually inspect the area outside the decontamination system to verify that no dust or debris is being tracked out.
 6. The Contractor shall not permit the storage or consumption of food and/or beverages inside the containment or within any of the decontamination chambers. Food or drink consumption within containment may result in the worker(s) dismissal from the site for the duration of the project.
 7. Work will be stopped if the Project Monitor determines that the decontamination system is not kept in acceptable condition or used properly.
- b. Work That Disturbs More Than 100 Square Feet Of Lead-Containing Material

For all work that disturbs more than 100 square feet of wall ceramic tile, the decontamination system must be a full, three-stage decontamination chamber with a shower as described below.

1. The three-stage decontamination unit with shower must be contiguous with the containment unless determined infeasible by the Project Monitor.
2. The worker decontamination enclosure system shall consist of at least a clean room, a shower room, and an equipment room, separated from the work area by airlock chambers. The airlock chambers shall be at least three feet square in size. All fabricated units shall have, at a minimum, two layers of six-mil poly sheeting.
3. Entry and exit from all airlock chambers and the decontamination enclosure system chambers shall be through doorways designed to restrict air movement between chambers when not in use. The dirty side shall have an extra layer of six-mil poly sheeting on the floor as an extra drop cloth and it shall be replaced at least daily.
4. The clean room shall be sized and equipped to adequately accommodate the work crew. Lighting, heat and electricity shall be provided as necessary for comfort. This area must remain clean. If in the judgement of the Project Monitor, equipment storage or other activities taking place in this area affect the cleanliness of the area, the Contractor may be required to move that storage and those activities away from the designated clean area.
5. The shower room shall contain one or more showers as necessary to adequately accommodate workers and shall meet OSHA requirements for temporary shower facilities. The shower enclosure shall be constructed to ensure against leakage of any kind. In addition, the shower shall be a separate unit from the decontamination unit walls. The shower unit cannot be made from poly. Metal or hard plastic is acceptable. An adequate supply of soap, shampoo and towels shall be supplied by the Contractor and available at all times.
6. Shower water shall be drained, collected and filtered through a system with at least a five micrometer particle size collection capability. Filtered waste water shall be disposed of into a sanitary sewage system. Under no circumstances may it be released where it might enter a storm drain.
7. The shower chamber shall be, at a minimum, three feet by three feet wide by a minimum of six feet in height. The shower chamber shall be constructed so that no water from the shower can spray out of the chamber, nor any water run down the sides of the poly and escape the chamber system. The Contractor must have a back-up containment system to control leaks from the shower, connections and hoses. This can be either a secondary metal pan under the shower or a series of poly barriers, separate from the construction of the chamber, that are solely for the purpose of collecting water that might leak out of the shower system.
8. Each decontamination chamber shall have, at least, a four inch lip of poly from the floor up the wall to prevent possible transfer of water and debris between chambers. Excess poly at the corners of this floor is to be fitted to the sides of the chamber by folding poly and taping, as opposed to cutting away excess poly and taping seams. For some projects, particularly those where the decontamination chambers are located on surfaces needing special protection from water, the Project Monitor may determine additional precautions are necessary such as requiring the shower chamber to have an overflow pan, in which the shower unit sits, that is capable of holding two inches of water. The filter system and any hose connections transferring contaminated water shall be located in a secondary containment, such as a metal

pan. Any leakage shall be double-bagged or re-filtered. Should this requirement for an additional metal pan under the shower be required, it will be identified elsewhere in these specifications and discussed at the bid walk.

9. Unless otherwise specified in these specifications, the minimum size of the decontamination chambers shall be the following:

Clean Change Room	five feet x six feet x six feet high
Shower	three feet x three feet x six feet high
Dirty Change Room	five feet x six feet x six feet high
Air Lock Chambers	three feet x three feet x six feet high
10. The Dirty Change Room may be part of the work area as long as a separate drop cloth is placed down before the entrance to the first airlock chamber and this drop cloth dust not contain significant quantities of debris from the work area.
11. There must be a clean poly drop cloth measuring at least five feet by five feet immediately outside the clean side airlock onto which workers will step after exiting the airlock. This poly drop cloth must be kept visually clean of dust and debris at all times. This poly drop cloth shall be removed at the end of the work shift and replaced with a new clean poly drop cloth at the start of the next shift.
12. Special attention must be given that workers do not track lead dust out of the work area on the soles of their feet or shoes. Footwear worn out of the work area must have been covered by protective booties if worn in the work area. Following removal of the protective covering over the footwear, all footwear worn in the work area must be HEPA vacuumed before allowing it to be worn out of the regulated area. Footwear that can be washed before leaving the work area does not need to be covered by protective booties as long as the exterior of the footwear is thoroughly washed prior to being worn outside of the regulated area.
13. Following the exit of workers from the work area, whether leaving for breaks or at the end of the day, the supervisor must visually inspect the area outside the decontamination system to verify that no dust or debris is being tracked out.
14. The Contractor shall not permit the storage or consumption of food and/or beverages inside the containment or within any of the decontamination chambers. Food or drink consumption within containment may result in the worker(s) dismissal from the site for the duration of the project.
15. Work will be stopped if the Project Monitor determines that the decontamination system is not kept in acceptable condition or used properly.

3.6.4 Decontamination Procedures

Decontamination procedures shall be established by the Contractor and subcontractor depending upon the airborne concentrations of lead as well as the amount of dust and debris created by the work. At a minimum, the decontamination procedures shall be in compliance with 8 CCR 1532.1 (I)(1-5). As stated in 8 1532.1 (I)(1-5), the Contractor shall assure that these decontamination facilities are used by the supervisor and workers.

For work that does not exceed the PEL, and/or does not include the disturbance of more than 100 square feet of material, the Contractor and/or subcontractor must assure that a hand-washing station is available and used by the supervisor and workers. For work that exceeds the PEL, or involves the breakage of ceramic tile in amounts over 100 square feet, the Contractor must ensure that workers shower, at a minimum at the end of the work shift as required by 8 CCR 1532.1.

3.6.5 Avoiding Contamination Of Adjacent Areas By Proper Decontamination

Should the Owner and/or Project Monitor discover that an occupant of the regulated area left the regulated area without properly decontaminating, the Contractor will be required to clean the adjacent areas that in the opinion of Project Monitor may have been exposed to lead dust or debris from this action. Failure to properly decontaminate is demonstrated by wearing protective clothing outside the regulated area that was previously worn in the area or by wearing footwear outside the regulated area that was not properly covered and/or decontaminated. The failure to adequately decontaminate will trigger the following cleaning. In all areas determined necessary by Project Monitor, the Contractor will be required to HEPA vacuum, then wet wash, then HEPA vacuum again all potentially contaminated areas and items to the satisfaction of the Project Monitor. The Project Monitor will not need to demonstrate the need for this cleaning by the presence of visible dust and will not need to collect settled dust samples in order to require the Contractor to implement the cleaning routine.

3.6.6 Approval Prior To Start Of Work

The Project Monitor shall visually inspect any regulated area for compliance with this specification before the contractor and/or subcontractor may begin work that may disturb lead. The contractor and/or subcontractors may not begin work disturbing lead without approval from the Project Monitor. The contractor and/or subcontractor must contact the Project Monitor sufficiently in advance of needing the visual inspection and coordinate with the Project Monitor in order to minimize any delays resulting from the need for this visual inspection.

Typically, once the Project Monitor has reviewed the contractor and/or subcontractors regulated work area set up, the work site supervisor will be told that they may start work at future regulated work areas without prior authorization from the Project Monitor as long as they assure the Project Monitor that the containment and work practices will be implemented as approved by the Project Monitor.

3.7 Wet Work Practices

Unless determined infeasible by the Project Monitor, all disturbance of lead-containing materials must utilize wet methods for dust suppression.

3.8 Prompt Cleanup Of Debris

Removed lead-containing material shall be kept wet and promptly placed in the type of waste containers required by this specification. The Contractor and subcontractors are encouraged to place debris in containers shortly after it has been removed. However, at a minimum, all bulk debris must be containerized before any work stoppages such as for breaks, lunch, or the end of a shift. Bulk debris must be kept adequately wet until it is containerized. The Contractor must plan only to disturb amounts of material that can be cleaned up and containerized before the next work stoppage. Delays and additional costs incurred by the Contractor for failing to adequately calculate the amount of time needed to clean up debris will be the sole responsibility of the Contractor. For example, if a crew must work overtime to containerize debris before ending the shift, those additional costs are the sole responsibility of the Contractor.

The Contractor and/or subcontractor must not allow excessive amounts of dust and debris to gather on the floor containment barriers. If in the opinion of the Project Monitor, too much debris is being allowed to gather on the floor poly, the Project Monitor will require the Contractor or subcontractor to either assign a worker to conduct continual cleanup, or the workers scraping paint or conducting other work disturbing lead will have to contain the debris before it falls to the ground. Typically this is done by scraping paint directly into a cardboard box held by the worker as he or she scrapes off the loose and peeling paint.

3.9 Final Cleanup Of The Work Area

3.9.1 Exterior Work Areas

The Contractor and/or subcontractor must HEPA vacuum up all visible dust and debris off containment barriers. Then gently roll and/or fold poly barriers in on themselves in order to avoid releasing any remaining dust to adjacent areas during this process.

The final step will be to vacuum up any visible dust or debris in the work area or regulated area that is suspected to contain lead. The area must be visually clean of all lead-related dust and debris, and all poly barriers must be removed before the workers leave the job site. The regulated area barrier tape and/or signs must be taken down. Critical barriers erected on windows and HVAC systems may be left in place if work will take place in those same areas during the next work shift. Otherwise those barriers must also be removed before the workers leave at the end of the shift.

3.9.2 Cleanup Of Interior Work Areas

All cleanup of the interior work area shall be performed using a HEPA vacuum and wet washing techniques. All surface areas in the work area that reasonably could have been exposed to airborne lead must be HEPA vacuumed and/or wet washed. This includes wall surfaces when the work included ceramic tile demolition. Ceilings must also be cleaned if the ceilings are less than five feet above the area where ceramic tiles were disturbed. For example, if the ceramic tile wainscoting extended six feet up the wall, and the ceiling is at eleven feet or lower, the ceiling will need to be vacuumed. If, however, the ceiling is above eleven feet, it will not need to be cleaned. This is based on the assumption that lead dust is unlikely to migrate up more than five feet. If in the judgement of the supervisor or Project Monitor the ceiling may be contaminated, the ceiling shall be cleaned regardless of how far it is above the disturbance of the tile.

3.10 Final Inspection Of The Work Area

The Project Monitor will inspect work areas for visual signs of dust and debris related to the disturbance of lead. The Project Monitor will not inspect or evaluate the quality of paint preparation work such as paint scraping. The contractor who will be painting the prepared surfaces is responsible for the quality and workmanship of the surface preparation. However, if the work involves the removal of loose and peeling paint prior to the demolition of a structure, the Project Monitor will evaluate the completeness of that work.

For exterior work, the Project Monitor will visually inspect the work area to determine that there is no visible dust or debris still in the area that is reasonably expected to have been generated by the work. All poly barriers (except for on critical barriers in areas needed for the next shift) and barrier tape and signs must be removed.

Until told otherwise by the Project Monitor, the supervisor must notify the Project Monitor in advance of the end of the shift in order for the Project Monitor to visually inspect the work area prior to the workers leaving for the day. Typically this will not be required after the workers demonstrate that they consistently properly clean the work area before leaving.

For interior work, the Project Monitor will conduct a thorough visual inspection for dust and debris that may be related to the disturbance of lead. All surface areas must be clean. Residue dust will be assumed to contain lead and must be cleaned.

Until told otherwise by the Project Monitor, the supervisor shall notify the Project Monitor when the supervisor believes the work is complete and ready for a visual inspection. Prior to calling the Project Monitor for the visual inspection, the supervisor must personally inspect the area and determine that it is clean and ready for a final inspection.

The Project Monitor typically will not collect dust wipe samples to verify the cleanliness of an area unless specifically stated otherwise elsewhere in these specifications. However, dust wipes may be collected in either of the following circumstances. In both cases the supervisor will be told of the possibility of the collection of dust wipes and encouraged to conduct extra cleaning of the areas.

- a. Ceramic Tile Removal Closely Adjacent To Kindergarten Classrooms, Daycare Facilities, or Food Preparation Areas Including Kitchens and Eating Areas.

The Project Monitor is likely to conduct dust wipe sampling on the floor in the area between the decontamination unit and occupied areas of the property where children under the age of six routinely may be present. The supervisor will be told in advance that this testing will take place and is encouraged to clean the area between the decontamination area and where the sample will be collected. This sample will be collected within 20 feet of the decontamination chambers unless the Project Monitor believes that poor work practices or decontamination procedures have contaminated the area as discussed below.

- b. Failure To Comply With Work Practices, Engineering Controls, Or Decontamination Procedures

If in the judgement of the Project Monitor, the Contractor and/or subcontractor has not followed the requirements of this specification regarding work practices, engineering controls, and decontamination procedures, the Project Monitor will collect dust wipe samples in areas believed contaminated by the Contractor or subcontractors' actions. The supervisor of the project will be told in advance if such testing will be conducted and given time to clean those areas. For example, Part 3.6.5. describes actions that will lead to additional cleaning by the Contractor.

Should dust wipe sampling be necessary, the Project Monitor will conduct such testing with the specified intent of verifying whether the containment process and decontamination processes used by the Contractor and/or subcontractor were adequate in preventing the release of lead dust from the work area. The samples will be collected according to the procedures required in Title 17. The containment will be judged appropriate if the results of the samples do not indicate a dust lead hazard for floors as specified in Title 17.

3.11 Power Washing of Exterior Building Surfaces

For the purposes of this procedure power washing is defined as the use of a low pressure "power washer" to rinse and/or wash stable, painted or coated surfaces to remove dust, dirt, grime, and other foreign matter in preparation for re-painting. In no circumstance is this to be construed as water blasting, and is not intended nor shall be used to remove lead-containing paints or coatings from surfaces. Loose and peeling paint must be removed by the other methods described in this specification before power washing may be conducted. Should power washing begin to release paint from the substrate, the Contractor must stop the power washing process and remove the loose material following the procedures described in these specifications.

3.11.1 Waste Water Discharge Permits

Many local sanitation districts require the completion and submission of a waste discharge permit prior to allowing the use of power washers. Therefore, prior to performing power-wash operations, the Contractor must obtain a Wastewater Discharge Permit for Surface Washers, if required, from the local Sanitation District, Water Quality Division; Industrial Waste Section, and adhere to the permit requirements. It is the Contractor's responsibility to obtain and properly fill out a current copy of this permit if it is required.

3.11.2 Required Work Practices For Power Washing

Where power washing of exterior surfaces of buildings coated with lead-containing paint(s) or seal coats is specified, or in those areas where the Contractor opts to use power washing to prepare surfaces, all of the following conditions must be met prior to uncontrolled washing without waste water control/collection measures. The following test is conducted prior to allowing the beginning of full power washing in order to verify that measurable amounts of lead are not being released by the washing process. Once it is determined that the washing process does not release lead, the Contractor will be allowed to proceed with power washing with only minimal additional requirements.

- a. The Contractor in coordination with the Project Monitor shall select a minimum of one test area typical of the surfaces to be power washed. This area shall be 100 or more square feet in area. On some sites where the building surfaces are different, the Project Monitor may require more than one area to be tested.
- b. The Contractor shall construct a floor containment for the test areas. The containment must be designed to capture and collect all wash water and any paint chips generated during the assessment. Typically the Contractor simply needs to use poly on the ground to create a basin like effect which will capture the spray water.
- c. The Project Monitor will first collect a sample of source water such as from the hose tap. The Contractor will then be asked to power wash the test area in a similar manner as to how the building as a whole will be power washed. Work shall be halted if the washing process causes delamination of paint from the test area surfaces. Modifications to the methods and work practices shall be made prior to resumption of power washing and these modifications must be approved by the Project Monitor prior to their implementation.
- d. The Project Monitor will collect one or more samples of the water runoff that was captured by the Contractor following power washing the test area. As long as there are no visible paint chips in the water and/or the amount of water is not excessive, the Contractor may release the captured water as long as it is absorbed by landscaping or will evaporate. No waste water resulting from power washing operations may be allowed to drain into any storm drain as required by the State of California.
- e. The Project Monitor will send these samples to a laboratory for lead in water analysis. The sample results for the source water will be compared to the water runoff sample. If similar amounts of lead are present in each, the power washing process is unlikely to release lead into the water or surrounding area. The power washing process should not release lead as long as loose and peeling paint was removed prior to the start of power washing.
- f. The Owner will pay for the collection of these water samples and their laboratory analysis.

- g. The Project Monitor will notify the Contractor as soon as the results of the testing process are known. The Project Monitor and the Contractor will need to discuss alternatives to power washing in the unlikely situation that the water test shows lead contamination in the runoff water.
- h. The Contractor shall assume that the testing and water analysis process will take a total of three work days. For example, if the test is done on the morning of the first day, the water samples will arrive at the laboratory on the morning of the second day. The results of the sampling process will be available on the afternoon of the third day. Since no power washing will be allowed until this testing process shows acceptable results, the Contractor must build this testing process into the work schedule. The Contractor may choose to accelerate the testing process but this will mean that the Contractor, rather than the Owner, will pay for the transportation of the samples to the laboratory and for the rush laboratory analysis. Even under "rush" conditions, it is very unlikely that the entire process could be completed in one day. The Contractor may want to schedule the testing process prior to the completion of other paint preparation work in order to have the results by the time the paint preparation work is complete.
- i. Upon receiving approval to begin power washing, the Contractor will be allowed to proceed power washing the building. The Contractor must, however, notify the Project Monitor 24 hours in advance of the beginning of power washing in order for the Project Monitor to monitor the process should he or she feel that is appropriate.
- j. Employee protective measures such as disposable clothing and respirators will not be required as power washing is not likely to result in airborne exposures of lead above the Action Level.
- k. Waste water produced from power washing operations which does not contain chips of paint may be allowed to soak into the ground below the area being washed. If the area located below or around the surface to be washed does not allow for absorption into the ground, the water must be directed toward an area on the property that will allow for absorption into the ground or evaporation. The Contractor must take steps to ensure that no waste water enters storm drains regardless of the lead content of the water.

3.12 Lead Waste Management

Proper testing and disposal of all waste material is the responsibility of the Contractor.

The Contractor must plan the work in order to minimize the generation of hazardous waste during the disturbance of lead-containing materials. The Contractor must create separate waste streams as necessary to include separation of any loose paint chips or flakes debris from other construction debris. All waste streams must be identified by the Contractor before the work begins and separated during the course of the project to minimize costs of disposal.

The Contractor is responsible for all costs associated with the testing, removal, packing, loading, shipping, and disposal of lead containing waste generated during this project. This does not include waste water testing done to determine if power washing is permitted which will be covered by the Owner.

The Contractor is required to comply with all regulations in Title 8 Section 1532.1 Lead in Construction and Cal/EPA Title 22 for waste classification and disposal.

3.12.1 Lead Waste Testing

The Contractor must conduct appropriate waste stream characterization testing and/or filtering prior to disposal of waste products such as water, sand, paint chips, vacuum debris, and filters generated during surface preparation activities. Once completed, the test analysis results must be submitted to the Owner and/or Project Monitor for review. The Contractor is responsible for all costs associated with waste stream testing. Contractors may choose to avoid some waste testing by presuming that the waste is a lead hazardous waste. Waste must be tested if the Contractor wishes to treat it as a non-hazardous waste.

The Contractor may not remove or dispose of the identified materials from the job site until this review has been completed and the Contractor has been informed by the Owner and/or Project Monitor of their concurrence that the materials have been properly tested and meet the requirements allowing the materials to be classified as non-hazardous.

3.12.2 Uniform Hazardous Waste Manifests

For all hazardous waste that requires an EPA manifest, the Contractor must coordinate with the Owner for signature of the manifest. In general, the Contractor must notify the Owner a minimum of 24 hours in advance of the need for a signature. Hazardous waste cannot be transported without an authorized signature so it is the responsibility of the Contractor to coordinate with the Owner the time waste transporters will need the signature. Delays resulting from the failure of the Contractor to obtain an authorized signature from the Owner will be the sole responsibility of the Contractor, unless the Owner was provided 24 hour in advance notice and the transporter arrived on time during the regular work hours of the Owner.

3.12.3 Waste Containers

All debris generated in the regulated work area shall be placed in DOT approved containers. The containers shall be leak tight and meet the requirements as stated in these specifications.

If in the judgement of the Project Monitor, the Contractor's method of containerizing debris is inadequate and either results in the release of dust or debris or is reasonably expected to result in such a release, the Contractor will be forbidden to continue waste containerization or load out until the containers meet the approval of the Project Monitor. This may result in the Contractor being required to change from one type of container to another. It must be understood that the Contractor is responsible for proper containerization of waste and therefore, will be required to provide for adequate and appropriate containers regardless of cost incurred due to failure of one system of containerization being required over another.

If utilizing bags to contain lead hazardous waste, two bags at least six-mil in thickness must be used. The inner bag may be sealed with adequate amounts of tape necessary to secure the opening of the bag. Only the second or final bag must be gooseneck sealed.

Regardless of the wastes characterization or designation as construction debris or hazardous waste, all waste containers shall be stored in designated and secure areas separate from the work area prior to testing and/or disposal.

The Contractor is responsible for proper storage and labeling of all hazardous waste containers while they are being used as storage and before they leave the job site according to the requirements of DTSC and DOT.

Building components such as wood with loose and flaking paint must, at a minimum, be wrapped in one layer of six-mil poly and adequately sealed with tape to secure the containerized material.

Concentrated lead waste such as sludge from paint stripping operations, lead containing paint chips and/or dust, HEPA vacuum contents and filters must be assumed to be hazardous waste until properly tested and must, at a minimum, be placed in poly lined, DOT approved drums.

Hard edged materials such as floor tile, gypsum board, plaster, stucco, ceramic tile, and other materials that may tear bags must be assumed to be hazardous waste until properly tested and must, at a minimum, be placed in poly lined, ridged-walled containers such as fiber drums or cardboard boxes as the final container.

Sharp edged components with peeling, blistering or flaking paint (e.g., nails, screws, metal lath, tin sheeting, door frames, etc.) must, at a minimum, be wrapped in one layer of six-mil poly sheeting, or a single six-mil thick bag and adequately sealed with tape to secure the containerized material.

3.13 Alternative Work Plans

The Contractor and/or subcontractors may submit alternate work plans to the suggested work practices and containment strategies as stated in these specifications. These alternate work plans or containment strategies must be approved by Owner and/or Project Monitor prior to their implementation.

PART 4.0 DOCUMENTATION SUBMITTAL REQUIREMENTS

Pre-Start Submittal Form

This form must be completed, signed, and submitted with the Contractor and/or subcontractors' documents required prior to the start of work. This form and these documents must be submitted to the Owner and/or Project Monitor in the time specified in the project documents prior to the start of work disturbing lead.

Please attach submittals in the order listed below. Please check off each item that is submitted. Write NA in spaces for which you believe the requirement is Not Applicable.

All Contractors and subcontractors who will have employees disturb lead on this project must, at a minimum provide proof of item number 1.6.1.e.1., lead hazard communication training in compliance with 8 CCR 1532.1 (L)(A)(1). This is the only submittal that must be provided by these employers as long as they do not disturb more lead than is described in Part 1.5.1.

The following submittals must be provided by all Contractors and subcontractors who will, at a minimum, have employees who will conduct trigger tasks for more than one hour per shift, will potentially be exposed above the Action Level, or will conduct other activities as determined by the Project Monitor that may result in significant exposure to lead.

- a. ___ A written lead compliance plan in compliance with 8 CCR 1532.1 must be provided that includes the following:
1. ___ A description of equipment and materials, controls, crew size, job responsibilities, and operations and maintenance procedures for each activity in which lead is disturbed and potentially emitted;
 2. ___ A description of specific control methods (wet methods, engineering controls, etc.) that will be used to ensure workers are not exposed above the PEL;
 3. ___ Technology considered in meeting the Cal/OSHA PEL;
 4. ___ Air monitoring data documenting sources of lead emissions;
 5. ___ A detailed implementation schedule for the compliance plan, including the schedule for inspections by a competent person;
 6. ___ A description of the lead work practice program which will be used to control worker exposures. This includes the use of protective work clothing, equipment, hygiene facilities and practices, and housekeeping practices;
 7. ___ A description of the steps the Contractor or subcontractor will take to minimize the generation of hazardous waste produced on this project. This includes, but is not necessarily limited to how the contractor will separate waste streams. For example, how will the Contractor or subcontractor will keep potentially hazardous waste such as paint chips and dust from being disposed of with other potentially non-hazardous construction materials and debris.
- b. ___ Copy of the Contractor or subcontractor's written respirator program in accordance with the requirements of 8 CCR 1544.
- c. ___ Proof that all employees expected to wear respirators on this project have medical approval to wear a respirator.
- d. ___ Copies of respiratory fit-tests for all workers expected to wear a respirator on this project. Fit testing must be done as required by and in accordance with 8 CCR 1544.
- e. Proof of training required by Part 1.5 for type of work employee will do.
1. ___ Proof of Hazard Communication Training for Lead for those exposed to lead or who will perform trigger tasks for less than one hour. (*Proof may be a certificate or written statement stating training was completed and a list of names of those individuals who were trained. Proof of this training is not needed if employee provides proof of training required by items e. 2, or e. 3.*)
 2. ___ Proof of training in compliance with 8 CCR 1532.1 (l)(2) for all employees who will conduct trigger tasks as defined in 8 CCR 1532.1 (d)(2) for more than one hour or who will reasonably be expected to be exposed to lead above the Action Level. (*Proof may be a certificate or written statement stating training was completed and a list of names of those individuals who were trained.*) Not required if providing proof of training required in item e.3 and/or item e.4.

3. ___ Proof of CDPH lead certification for those workers who will conduct trigger tasks as defined in 8 CCR 1532.1 (d)(2) or will reasonably be expected to be exposed to airborne levels of lead above the PEL. This is required for this work on all projects that will disturb more than 100 square feet of lead-containing material. *(Proof of certification will be a currently valid CDPH certification card as a worker or supervisor. Workers who can show proof of a valid course completion form and application being submitted to CDPH, will be allowed to work while awaiting full certification from CDPH.)*
 4. ___ Proof of current CDPH certification as a lead supervisor for the on-site competent person for projects involving the conduction of trigger tasks or other activities reasonably expected to exceed the PEL. This is required for this work on all projects that will disturb more than 100 square feet of lead-containing material. *(Proof of valid certification will be a currently valid CDPH certification card)*
 5. ___ If exception to requirement for CDPH certified supervisor listed in Part 1.5.3 is requested, then provide proof of CDPH certified supervisor who will verify containment, personal protection and work practices, and will be able to respond to the project within two hours of request by the Project Monitor. *(Only applicable for paint scraping work done prior to the demolition of buildings or structures.)*
 6. ___ Workers and supervisors must be trained in accordance with the US EPA RRP regulations for painting activities.
- f. ___ Copies of all current SDS for chemicals used on this project.
 - g. ___ Manufacturers' certifications that high efficiency particulate air (HEPA) vacuums, pressure differential units and other local exhaust ventilation equipment conform to ANSI Z9.2-79 for all HEPA-filtered equipment that will be used on this project.
 - h. ___ Name and contact information of independent testing company who will challenge test all vacuums and air filtration devices used on this project (in interior spaces).
 - l. ___ Name and contact information for laboratory who will analyze air samples or waste samples and documentation of their certification to conduct such analysis.
 - j. ___ Name of Waste Transporter who will transport hazardous waste on this project and documentation that the Transporter is allowed to transport lead hazardous waste.
 - k. ___ Name of Waste Landfill to which lead hazardous waste will be sent and documentation that such landfill is allowed to accept such waste.
 - l. ___ Should waste water filtration be required on this project, submit manufactures documentation pertaining to the capability of waste water filters to filter particles of, at a minimum, five micrometers in size.
 - m ___ List of all rented equipment to be used within a lead regulated area, or a statement that no rental equipment will be used on this project.

- 1. ____ If rental equipment is to be used, submit written statements from each rental company indicating the rental company's acknowledgment that the equipment is provided for and may be used in areas where airborne levels of asbestos and/or lead may be present.

- n. ____ Submit emergency plans. At a minimum submit the following:
 - 1. ____ Submit non-emergency telephone numbers, other than 911, for the appropriate Police, Sheriff, and Fire Departments.
 - 2. ____ Name, pager or cell phone numbers of the on-site supervisor and his immediate company supervisor.
 - 3. ____ Submit detailed written directions from the project site to the medical facility to be used in case of an emergency. Include a map which sufficiently shows the route to be taken from the site to the designated medical facility.
 - 4. ____ Submit written emergency procedures pertinent to the work to be performed and which can be implemented by site personnel if the need arises.

- o. ____ Local sanitation district Wastewater Discharge Permit for Surface Washers (if required).

- p. ____ Cal OSHA Notification. This is required for this work on all projects that will disturb more than 100 square feet of lead-containing material.

The above listed documents must be provided in the time specified in the project documents prior to the start of work that will disturb lead. Under no circumstances will workers or supervisors be allowed to work on this project prior to the receipt of this documentation by the Owner and/or Project Monitor. All delays resulting from the failure of the Contractor and/or subcontractors to provide this information in the required time frame is solely the responsibility of the Contractor and/or subcontractor.

Name, Signature, and Contact Information of Contractor's Personnel Completing Pre-Start Submittal Package

NAME: _____
(Print or Type)

SIGNATURE: _____

Telephone: _____

Fax: _____

Mailing Address: _____

OAK RIDGE ELEMENTARY SCHOOL

EXHIBIT B

This Specification was Developed By:

Blake Howes
CDPH #3315
May 3, 2023

Phone: (916) 632-6800
Fax: (916) 632-6812

PART 5.0 RESULTS OF LEAD TESTING

Paints/Coatings/ Materials Determined to be Lead Based Paint (LBP)		
Paint/Coating Color or Material	Lead Content	Component/Location
Beige Colored Paint	83,863 ppm	Metal Window Frames at Permanent Buildings
Blue Colored Paint	54,852 ppm	Round Metal Support Columns at Covered Walkways
Blue Colored Paint	7,266 ppm	Wood Beams and Ceiling Deck at Covered Walkways
Blue Colored Paint	33,092 ppm	Exterior Doors & Frames at Permanent Buildings
Light Blue Colored Paint	5,552 ppm	Wood Casework & Cabinetry at Permanent Buildings
Tan Colored Paint	5,648 ppm	Plaster Walls in Kitchen
Beige Colored Paint	49,113 ppm	Wood Window Frames at Permanent Buildings

Paints/Coatings/ Materials Determined to be Lead Containing Paint (LCP)		
Paint/Coating Color or Material	Lead Content	Component/Location
Blue Colored Paint	775 ppm	Wood Fascia at Permanent Buildings
White Colored Paint	315 ppm	Wood Wall Panels at Interiors of Permanent Buildings
Beige Colored Paint	165 ppm	Metal Frame at Exterior of Portables 23-25
Beige Colored Paint	503 ppm	Plaster Walls in Admin Area Hallways

Paints/Coatings/Materials Determined NOT TO Contain Lead	
Paint/Coating Color or Material	Building Component
Blue Colored Paint	Metal Gutters at Permanent Buildings
Beige Colored Paint	Exterior Stucco at Permanent Buildings
Beige Colored Paint	Exterior Cementitious Wall Panels at Rooms 9-15
Blue Colored Paint	Exterior Metal Hand Rails
Beige Colored Paint	Exterior Wood Panels at Portables
Tan Colored Paint	Interior Wainscot & Trim at MPR
Blue Colored Paint	Wood Baseboard at Admin Area Hallways

A lead in paint inspection was conducted by Entek and a report was prepared on May 3, 2023.

OAK RIDGE ELEMENTARY SCHOOL

EXHIBIT B

C:\Users\bhowes\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\Sacramento City USD\23-6621 Oak Ridge ES - AsbPb\Specifications\Lead in Construction Specs Oak Ridge.wpd

OTHER HAZARDOUS MATERIALS

POLYCHLORINATED BIPHENYLS (PCB's) LIGHT BALLAST HANDLING PROCEDURES

The Contractor may be instructed to remove light fixtures which contain light ballasts during demolition/ renovation activities specified in the contract documents. These light ballasts typically contain PCBs in the oil used as coolant and lubricant. Any ballast containing PCBs is to be considered a "Hazardous Waste", and the Contractor is responsible for ensuring personnel who perform PCB related work (inspection, removal, clean-up) are trained and qualified to do so. All workers must also follow current OSHA regulations including 29 CFR 1910.120 and 8 CCR 5192, as well as other applicable federal, state and local laws and regulations.

PCB Light Ballasts

All light ballasts manufactured through 1978 are magnetic ballasts which contain PCBs. Installation of ballasts manufactured prior to 1978 continued for several more years. As a result it can be expected that any building constructed before 1980 which has not had a complete lighting retrofit is likely to have PCB containing ballasts. Therefore, unless the ballast is electronic (this type is PCB free), determined by testing not to contain PCBs, or the manufacturers label on the ballast states "No PCBs", it is assumed all light ballasts on this site contain PCB's, and must therefore be handled as a hazardous waste by the Contractor. The Contractor may have other options for disposal of any light ballasts found not to contain PCB's.

Light Ballast Inspection

Contractor should disconnect all power and de-energize all electrical equipment to be impacted prior to performing inspection of electrical devices scheduled for removal or replacement. This de-energizing should be performed by or under the supervision of a licensed electrician. Contractor shall inspect each ballast prior to its removal to determine if the ballast is leaking, if oily residue is present on the exterior of the ballast or the ballast has been damaged resulting in a leak. Upon discovering and prior to removal of any oil coated, leaking, or damaged ballast Contractor shall contact Owners representative to discuss work procedures, waste requirements, etc.

Handling Work Practices of Undamaged Light Ballasts

Handling of ballasts shall be consistent with existing ballast conditions. While a ballast may not initially indicate any damage or leakage to be present, it may become damaged or begin to leak for any number of reasons during the removal and handling process. Any skin contact will probably constitute overexposure to PCBs since they are easily absorbed through the skin. It is recommended any personnel who will perform PCB related work should at a minimum wear protective clothing, including chemically-resistant gloves, goggles, boots, and disposable coveralls.

Handling Work Practices of Damaged Light Ballasts

Handling of damaged ballasts shall be performed in a manner consistent with existing and current federal, state and local laws and regulations. Clean-up of spills, or contaminated surfaces will require the use of specifically trained and properly protected personnel utilizing state of the art work practices, removal equipment, and materials. The Owners representative must be notified prior to the performance of this type of work.

PCB Containing Waste

All PCB containing light ballasts, removed by the Contractor, shall be placed in leak tight approved containers (metal barrels) until they are removed from the site by a waste transporter permitted to haul hazardous materials. Barrels must not be loaded in excess of their approved capacity. For most barrels this is 750 pounds. No other materials except, a sufficient amount of absorbent packing material, shall be included with the light ballasts.

The Contractor should contact their waste hauler prior to the start of work for information pertaining to recommendations or the waste haulers stated requirements for packing PCB containing ballasts. However, at a minimum, the absorbent packing material should be added to the bottom of the waste barrel prior to the first ballast. Absorbent packing material should then be added intermittently as necessary to encase the ballasts as the waste barrel is being filled. When the waste barrel is filled, or no more light ballasts will be added, additional absorbent packing material should be added to completely cover the ballasts and the container then sealed.

Contractor is also responsible for appropriate labeling of waste barrels and securing of lids to meet federal and/or state requirements while being stored on the site.

All leaking or damaged ballasts must be handled in accordance with federal and state disposal requirements and shall be separated from undamaged ballasts in preparation for incineration at an appropriately licensed facility.

The Contractor is responsible for all costs associated with the removal, packing, loading, shipping, and disposal of each barrel of waste generated during this project. The Contractor is also responsible for obtaining and properly completing any Uniform Hazardous Waste Manifests needed for the disposal of PCB waste. However, the Contractor **SHALL NOT** sign any Uniform Hazardous Waste Manifests for the Owner.

Non-PCB Light Ballasts

Non-PCB light ballasts are considered a hazardous waste in California and the contractor is responsible for collection, packaging, labeling, and holding this waste stream for proper disposal. Non-PCB light ballasts shall be shipped for disposal or recycle by the Contractor.

UNIVERSAL WASTE LAMP HANDLING PROCEDURES

The Contractor may be instructed to remove light fixtures which contain lamps which are designated as "Universal Waste" during demolition/renovation activities specified in the contract documents. If the Contractor is instructed to remove such fixtures the following handling procedures shall be followed.

Universal Wastes

Universal wastes are hazardous wastes that are more common and pose a lower risk to people and the environment than other hazardous wastes. Federal and State regulations identify universal wastes. The regulations, called the "Universal Waste Rule," are in the California Code of Regulations (CCR), title 22, division 4.5, chapter 23.

Universal Waste Lamps

Universal Waste Lamp, also referred to as “lamp” is defined as the bulb or tube portion of an electric lighting device. A lamp is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infra-red regions of the electromagnetic spectrum. Examples of common universal waste electric lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps. Any lamp which is not spent and has been designated to be reused is not classified as a waste and does not meet the requirements of a hazardous waste or a universal waste.

Mercury-added lamps

Mercury-added lamps (effective February 9, 2004): Fluorescent tubes and several other types of lamps (not incandescent light bulbs) contain a small amount of mercury that is necessary for their operation. Currently, most fluorescent lamps contain enough mercury to be a hazardous waste.

Universal Waste Lamp Disposal

Spent lamps typically contain concentrations of mercury exceeding the established Total Threshold Limit Concentration and/or the Soluble Threshold Limit Concentration values. Therefore, these lamps must be sent to an authorized recycle facility, or to a universal waste consolidator for shipment to an authorized recycling facility.

At a minimum the lamps must be packaged in boxes/packages/containers which are structurally sound, adequate to prevent breakage, and compatible with the content of the lamps. These packages must remain closed and be free of damage which could cause leakage under reasonably foreseeable conditions.

Each container shall be labeled or marked clearly with one of the following phrases: “Universal Waste–Lamp(s),” or “Waste Lamp(s).” or “Used Lamp(s)”.

Documentation in the form of a log, invoice, manifest, bill of lading or other shipping document is required to be submitted to the Owner’s Representative for each shipment of waste from the project site. This documentation shall include: name and address of generator and address of site waste is generated on, quantity of lamps to be shipped, date of shipment, name and address of hauler, and name and address of waste facility receiving the waste.

Hazardous Waste Designation

Any lamp which is not designated for recycling or continued use in a different fixture for which the lamp is manufactured for use in must be handled, managed, and disposed of as a hazardous waste in accordance with Cal/EPA Title 22. Since all spent lamps are required to be recycled the Owner will not approve of the disposal of lamps as hazardous without consultation and review of the specific circumstances which warrant this change in designation.

MERCURY SWITCHES

Thermostat switches that contain mercury are considered a hazardous waste if removed and disposed. Where the contract requires removal of thermostat switches, the contractor shall follow all requirements for packaging and disposal of these mercury containing wastes.

SMOKE DETECTORS WHICH MAY CONTAIN A RADIOACTIVE ELEMENT

The Contractor shall be responsible for the removal of any and all smoke detectors which may contain a radioactive element, which may be present in any building or corridor prior to the demolition of any building included in this project. These types of detectors are easily identified by reviewing the label which is usually found on the back of the detector. Older units may display the international radiation symbol (three bladed propeller) and the radioactive content. Newer units state the radioactive content and their Nuclear Regulatory Agency (NRC) license number.

The Contractor shall be responsible for contacting the manufacturer of any smoke detector with a radioactive element present to determine their return policies. The California Department of Toxic Substance Control (DTSC) has stated that it is a condition of the manufacturers NRC license that they must accept returned units for disposal. The Contractor shall be responsible for all costs associated with removing, packaging, and shipping of the detectors in compliance with the manufacturers policies and procedures.

Contractor shall submit to the Owner a letter from the manufacturer which includes the number of units received, date received, and acceptance of the shipment for disposal by that manufacturer.

Additional Waste Management Requirements

The Contractor is responsible for managing lamps in a manner which prevents release of any universal waste or component of a universal waste to the environment. The Contractor is also responsible for the immediate clean up of materials (mercury or other hazardous constituents) released by a lamp broken during removal or otherwise damaged while being handled into a container or containers designed to accommodate the resulting waste and its contents.

The Contractor is responsible for training employees in proper handling, packaging, storing and labeling the universal waste, as well as, how to respond to releases (66273.13). This may be accomplished by providing employees written instructions or posting these instructions in the area where the universal waste lamps are being stored.

The Contractor is responsible for all costs associated with the removal, packing, loading, shipping, clean up and disposal of hazardous materials removed during this project, and any waste generated due to breakage during this project. The Contractor is also responsible for obtaining and properly completing any Uniform Hazardous Waste Manifests needed for the disposal of lamp waste. However, the Contractor **SHALL NOT** sign any Uniform Hazardous Waste Manifests for the Owner.

It **SHALL** be the responsibility of the Contractor to contact the Owner in advance of the scheduled pick up time and date so the waste materials can be visually inspected for proper packing, and to have the Uniform Hazardous Waste Manifest properly signed by a Owner representative.

MOLD CONTAMINATED BUILDING MATERIALS

During the course of conducting the construction related project, the contractor may discover water damaged building components which may also have visible or suspect mold on building materials. Mold can be harmful to humans depending upon the amount of exposure and type of exposure; therefore, it is incumbent of the contractor to take precautions in the event of the discovery of mold contaminated building materials.

If mold contaminated building materials are discovered on the project, it should be brought to the attention of the project manager. In addition, any structural wood members should also be closely examined for possible dry rot and decay and brought to the attention of the project manager. Precautions should be implemented by the contractor to protect his/her employees from exposures to mold from both skin contact and inhalation exposures. Employees should be trained in accordance with the Cal/OSHA Hazard Communication Standard for mold hazards.

If this project involves asbestos related work, the work practices and worker protection for asbestos is very similar to mold related work. Workers performing asbestos related demolition of building components are required to be protected in accordance with Cal/OSHA Title 8 1529 Asbestos in Construction regulations. Workers performing asbestos related work are required to wear respirators with P-100 (HEPA) filters, and whole body disposable coveralls while removing the building materials within negative pressure HEPA filtered work enclosures. These same asbestos work practices defined in Title 8 1529 and in other specifications for this project shall apply to any mold contaminated building materials.

Any mold contaminated building materials shall be removed from the work environment in sealed bags. If the building materials have been determined to contain asbestos, the default criteria for handling, packaging, labeling, and disposal of the waste material shall be the Cal/OSHA, Federal EPA, and D.O.T. regulations for asbestos waste. If the mold impacted materials have been determined not to contain asbestos, the materials shall be placed in sealed six mil plastic bags and can be disposed as non-hazardous waste. If the mold impacted building components are painted, lead in the paint may be the determinant for disposal. Refer to the Lead in Construction specifications for handling of painted components for lead waste issues.

FREON

All refrigerant systems at the buildings containing Freon and other fluorocarbon products associated with heating, ventilating, and air-conditioning (HVAC) systems, or freezers, refrigerators, etc. if removed in the planned renovation or demolition project, shall be removed from the mechanical systems and recycled in accordance with Cal/EPA requirements.

CRYSTALLINE SILICA

Cal/OSHA Title 8 1532.3. Occupational Exposures to Respirable Crystalline Silica require all employers to control employee exposures to silica dust during construction related activities. The contractor is responsible for following all of the requirements in the silica regulations established by Cal/OSHA in Title 8 section 1532.3. Below are some of the key components related to engineering controls specific to different tasks. Below are excerpts from the silica standards; however, the contractor shall familiarize themselves with all of the requirements in this regulation.

(C) Specified exposure control methods. (1) For each employee engaged in a task identified on Table 1, the employer shall fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task on Table 1, unless the employer assesses and limits the exposure of the employee to respirable crystalline silica in accordance with subsection (d).

All employers shall refer to "Table 1 - Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica" which identify the specific Equipment/Task, required Engineering and Work Practice Control Methods, and the required respiratory protection based on number of hours for the specific tasks. The contractor shall implement at least one of the work practices and control measures for the work activity they chose to implement.

(3) Where an employee performs more than one task on Table 1 during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.

(2) When implementing the control measures specified in Table 1, each employer shall:

(A) For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;

(B) For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;

(C) For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:

1. Is maintained as free as practicable from settled dust;
2. Has door seals and closing mechanisms that work properly;
3. Has gaskets and seals that are in good condition and working properly;
4. Is under positive pressure maintained through continuous delivery of fresh air;
5. Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 μm range (e.g., MERV-16 or better); and
6. Has heating and cooling capabilities.

(d) Alternative exposure control methods. For tasks not listed in Table 1, or where the employer does not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1:

(1) Permissible exposure limit (PEL). The employer shall ensure that no employee is exposed to an airborne concentration of respirable crystalline silica in excess of 50 $\mu\text{g}/\text{m}^3$, calculated as an 8-hour TWA.

(2) Exposure assessment.

(A) General. The employer shall assess the exposure of each employee who is or may reasonably be expected to be exposed to respirable crystalline silica at or above the action level in accordance with either the performance option in subsection (d)(2)(B) or the scheduled monitoring option in subsection (d)(2)(C).

(B) Performance option. The employer shall assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to respirable crystalline silica.

(C) Scheduled monitoring option.

1. The employer shall perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, in each work area. Where several employees perform the same tasks on the same shift and in the same work area, the employer may sample a representative fraction of these employees in order to meet this requirement. In representative sampling, the employer shall sample the employee(s) who are expected to have the highest exposure to respirable crystalline silica.

2. If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

3. Where the most recent exposure monitoring indicates that employee exposures are at or above the action level but at or below the PEL, the employer shall repeat such monitoring within six months of the most recent monitoring.

4. Where the most recent exposure monitoring indicates that employee exposures are above the PEL, the employer shall repeat such monitoring within three months of the most recent monitoring.

5. Where the most recent (non-initial) exposure monitoring indicates that employee exposures are below the action level, the employer shall repeat such monitoring within six months of the most recent monitoring until

OAK RIDGE ELEMENTARY SCHOOL

EXHIBIT C

two consecutive measurements, taken seven or more days apart, are below the action level, at which time the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring, except as otherwise provided in subsection (d)(2)(D).

Prepared By:

Blake Howes, Vice President
Entek Consulting Group, Inc.
May 3, 2023

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**AMENDMENT NO. 1 TO FACILITIES LEASE
BY AND BETWEEN
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT AND
John F. Otto dba Otto Construction**

This Amendment No. 1 to the Facilities Lease ("First Amendment") is made and entered into this **7th day of September 2023** ("Effective Dat") by and between the Sacramento City Unified School District ("District") and **John F. Otto dba Otto Construction** ("Developer") (collectively, the "Parties") as follows:

RECITALS

WHEREAS, the Parties entered into a Facilities Lease, dated **April 11, 2023**, pertaining to the **Oak Ridge Elementary School New Construction** ("Project") at Oak Ridge Elementary School, located at 4501 Martin Luther King Jr. Blvd., Sacramento, CA, ("Project Site"); and

NOW, THEREFORE, the Parties agree as follows:

Section I. First Amendment of Facilities Lease.

1. **Table of Contents** is amended to include Item 50, Exhibit J – Contract Forms.

2. **Amendment #1 Facilities Lease, Page 11, SubParagraph 10.1.3.2.7** is amended to read: "Close-out documentation (not less than 1%)", is hereby approved by the District.

2a. **Amendment #1-Attachment 6.2 DSA approved specifications, Page 32, SubParagraph 10.1.6.2.3.4** "Close-out documentation shall have a value in the preliminary schedule of not less than 1%".

3. **Amendment #1 Facilities Lease Page 11, SubParagraph 10.1.3.2.13** is amended to read: "Owner and Maintenance Manuals (not less than 1%)" is hereby approved by the District.

4. **Amendment #1 Facilities Lease Page 11, SubParagraph 10.1.3.2.14** is amended to read: "Punchlist and District acceptance (not less than 1%)" is hereby approved by the District.

4a. **Amendment #1-Attachment 6.2 DSA approved specifications, Page 32, SubParagraph 10.1.6.2.3.5** "Punchlist and District acceptance not less than 1%".

5. **Page 15, Section 10.5 Compensation to John F. Otto dba Otto Construction for Preconstruction Services** is amended to read: "District agrees to reimburse John F. Otto dba Otto Construction in the total amount not to exceed ~~Seventy Two Thousand One Hundred Twenty DOLLARS (\$72,120)~~ **Seventy-seven thousand Seven hundred Twenty DOLLARS (\$77,720)**, for the performance of services contemplated by this Agreement."

6. **Page 16, SubParagraph 11.1.2** "Contract Time/Construction Schedule " is amended to read: "It is hereby understood and agreed that the Contract Time for this Project shall be **Seven Hundred Twenty-five (725)** calendar days for construction, and be **Seven Hundred Seventy-five (775)** calendar days for close-out, commencing with the Notice to Proceed for Increment 1 construction phase and

ending with completion of the construction work which will occur no later than **September 5, 2025** and close-out **October 25, 2025** ("Contract Time"). The Construction Schedule must be accepted by the District."

7. **Exhibit C (Guaranteed Maximum Price and Other Project Cost, Funding, and Payment Provisions) to the Facilities Lease** is amended and supplemented such that the existing Exhibit C is replaced with the amended Exhibit C, which is attached hereto as **Attachment "1"** and incorporated herein by this reference. All references to Exhibit C in the Facilities Lease shall mean and refer to Attachment "1" hereto. The Parties expressly acknowledge and agree that this amendment is intended to and does change payment provisions for the Project under the Facilities Lease, including, but not limited to, the amount of Tenant Improvement Payments and amount of Lease Payments.

a. **Exhibit C, Section 3 "Tenant Improvement Payments"** is amended to read: "Prior to the District's taking delivery or occupancy of the Project, the District shall pay to Developer an amount equal to the Guaranteed Maximum Price as modified pursuant to the terms of the Facilities Lease, including Exhibit C and Exhibit D, less the Loan Amount for the Lease Payments ("Tenant Improvement Payments"). The District shall withhold an amount equal to the Loan Amount as indicated in Attachment 3 to Exhibit C from the Developer for its Work on the Project. In other words, no further Tenant Improvement Payment will be made to Developer once the amount equal to Guaranteed Maximum Price minus the Loan Amount has been paid. Otherwise, the Tenant Improvement Payments will be processed based on the amount of Work performed according to Developer's Schedule of Values (Exhibit G to the Facilities Lease) and pursuant to the provisions in Exhibit D to the Facilities Lease, including withholding for or escrow of retention/lease payment of five percent (5%) of the Guaranteed Maximum Price. The withholding for the Loan Amount shall be separate from and in addition to withholding for or escrow of retention." And is hereby approved by the District.

8. **The Construction Schedule**, which is attached hereto as **Attachment "2"** and incorporated herein by this reference, is hereby approved by the District and is hereby added as Exhibit F (Construction Schedule) to the Facilities Lease.

9. **The Schedule of Values**, which is attached hereto as **Attachment "3"** and incorporated herein by this reference, is hereby approved by the District and is hereby added as Exhibit G (Schedule of Values) to the Facilities Lease.

10. **Exhibit D-1, Special Conditions, Appendix A District Mitigation and Reporting Program (MMRP) shall be updated to include MMRP/ERRATA dated August 2023 (37 pages) and Geotechnical Engineering Report and Geologic Hazards Evaluation dated February 13, 2023 (139 pages)** which is attached hereto as **Attachment "4.1 & 4.2"** and hereby approved by the District.

11. **Exhibit J, Contract Forms** which is attached hereto as **Attachment "5"** and incorporated herein by this reference, hereby added as Exhibit J, Contract Forms and is hereby approved by the District.

12. **Exhibit I, Division. 01s and DSA approved plans (38 pages), specifications (408 pages), and 103 T&I form (23 pages)** which is attached hereto as **Attachment "6.1, 6.2, & 6.3"** and incorporated herein by this reference, hereby added as Exhibit J, Contract Forms and is hereby approved by the District.

13. **Final Hazardous Materials Report, Asbestos Requirement Specification, Requirements for Disturbance of Lean in Construction Specification, and Other Hazardous Materials Specification (260 pages)**, which are attached hereto as **Attachment "7"** and incorporated herein by this reference is hereby approved by the District and is hereby added to the Facilities Lease.

Section II. All Other Provisions Reaffirmed.

All other provisions of the Facilities Lease shall remain in full force and effect and are hereby reaffirmed. If there is any conflict between this First Amendment and any provision of the Facilities Lease or any prior amendment thereto, the provisions of this First Amendment shall control.

IN WITNESS WHEREOF, the Parties have caused this Amendment No. 1 to the Facilities Lease to be executed by their respective officers who are duly authorized, as of the Effective Date.

ACCEPTED AND AGREED on the date indicated below:

Dated: _____, 2023

Dated: _____, 20__

SACRAMENTO CITY UNIFIED SCHOOL
DISTRICT

CORE WEST, INC.

By: _____

By: _____

Name: Jesse Castillo

Name: Allison Otto

Title: CBO

Title: President

AMENDMENT #1 - FACILITIES LEASE

For all or a portion of the following Site:

Oak Ridge Elementary School New Construction
4501 Martin Luther King Jr. Blvd. Sacramento, CA 95820
APN: 020-0220-004-0000

By and between

Sacramento City Unified School District
5735 47th Avenue
Sacramento, CA 95824

And

John Hayward / Allison Otto
John F. Otto dba Otto Construction
1717 Second Street
Sacramento, CA 95811

Dated as of April 11, 2023

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49.	Exhibit I – SCUSD Division 01 Specification - see DSA approved specifications Attachment 6.2	
50.	Exhibit J – Contract Forms – Attachment 5	

FACILITIES LEASE

This facilities lease ("Facilities Lease"), dated as of April 11, 2023 ("Effective Date"), is made and entered into by and between John F. Otto dba Otto Construction ("John F. Otto dba Otto Construction"), a [California corporation] duly organized and existing under the laws of the State of California, as sublessor, and Sacramento City Unified School District, a school district duly organized and validly existing under the laws of the State of California, as sublessee ("District") (together, the "Parties").

RECITALS

WHEREAS, the District is authorized under Section 17406 of the Education Code of the State of California to lease a site to John F. Otto dba Otto Construction and to have that John F. Otto dba Otto Construction develop and construct the project on the site and to lease back to the District the completed project and site; and

WHEREAS, on the date hereof, the District has leased to John F. Otto dba Otto Construction, a parcel of land located at 4501 Martin Luther King Jr. Blvd., Sacramento, CA known as **Oak Ridge Elementary School**, particularly described in **Exhibit A** and shown on **Exhibit B** attached hereto and incorporated herein by reference ("Site"); and

WHEREAS, District and John F. Otto dba Otto Construction have executed a site lease at the same time as this Facilities Lease whereby the District is leasing the Site to John F. Otto dba Otto Construction ("Site Lease"); and

WHEREAS, the District desires to provide for the development and construction of certain work to be performed on portions of the Site which will include construction of improvements to be known as the **Oak Ridge Elementary School New Construction Project** ("Project"); and

WHEREAS, District has retained **Nacht & Lewis Architects** ("Architect") to prepare plans and specifications for the Project ("Plans and Specifications") and to act as the Design Professional in General Responsible Charge for the Project; and

WHEREAS, the Governing Board of the District ("Board") has determined that it is in the best interests of the District and for the common benefit of the citizens residing in the District to construct the Project by leasing the Site to John F. Otto dba Otto Construction and by simultaneously entering into this Facilities Lease under which the District will lease back the completed Project and site from John F. Otto dba Otto Construction and if necessary, make Lease Payments; and

WHEREAS, the District further acknowledges and agrees that it has entered into the Site Lease and the Facilities Lease pursuant to Education Code Section 17406 as the best available and most expeditious means for the District to satisfy its substantial need for the facilities to be provided by the Project and to accommodate and educate District students and to utilize its facilities proceeds expeditiously; and

WHEREAS, this Site Lease and Facilities Lease are awarded based a competitive solicitation process pursuant to Education Code section 17406 and in compliance with the required procedures and guidelines for evaluating the qualifications of proposers adopted and published by the Board to the proposer providing the best value to the school district, taking into consideration the proposer's demonstrated competence and professional qualifications necessary for the satisfactory performance of the services required; and

WHEREAS, the selection of John F. Otto dba Otto Construction was conducted in a fair and impartial manner; and

WHEREAS, John F. Otto dba Otto Construction has reviewed the Lease Documents; and

WHEREAS, John F. Otto dba Otto Construction represents that it has the expertise and experience to perform the services set forth in this Facilities Lease; and

WHEREAS, the Parties have performed all acts, conditions and things required by law to exist, to have happened and to have been performed precedent to and in connection with the execution and entering into of this Facilities Lease and all those conditions precedent to exist, have happened and have been performed in regular and due time, form and manner as required by law, and the Parties hereto are now duly authorized to execute and enter into this Facilities Lease; and

WHEREAS, John F. Otto dba Otto Construction is authorized to lease the Site as lessee and to develop the Project by constructing the Project on the Site and to lease the completed Project and Site back to the District, and has duly authorized the execution and delivery of this Facilities Lease.

NOW, THEREFORE, in consideration of the above recitals and of the mutual covenants hereinafter contained, the Parties hereto do hereby agree as follows:

1. Definitions

In addition to the terms and entities defined above or in subsequent provisions, and unless the context otherwise requires, the terms defined in this section shall, for all purposes of this Facilities Lease, have the meanings herein specified.

1.1 "Developer" or "Lessor" means John F. Otto dba Otto Construction a California corporation, organized and existing under the laws of the State of California, Contractor's license number 178809 issued by the State of California, Contractors' State License Board, in accordance with division 3, chapter 9, of the Business and Professions Code, and its successors and assigns.

1.2 "John F. Otto dba Otto Construction's Representative" means the Managing Member of John F. Otto dba Otto Construction, or any person authorized to act on behalf of John F. Otto dba Otto Construction under or with respect to this Facilities Lease.

1.3 "Contract Documents" are defined in **Exhibit D** to this Facilities Lease.

1.4 "District" or "Lessee" means the Sacramento City Unified School District, a school district duly organized and existing under the laws of the State of California.

1.5 "District Representative" means the Superintendent of the District, or any other person authorized by the Governing Board of the District to act on behalf of the District under or with respect to this Facilities Lease.

1.6 "Permitted Encumbrances" means, as of any particular time:

1.6.1 Liens for general ad valorem taxes and assessments, if any, not then delinquent, or which the District may permit to remain unpaid;

1.6.2 The Site Lease.

1.6.3 This Facilities Lease.

1.6.4 Easements, rights of way, mineral rights, drilling rights and other rights, reservations, covenants, conditions or restrictions which exist of record as of the date of this Facilities Lease.

1.6.5 Easements, rights of way, mineral rights, drilling rights and other rights, reservations, covenants, conditions or restrictions established following the date of recordation of this Facilities Lease and to which John F. Otto dba Otto Construction and the District consent in writing which will not impair or impede the operation of the Site.

2. Exhibits

The following Exhibits are attached to and by reference incorporated and made a part of this Facilities Lease:

2.1 Exhibit A - Legal Description of the Site: The description of the real property constituting the Site.

2.2 Exhibit B - Description of the Project: The map or diagram depiction of the Project.

2.3 ***Exhibit C - Guaranteed Maximum Price and Other Project Cost, Funding, and Payment Provisions:*** *A detailed description of the Guaranteed Maximum Price and the provisions related to the payment of that amount to John F. Otto dba Otto Construction, including Attachment 3, the Schedule of Lease Payments and Payoff Dates and Amounts.*

2.4 Exhibit D - General Construction Provisions: The provisions generally describing the Project's construction.

2.5 Exhibit D-1 - Special Conditions Provisions: The provisions describing conditions specific to the Project's construction.

2.6 Exhibit E - Memorandum of Commencement Date: The Memorandum which will memorialize the commencement and expiration dates of the Lease Term.

2.7 ***Exhibit F - Construction Schedule***

2.8 ***Exhibit G - Schedule of Values***

2.9 ***Exhibit H - Project Labor Agreement***

2.10 ***Exhibit I - Division 01 Specification***

2.11 ***Exhibit J - Contract Forms***

3. Lease of Project and Site

3.1 John F. Otto dba Otto Construction hereby leases the completed Project to the District, and the District hereby leases said completed Project and Site from John F. Otto dba Otto Construction upon the terms and conditions set forth in this Facilities Lease.

3.2 The leasing by John F. Otto dba Otto Construction to the District of the completed Project and Site shall not affect or result in a merger of the District's leasehold estate pursuant to this Facilities Lease and its fee estate as lessor under the Site Lease. John F. Otto dba Otto Construction shall continue to have and hold a leasehold estate in the Site pursuant to the Site Lease throughout the Term thereof and the Term of this Facilities Lease.

3.3 As to the Site, this Facilities Lease shall be deemed and constitute a sublease.

4. Term

4.1 Facilities Lease is Legally Binding

This Facilities Lease is legally binding on the Parties upon execution by the Parties and the District Board's approval of this Facilities Lease. The "Term" of this Facilities Lease for the purposes of District's obligation to make Lease Payments shall commence on the date when John F. Otto dba Otto Construction delivers possession of the Project to District and when all improvements to be provided by John F. Otto dba Otto Construction are determined by the District to be completed as set forth in **Exhibit D** to this Facilities Lease.

Unless earlier terminated pursuant to the provisions of the Contract Documents, the Term of this Facilities Lease for the purposes of District's obligations to make Lease Payments shall terminate [one (1) year] thereafter or upon payment of the final lease payment.

4.2 After John F. Otto dba Otto Construction has completed construction of the Project and the District has accepted the Project, the Parties shall execute the Memorandum of Commencement Date attached hereto as **Exhibit E** to memorialize the commencement date of the Lease Payments and expiration date of the Term. Notwithstanding this Term, the Parties hereby acknowledge that each has obligations, duties, and rights under this Facilities Lease that exist upon execution of this Facilities Lease and prior to the beginning of the Lease Payment obligations.

4.3 The Term may be extended or shortened upon the occurrence of the earliest of any of the following events, which shall constitute the end of the Term:

4.3.1 An Event of Default by District as defined herein and John F. Otto dba Otto Construction's election to terminate this Facilities Lease as permitted herein; or

4.3.2 An Event of Default by John F. Otto dba Otto Construction as defined herein and District's election to terminate this Facilities Lease as permitted herein; or

4.3.3 Consummation of the District's purchase option pursuant to the Guaranteed Maximum Price and Other Project Cost, Funding, and Payment Provisions indicated in **Exhibit C** ("Guaranteed Maximum Price Provisions"); or

4.3.4 A third-party taking of the Project under Eminent Domain, only if the Term is ended as indicated more specifically herein; or

4.3.5 Damage or destruction of the Project, only if the Term is ended as indicated more specifically herein.

5. Payment

In consideration for the lease of the completed Project and Site by John F. Otto dba Otto Construction back to the District and for other good and valuable consideration, the District shall make all necessary payments pursuant to the Guaranteed Maximum Price Provisions indicated in **Exhibit C**.

6. Title

6.1 During the Term of this Facilities Lease, the District shall hold fee title to the Site, including the Project, and nothing in this Facilities Lease or the Site Lease shall change, in any way, the District's ownership interest.

6.2 During the Term of this Facilities Lease, John F. Otto dba Otto Construction shall have a leasehold interest in the Site pursuant to the Site Lease.

6.3 During the Term of this Facilities Lease, John F. Otto dba Otto Construction shall hold title to the Project improvements provided by John F. Otto dba Otto Construction which comprise fixtures, repairs, replacements or modifications thereto.

6.4 If the District exercises its Purchase Option pursuant to the Guaranteed Maximum Price Provisions indicated in **Exhibit C** or if District makes all necessary payments under the Guaranteed Maximum Price Provisions indicated in **Exhibit C**, all right, title and interest of John F. Otto dba Otto Construction, its assigns and successors in interest in and to the Project and the Site shall be transferred to and vested in the District at the end of the Term. Title shall be transferred to and vested in the District hereunder without the necessity for any further instrument of transfer; provided, however, that John F. Otto dba Otto Construction agrees to execute any instrument requested by District to memorialize the termination of this Facilities Lease and transfer of title to the Project.

7. Quiet Enjoyment

Upon District's possession of the Project, John F. Otto dba Otto Construction shall thereafter provide the District with quiet use and enjoyment of the Project, and the District shall during the Term peaceably and quietly have and hold and enjoy the Project, without suit, trouble or hindrance from John F. Otto dba Otto Construction, except as otherwise may be set forth in this Facilities Lease. John F. Otto dba Otto Construction will, at the request of the District and at John F. Otto dba Otto Construction's cost, join in any legal action in which the District asserts its right to such possession and enjoyment to the extent John F. Otto dba Otto Construction may lawfully do so. Notwithstanding the foregoing, John F. Otto dba Otto Construction shall have the right to inspect the Project and the Site as provided herein.

8. Representations of the District

The District represents, covenants and warrants to John F. Otto dba Otto Construction as follows:

8.1 Due Organization and Existence

The District is a school district, duly organized and existing under the Constitution and laws of the State of California.

8.2 Authorization

The District has the full power and authority to enter into, to execute and to deliver this Facilities Lease, and to perform all of its duties and obligations hereunder, and has duly authorized the execution of this Facilities Lease.

8.3 No Violations

Neither the execution and delivery of this Facilities Lease nor the Site Lease, nor the fulfillment of or compliance with the terms and conditions hereof or thereof, nor the consummation of the transactions contemplated hereby or thereby, conflicts with or results in a breach of the terms, conditions or provisions of any restriction or any agreement or instrument to which the District is now a party or by which the District is bound, or constitutes a default under any of the foregoing, or results in the creation or imposition of any lien, charge or encumbrance whatsoever upon any of the property or assets of the District, or upon the Site, except Permitted Encumbrances.

8.4 Condemnation Proceedings

8.4.1 District covenants and agrees, but only to the extent that it may lawfully do so, that so long as this Facilities Lease remains in effect, the District will not seek to exercise the power of eminent domain with respect to the Project so as to cause a full or partial termination of this Facilities Lease.

8.4.2 If for any reason the foregoing covenant is determined to be unenforceable or in some way invalid, or if District should fail or refuse to abide by such covenant, then, to the extent it may lawfully do so, District agrees that the financial interest of John F. Otto dba Otto Construction shall be as indicated in this Facilities Lease.

9. Representations of John F. Otto dba Otto Construction

John F. Otto dba Otto Construction represents, covenants and warrants to the District as follows:

9.1 Due Organization and Existence

John F. Otto dba Otto Construction is a [California company] duly organized and existing under the laws of the State of [California], has the power to enter into this Facilities Lease and the Site Lease; is possessed of full power to lease, lease back, and hold real and personal property and has duly authorized the execution and delivery of all of the aforesaid agreements.

9.2 Authorization

John F. Otto dba Otto Construction has the full power and authority to enter into, to execute and to deliver this Facilities Lease, and to perform all of its duties and obligations hereunder, and has duly authorized the execution of this Facilities Lease.

9.3 No Violations

Neither the execution and delivery of this Facilities Lease and the Site Lease, nor the fulfillment of or compliance with the terms and conditions hereof or thereof, nor the consummation of the transactions contemplated hereby or thereby, conflicts with or results in a breach of the terms, conditions or provisions of any restriction or any agreement or instrument to which John F. Otto dba Otto Construction is now a party or by which John F. Otto dba Otto Construction is bound, or constitutes a default under any of the foregoing, or results in the creation or imposition of any lien, charge or encumbrance whatsoever upon any of the property or assets of John F. Otto dba Otto Construction, or upon the Site, except Permitted Encumbrances.

9.4 No Bankruptcy

John F. Otto dba Otto Construction is not now nor has it ever been in bankruptcy or receivership.

9.5 No Encumbrances

John F. Otto dba Otto Construction shall not pledge any District payments of any kind, related to the Site Lease, this Facilities Lease, or in any way derived from the Site, and shall not mortgage or encumber the Site, except as may be specifically permitted pursuant to the provisions of this Facilities Lease related to John F. Otto dba Otto Construction's financing the construction of the project.

9.6 Continued Existence

John F. Otto dba Otto Construction shall not voluntarily commence any act intended to dissolve or terminate the legal existence of John F. Otto dba Otto Construction, at or before the latest of the following:

9.6.1 Eighteen (18) months following completion of the Project.

9.6.2 One (1) year following expiration or earlier termination of the Term.

9.6.3 After dismissal and final resolution of any and all disputes between the Parties and/or any third-party claims related, in any way, to the Project.

While the lease documents are in effect, John F. Otto dba Otto Construction shall give District one hundred twenty (120) days written notice prior to dissolving or terminating the legal existence of John F. Otto dba Otto Construction.

10. Preconstruction Services

10.1 Scope of the Preconstruction Services

John F. Otto dba Otto Construction shall perform management and coordination services, plan and specification constructability reviews, provide value-engineering reviews and recommendations and other reviews as necessary to verify that the drawings and specifications are clear and reasonably accurate to minimize the need for changes during the construction phase of the project, including but not limited to the following:

10.1.1 General Services

10.1.1.1 John F. Otto dba Otto Construction shall attend meetings between the Architect, the District, District site personnel, and any other applicable consultants of the District as required to discuss the Project, including budget, scope and schedule.

10.1.1.2 John F. Otto dba Otto Construction shall assist the Architect with making formal presentations to the governing board of District. Such assistance is anticipated to include floor plans and elevations necessary for any architectural presentation.

10.1.1.3 John F. Otto dba Otto Construction shall prepare a rough schedule in a format acceptable to District, and update as necessary.

10.1.1.4 John F. Otto dba Otto Construction shall prepare and update the components of the Guaranteed Maximum Price and shall be primarily responsible for ensuring that the Project can be and is constructed for no more than that amount.

10.1.1.5 While the Architect is anticipated to provide primary assistance, John F. Otto dba Otto Construction shall assist District with City land use issues.

10.1.1.6 Architect shall act as lead and John F. Otto dba Otto Construction will assist District and Architect with DSA review, input, and timeframe for same.

10.1.1.7 Architect shall act as lead and John F. Otto dba Otto Construction will assist with review and comment upon geotechnical / soils investigation and report.

10.1.1.8 Architect shall act as lead and John F. Otto dba Otto Construction will assist with review and comment upon survey of the Site for the Project.

10.1.1.9 John F. Otto dba Otto Construction will prepare meeting minutes.

10.1.1.10 Prepare schedule for preconstruction deliverables, subject to District's approval, and provide preconstruction deliverables within time frames of approved preconstruction schedule.

10.1.2 Review of Design Documents.

10.1.2.1 Review Project design and budget with District and Architect based on the 100% Construction Documents submitted to DSA to:

10.1.2.1.1 Provide recommendations on site use and improvements, selection of materials, building systems and equipment and methods of Project delivery;

10.1.2.1.2 Provide recommendations on relative feasibility of construction methods, availability of materials and labor, time requirements for procurement, installation and construction of the Project and subparts thereof if requested, and factors relating to cost including, but not limited to, construction costs of alternate designs of materials, preliminary budgets and possible economics that could be achieved through alternate methods or substitutions;

10.1.2.1.3 Provide recommendations on relative feasibility of construction methods, availability of materials and labor, time requirements for procurement, installation and construction of the Project and subparts thereof if requested, and factors relating to cost including, but not limited to, construction costs of alternate designs of materials, preliminary budgets and possible economics that could be achieved through alternate methods or substitutions;

10.1.2.1.4 Provide plan review.

10.1.2.1.5 Value-engineering. Prepare a value-engineering report for District review and approval that:

10.1.2.1.5.1 Details areas of cost saving (e.g. construction processes/procedures, specified materials and equipment, and equipment or other aspects of the design documents that can be modified to reduce costs and/or the time for achieving final completion of the Project and/or to extend life-cycle and/or to reduce maintenance/operations costs, without diminution in the quality of materials/equipment/workmanship, scope or intended purposes of the Project);

10.1.2.1.5.2 Provides detailed estimate for proposed value-engineering items;

10.1.2.1.5.3 Defines methodology or approaches that maximize value; and

10.1.2.1.5.4 Identifies design choices that can be more economically delivered.

10.1.2.1.6 Constructability Review. Prepare detailed interdisciplinary constructability review within Fourteen (14) days of receipt of the plans from the District that:

10.1.2.1.6.1 Ensures construction documents are well coordinated and reviewed for errors;

10.1.2.1.6.2 Identifies to the extent known, construction deficiencies and areas of concern;

10.1.2.1.6.3 Back-checks design drawings for inclusion of modifications; and

10.1.2.1.6.4 Provides the District with written confirmation that:

10.1.2.1.6.4.1 Requirements noted in the design documents prepared for the Project are consistent with and conform to the District's Project requirements and design standards.

10.1.2.1.6.4.2 Various components have been coordinated and are consistent with each other so as to minimize conflicts within or between components of the design documents.

10.1.2.2 Confirm Modifications to Design Drawings. If the District accepts John F. Otto dba Otto Construction's comments, including the value-engineering and/or constructability review comments, review the design documents to confirm that those comments are properly incorporated into the final design documents.

10.1.2.3 In doing so, it is recognized that John F. Otto dba Otto Construction is not acting in the capacity of a licensed design professional, and that John F. Otto dba Otto Construction's examination is made in good faith to facilitate construction and does not create an affirmative responsibility of a design professional to detect errors, omissions or inconsistencies in the Contract Documents or to ascertain compliance with applicable laws, building codes or regulations. However, nothing in this provision shall abrogate John F. Otto dba Otto Construction's responsibilities for discovering and reporting any error, inconsistency, or omission pursuant to the Contract within the John F. Otto dba Otto Construction's standard of care including, without limitation, any applicable laws, ordinance, rules, or regulations.

10.1.3 Budget of Project Costs.

10.1.3.1 At each stage of plan review indicated above, John F. Otto dba Otto Construction will update and refine the budget of the Guaranteed Maximum Price based on the most recent set of design documents. John F. Otto dba Otto Construction shall also advise the District and the Architect if it appears that the total construction costs may exceed the Guaranteed Maximum Price established by the District

and shall make recommendations for corrective action. John F. Otto dba Otto Construction will further provide input to the District and Architect relative to value of construction, means and methods for construction, duration of construction of various building methods and constructability.

10.1.3.2 In each budget of the Guaranteed Maximum Price, John F. Otto dba Otto Construction shall include values of scopes of work subdivided into component parts in sufficient detail to serve as the basis for progress payments during construction. This budget of the Guaranteed Maximum Price shall include, at a minimum, the following information divided into at least the following categories for each site:

10.1.3.2.1 Overhead and profit;

10.1.3.2.2 Supervision;

10.1.3.2.3 General conditions;

10.1.3.2.4 Layout & Mobilization (not more than 1%);

10.1.3.2.5 Submittals, samples, shop drawings (not more than 3%);

10.1.3.2.6 Bonds and insurance (not more than 2%);

10.1.3.2.7 Close-out documentation (not less than ~~3%~~ 1%);

10.1.3.2.8 Demolition;

10.1.3.2.9 Installation;

10.1.3.2.10 Rough-in;

10.1.3.2.11 Finishes;

10.1.3.2.12 Testing;

10.1.3.2.13 Owner and Maintenance Manuals (not less than ~~2%~~ 1%); and

10.1.3.2.14 Punchlist and District acceptance (not less than ~~3%~~ 1%).

10.1.4 Construction Schedule and Phasing Plan

John F. Otto dba Otto Construction shall prepare a preconstruction schedule to guide the design team through to bid dates. That schedule shall show the multiple phases and interrelations of design, constructability review, and estimating. John F. Otto dba Otto Construction shall also prepare a full construction schedule for the Project detailing the construction activities. John F. Otto dba Otto Construction shall further investigate, recommend and prepare a schedule for the purchase of materials and equipment requiring long lead

time procurement, and coordinate the schedule with the early preparation of portions of the Contract Documents by the Architect.

10.1.5 Construction Planning and Bidding

10.1.5.1 For all of John F. Otto dba Otto Construction's activities relating to construction planning and bidding, John F. Otto dba Otto Construction shall comply with all applicable legal requirements, including but not limited to those set forth in Education Code section 17406.

10.1.5.2 Consult with District staff in relation to the existing site. Selected John F. Otto dba Otto Construction should make site visits, as needed to review the current site conditions. During this evaluation, Respondent may make recommendations relating to soils investigations and utility locations and capacities, in order to minimize unforeseen conditions.

10.1.5.3 Attend meetings at the Site with the Architect and the design team as needed.

10.1.5.4 Provide plan review and constructability services with an emphasis on ensuring that the Project can be completed within the established schedule and within the available budget.

10.1.5.5 Provide a detailed analysis of all major Project systems with an emphasis on possible value engineering possibilities.

10.1.5.6 Prepare and distribute specifications and drawings provided by District to facilitate bidding to John F. Otto dba Otto Construction's subcontractors.

10.1.5.7 Review the drawings and specifications to eliminate areas of conflict and overlapping in the work to be performed by various subcontractors, and with a view to eliminating change order requests by the Architect or subcontractors.

10.1.5.8 Conduct pre-bid conferences with invitations to Architect and CM firm. Coordinate with District and the Architect in responding to subcontractor questions or providing clarification to all subcontractors.

10.1.5.9 DSA approved plans shall be utilized to receive subcontractor bids and develop the GMP in accordance with the lease-leaseback agreement forms, including the requirement that John F. Otto dba Otto Construction engage in competitive bidding for subcontractors for all scopes of work on the Project that constitute more than one half of one percent (0.5%) of the GMP. The District representative shall be present during the receipt of bids from subcontractors.

10.1.5.10 Each phase GMP shall be presented to the District in the following manner within a three ring binder as well as submitted electronically as a bookmarked PDF on an external USB drive:

10.1.5.10.1 Cover sheet, signed by John F. Otto dba Otto Construction indicating the GMP dollar amount with a certification, indicating that the GMP is all inclusive per the plans, specifications and addenda (contract documents). Also include certification stating, "John F. Otto dba Otto Construction hereby certifies that they have reviewed all subcontractor proposals and whether the subcontractor excluded portions of their scope John F. Otto dba Otto Construction has included all costs for a complete GMP in accordance with plans, specifications and addenda."

10.1.5.10.2 A bid tabulation sheet indicating the breakdown by subcontractor/trade along with the appropriate general condition amount, other fees (as submitted with the response to the RFQ/P).

10.1.5.10.3 Behind the bid tabulation sheet mentioned in subdivision 10.1.5.5.2 above should be a sheet that indicates what is included in the general conditions, which should match what was submitted in the response to the RFQ/P.

10.1.5.10.4 Copies of all subcontractor bids received divided by trade that corresponds to the final spread sheet with a cover sheet indicating the scope and subcontractors that provided bids as well as those that were asked to bid, but did not submit a proposal. This sheet should have the dollar amounts for each subcontractor that provided a bid with the first column being the proposed subcontractor for that trade.

10.1.5.10.5 Behind subdivision 10.1.5.5.4 above should be the bids for that trade with the proposed subcontractor bid on top and the other subcontractor bids in descending order based on best value score.

10.1.5.10.6 The minimum number of bona fide bids from contractors for a specific trade shall be as follows:

10.1.5.10.6.1 Two (2) bids for subcontracts up to One Hundred Thousand Dollars (\$100,000);

10.1.5.10.6.2 Three (3) bids for subcontracts over One Hundred Thousand Dollars (\$100,000).

10.1.5.10.7 If John F. Otto dba Otto Construction intends to propose to self-perform portion(s) of the construction of the Project, it must receive the District's prior written approval. If approved, John F. Otto dba Otto Construction must provide its pricing (its bid) to the District at least twenty-four (24) hours

prior to John F. Otto dba Otto Construction's receipt of Subcontractor bids for those portion(s) of the Work.

10.1.5.10.7.1 Regardless of the scope of work and not in any way reducing the number of Subcontractor bids based on the other requirements of the Contract Documents, the minimum number of bona fide bids from Subcontractors for scope(s) of Work that John F. Otto dba Otto Construction is bidding to self-perform shall be Two (2) Bids, not including John F. Otto dba Otto Construction's pricing/bid.

10.1.5.11 Produce detailed construction CPM schedules to be incorporated into the Project documents including identification of the Project critical path and agency approvals.

10.1.5.12 Plan the phases and staging of construction, staging areas, temporary fencing, office trailer placement, access, etc. as required.

10.1.5.13 Any other services that are reasonable and necessary to control the budget and schedule. List those areas where subconsultants will be required and where the Respondent has in-house expertise. Provide resumes of persons providing each of these services and for key personnel assigned to the Project.

10.2 Schedule

Preconstruction services outlined above will commence on the date the District issues a Notice to Proceed with Preconstruction Services for the Agreement, and conclude upon approval of the Amendment to the Lease Agreements by District's Board, or termination of this Agreement by either party per the Agreement's terms. Any extension shall be subject to reasonable approval in writing by the Parties.

10.3 Ownership of Records

It is mutually agreed that all materials prepared by John F. Otto dba Otto Construction under this Agreement shall become the property of the District and John F. Otto dba Otto Construction shall have no property right therein whatsoever. John F. Otto dba Otto Construction hereby assigns to District any copyrights associated with the materials prepared pursuant to the Agreement.

10.4 Open Book Policy

There will be an open book policy with John F. Otto dba Otto Construction and its construction team. District shall have access to all **subcontractor bids, subcontractor schedule of values, value engineering back-up, contingency breakdown & tracking, and John F. Otto dba Otto Construction fees.**

10.5 Compensation to John F. Otto dba Otto Construction for Preconstruction Services

District agrees to reimburse John F. Otto dba Otto Construction in the total amount not to exceed ~~Seventy Two Thousand One Hundred Twenty DOLLARS (\$72,120)~~ **Seventy-seven thousand Seven hundred Twenty DOLLARS (\$77,720)**, for the performance of services contemplated by this Agreement. John F. Otto dba Otto Construction shall be paid monthly for the actual fees and allowed costs and expenses for all time and materials required and expended for work requested and specified by the District as completed. Said amount shall be paid within thirty (30) days upon submittal to and verification by the District of a monthly billing statement showing completion of the tasks for that month on a line item basis. In the event John F. Otto dba Otto Construction and District continue with the lease/leaseback agreements for the development of the Project, this compensation for services rendered will be included as part of the Guaranteed Maximum Price ("GMP") to be paid to John F. Otto dba Otto Construction by District.

John F. Otto dba Otto Construction shall be responsible for any and all costs and expenses incurred by John F. Otto dba Otto Construction, including but not limited to the costs of hiring sub-consultants, contractors and other professionals, review of the Project's Plans and Specifications, review and preparation of necessary documentation relating to the development of the Project, all travel-related expenses, as well as for meetings with District and its representatives, long distance telephone charges, copying expenses, salaries of John F. Otto dba Otto Construction staff and employees working on the Project, overhead, and any other reasonable expenses incurred by John F. Otto dba Otto Construction in performance of the services contemplated by this Agreement.

10.6 Termination before Construction Phase

10.6.1 Before the notice to proceed with the Construction Phase is issued by the District, this Agreement may be terminated at any time without cause by District upon fourteen (14) days written notice to John F. Otto dba Otto Construction. In the event of such a termination by District, the District shall pay John F. Otto dba Otto Construction for all undisputed services performed and expenses incurred per this Agreement, supported by documentary evidence, including, but not limited to, payroll records, invoices from third parties retained by John F. Otto dba Otto Construction pursuant to this Agreement, and expense reports up until the date of notice of termination plus any sums due John F. Otto dba Otto Construction for Board-approved extra services. In ascertaining the services actually rendered hereunder up to the date of termination of this Agreement, consideration shall be given to completed work and work in process that would best serve the District if a completed product was presented.

10.6.2 In the event that the Parties do not reach an agreement on the GMP, this Agreement will be terminated at that time. In the event of such a termination, the District shall pay John F. Otto dba Otto Construction no more than the not to exceed amount in Section 10.5 above.

10.7 Construction Phase

John F. Otto dba Otto Construction shall not commence work for which a contractor is required to be licensed in accordance with Article 5 (commencing with Section 7065) of Chapter 9 of Division 3 of the Business and Professions Code and for which Division of the State Architect approval is required can be performed before receipt of the required Division of the State Architect approval.

11. Construction of Project

11.1 Construction of Project

11.1.1 John F. Otto dba Otto Construction agrees to cause the Project to be developed, constructed, and installed in accordance with the terms hereof and the Construction Provisions set forth in **Exhibit D**, including those things reasonably inferred from the Contract Documents as being within the scope of the Project and necessary to produce the stated result even though no mention is made in the Contract Documents.

11.1.2 Contract Time / Construction Schedule

It is hereby understood and agreed that the Contract Time for this Project shall be **Seven Hundred Twenty-five (725)** calendar days for construction, and be **Seven Hundred Seventy-five (775)** calendar days for close-out, commencing with the Notice to Proceed for Increment 1 construction phase and ending with completion of the construction work which will occur no later than **September 5, 2025** and close-out **October 25, 2025** ("Contract Time"). The Construction Schedule must be accepted by the District.

11.1.3 Schedule of Values

John F. Otto dba Otto Construction will provide a schedule of values, approved by the District, which will be attached hereto as **Exhibit G** ("Schedule of Values"). The Schedule of Values must be approved by the District. Refer to Exhibit D of the Facilities Lease section 10.1.6.2

11.1.4 Liquidated Damages

Time is of the essence for all work John F. Otto dba Otto Construction must perform to complete the Project. It is hereby understood and agreed that it is and will be difficult and/or impossible to ascertain and determine the actual damage that the District will sustain in the event of and by reason of John F. Otto dba Otto Construction's delay; therefore, John F. Otto dba Otto Construction agrees that it shall pay to the District the sum of Two thousand five hundred Dollars (\$2,500) per day as liquidated damages for each and every day's delay beyond the Contract Time.

11.1.4.1 It is hereby understood and agreed that this amount is not a penalty.

11.1.4.2 In the event any portion of the liquidated damages is not paid to the District, the District may deduct that amount from any money due or that may become due John F. Otto dba Otto Construction under this Facilities Lease. The District's right to assess liquidated damages is as indicated herein and in **Exhibit D**.

11.1.4.3 The time during which the construction of the Project is delayed for cause as hereinafter specified may extend the time of completion for a reasonable time as the District may grant.

11.1.5 Guaranteed Maximum Price

John F. Otto dba Otto Construction will cause the Project to be constructed within the GMP as set forth and defined in the GMP provisions in **Exhibit C**, and John F. Otto dba Otto Construction will not seek additional compensation from District in excess of that amount.

11.1.6 Modifications

If the DSA requires changes to the Contract Documents submitted by District to John F. Otto dba Otto Construction, and those changes change the construction costs and/or construction time for the Project, then those changed costs or time will be handled as a modification pursuant to the provisions of **Exhibit D**.

11.1.7 Labor Compliance Monitoring and Enforcement by Department of Industrial Relations

This Project is subject to labor compliance monitoring and enforcement by the Department of Industrial Relations pursuant to Labor Code section 1771.4 and Title 8 of the California Code of Regulations. John F. Otto dba Otto Construction specifically acknowledges and understands that it shall perform the Work of this Contract while complying with all the applicable provisions of Division 2, Part 7, Chapter 1, of the Labor Code.

12. Maintenance

Following delivery of possession of the Project by John F. Otto dba Otto Construction to District, the repair, improvement, replacement and maintenance of the Project and the Site shall be at the sole cost and expense and the sole responsibility of the District, subject only to all punch list items and warranties against defects in materials and workmanship of John F. Otto dba Otto Construction as provided in **Exhibit D**. The District shall pay for or otherwise arrange for the payment of the cost of the repair and replacement of the Project resulting from ordinary wear and tear. The District waives the benefits of subsections 1 and 2 of Section 1932 of the California Civil Code, but such waiver shall not limit any of the rights of the District under the terms of this Facilities Lease.

13. Utilities

Following delivery of possession of the Project by John F. Otto dba Otto Construction to District, the cost and expenses for all utility services, including, but not limited to, electricity, natural gas, telephone, water, sewer, trash removal, cable television, janitorial service, security, heating, water, internet service, data transmission, and all other utilities of any type shall be paid by District.

14. Taxes and Other Impositions

All ad valorem real property taxes, special taxes, possessory interest taxes, bonds and special lien assessments or other impositions of any kind with respect to the Project, the Site and the

improvements thereon, charged to or imposed upon either John F. Otto dba Otto Construction or the District or their respective interests or estates in the Project, shall at all times be paid by District. In the event any possessory interest tax is levied on John F. Otto dba Otto Construction, its successors and assigns, by virtue of this Facilities Lease or the Site Lease, District shall pay such possessory interest tax directly, if possible, or shall reimburse John F. Otto dba Otto Construction, its successors and assigns for the full amount thereof within forty-five (45) days after presentation of proof of payment by John F. Otto dba Otto Construction.

15. Insurance

15.1 John F. Otto dba Otto Construction's Insurance

John F. Otto dba Otto Construction shall comply with the insurance requirements as indicated here and in **Exhibit D**.

15.1.1 Commercial General Liability and Automobile Liability Insurance

15.1.1.1 John F. Otto dba Otto Construction shall procure and maintain, during the life of the Project, Commercial General Liability Insurance and Automobile Liability Insurance that shall protect John F. Otto dba Otto Construction, District, its Board Members, employees, agents, Construction Manager(s), Project Manager(s), Project Inspector(s), and Architect(s) from all claims for bodily injury, property damage, personal injury, death, advertising injury, and medical payments arising from, or in connection with, operations under the Project. This coverage shall be provided in a form at least as broad as Insurance Services (ISO) Form CG 00 01 11 88. John F. Otto dba Otto Construction shall ensure that Products Liability and Completed Operations coverage, Fire Damage Liability coverage, and Automobile Liability coverage including owned, non-owned, and hired automobiles, are included within the above policies and at the required limits, or John F. Otto dba Otto Construction shall procure and maintain these coverages separately.

15.1.1.2 John F. Otto dba Otto Construction's deductible or self-insured retention for its Commercial General Liability Insurance policy shall not exceed five thousand dollars (\$5,000) for deductible or twenty-five thousand dollars (\$25,000) for self-insured retention, respectively, unless approved in writing by District.

15.1.1.3 All such policies shall be written on an occurrence form.

15.1.2 Excess Liability Insurance

15.1.2.1 If John F. Otto dba Otto Construction's underlying policy limits are less than required, subject to 15.1.2.3 below, John F. Otto dba Otto Construction may procure and maintain, during the life of the Project, an Excess Liability Insurance Policy to meet the policy limit requirements of the required policies in order to satisfy, in aggregate with its underlying policy, the insurance requirements herein.

15.1.2.2 There shall be no gap between the per occurrence amount of any underlying policy and the start of the coverage under the Excess Liability Insurance Policy. Any Excess Liability Insurance Policy shall protect John F. Otto dba Otto Construction, District, its Board Members, employees, agents, Construction Manager(s), Project Manager(s), Project Inspector(s), and Architect(s) in amounts and including the provisions as set forth in **Exhibit D** and/or the Supplementary Conditions (if any), and that complies with all requirements for Commercial General Liability and Automobile Liability and Employers' Liability Insurance.

15.1.2.3 The District, in its sole discretion, may accept the Excess Liability Insurance Policy that brings John F. Otto dba Otto Construction's primary limits to the minimum requirements herein.

15.1.3 Subcontractor

John F. Otto dba Otto Construction shall require its Subcontractor(s), if any, to procure and maintain Commercial General Liability Insurance, Automobile Liability Insurance, and Excess Liability Insurance (if Subcontractor elects to satisfy, in part, the insurance required herein by procuring and maintaining an Excess Liability Insurance Policy) with minimum limits at least equal to the amount required of John F. Otto dba Otto Construction except where smaller minimum limits are permitted as set forth below.

15.1.4 Workers' Compensation and Employer's Liability Insurance

15.1.4.1 In accordance with provisions of section 3700 of the California Labor Code, John F. Otto dba Otto Construction and every Subcontractor shall be required to secure the payment of compensation to its employees.

15.1.4.2 John F. Otto dba Otto Construction shall procure and maintain, during the life of the Project, Workers' Compensation Insurance and Employer's Liability Insurance for all of its employees engaged in work under the Project, on/or at the Site of the Project. This coverage shall cover, at a minimum, medical and surgical treatment, disability benefits, rehabilitation therapy, and survivors' death benefits. John F. Otto dba Otto Construction shall require its Subcontractor(s), if any, to procure and maintain Workers' Compensation Insurance and Employer's Liability Insurance for all employees of Subcontractor(s). Any class of employee or employees not covered by a Subcontractor's insurance shall be covered by John F. Otto dba Otto Construction's insurance. If any class of employee or employees engaged in Work on the Project, on or at the Site of the Project, is not protected under the Workers' Compensation Insurance, John F. Otto dba Otto Construction shall provide, or shall cause a Subcontractor to provide, adequate insurance coverage for the protection of any employee(s) not otherwise protected before any of those employee(s) commence work.

15.1.5 Builder's Risk Insurance: Builder's Risk "All Risk" Insurance

15.1.5.1 John F. Otto dba Otto Construction shall procure and maintain during the duration of construction, Builder's Risk (Course of Construction), or similar first party property coverage acceptable to the District, issued on a replacement cost value basis. The cost shall be consistent with the total replacement cost of all insurable Work of the Project included within the Contract Documents. Coverage is to insure against all risks of accidental physical loss and shall include without limitation the perils of vandalism and/or malicious mischief (both without any limitation regarding vacancy or occupancy), sprinkler leakage, civil authority, theft, sonic disturbance, earthquake, flood, collapse, wind, rain, dust, fire, war, terrorism, lightning, smoke, and rioting. Coverage shall include debris removal, demolition, increased costs due to enforcement of all applicable ordinances and/or laws in the repair and replacement of damaged and undamaged portions of the property, and reasonable costs for the Architect's and engineering services and expenses required as a result of any insured loss upon the Work and Project, including completed Work and Work in progress, to the full insurable value thereof.

15.1.6 Pollution Liability Insurance

15.1.6.1 John F. Otto dba Otto Construction shall procure and maintain Pollution Liability Insurance that shall protect John F. Otto dba Otto Construction, District, Construction Manager(s), Project Inspector(s), and Architect(s) from all claims for bodily injury, property damage, including natural resource damage, cleanup costs, removal, storage, disposal, and/or use of the pollutant arising from operations under this Facilities Lease, and defense, including costs and expenses incurred in the investigation, defense, or settlement of claims. Coverage shall apply to sudden and/or gradual pollution conditions resulting from the escape or release of smoke, vapors, fumes, acids, alkalis, toxic chemicals, liquids, or gases, natural gas, waste materials, or other irritants, contaminants, or pollutants, including asbestos. This coverage shall be provided in a form at least as broad as Insurance Services Offices, Inc. (ISO) Form CG 2415, or John F. Otto dba Otto Construction shall procure and maintain these coverages separately.

15.1.6.2 John F. Otto dba Otto Construction warrants that any retroactive date applicable to coverage under the policy shall predate the Effective Date of this Facilities Lease and that continuous coverage will be maintained or an extended reporting or discovery period will be exercised for a period of three (3) years, beginning from the time that the Work under the Contract is completed.

15.1.6.3 If John F. Otto dba Otto Construction is responsible for removing any pollutants from a site, then John F. Otto dba Otto Construction shall ensure that Any Auto, including owned, non-

owned, and hired, are included within the above policies and at the required limits, to cover its automobile exposure for transporting the pollutants from the site to an approved disposal site. This coverage shall include the Motor Carrier Act Endorsement, MCS 90.

15.1.7 Not Used

15.1.8 Proof of Carriage of Insurance and Other Requirements Endorsements and Certificates

15.1.8.1 John F. Otto dba Otto Construction shall not commence Work nor shall it allow any Subcontractor to commence Work on the Project, until John F. Otto dba Otto Construction and its Subcontractor(s) have procured all required insurance and John F. Otto dba Otto Construction has delivered in duplicate to the District complete endorsements (or entire insurance policies) and certificates indicating the required coverages have been obtained, and the District has approved these documents.

15.1.8.2 Endorsements, certificates, and insurance policies shall include the following:

15.1.8.2.1 A clause stating the following, or other language acceptable to the District:

“This policy shall not be canceled and the coverage amounts shall not be reduced until notice has been mailed to District, Architect, and Construction Manager stating date of cancellation by the insurance carrier. Date of cancellation may not be less than thirty (30) days after date of mailing notice.”

15.1.8.2.2 Language stating in particular those insured, extent of insurance, location and operation to which insurance applies, expiration date, to whom cancellation notice will be sent, and length of notice period.

15.1.8.3 All endorsements, certificates and insurance policies shall state that District, its Board Members, employees and agents, Construction Manager(s), Project Manager(s), Inspector(s) and Architect(s) are named additional insureds under all policies except Workers’ Compensation Insurance and Employers’ Liability Insurance.

15.1.8.4 All endorsements shall waive any right to subrogation against any of the named additional insureds.

15.1.8.5 John F. Otto dba Otto Construction’s and Subcontractors’ insurance policy(s) shall be primary and non-contributory to any insurance or self-insurance maintained by District, its Board Members, employees and/or agents, the State of California,

Construction Manager(s), Project Manager(s), Inspector(s), and/or Architect(s).

15.1.8.6 John F. Otto dba Otto Construction's insurance limit shall apply separately to each insured against whom a claim is made or suit is brought.

15.1.8.7 No policy shall be amended, canceled, or modified, and the coverage amounts shall not be reduced, until John F. Otto dba Otto Construction or John F. Otto dba Otto Construction's broker has provided written notice to District, Architect, and Construction Manager stating date of the amendment, modification, cancellation or reduction, and a description of the change. Date of amendment, modification, cancellation or reduction may not be less than thirty (30) days after date of mailing notice.

15.1.8.8 Insurance written on a "claims made" basis shall be retroactive to a date that coincides with or precedes John F. Otto dba Otto Construction's commencement of Work, including subsequent policies purchased as renewals or replacements. Said policy is to be renewed by John F. Otto dba Otto Construction and all Subcontractors for a period of five (5) years following completion of the Work or termination of this Facilities Lease. Such insurance must have the same coverage and limits as the policy that was in effect during the term of this Facilities Lease, and will cover John F. Otto dba Otto Construction and all Subcontractors for all claims made.

15.1.8.9 John F. Otto dba Otto Construction's and Subcontractors' insurance policy(s) shall be primary and non-contributory to any insurance or self-insurance maintained by District, its Board Members, employees and/or agents, the State of California, Construction Manager(s), Project Manager(s), Inspector(s), and/or Architect(s).

15.1.8.10 All endorsements shall waive any right to subrogation against any of the named additional insureds.

15.1.8.11 All policies shall be written on an occurrence form.

15.1.8.12 All of John F. Otto dba Otto Construction's insurance shall be with insurance companies with an A.M. Best rating of no less than A: XI.

15.1.8.13 The insurance requirements set forth herein shall in no way limit John F. Otto dba Otto Construction's liability arising out of or relating to the performance of the Work or related activities.

15.1.8.14 Failure of John F. Otto dba Otto Construction and/or its Subcontractor(s) to comply with the insurance requirements herein shall be deemed a material breach of the Facilities Lease and constitute a Default by John F. Otto dba Otto Construction pursuant to this Facilities Lease.

15.1.9 Insurance Policy Limits

The limits of insurance shall not be less than the following amounts:

COMMERCIAL GENERAL LIABILITY	Product Liability and Completed Operations, Fire Damage Liability – Split Limit	\$5,000,000 per occurrence; \$10,000,000 aggregate] Subcontractors (over 10%): \$2,000,000 per occurrence; \$4,000,000 annual aggregate
EXCELL LIABILITY		John F. Otto dba Otto Construction: \$25,000,000 per occurrence; \$25,000,000 annual aggregate Subcontractors (over 10%): \$10,000,000 per occurrence ; \$10,000,000 annual aggregate
AUTOMOBILE LIABILITY – ANY AUTO	Combined Single Limit	\$3,000,000 (limits may be met with Excess Liability Policy required herein)
WORKERS’ COMPENSATION		Statutory limits pursuant to State law
EMPLOYER’S LIABILITY		\$1,000,000
BUILDER’S RISK (COURSE OF CONSTRUCTION)		Replacement Cost
POLLUTION LIABILITY		\$2,000,000 per occurrence; \$2,000,000 annual aggregate

If John F. Otto dba Otto Construction normally carries insurance in an amount greater than the minimum amounts required by District, that greater amount shall become the minimum required amount of insurance for purposes of the Contract. Therefore, John F. Otto dba Otto Construction hereby acknowledges and agrees that all insurance carried by it shall be deemed liability coverage for all actions it performs in connection with the Contract.

The limits of insurance for those subcontractors whose subcontract does not exceed 10% of the contract value shall not be less than the following amounts:

COMMERCIAL GENERAL LIABILITY	Product Liability and Completed Operations, Fire Damage Liability – Split Limit	\$2,000,000 per occurrence; \$4,000,000 in annual aggregate
Excess Liability		\$5,000,000 per occurrence; \$5,000,000 annual aggregate
AUTOMOBILE LIABILITY - ANY AUTO	Combined Single Limit	\$2,000,000
WORKERS' COMPENSATION		Statutory limits pursuant to State law
EMPLOYER'S LIABILITY		\$1,000,000

Notwithstanding anything in this Facilities Lease to the contrary, the above insurance requirements may be modified as appropriate for subcontractors, with District's prior written approval.

15.2 District's Insurance

15.2.1 Rental Interruption Insurance

District shall at all times from and after District's acceptance of the Project, for the benefit of District and John F. Otto dba Otto Construction, as their interests may appear, maintain rental interruption insurance to cover loss, total or partial, of the use of the Project due to damage or destruction, in an amount at least equal to the maximum estimated Lease Payments payable under this Facilities Lease during the current or any future twenty-four (24) month period. This insurance may be maintained as part of or in conjunction with any other insurance coverage carried by the District, and such insurance may be maintained in whole or in part in the form of participation by the District in a joint powers agency or other program providing pooled insurance. This insurance may not be maintained in the form of self-insurance.

15.2.2 Property Insurance

District shall at all times from and after District's acceptance of the Project, carry and maintain in force a policy of property insurance for 100% of the insurable replacement value with no coinsurance penalty, on the Site and the Project, together with all improvements thereon, under a standard "all risk" contract insuring against loss or damage. John F. Otto dba Otto Construction shall be named as additional insureds or co-insureds thereon by way of endorsement. District shall have the right to procure the required insurance through a joint powers agency or to self-insure against such losses or portion thereof as is deemed prudent by District.

16. Indemnification and Defense

16.1 To the fullest extent permitted by California law, John F. Otto dba Otto Construction shall indemnify, keep and hold harmless the District, the Architect(s) and Construction Manager(s), their respective consultants, separate contractors, board members, officers, representatives, agents, and employees, in both individual and official capacities ("Indemnitees"), against all suits, claims, injury, damages, losses, and expenses ("Claims"), including but not limited to attorney's fees and costs, caused by, arising out of, resulting from, or incidental to, in whole or in part, the performance of the Work under this Contract by John F. Otto dba Otto Construction or its Subcontractors, vendors and/or suppliers. However, John F. Otto dba Otto Construction's indemnification and hold harmless obligation shall be reduced by the proportion of the Indemnitees' and/or Architect's liability to the extent the Claim(s) is/are caused wholly by the active negligence or willful misconduct of the Indemnitees, and/or defects in design furnished by the Architect, as found by a court or arbitrator of competent jurisdiction. This indemnification and hold harmless obligation of John F. Otto dba Otto Construction shall not be construed to negate, abridge, or otherwise reduce any right or obligation of indemnity that would otherwise exist or arise as to any Indemnitee or other person described herein. This indemnification and hold harmless obligation includes, but is not limited to, any failure or alleged failure by John F. Otto dba Otto Construction to comply with any law and/or provision of the Contract Documents in strict accordance with their terms, and without limitation, any failure or alleged failure of John F. Otto dba Otto Construction's obligations regarding any stop payment notice actions or liens, including Civil Wage and Penalty Assessments and/or Orders by the DIR.

16.2 To the furthest extent permitted by California law, John F. Otto dba Otto Construction shall also defend Indemnitees, at its own expense, including but not limited to attorneys' fees and costs, against all Claims caused by, arising out of, resulting from, or incidental to, in whole or in part, the performance of the Work under this Facilities Lease by John F. Otto dba Otto Construction, its Subcontractors, vendors, or suppliers. However, without impacting John F. Otto dba Otto Construction's obligation to provide an immediate and ongoing defense of Indemnitees, John F. Otto dba Otto Construction's defense obligation shall be reduced by the proportion of the Indemnitees' and/or Architect's liability to the extent caused by the sole negligence, active negligence, or willful misconduct of the Indemnitees, and/or defects in design furnished by the Architect, as found by a court or arbitrator of competent jurisdiction. The District shall have the right to accept or reject any legal representation that John F. Otto dba Otto Construction proposes to defend the Indemnitees. If any Indemnitee provides its own defense due to failure to timely respond to tender of defense, rejection of tender of defense, or conflict of interest of proposed counsel, John F. Otto dba Otto Construction shall reimburse such Indemnitee for any expenditures. John F. Otto dba Otto Construction's defense obligation shall not be construed to negate, abridge, or otherwise reduce any right or obligation of defense that would otherwise exist as to any Indemnitee or other person described herein. John F. Otto dba Otto Construction's defense obligation includes, but is not limited to, any failure or alleged failure by John F. Otto dba Otto Construction to comply with any provision of law, any failure or alleged failure to timely and properly fulfill all of its obligations under the Contract Documents in strict accordance with their terms, and without limitation, any failure or alleged failure of John F. Otto dba Otto Construction's obligations regarding any stop payment notice actions or liens, including Civil Wage and Penalty Assessments and/or Orders

by the DIR. John F. Otto dba Otto Construction shall give prompt notice to the District in the event of any Claim(s).

16.3 Without limitation of the provisions herein, if John F. Otto dba Otto Construction's obligation to indemnify and hold harmless the Indemnitees or its obligation to defend Indemnitees as provided herein shall be determined to be void or unenforceable, in whole or in part, it is the intention of the Parties that these circumstances shall not otherwise affect the validity or enforceability of John F. Otto dba Otto Construction's agreement to indemnify, defend, and hold harmless the rest of the Indemnitees, as provided herein. Further, John F. Otto dba Otto Construction shall be and remain fully liable on its agreements and obligations herein to the fullest extent permitted by law.

16.4 Pursuant to Public Contract Code section 9201, the District shall provide timely notification to John F. Otto dba Otto Construction of the receipt of any third-party Claim relating to this Contract. The District shall be entitled to recover its reasonable costs incurred in providing said notification.

16.5 In any and all Claims against any of the Indemnitees by any employee of John F. Otto dba Otto Construction, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, John F. Otto dba Otto Construction's indemnification obligation herein shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for John F. Otto dba Otto Construction or any Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

16.6 The District may retain so much of the moneys due to John F. Otto dba Otto Construction as shall be considered necessary, until disposition of any such Claims or until the District, Architect(s) and Construction Manager(s) have received written agreement from John F. Otto dba Otto Construction that John F. Otto dba Otto Construction will unconditionally defend the District, the Architect(s) and Construction Manager(s), their respective officers, agents and employees, and pay any damages due by reason of settlement or judgment.

16.7 John F. Otto dba Otto Construction's defense and indemnification obligations hereunder shall survive the completion of Work, including the warranty/guarantee period, and/or the termination of the Contract.

17. Eminent Domain

17.1 Total Taking After Project Delivery

If, following delivery of possession of the Project by John F. Otto dba Otto Construction to District, all of the Project and the Site is taken permanently under the power of eminent domain, the Term shall cease as of the day possession shall be so taken.

17.1.1 The financial interest of John F. Otto dba Otto Construction shall be limited to the amount of principal payments pursuant to the GMP provisions indicated in **Exhibit C** that are then due or past due together with all remaining and succeeding principal payments pursuant to the GMP provisions indicated in **Exhibit C** for the remainder of the original Term. For example, if all of the Project and the Site is taken at the end of the third year of the Term, John F.

Otto dba Otto Construction shall be entitled to receive from the eminent domain award the sum of all principal payments pursuant to the GMP provisions indicated in **Exhibit C** that would have been owing for the fourth year through the end of the Term had there been no taking.

17.1.2 The balance of the award, if any, shall be paid to the District.

17.2 Total Taking Prior to Project Delivery

If all of the Project and the Site is taken permanently under the power of eminent domain and John F. Otto dba Otto Construction is still performing the work of the Project and has not yet delivered possession of the Project to District, the Term shall cease as of the day possession shall be so taken. The financial interest of John F. Otto dba Otto Construction shall be the amount John F. Otto dba Otto Construction has expended to date for work performed on the Project, subject to documentation reasonably satisfactory to the District.

17.3 Partial Taking

If, following delivery of possession of the Project by John F. Otto dba Otto Construction to District, less than all of the Project and the Site is taken permanently, or if all of the Project and the Site or any part thereof is taken temporarily, under the power of eminent domain.

17.3.1 This Facilities Lease shall continue in full force and effect and shall not be terminated by virtue of that partial taking and the Parties waive the benefit of any law to the contrary, and

17.3.2 There shall be a partial abatement of any principal payments pursuant to the GMP provisions indicated in **Exhibit C** as a result of the application of the net proceeds of any eminent domain award to the prepayment of those payments hereunder. The Parties agree to negotiate, in good faith, for an equitable split of the net proceeds of any eminent domain award and a corresponding reduction in the payments required pursuant to the GMP provisions indicated in **Exhibit C**.

18. Damage and Destruction

If, following delivery of possession of all or a portion of the Project by John F. Otto dba Otto Construction to District, the Project is totally or partially destroyed due to fire, acts of vandalism, flood, storm, earthquake, Acts of God, or other casualty beyond the control of either party hereto, the Term shall end and District shall no longer be required to make any payments required pursuant to the GMP provisions indicated in Exhibit C that are then due or past due or any remaining and succeeding principal payments pursuant to the GMP provisions indicated in Exhibit C for the remainder of the original Term.

19. Abatement

19.1 If, after the Parties have executed the Memorandum of Commencement Date attached hereto as **Exhibit E**, the Project becomes destroyed or damaged beyond repair, the District may determine its use of the Project abated. Thereafter, the District shall have no obligation to make, nor shall John F. Otto dba Otto Construction have

the right to demand, the Lease Payments as indicated in the GMP provisions indicated in Exhibit C to this Facilities Lease. The Term shall cease at that time.

19.2 The Parties hereby agree that the net proceeds of the District's rental interruption insurance that the District must maintain during the Term, as required herein, shall constitute a special fund for the payment of the Lease Payments indicated in the GMP provisions indicated in **Exhibit C**.

19.3 The District shall as soon as practicable after such event, apply the net proceeds of its insurance policy intended to cover that loss ("Net Proceeds"), either to:

19.3.1 Repair the Project to full use.

19.3.2 Replace the Project, at the District's sole cost and expense, with property of equal or greater value to the Project immediately prior to the time of the destruction or damage, and that replacement, once completed, shall be substituted in this Facilities Lease by appropriate endorsement; or

19.3.3 Exercise the District's purchase option *to Exhibit D to the Facilities Lease* n as indicated in the GMP provisions indicated in **Exhibit C** to this Facilities Lease.

19.4 The District shall notify John F. Otto dba Otto Construction of which course of action it desires to take within thirty (30) days after the occurrence of the destruction or damage. The Net Proceeds of all insurance payable with respect to the Project shall be available to the District and shall be used to discharge the District's obligations under this Section.

20. Access

20.1 By John F. Otto dba Otto Construction

John F. Otto dba Otto Construction shall have the right at all reasonable times to enter upon the Site to construct the Project pursuant to this Facilities Lease. Following the acceptance of the Project by District, John F. Otto dba Otto Construction may enter the Project at reasonable times with advance notice and arrangement with District for purposes of making any repairs required to be made by John F. Otto dba Otto Construction.

20.2 By District

The District shall have the right to enter upon the Site at all times. District shall comply with all safety precautions and procedures required by John F. Otto dba Otto Construction.

21. Assignment, Subleasing

21.1 Assignment and Subleasing by the District

Any assignment or sublease by District shall be subject to all of the following conditions:

21.1.1 This Facilities Lease and the obligation of the District to make the payments required pursuant to the GMP provisions indicated in **Exhibit C** shall remain obligations of the District; and

21.1.2 The District shall, within thirty (30) days after the delivery thereof, furnish or cause to be furnished to John F. Otto dba Otto Construction a true and complete copy of any assignment or sublease.

21.2 Assignment by John F. Otto dba Otto Construction

John F. Otto dba Otto Construction may assign its right, title and interest in this Facilities Lease, in whole or in part to one or more assignees, only after the written consent of District, which District will not unreasonably withhold. No assignment shall be effective against the District unless and until the District has consented in writing. Notwithstanding anything to the contrary contained in this Facilities Lease, no consent from the District shall be required in connection with any assignment by John F. Otto dba Otto Construction to a lender for purposes of financing the Project as long as there are not additional costs to the District.

22. Termination, Default And Suspension

22.1 Termination; Lease Terminable Only As Set Forth Herein

22.1.1 Except as otherwise expressly provided in this Facilities Lease, this Facilities Lease shall not terminate, nor shall District have any right to terminate this Facilities Lease or be entitled to the abatement of any necessary payments pursuant to the GMP provisions in **Exhibit C** or any reduction thereof. The obligations hereunder of District shall not be otherwise affected by reason of any damage to or destruction of all or any part of the Project; the taking of the Project or any portion thereof by condemnation or otherwise; the prohibition, limitation or restriction of District's use of the Project; the interference with such use by any private person or contractor; the District's acquisition of the ownership of the Project (other than pursuant to an express provision of this Facilities Lease); any present or future law to the contrary notwithstanding. It is the intention of the Parties hereto that all necessary payments pursuant to the GMP provisions indicated in **Exhibit C** shall continue to be payable in all events, and the obligations of the District hereunder shall continue unaffected unless the requirement to pay or perform the same shall be terminated or modified pursuant to an express provision of this Facilities Lease.

22.1.2 Nothing contained herein shall be deemed a waiver by the District of any rights that it may have to bring a separate action with respect to any Event of Default by John F. Otto dba Otto Construction hereunder or under any other agreement to recover the costs and expenses associated with that action. The District covenants and agrees that it will remain obligated under this Facilities Lease in accordance with its terms.

22.1.3 Following completion of the Project, the District will not take any action to terminate, rescind or avoid this Facilities Lease, notwithstanding the bankruptcy, insolvency, reorganization, composition, readjustment, liquidation, dissolution, winding-up or other proceeding affecting John F. Otto dba Otto Construction or any assignee of John F. Otto dba Otto Construction in any such proceeding, and notwithstanding any action with respect to this Facilities Lease

which may be taken by any trustee or receiver of John F. Otto dba Otto Construction or of any assignee of John F. Otto dba Otto Construction in any such proceeding or by any court in any such proceeding. Following completion of the Project, except as otherwise expressly provided in this Facilities Lease, District waives all rights now or hereafter conferred by law to quit, terminate or surrender this Facilities Lease or the Project or any part thereof.

22.1.4 District acknowledges that John F. Otto dba Otto Construction may assign an interest in some or all of the necessary payments pursuant to the GMP provisions indicated in **Exhibit C** to a lender in order to obtain financing for the cost of constructing the Project and that the lender may rely on the foregoing covenants and provisions in connection with such financing.

22.2 District's Request for Assurances

If District at any time reasonably believes John F. Otto dba Otto Construction is or may be in default under this Contract, District may in its sole discretion notify John F. Otto dba Otto Construction of this fact and request written assurances from John F. Otto dba Otto Construction of performance of Work and a written plan from John F. Otto dba Otto Construction to remedy any potential default under the terms of this Contract that the District may advise John F. Otto dba Otto Construction of in writing. John F. Otto dba Otto Construction shall, within ten (10) calendar days of District's request, deliver a written cure plan that meets the District's requirements in its request for assurances. John F. Otto dba Otto Construction's failure to provide such written assurances of performance and the required written plan, within ten (10) calendar days of request, will constitute a material breach of this Contract sufficient to justify termination for cause.

22.3 District's Right to Terminate John F. Otto dba Otto Construction for Cause

22.3.1 Grounds for Termination

The District, in its sole discretion, without prejudice to any other right or remedy, may terminate the Site Lease and Facilities Lease and/or terminate John F. Otto dba Otto Construction's right to perform the work of the Facilities Lease based upon any of the following:

22.3.1.1 John F. Otto dba Otto Construction refuses or fails to execute the Work or any separable part thereof; or

22.3.1.2 John F. Otto dba Otto Construction fails to complete said Work within the time specified or any extension thereof; or

22.3.1.3 John F. Otto dba Otto Construction persistently fails or refuses to perform Work or provide material of sufficient quality as to be in compliance with the Facilities Lease; or

22.3.1.4 Prior to completion of the Project, John F. Otto dba Otto Construction is adjudged a bankrupt, files a petition for relief as a debtor, or a petition is filed against John F. Otto dba Otto Construction without its consent, and the petition not dismissed within sixty (60) days; or

22.3.1.5 Prior to the completion of the Project, John F. Otto dba Otto Construction makes a general assignment for the benefit of its creditors, or a receiver is appointed on account of its insolvency; or

22.3.1.6 John F. Otto dba Otto Construction persistently or repeatedly refuses and/or fails, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials to complete the Work in the time specified; or

22.3.1.7 John F. Otto dba Otto Construction fails to make prompt payment to Subcontractors, or for material, or for labor; or

22.3.1.8 John F. Otto dba Otto Construction persistently disregards laws, or ordinances, or instructions of District as indicated in **Exhibit D**, or otherwise in violation of **Exhibit D**; or

22.3.1.9 John F. Otto dba Otto Construction fails to supply labor, including that of Subcontractors, that is sufficient to prosecute the Work or that can work in harmony with all other elements of labor employed or to be employed on the Work; or

22.3.1.10 John F. Otto dba Otto Construction or its Subcontractor(s) is/are otherwise in breach, default, or in substantial violation of any provision of this Facilities Lease, including but not limited to a lapse in licensing or registration.

22.3.2 Notification of Termination

22.3.2.1 Upon the occurrence at District's sole determination of any of the above conditions, or upon John F. Otto dba Otto Construction's failure to perform any material covenant, condition or agreement in this Facilities Lease, District may, without prejudice to any other right or remedy, serve written notice upon John F. Otto dba Otto Construction and its Surety of District's termination of this Facilities Lease and/or John F. Otto dba Otto Construction's right to perform the Work of this Facilities Lease. This notice will contain the reasons for termination.

22.3.2.2 Unless, within fifteen (15) days after the service of the notice, any and all condition(s) shall cease, and any and all violation(s) shall cease, or arrangement satisfactory to District for the correction of the condition(s) and/or violation(s) be made, this Facilities Lease and the Site Lease shall cease and terminate; provided, however, if the failure stated in the notice cannot be corrected within fifteen (15) days after the service of notice, District may consent to an extension of time, provided John F. Otto dba Otto Construction instituted and diligently pursued corrective action within the applicable fifteen (15)-day period and until the violation is corrected. Upon District determination, John F. Otto dba Otto Construction shall not be entitled to receive any further payment until the entire Work is finished.

22.3.2.3 Upon Termination, District may immediately serve written notice of tender upon Surety whereby Surety shall have the right to take over and perform this Facilities Lease only if Surety:

22.3.2.3.1 Within three (3) days after service upon it of the notice of tender, gives District written notice of Surety's intention to take over and perform this Facilities Lease; and

22.3.2.3.2 Commences performance of this Facilities Lease within three (3) days from date of serving of its notice to District.

22.3.2.4 Surety shall not utilize John F. Otto dba Otto Construction in completing the Project if the District notifies Surety of the District's objection to John F. Otto dba Otto Construction's further participation in the completion of the Project. Surety expressly agrees that any John F. Otto dba Otto Construction which Surety proposes to fulfill Surety's obligations is subject to District's approval.

22.3.2.5 If Surety fails to notify District or begin performance as indicated herein, District may take over the Work and execute the Work to completion by any method it may deem advisable at the expense of John F. Otto dba Otto Construction and/or its Surety. John F. Otto dba Otto Construction and its Surety shall be liable to District for any excess cost or other damages the District incurs thereby. Time is of the essence in this Facilities Lease. If the District takes over the Work as herein provided, District may, without liability for so doing, take possession of and utilize in completing the Work all materials, appliances, plan, and other property belonging to John F. Otto dba Otto Construction as may be on the Site of the Work, in bonded storage, or previously paid for.

22.3.3 Effect of Termination

22.3.3.1 If District terminates the Site Lease and the Facilities Lease pursuant to this section, the Site and any improvements built upon the Site shall vest in District upon termination of the Site Lease and Facilities Lease, and District shall thereafter be required to pay only the principal amounts then due and owing pursuant to the GMP provisions indicated in **Exhibit C**, less any damages incurred by District due to John F. Otto dba Otto Construction's default, acts, or omissions.

22.3.3.2 The District shall retain all rights it possesses pursuant to this Facilities Lease including, without limitation.

22.3.3.2.1 The right to assess liquidated damages due because of any project delay; and

22.3.3.2.2 All rights the District holds to demand performance pursuant to John F. Otto dba Otto Construction's required performance bond.

22.3.3.3 John F. Otto dba Otto Construction shall, only if ordered to do so by the District, immediately remove from the Site all or any materials and personal property belonging to John F. Otto dba Otto Construction that have not been incorporated in the construction of the Work, or which are not in place in the Work. The District retains the right, but not the obligation, to keep and use any materials and personal property belonging to John F. Otto dba Otto Construction that have not been incorporated in the construction of the Work, or which are not in place in the Work. John F. Otto dba Otto Construction and its Surety shall be liable upon the performance bond for all damages caused the District by reason of John F. Otto dba Otto Construction's failure to complete the Work under this Facilities Lease.

22.3.3.4 In the event that the District shall perform any portion of, or the whole of the Work, pursuant to the provisions of the General Conditions, the District shall not be liable nor account to John F. Otto dba Otto Construction in any way for the time within which, or the manner in which, the Work is performed by the District or for any changes the District may make in the Work or for the money expended by the District in satisfying claims and/or suits and/or other obligations in connection with the Work.

22.3.3.5 In the event termination for cause is determined to have not been for cause, the termination shall be deemed to have been a termination for convenience effective as of the same date as the purported termination for cause.

22.3.3.6 In the event that the Site Lease and Facilities Lease are terminated for any reason, no allowances or compensation will be granted for the loss of any anticipated profit by John F. Otto dba Otto Construction or any impact or impairment of John F. Otto dba Otto Construction's bonding capacity.

22.3.3.7 If the expense to the District to finish the Work exceeds the unpaid Guaranteed Maximum Price, John F. Otto dba Otto Construction and Surety shall pay difference to District within twenty-one (21) days of District's request. District may apply any amounts otherwise due to John F. Otto dba Otto Construction to this difference.

22.3.3.8 The District shall have the right (but shall have no obligation) to assume and/or assign to a replacement contractor or construction manager, or other third party who is qualified and has sufficient resources to complete the Work, the rights of John F. Otto dba Otto Construction under its subcontracts with any or all Subcontractors. In the event of an assumption or assignment by the District, no Subcontractor shall have any claim against the District or third party for Work performed by Subcontractor or other

matters arising prior to termination of the Facilities Lease. The District or any third party, as the case may be, shall be liable only for obligations to the Subcontractor arising after assumption or assignment. Should the District so elect, John F. Otto dba Otto Construction shall execute and deliver all documents and take all steps, including the legal assignment of its contractual rights, as the District may require, for the purpose of fully vesting in the District the rights and benefits of its Subcontractors under Subcontracts or other obligations or commitments. John F. Otto dba Otto Construction must include this assignment provision in all of its Facilities Leases with its Subcontractors.

22.3.3.9 All payments due John F. Otto dba Otto Construction hereunder shall be subject to a right of offset by the District for expenses, damages, losses, costs, claims, or reimbursements suffered by, or due to, the District as a result of any default, acts, or omissions of John F. Otto dba Otto Construction.

22.3.3.10 The foregoing provisions are in addition to and not in limitation of any other rights or remedies available to District.

22.4 Termination of John F. Otto dba Otto Construction for Convenience

22.4.1 District in its sole discretion may terminate the Facilities Lease in whole or in part upon three (3) days written notice to John F. Otto dba Otto Construction.

22.4.2 Upon notice, John F. Otto dba Otto Construction shall:

22.4.2.1 Cease operations as directed by the District in the notice;

22.4.2.2 Take necessary actions for the protection and preservation of the Work as soon as possible; and

22.4.2.3 Terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

22.4.3 Within 30 days of the notice, John F. Otto dba Otto Construction shall submit to the District a payment application for the actual cost for labor, materials, and services performed, including all John F. Otto dba Otto Construction's and Subcontractor(s)' mobilization and/or demobilization costs, that is unpaid. John F. Otto dba Otto Construction shall have no claims against the District except for the actual cost for labor, materials, and services performed that adequately documented through timesheets, invoices, receipts, or otherwise. District shall pay all undisputed invoice(s) for work performed until the notice of termination.

22.4.4 Under a termination for convenience, the District retains the right to all the options available to the District if there is a termination for cause.

22.5 John F. Otto dba Otto Construction Remedies Upon District Default

22.5.1 Events of Default by District Defined

The following shall be "Events of Default" of the District under this Facilities Lease. The terms "Event of Default" and "Default," whenever they are used as to the District in the Site Lease or this Facilities Lease, shall only mean one or more of the following events:

22.5.1.1 Failure by the District to pay payments required pursuant to the GMP provisions in **Exhibit C**, and the continuation of this failure for a period of forty-five (45) days.

22.5.1.2 Failure by the District to perform any material covenant, condition or agreement in this Facilities Lease and that failure continues for a period of forty-five (45) days after John F. Otto dba Otto Construction provides District with written notice specifying that failure and requesting that the failure be remedied; provided, however, if the failure stated in the notice cannot be corrected within the applicable period, John F. Otto dba Otto Construction shall not withhold its consent to an extension of time if corrective action is instituted by the District within the applicable period and diligently pursued until the default is corrected.

22.5.2 Remedies on District's Default

If there has been an Event of Default on the District's part, John F. Otto dba Otto Construction may exercise any and all remedies granted pursuant to this Facilities Lease; provided, however, there shall be no right under any circumstances to accelerate any of the payments required pursuant to the GMP provisions in **Exhibit C** or otherwise declare those payments not then past due to be immediately due and payable.

22.5.2.1 John F. Otto dba Otto Construction may rescind its leaseback of the Project to the District under this Facilities Lease and re-rent the Project and Site to another lessee for the remaining Term for no less than the fair market value for leasing the Project and Site, which shall be:

22.5.2.1.1 An amount determined by a mutually-agreed upon appraiser; or

22.5.2.1.2 If an appraiser cannot be agreed to, an amount equal to the mean between a District appraisal and a John F. Otto dba Otto Construction appraisal for the Project and Site, both prepared by MAI-certified appraisers.

22.5.2.2 District's obligation to make the payments required pursuant to the GMP provisions indicated in **Exhibit C** shall be:

22.5.2.2.1 Increased by the amount of costs, expenses, and damages incurred by John F. Otto dba Otto Construction in re-renting the Project and Site; and

22.5.2.2.2 Decreased by the amount of rent John F. Otto dba Otto Construction receives in re-letting the Project and Site.

22.5.2.3 District agrees that the terms of this Facilities Lease constitute full and sufficient notice of the right of John F. Otto dba Otto Construction to re-rent the Project and Site in the Event of Default without effecting a surrender of this Facilities Lease, and further agrees that no acts of John F. Otto dba Otto Construction in re-renting as permitted herein shall constitute a surrender or termination of this Facilities Lease, but that, on the contrary, in the event of an Event of Default by the District the right to re-rent the Project and Site shall vest in John F. Otto dba Otto Construction as indicated herein.

22.5.3 District's Continuing Obligation

Unless there has been damage, destruction, a Taking, or John F. Otto dba Otto Construction has acted, failed to act, or is in default as indicated above providing District with the right to terminate for cause, the District shall continue to remain liable for the payments required pursuant to the GMP provisions in **Exhibit C** and those amounts shall be payable to John F. Otto dba Otto Construction at the time and in the manner therein provided.

22.5.4 No Remedy Exclusive

No remedy herein conferred upon or reserved to John F. Otto dba Otto Construction is intended to be exclusive and every such remedy shall be cumulative and shall be in addition to every other remedy given under this Facilities Lease or now or hereafter existing at law or in equity. No delay or omission to exercise any right or power accruing upon any Default shall impair any such right or power or shall be construed to be a waiver thereof, but any such right and power may be exercised from time to time and as often as may be deemed expedient. In order to entitle John F. Otto dba Otto Construction to exercise any remedy reserved to it in this article, it shall not be necessary to give any notice, other than such notice as may be required in this Article or by law.

22.6 Emergency Termination Pursuant to Public Contracts Act of 1949

22.6.1 This Facilities Lease is subject to termination as provided by sections 4410 and 4411 of the Government Code of the State of California, being a portion of the Emergency Termination of Public Contracts Act of 1949.

22.6.1.1 Section 4410 of the Government Code states:

In the event a national emergency occurs, and public work, being performed by contract, is stopped, directly or indirectly, because of the freezing or diversion of materials, equipment or labor, as the result of an order or a proclamation of the President of the United States, or of an order of any federal authority, and the circumstances or conditions are such that it is impracticable within a reasonable time to proceed with a substantial portion of the work, then the public agency and the contractor may, by written agreement, terminate said contract.

22.6.1.2 Section 4411 of the Government Code states:

Such an agreement shall include the terms and conditions of the termination of the contract and provision for the payment of compensation or money, if any, which either party shall pay to the other or any other person, under the facts and circumstances in the case.

22.6.2 Compensation to John F. Otto dba Otto Construction shall be determined at the sole discretion of District on the basis of the reasonable value of the Work done, including preparatory work. As an exception to the foregoing and at the District's discretion, in the case of any fully completed separate item or portion of the Work for which there is a separate previously submitted unit price or item on the accepted schedule of values, that price may control. The District, at its sole discretion, may adopt the Schedule of Values Price as the value of the work done or any portion thereof.

22.7 Suspension of Work

22.7.1 District in its sole discretion may suspend, delay or interrupt the Work in whole or in part for such period of time as the District may determine upon three (3) days written notice to John F. Otto dba Otto Construction.

22.7.1.1 An adjustment may be made for changes in the cost of performance of the Work caused by any suspension, delay or interruption. No adjustment shall be made to the extent:

22.7.1.1.1 That performance is, was or would have been so suspended, delayed or interrupted by another cause for which John F. Otto dba Otto Construction is responsible; or

22.7.1.1.2 That an equitable adjustment is made or denied under another provision of the Site Lease or the Facilities Lease; or

22.7.1.1.3 That the suspension of Work was the direct or indirect result of John F. Otto dba Otto Construction's failure to perform any of its obligations hereunder.

22.7.1.1.4 The delay could not have been avoided or mitigated by John F. Otto dba Otto Construction's reasonable diligence.

22.7.1.2 Any adjustments in cost of performance may have a fixed or percentage fee as provided in the section on Format for Proposed Change Order in **Exhibit D**. This amount shall be full compensation for all John F. Otto dba Otto Construction's and its Subcontractor(s)' changes in the cost of performance of the Facilities Lease caused by any such suspension, delay or interruption.

23. Limitation of District Liability

District's financial obligations under this Contract shall be limited to the payment of the compensation provided in this Contract. Notwithstanding any other provision of this Contract, in no event shall District be liable, regardless of whether any claim is based on contract or tort, for any special, consequential, indirect or incidental damages, including, but not limited to, lost profits or revenue, lost bonding capacity, arising out of or in connection with this Contract for the services performed in connection with this Contract.

24. Notices

All notices, certificates or other communications hereunder shall be sufficiently given and shall be deemed to have been received five (5) days after deposit in the United States mail in registered or certified form with postage fully prepaid or one (1) business day after deposit with an overnight delivery service with proof of actual delivery:

If to District:

Sacramento City Unified School District
5735 47th Avenue
Sacramento, CA 95824
Attn: Tina Alvarez Bevans

If to Developer:

John F. Otto dba Otto Construction
1717 Second Street
Sacramento CA 95811
Attn: John Hayward/Allison Otto

With a copy to:

Deidree Sakai, Esq.
Dannis Woliver Kelley
200 California Street, Suite 400
San Francisco, CA 94111

John F. Otto dba Otto Construction and District, by notice given hereunder, may designate different addresses to which subsequent notices, certificates or other communications will be sent.

25. Binding Effect

This Facilities Lease shall inure to the benefit of and shall be binding upon John F. Otto dba Otto Construction and District and their respective successors, transferees and assigns.

26. No Additional Waiver Implied by One Waiver

In the event any agreement contained in this Facilities Lease should be breached by either party and thereafter waived by the other party, such waiver shall be limited to the particular breach so waived and shall not be deemed to waive any other breach hereunder.

27. Severability

In the event any provision of this Facilities Lease shall be held invalid or unenforceable by any court of competent jurisdiction, that holding shall not invalidate or render unenforceable any other provision hereof, unless elimination of the invalid provision materially alters the rights and obligations embodied in this Facilities Lease or the Site Lease.

28. Amendments, Changes and Modifications

Except as to the termination rights of both Parties as indicated herein, this Facilities Lease may not be amended, changed, modified, altered or terminated without the written agreement of both Parties hereto.

29. Net-Net-Net Lease

This Facilities Lease shall be deemed and construed to be a "net-net-net lease" and the District hereby agrees that all payments it makes pursuant to the GMP provisions in **Exhibit C** shall be an absolute net return to John F. Otto dba Otto Construction, free and clear of any expenses, charges or set-offs.

30. Execution in Counterparts

This Facilities Lease may be executed in several counterparts, each of which shall be an original and all of which shall constitute one and the same instrument.

31. John F. Otto dba Otto Construction and District Representatives

Whenever under the provisions of this Facilities Lease the approval of John F. Otto dba Otto Construction or the District is required, or John F. Otto dba Otto Construction or the District is required to take some action at the request of the other, the approval or request shall be given for John F. Otto dba Otto Construction by John F. Otto dba Otto Construction's Representative and for the District by the District's Representative, and any party hereto shall be authorized to rely upon any such approval or request.

32. Applicable Law

This Facilities Lease shall be governed by and construed in accordance with the laws of the State of California, and venued in the County within which the Site is located.

33. Attorney's Fees

If either party brings an action or proceeding involving the Property or to enforce the terms of this Facilities Lease or to declare rights hereunder, each party shall bear the cost of its own attorneys' fees.

34. Captions

The captions or headings in this Facilities Lease are for convenience only and in no way define, limit or describe the scope or intent of any provisions or sections of this Facilities Lease.

35. Prior Agreements

This Facilities Lease and the corresponding Site Lease collectively contain all of the agreements of the Parties hereto with respect to any matter covered or mentioned in this Facilities Lease and no prior agreements or understanding pertaining to any matter shall be effective for any purpose.

36. Further Assurances

Parties shall promptly execute and deliver all documents and instruments reasonably requested to give effect to the provisions of this Facilities Lease.

37. Recitals and Exhibits Incorporated

The Recitals set forth at the beginning of this Facilities Lease and the attached Exhibits are hereby incorporated into its terms and provisions by this reference.

38. Time of the Essence

Time is of the essence with respect to each of the terms, covenants, and conditions of this Facilities Lease.

39. Force Majeure

A party shall be excused from the performance of any obligation imposed in this Facilities Lease and the exhibits hereto for any period and to the extent that a party is prevented from performing that obligation, in whole or in part, as a result of delays caused by the other party or third parties, a governmental agency or entity, an act of God, pandemic, war, terrorism, civil disturbance, forces of nature, fire, flood, earthquake, strikes, or lockouts, and that non-performance will not be a default hereunder or a grounds for termination of this Facilities Lease.

40. Interpretation

None of the Parties hereto, nor their respective counsel, shall be deemed the drafters of this Facilities Lease for purposes of construing the provisions thereof. The language in all parts of this Facilities Lease shall in all cases be construed according to its fair meaning, not strictly for or against any of the Parties hereto.

[SIGNATURES ON NEXT PAGE]

IN WITNESS WHEREOF, the Parties have caused this Facilities Lease to be executed by their respective officers who are duly authorized, as of the Effective Date.

ACCEPTED AND AGREED on the date indicated below:

Dated: _____, 20__

Dated: _____, 20__

Sacramento City Unified School District

John F. Otto dba Otto Construction

By: _____

By: _____

Name: _____

Name: _____

Title: _____ Chief Business Officer _____

Title: _____

EXHIBIT A

LEGAL DESCRIPTION OF SITE

Attached is the Legal Description for:

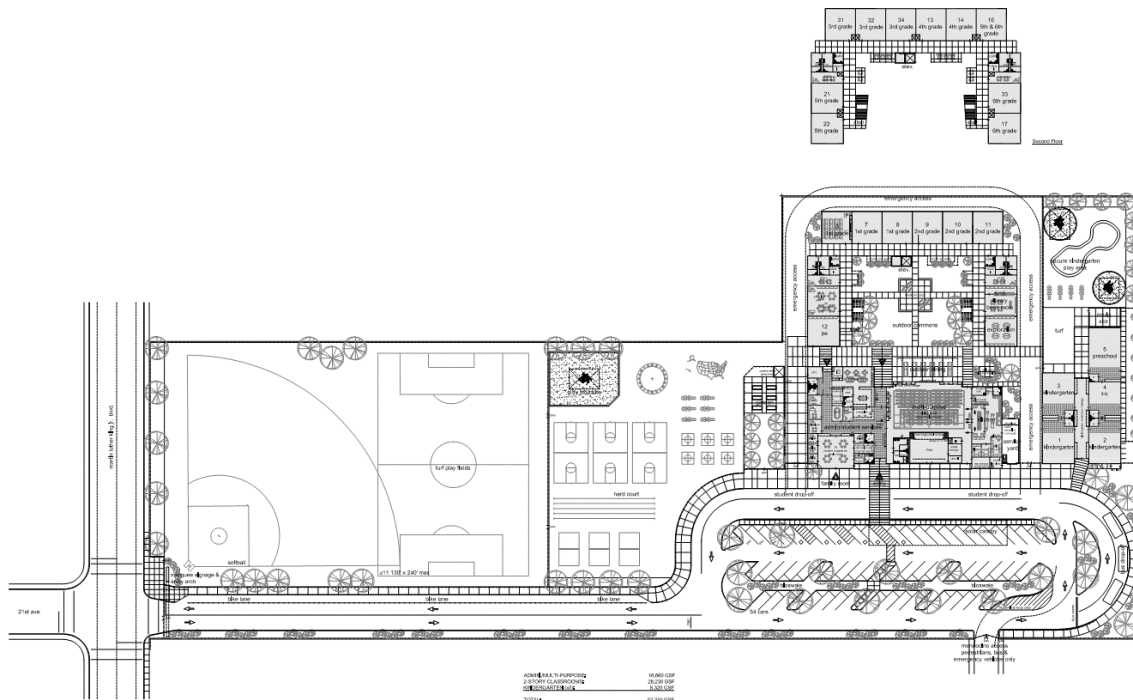
Oak Ridge Elementary School New Construction
4501 Martin Luther King Jr. Blvd., Sacramento, CA 95820
APN: 020-0220-004-0000

EXHIBIT B

DESCRIPTION OF PROJECT

Attached is a map or diagram of the Site that is subject to this Facilities Lease and upon which John F. Otto dba Otto Construction will construct the Project.

Project includes but is not limited to: Inc 1 Sitework package and Inc 2 Building package. Inc 1 Sitework construction will begin late August 2023. Inc 2 Building construction will begin May 2024 and will have two (2) phases. The first phase will be the construction of new single-story administration/multi-purpose/kitchen building; a two-story classroom building; and a single-story kindergarten building. Also included in the Inc 2 package will be the relocation of the school entrance on MLK Jr. Blvd. to align with the intersection of 21st and MLK Jr. and the relocation of the parking lot to the south-east corner of the property. The final phase of the project will include the demolition of the existing buildings and construction of new hard court and turf fields.



Compact Scheme / 2-story CRB (no phasing)

EXHIBIT C – “ATTACHMENT 1”

**GUARANTEED MAXIMUM PRICE AND
OTHER PROJECT COST, FUNDING, AND PAYMENT PROVISIONS**

Attached are the terms and provisions related to Site Lease payments, the Facilities Lease, the Guaranteed Maximum Price and other related cost, funding, and payment provisions.

EXHIBIT D – PLEASE REFER TO “ATTACHMENT 7.2”

GENERAL CONSTRUCTION PROVISIONS

Attached are the general construction terms and conditions for the Project.

EXHIBIT D-1 – PLEASE REFER TO “ATTACHMENT 7.2”

SPECIAL CONDITIONS

Attached are the special terms and conditions for the Project.

EXHIBIT E

MEMORANDUM OF COMMENCEMENT DATE

This MEMORANDUM OF COMMENCEMENT DATE is dated _____, 20__, and is made by and between _____ ("John F. Otto dba Otto Construction"), as Lessor, and the Sacramento City Unified School District ("District"), as Lessee.

1. John F. Otto dba Otto Construction and District have previously entered into a Facilities Lease dated as of _____, 20__, (the "Lease") for the leasing by John F. Otto dba Otto Construction to District of the completed Project in [City], California, referenced in the Lease.

2. District hereby confirms the following:

A. That all construction of the Project required to be performed pursuant to the Facilities Lease has been completed by John F. Otto dba Otto Construction in all respects;

B. That District has accepted and entered into possession of the Project and now occupies same; and

C. That the term for the Lease Payments under the Facilities Lease commenced on _____, 20__ and will expire at 11:59 P.M. on _____, 20__.

THIS MEMORANDUM OF COMMENCEMENT DATE IS ACCEPTED AND AGREED on the date indicated below:

Dated: _____, 20__

Dated: _____, 20__

Sacramento City Unified School District

John F. Otto dba Otto Construction

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

EXHIBIT F – “ATTACHMENT 2”

CONSTRUCTION SCHEDULE

Attached is a detailed Project Construction Schedule with a duration no longer than the Contract Time, and with specific milestones that John F. Otto dba Otto Construction shall meet.

~~[To Be Attached Via Addendum]~~

EXHIBIT G – “ATTACHMENT 3”

SCHEDULE OF VALUES

Attached is a detailed Schedule of Values that complies with the requirements of the Construction Provisions (Exhibit “D”) and that has been approved by the District.

~~[To Be Attached Via Addendum]~~

EXHIBIT H

PROJECT LABOR AGREEMENT – Visit the District Website

https://www.scusd.edu/sites/main/files/file-attachments/scusd_pla_june_9_2022_final_signed.pdf?1659979868

EXHIBIT I
see DSA approved specifications "Attachment 6.2"

DIVISION 01 SPECIFICATION

Attached is Div. 01 Specification for this Project

EXHIBIT J – “ATTACHMENT 5”

CONTRACT FORMS

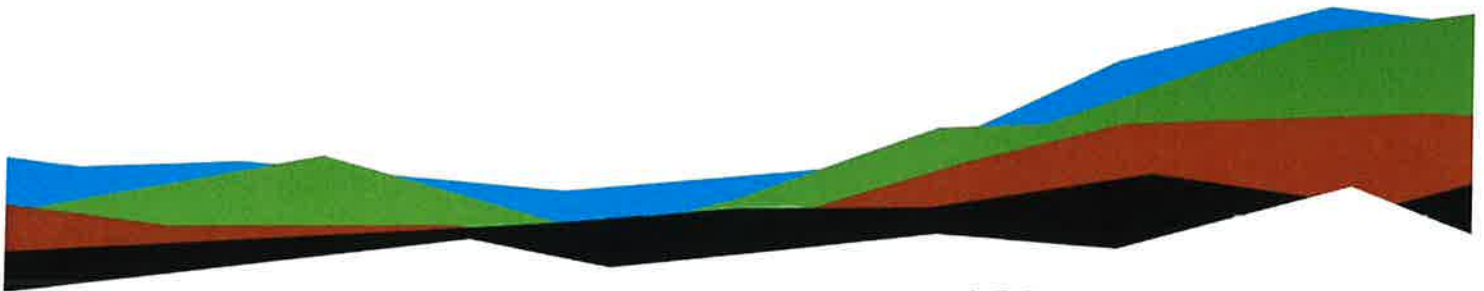
Oak Ridge Elementary School Improvements

Geotechnical Engineering Report and Geologic Hazards Evaluation

February 13, 2023 | Terracon Project No. NB225139

Prepared for:

Sacramento City Unified School
District
5735 47th Avenue
Sacramento, CA 95824



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- Facilities
- Environmental
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- Materials

Geotechnical Engineering Report

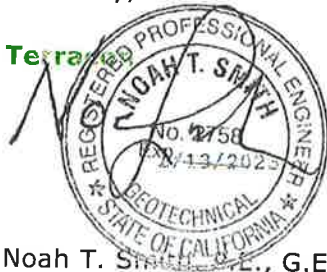
Oak Ridge Elementary School Improvements | Sacramento, CA 95820
February 13, 2023 | Terracon Project No. NB225139



We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon



Noah T. Smith P.E., G.E.
Principal



Eric S. Smith P.E.
Senior Engineer



Curtis E. Hall P.G.
Project Geologist

Geotechnical Engineering Report

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Attachments

- Exploration and Testing Procedures**
- Site Location and Exploration Plans**
- Exploration and Laboratory Results**
- Supporting Information**

Note: This report was originally delivered in a web-based format. **Blue Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the  Terracon logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

Refer to each individual Attachment for a listing of contents.

Geotechnical Engineering Report

Oak Ridge Elementary School Improvements | Sacramento, CA 95820

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General Comments

This section contains important information about the limitations of this geotechnical engineering report.

1. If the reader is reviewing this report as a pdf, the topics above can be used to access the appropriate section of the report by simply clicking on the topic itself.
2. This summary is for convenience only. It should be used in conjunction with the entire report for design purposes.

Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering Report and Geologic Hazards Evaluation services performed for the proposed school facility to be located at 4501 Martin Luther King Jr. Boulevard in Sacramento, CA 95820. The purpose of these services was to provide an assessment of geologic hazards at the site and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Seismic site classification per the 2022 California Building Code (CBC)
- Site preparation and earthwork
- Demolition considerations
- Foundation design and construction
- Floor slab design and construction
- Lateral earth pressures
- Pavement design and construction
- Stormwater detention considerations
- Liquefaction potential

The geotechnical engineering Scope of Services for this project included the advancement of test borings, laboratory testing, engineering analysis, and preparation of this report.

Drawings showing the site and boring locations are shown on the [Site Location](#) and [Exploration Plan](#), respectively. The results of the laboratory testing performed on soil samples obtained from the site during our field exploration are included on the boring logs in the [Exploration Results](#) section.

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Item	Description
Maximum Loads	<p>In the absence of information provided by the design team, we will use the following loads in estimating settlement based on our experience with similar projects.</p> <ul style="list-style-type: none">■ Columns: 30 to 45 kips per story■ Walls: 1 to 4 kips per linear foot (klf)■ Slabs: 150 pounds per square foot (psf)
Grading	<p>A preliminary grading plan was not available for review at the time this report was prepared. We have assumed general cuts and fills of 2 feet or less will be required to develop final grades, excluding any required remedial grading.</p>
Below-Grade Structures	<p>Site improvements include culverts, drainage structures, storm drain lines, and an elevator pit with an anticipated maximum depth of 5 feet bgs or less.</p>
Pavements	<p>The anticipated ACI traffic categories and daily truck traffic were assumed to consist of:</p> <ul style="list-style-type: none">■ Category A: Car parking areas and access lanes, 10 truck per day■ Category B: Entrance and truck service lanes, 10 trucks per day■ Category C: Buses■ Category D: Heavy duty trucks, 10 trucks per day■ Category E: Garbage or fire truck lanes <p>We assumed the following traffic indices (TIs) will be used:</p> <ul style="list-style-type: none">■ Auto Parking Areas: TI = 5.0:■ Auto Road: TI = 5.5■ Truck Parking Areas: TI = 6.0■ Truck Ramps and Roads: TI = 8.0
Building Code	2022 California Building Code (CBC)

Terracon should be notified if any of the above information is inconsistent with the planned construction, especially the grading limits, as modifications to our recommendations may be necessary.

Site Conditions

The following description of site conditions is derived from our site visit in association with the field exploration.

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As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	Sandy Lean Clay	Soft to hard sandy lean clay
2	Silty Clay	Medium stiff to hard silty clay
3	Clayey Sand	Medium dense to very dense clayey sand
4	Poorly Graded Sand with Gravel	Very dense poorly graded sand with gravel

Additional borings, auger probes, test pits, or geophysical testing could be performed to obtain more specific subgrade information.

Groundwater Conditions

Groundwater was encountered in Boring B8 at an approximate depth of 36 feet bgs at the time of drilling and at an approximate depth of 30 feet bgs at the completion of drilling. Groundwater was not encountered in the remaining borings drilled to depths varying from 5 feet bgs to 25 feet bgs at the time of our field exploration.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structures may be higher or lower than anticipated. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

Historical Groundwater Conditions

Available groundwater data were reviewed in order to estimate the historical groundwater conditions for the site. Groundwater was not encountered in borings drilled to a depth of 15 feet bgs in July 2007 at the Christian Brothers High School immediately north of the project site. Groundwater data for State monitored wells in the area are summarized in the following table.

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Geology and Geologic Hazards

Regional Geologic Setting

The Great Valley geomorphic province is situated between the Sierra Nevada and Coast Range geomorphic provinces and can be separated into the (northern) Sacramento Valley and (southern) San Joaquin Valley. The Great Valley, commonly referred to as the Central Valley, can best be described as a trough into which sediments from the Coast Ranges and Sierra Nevada have been almost continuously deposited since the Jurassic Period, forming an alluvial plain approximately 50 miles wide and 400 miles long in the central portion of California¹.

Site Geology

The site is located within the Great Valley geomorphic province of California, more specifically, the southern portion of the Sacramento Valley. The site lies approximately 40 kilometers west of the Sierra Nevada foothills, and 50 kilometers east of the Coast Ranges. As depicted in the Regional Geologic Map², the site is underlain by the middle unit of the Middle to Late Pleistocene Riverbank Formation. The Riverbank Formation is described as arkosic alluvium mainly consisting of sand with some silt and is thought to be glacial outwash derived from the Sierra Nevada³. This formation forms terraces and alluvial fans along the Mokelumne and Consumnes Rivers.

As part of the current Geotechnical Engineering field exploration, 19 borings were advanced to depths ranging from 5 to 50 feet below existing ground surface (bgs). The soils encountered in our borings are generally consistent with the mapped geology.

¹ California Geological Survey (2002); *Note 36: California Geomorphic Provinces*

² Gutierrez, C.I. (2011); *Preliminary Geologic Map of the Sacramento 30' X 60' Quadrangle, California*; California Geological Survey (CGS); Preliminary Geologic Maps PGM-11-06; Scale 1:100,000

³ Atwater, Brian F. and Marchand, Denis E. (1980); *Preliminary Maps Showing Late Cenozoic Deposits of the Bruceville, Elk Grove, Florin, and Galt 7.5-Minute Quadrangles, Sacramento and San Joaquin Counties, California*; U.S. Geological Survey (USGS); Open-File Report 80-849.

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Discovered during development of the Rio Vista gas fields (1936-1943), the Midland fault is a north-trending near vertical to steeply west-dipping fault. Activity on the fault appears to be constrained to the early Tertiary continental margin¹.

Based on the site's proximity to this boundary, and the comparatively long distance to strike-slip faulting associated with the San Andreas fault system, the Great Valley fault system may present the most significant seismic hazard to this project.

Fault Rupture Potential

The site is not located within a State of California Earthquake Fault Zone, as established by the California Geological Survey (CGS)². The nearest potentially active faults capable of surface rupture are the Midland fault zone, located approximately 20 miles west of the site, and the Dunnigan Hills fault, located approximately 23 miles northwest. Known faults or fault-related features are not located within this site; therefore, the potential for fault rupture within the site is considered low.

Historical Earthquakes

A search of the USGS Earthquake catalog for historic seismic events since 1800, with a magnitude of 4.5 to 9.0, and within 150 kilometers of the site yielded 123 results. The search returned 69 events of magnitude 4.5 to 4.9, 37 events between 5.0 and 5.9, 14 events between 6.0 and 6.9, and 2 events of magnitude 7.0 or greater. The following table summarizes those events with a magnitude of 6.0 or greater.

Summary of Historic Seismicity				
Event ID	Date	Magnitude	Distance from Site (miles)	Direction from Site
The 1906 San Francisco Earthquake	1906-04-18	7.9	80	WSW
The 1838 San Andreas Fault Earthquake	1838-06-25	7.4	93	SW
The 1868 Hayward Fault Earthquake	1868-10-21	6.8	67	SW
Near Vacaville	1892-04-19	6.6	30	W
South of Sonoma	1898-03-31	6.4	61	W

¹ Harwood, D.S. and Helley, E.J.(1987); *Late Cenozoic tectonism of the Sacramento Valley, California*; U.S. Geological Survey (USGS); Professional Paper 1359.

² California Geological Survey (Rev 2018); *Special Publication 42: Earthquake Fault Zones*.

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have occurred on associated faults¹. Most of these are centered on the southern sections, including the 1985 Kettleman Hills-North Dome earthquake (Mw 6.1) and the 1993 Coalinga earthquake (Mw 6.5).

The 1892 Vacaville-Winters earthquake sequence likely occurred on the Gordon Valley thrust². Shaking from these earthquakes, as well as the magnitude 5.6 aftershock centered in Dixon, California, were felt as far north as Redding, California. According to Stover and Coffman³ cracks were observed in walls in Willows, California (about 56 miles north of the site), and in Esparto, California (about 32 miles to the northwest), "every brick chimney fell, and wood-frame buildings were wretched out of shape".

Inundation by Tsunamis and Seiches

Tsunamis are long period waves, usually produced by a submarine earthquake, volcanic eruption, or landslide. Seiches are an oscillation of a body of water in an enclosed or semi-enclosed basin, mainly caused by local changes in atmospheric pressure aided by tidal currents, winds, and occasionally by earthquakes and landslides. The site is outside of any tsunami hazard zones^{4,5}, and there are no bodies of water in the immediate vicinity of the site; therefore, tsunamis and seiches are not a potential hazard to the site.

Flooding

The site is not located within a potential inundation zone for seismically-induced dam/reservoir failure. No large water storage facilities are known to exist in the area of

¹ Wakabayashi, J. and Smith, D.L. (1994); *Evaluation of recurrence intervals, characteristic earthquakes, and slip rates associated with thrusting along the Coast Range-Central Valley geomorphic boundary, California*; Bulletin of the Seismological Society of America; Vol. 84; pp 1960-1970.

² O'Connell, D.R.H., Unruh, J.R., and Block, L.V. (2001); *Source characterization and ground-motion modeling of the 1892 Vacaville-Winters earthquake sequence, California*; Bulletin of the Seismological Society of America, Vol. 91, pp 1471-1497.

³ Stover, C.W. and Coffman, J.L. (1993); *Seismicity of the United States, 1568-1989 (revised)*; U.S. Geological Survey (USGS); Professional Paper 1527

⁴ California Governor's Office of Emergency Services (Cal OES); "My Hazards App"; accessed January 27, 2023; <https://myhazards.caloes.ca.gov/>

⁵ American Society of Civil Engineers (ASCE); "ASCE 7 Hazard Tool"; accessed January 27, 2023; <https://asce7hazardtool.online/>

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approximately -0.02 feet of vertical displacement between January 2015 and October 2022.

While subsidence is potentially damaging to extensive structures, such as irrigation ditches or large water lines, damage to the proposed structures (having relatively small footprint areas) is not anticipated due to the distributed nature of the subsidence area. Organic-rich soils with significant collapse potential were not encountered during our exploration and are not anticipated to be present in the general area of the site. Therefore, the potential for regional subsidence effects at the site is considered low.

Erosion Potential

The subject site is proposed to be covered with structures and flatwork with minimal landscaping. Erosion by wind and water is not considered to be a hazard at the site.

Volcanic Eruption

Based on our review of available literature from the USGS¹, the site is not located within an area designated as a volcanic hazard zone.

Radon

Radon is an odorless and invisible naturally occurring carcinogenic gas produced by the decay of uranium and radium. It is the second leading cause of lung cancer in the United States. In accordance with Sections 307 and 309 of the Indoor Radon Abatement Act of 1988 (IRAA), the EPA identified areas within the United States with the potential for elevated indoor radon levels. An assessment of geologic radon potential in California² indicates that Sacramento County and the Central Valley have low radon potential. The EPA Map of Radon Zones in California assigns each county to one of three zone designations based on radon potential. The site location (Sacramento County) is mapped as Zone 3, meaning it has a low potential for radon and average indoor radon levels may be less than 2 pCi/L.

¹ Mangan, M., Ball, J., Wood, N., Jones, J.L., Peters, J., Abdollahian, N., Dinitz, L., Blankenheim, S., Fenton, J., and Pridmore, C. (2019); *California's exposure to volcanic hazards (ver. 1.1, December 2019)*; U.S. Geological Survey (USGS); Scientific Investigations Report 2018-5159.

² Schumann, R. Randall (1993); *Geologic Radon Potential of EPA Region 9, Arizona, California, Hawaii, and Nevada*; U.S. Geological Survey (USGS); Open-File Report 93-292-I; pp. 70-93.

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Based on this exception, the spectral response accelerations presented below were calculated using the site coefficients (F_a and F_v) from Tables 1613.2.3(1) and 1613.2.3(2) presented in Section 16.4.4 of the 2022 CBC.

Description	Value
2022 California Building Code (CBC) Site Classification ¹	D-Default ²
Risk Category	III
Site Latitude ³	38.5340°
Site Longitude ³	-121.4624°
S_s , Spectral Acceleration for a Short Period ⁴	0.559
S_1 , Spectral Acceleration for a 1-Second Period ⁴	0.250
F_a , Site Coefficient	1.353
F_v , Site Coefficient (1-Second Period)	2.100
S_{DS} , Spectral Acceleration for a Short Period	0.504
S_{D1} , Spectral Acceleration for a 1-Second Period	0.350

1. Seismic site soil classification in general accordance with the *2022 California Building Code*, which refers to ASCE 7-16. Site Classification is required to determine the Seismic Design Category for a structure.
2. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7-16 and the CBC. Subsurface explorations at this site were extended to a maximum depth of approximately 50 feet bgs. Standard penetration resistance values from our borings were used to help determine the site soil classification. The site properties below the maximum exploration depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper exploration or geophysical testing may be performed to confirm the conditions below the current maximum depth of exploration.
3. Provided coordinates represent a point located at the general center of the site.
4. These values were obtained using online seismic design maps and tools provided by SEAOC and OSHPD (<https://seismicmaps.org/>).

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sand and poorly graded sand were present in Borings B3 and B8 that could have the potential for liquefaction. As a result, we performed a quantitative evaluation of the potential for liquefaction to occur considering the cohesionless soils only and the effects if liquefaction were to occur on this project.

A Peak Ground Acceleration (PGA) of 0.320g and an earthquake magnitude of 6.51 for the project site was used in our evaluation. Based on our review the available groundwater data presented in the **Historical Groundwater Conditions** section of this report and groundwater data collected from our borings during our field exploration, we believe a historical high groundwater level of 23 feet bgs is appropriate for design of the proposed facility. As a result, we utilized a groundwater depth of 23 feet in our evaluation.

The liquefaction study and analysis of seismic settlement utilized the software "LiquefyPro" by CivilTech Software. The analysis was based on the soil data obtained from Boring B-8. Fines corrections were made using the Stark/Olson et al. method. The settlement analyses used the Ishihara/Yoshimine method. A factor of safety of 1.3 was used against liquefaction. The liquefaction potential analysis was calculated from a depth of 23 to 50 feet bgs. A summary of the results of our analysis has been attached to this report.

Based on our review of the calculations, liquefaction-induced settlement is not anticipated at the site. In addition, the geologic deposits at the site are Middle to Late Pleistocene in age. It is generally accepted that Pleistocene age deposits are not considered susceptible to liquefaction. In our opinion, the potential for seismically induced hazards such as settlement, lateral spreading, and loss of bearing capacity are low.

Percolation/Infiltration

We performed 3 percolation tests within the proposed site development for use by the project civil engineer in the design of the storm water retention system. The percolation tests were performed using borings P-1, P-2 and P-3 drilled to a depth of approximately 5 feet bgs. The approximate locations of the test holes are shown on the [Exploration Plan](#).

After drilling the test holes, we placed approximately 2 inches of gravel in the bottom of each hole, then placed a slotted PVC pipe in each hole, and filled the annular space around the pipe with gravel. The test holes were filled with water and left to saturate for a minimum 24 hours. We then filled the shallow holes with water to depths ranging from about 4.8 to 5.2 foot and measured the drop-in water surface over a period of 2 hours depending on the hole, refilling the holes as necessary to maintain the desired head.

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Subsurface Soil Variation: Variations in subsurface soil conditions and the presence of fine layering can affect the infiltration rate of the receptor soils. Due to variation in the thickness and type of the upper surface fine grained soils, infiltration rates may vary across the site. **Construction Considerations:** The infiltration rate of the receptor soils will be reduced in the event that fine sediment, organic materials, and/or oil residue are allowed to accumulate in the retention facilities. The use of a filtration system is highly recommended as well as a maintenance program.

Operation of heavy equipment during construction may densify the receptor soils below the infiltration facility. The soils exposed in the bottom of the infiltration facility should not be compacted and should remain in their native condition. This may require scarification of the soils prior to construction.

Maintenance of Facilities: Satisfactory long-term performance of an infiltration facility will require some degree of maintenance. Accumulations of sediment, organic materials, or other material that serve to reduce their permeability of the receptor soils should be removed from the filtration system on a regular basis so as not to enter the retention system. The filtration system shall have a rigorous maintenance program, debris from the filtration maintenance should be disposed of at an approved facility in accordance with applicable regulation.

Corrosivity

The table below lists the results of laboratory soluble sulfate, soluble chloride, electrical resistivity, and pH testing. The values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

Corrosivity Test Results Summary

Boring	Sample Depth (feet)	Soil Description	Soluble Sulfate (%)	Soluble Chloride (%)	Electrical Resistivity (Ω -cm)	pH
B-1	0-4	Sandy Lean Clay	<0.01	0.01	3,717	7.4
B-10	2½	Silty Clay	<0.01	0.01	2,891	7.8

Results of soluble sulfate testing can be classified in accordance with ACI 318 – Building Code Requirements for Structural Concrete. Numerous sources are available to characterize corrosion potential to buried metals using the parameters above. ANSI/AWWA is commonly used for ductile iron, while threshold values for evaluating the

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probably increase if modification of the site results in excessive wetting or drying of the expansive soils. Eliminating the risk of movement and distress may not be feasible, but it may be possible to further reduce the risk of movement if significantly more expensive measures are used during construction. Some of these options are discussed in this report such as replacement of expansive soils or chemical stabilization.

The near surface, medium plasticity clays could become unstable with typical earthwork and construction traffic, especially after precipitation events. The effective drainage should be completed early in the construction sequence and maintained after construction to avoid potential issues. If possible, the grading should be performed during the warmer and drier times of the year. If grading is performed during the winter months, an increased risk for possible undercutting and replacement of unstable subgrade will persist. Additional site preparation recommendations, including subgrade improvement and fill placement, are provided in the **Earthwork** section.

The soils which form the bearing stratum for shallow foundations are plastic and exhibit potential for shrink-swell movements with changes in moisture. Additional areas of localized highly plastic soils may be present where borings were not performed. Maintaining above optimum moisture conditions in the bearing soils and a minimum dead load pressure on footings should reduce the anticipated swell movements to tolerable levels. The **Shallow Foundations** section addresses support of the structures directly bearing on firm native soil. We do not expect significant dead load on the floors and recommend either overexcavation or chemical treatment of near-surface moderate to high plasticity clays to reduce the heave potential. The **Floor Slabs** section addresses slab-on-grade support of the structures using overexcavation or chemical treatment techniques.

Earthwork

We anticipate general grading may consist of cuts and fills on the order of 2 feet or less excluding any required remedial grading. Specific site grading information was unavailable at the time this report was prepared. If elevation and site grading differ from our stated assumptions, Terracon should be contacted to determine if additional earthwork recommendations are warranted.

Earthwork is anticipated to include demolition, clearing and grubbing, excavations, and engineered fill placement. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered in our geotechnical engineering evaluation for foundations, floor slabs, and pavements.

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Subgrade Preparation

After clearing, any required cuts and overexcavation should be made.

Subgrade soils beneath proposed floor slab and hardscape areas should either be overexcavated to a minimum depth of 18 inches below finished subgrade or be chemically treated to a depth of 18 inches with quicklime or Portland cement.

Once cuts and over-excavation operations are complete, the resulting subgrade should be proofrolled with an adequately loaded vehicle such as a fully-loaded tandem-axle dump truck. The proofrolling should be performed under the observation of the Geotechnical Engineer or their representative. Areas excessively deflecting under the proofroll should be delineated and subsequently addressed by the Geotechnical Engineer. Such areas should either be removed or modified by stabilizing as noted in the following section **Soil Stabilization**. Excessively wet or dry material should either be removed, or moisture conditioned and recompacted.

Excavated material may be stockpiled for use as fill provided it is cleaned of organic material, debris, and any other deleterious material and meets the criteria for general or structural fill specified in the **Fill Material Types** section of this report.

Once proof rolling has been performed, all exposed areas which will receive fill, should be scarified, moisture conditioned as necessary, and compacted per the compaction requirements in this report. The depth of scarification of subgrade soils and moisture conditioning of the subgrade is highly dependent upon the time of year of construction and the site conditions that exist immediately prior to construction. If construction occurs during the winter or spring, when the subgrade soils are typically already in a moist condition, scarification and compaction may only be 8 inches. If construction occurs during the summer or fall when the subgrade soils have been allowed to dry out deeper, the depth of scarification and moisture conditioning may be as much as 18 inches or more. A representative from Terracon should be present to observe the exposed subgrade and confirm the depth of scarification and moisture conditioning required.

Following scarification, moisture conditioning, and compaction of the subgrade soils, compacted structural fill soils should then be placed to the proposed design grade and the moisture content and compaction of subgrade soils should be maintained until foundation, slab, or pavement construction.

Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable; however, the workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by scarifying and drying.

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fabric or geogrid until one full lift of aggregate base is placed above it. The maximum particle size of granular material placed over geotextile fabric or geogrid should meet the manufacturer's specifications.

- **Chemical Stabilization** - Improvement of subgrades with Portland cement or quicklime could be considered for improving unstable soils. Chemical stabilization should be performed by a pre-qualified contractor having experience with successfully stabilizing subgrades in the project area on similar sized projects with similar soil conditions. The hazards of chemicals blowing across the site or onto adjacent property should also be considered. Additional testing would be needed to develop specific recommendations to improve subgrade stability by blending chemicals with the site soils. Additional testing could include, but not be limited to, determining the most suitable stabilizing agent, the optimum amounts required, and the presence of sulfates in the soil. If this method is chosen to stabilize subgrade soils the actual amount of high calcium quicklime/Portland cement to be used should be determined by Terracon and by laboratory testing at least three weeks prior to the start of grading operations.

Further evaluation of the need and recommendations for subgrade stabilization can be provided during construction as the geotechnical conditions are exposed.

Fill Material Types

Fill required to achieve design grade should be classified as structural fill and general fill. Structural fill is material used below, or within 5 feet of structures, hardscapes, and pavements. General fill is material used to achieve grade outside of these areas.

Reuse of On-Site Soil: Excavated on-site soil may be selectively reused as general or structural fill, provided the fill criteria in the follow table is met. The near surface on-site soils are not suitable for use as granular structural fill below floor slabs and hardscapes. Portions of the on-site soil have an elevated fines content and will be sensitive to moisture conditions (particularly during seasonally wet periods) and may not be suitable for reuse when above optimum moisture content.

Material property requirements for on-site soil for use as general fill and structural fill are noted in the table below:

Property	General Fill	Structural Fill
Composition	Free of deleterious material	Free of deleterious material
Maximum particle size	6 inches (or 2/3 of the lift thickness)	3 inches

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Fill Placement and Compaction Requirements

Compacted native soil and structural and general fill should meet the following compaction requirements.

Item	Structural Fill	General Fill
Maximum Lift Thickness	8 inches or less in loose thickness when heavy, self-propelled compaction equipment is used 4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used	Same as structural fill
Minimum Compaction Requirements ^{1,2}	95% of max. for structural fill below slabs, within 1 foot of finished pavement subgrade, for aggregate base and chemically treated soil, and for fills thicker than 5 feet 90% of max. for all other locations	90% of max.
Water Content Range ¹	Low plasticity cohesive: +1% to +3% above optimum Medium plasticity cohesive: +2% to +4% above optimum Granular: -2% to +2% of optimum	As required to achieve min. compaction requirements

1. Maximum density and optimum water content as determined by the Modified Proctor test (ASTM D 1557).
2. If the granular material is a coarse sand or gravel, or of a uniform size, or has a low fines content, compaction comparison to relative density may be more appropriate. In this case, granular materials should be compacted to at least 70% relative density (ASTM D 4253 and D 4254). Materials not amenable to density testing should be placed and compacted to a stable condition observed full time by the Geotechnical Engineer or representative.

Utility Trench Backfill

Any soft or unsuitable materials encountered at the bottom of utility trench excavations should be removed and replaced with structural fill or bedding material in accordance with public works specifications for the utility to be supported. This recommendation is particularly applicable to utility work requiring grade control and/or in areas where subsequent grade raising could cause settlement in the subgrade supporting the utility. Trench excavation should not be conducted below a downward 1:1 projection from

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treated soil should not be backfilled with aggregate base, native soil, or disturbed chemically treated soil.

Grading and Drainage

All grades must provide effective drainage away from buildings during and after construction and should be maintained throughout the life of the structures. Water retained next to the buildings can result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential floor slab and/or foundation movements, cracked slabs and walls, and roof leaks. The roof should have gutters/drains with downspouts that discharge onto splash blocks a distance of at least 10 feet from the buildings, onto pavements, or are tied to tight lines that discharge into a storm drain system.

Exposed ground should be sloped and maintained at a minimum 5 percent away from the building for at least 10 feet beyond the perimeter of the building. If a minimum 5 percent slope cannot be achieved due to site grades, a minimum 2½ percent slope could be used provided pavement or hardscape surrounds and extends to the buildings, or a subdrain could be installed around the perimeter of the foundations that carries water away from the buildings. Locally, flatter grades may be necessary to transition ADA access requirements for flatwork. After building construction and landscaping have been completed, final grades should be verified to document effective drainage has been achieved. Grades around the structure should also be periodically inspected and adjusted, as necessary, as part of the structures' maintenance program. Where paving or flatwork abuts the structures, a maintenance program should be established to effectively seal and maintain joints and prevent surface water infiltration.

Any planters and bio-swales located within 10 feet of the buildings should be self-contained or lined with an impermeable membrane to prevent water from accessing subgrade soils below the buildings. Sprinkler mains and spray heads should be located a minimum of 5 feet away from the foundation lines.

No vegetation over six feet in height shall be planted within 20 feet of the buildings' perimeters unless a root barrier is provided between the structures and tree to limit roots within 10 feet of buildings. Roots can draw additional moisture from the soils and cause excessive volume changes in the soil resulting in building movement.

Implementation of adequate drainage for this project can affect the surrounding developments. Consequently, in addition to designing and constructing drainage for this project, the effects of site drainage should be taken into consideration for the planned structures on this property, the undeveloped portions of this property, and surrounding sites. Extra care should be taken to ensure irrigation and drainage from adjacent areas do not drain onto the project site or saturate the construction area.

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instrumented for potential ground movements that could negatively affect adjoining property and/or structures.

Construction Observation and Testing

The earthwork efforts should be observed by the Geotechnical Engineer (or others under their direction). Observation should include documentation of adequate removal of surficial materials (vegetation, topsoil, debris, and pavements), as well as proofrolling and mitigation of unsuitable areas delineated by the proofroll.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, as recommended by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 1,500 square feet of compacted fill in the building areas and 4,000 square feet in pavement areas. Where not specified by local ordinance, one density and water content test should be performed for every 50 linear feet of compacted utility trench backfill and a minimum of one test performed for every 12 vertical inches of compacted backfill.

In areas of foundation excavations, the bearing subgrade should be evaluated by the Geotechnical Engineer. If unanticipated conditions are observed, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

Shallow Foundations

The proposed buildings may be supported by spread footings. If the site has been prepared in accordance with the requirements noted in [Earthwork](#), the following design parameters are applicable for shallow foundations.

Design Parameters – Compressive Loads

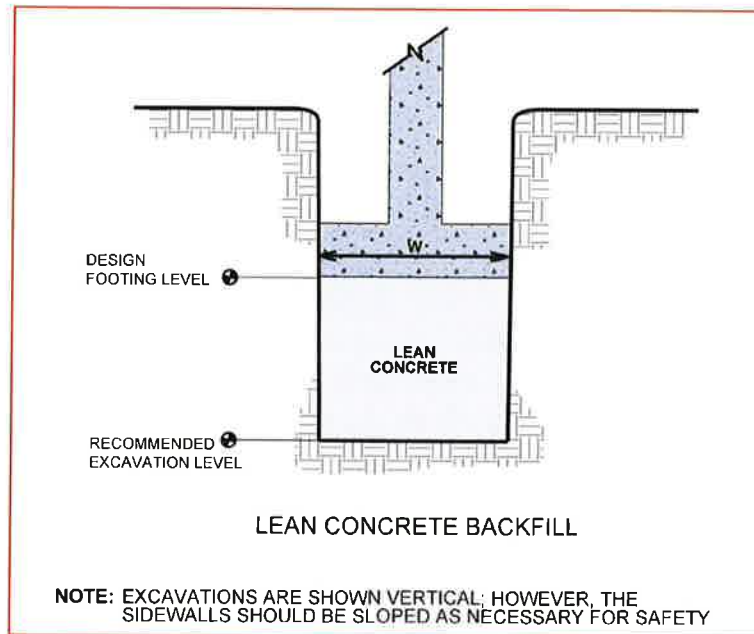
Item	Description
Maximum Net Allowable Bearing Pressure ^{1, 2}	2,500 psf
Required Bearing Stratum ³	Firm undisturbed native soil
Minimum Foundation Dimensions	Per CBC 1809.7

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material or any loose/disturbed material in the bottom of the footing excavations should be removed/reconditioned before foundation concrete is placed.

If unsuitable bearing soils are observed at the base of the planned footing excavation, the excavation should be extended deeper to suitable soils, and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. The lean concrete replacement zone is illustrated on the following sketch.



To ensure foundations have adequate support, special care should be taken when footings are located adjacent to trenches. The bottom of such footings should be at least 1 foot below an imaginary plane with an inclination of 1.5 horizontal to 1.0 vertical extending upward from the nearest edge of the adjacent trench.

Deep Foundations

Drilled Shaft Design Parameters

The proposed shade and solar canopy structures may be supported by a deep foundation system consisting of drilled shafts. The design shaft capacities and lengths should be determined by the Geotechnical and Structural Engineers during final design. We recommend that the deep foundation system be designed to develop axial compression through skin friction only, and end-bearing should be neglected. Shaft uplift capacity should also be derived from skin friction only. Design recommendations for a drilled shaft foundation system are presented in the following table.

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Drilled Shaft Soil Design Parameters¹

Depth (feet)	Stratigraphy ²		Allowable Skin Friction (psf) ³
	Geomodel No.	Material	

1. The design capacities of drilled shafts are dependent upon the method of installation and quality control parameters and should be evaluate further during final design.
2. See Subsurface Profile in **Geotechnical Characterization** for more details on stratigraphy.
3. Applicable for compressive loading only. Reduce to 2/3 of values shown for uplift. The effective weight of the shaft can be added to uplift load resistance to the extent permitted by CBC.
4. Skin friction should not be used along the upper 3 feet of the shaft.

Shafts should be adequately reinforced as designed by the Structural Engineer for both tension and shear to sufficient depths.

Post-construction settlements of drilled shafts designed and constructed as described in this report are estimated to range from about ½ to ¾ inch. Differential settlement between individual shafts is expected to be ½ to ⅔ of the total settlement. The settlement of shaft should be evaluated further during final design.

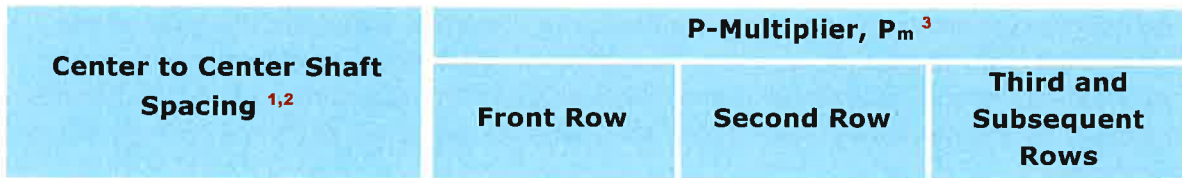
Drilled Shaft Lateral Loading

The formulas provided in CBC Section 1807 and the allowance in Section 1806.3.4 may be used to for the lateral design of drilled shafts where lateral loads are less than 10 kips. The required embedment depth of drilled shaft foundation elements to resist lateral loading can be calculated using the formulas in CBC Section 1807 with an allowable lateral soil bearing pressure of 150 pounds per square foot per foot (psf/ft) of depth. This value may be doubled as indicated in CBC Section 1806.3.4 provided the supported element is not adversely affected by a ½ inch motion at the ground surface. For depth of embedment, the ground surface should be taken as 3 feet below existing ground surface elevations.

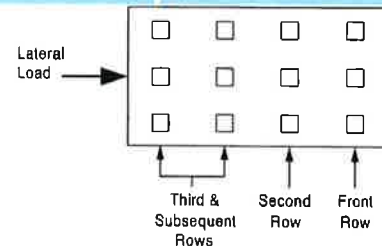
Lateral analysis using the LPILE software should be used if lateral loads exceed 10 kips. The following table lists input values for use in LPILE analyses. Modern versions of LPILE provide estimated default values of k_h and E_{50} based on strength and are recommended for the project. Since deflection or a service limit criterion will most likely control lateral capacity design, no safety/resistance factor is included with the parameters.

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1. Spacing in the direction of loading. B = shaft diameter
2. For the case of a single row of shafts supporting a laterally loaded grade beam, group action for lateral resistance of shafts would need be considered when spacing is less than three shaft diameters (measured center-to-center).
3. See adjacent figure for definition of front, second and third rows.



Spacing closer than $3D$ (where D is the diameter of the shaft) is not recommended without additional geotechnical consultation due to potential for the installation of a new shaft disturbing an adjacent installed shaft likely resulting in axial capacity reduction.

The structural capacity of the shafts should be checked to assure they can safely accommodate the combined stresses induced by axial and lateral forces. Lateral deflections of shafts should be evaluated using an appropriate analysis method, and will depend upon the shaft's diameter, length, configuration, stiffness and "fixed head" or "free head" condition. We can provide additional analyses and estimates of lateral deflections for specific loading conditions upon request. The load-carrying capacity of shafts may be improved by increasing the diameter and possibly the length.

Drilled Shaft Construction Considerations

The drilling contractor should be experienced in the subsurface conditions observed at the site, and the excavations should be performed with equipment capable of providing a clean bearing surface. The drilled straight-shaft foundation system should be installed in general accordance with the procedures presented in "Standard Specification for the Construction of Drilled Piers", ACI Publication No. 336.1-01.

The contractor is generally expected to use conventional "dry" techniques for installation of the drilled shaft. Subsurface water was not encountered in our borings during drilling activities. Subsurface water levels are influenced by seasonal and climatic conditions, which result in fluctuations in subsurface water elevations. Additionally, it is common for water to be present after periods of significant rainfall. Casing or slurry drilling procedures could be required in soils zones of higher sand content (such as was observed in Model Layer 3 of the borings) to reduce the potential for excavation sidewall collapse.

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immediately prior to placement of additional fill or floor slabs. In chemically treated areas, this can be accomplished by having the grading contractor excavate several test pits within the proposed construction areas prior to the start of grading operations to determine the moisture condition of the subgrade soils. A representative of the Geotechnical Engineer should be present during the excavation of these test pits and samples of the subgrade soils should be obtained for moisture content testing. Soils below the specified water contents within this zone should be moisture conditioned or replaced with structural fill as stated in our **Earthwork** section.

Floor Slab Design Parameters

Item	Description
Floor Slab Support¹	Minimum 4 inches of $\frac{3}{4}$ inch free draining crushed aggregate ³ overlying at least 18 inches of granular structural fill or chemically treated material. The subgrade should be compacted to the recommendations in Earthwork .
Estimated Modulus of Subgrade Reaction²	150 pounds per square inch per inch (psi/in) for point loads
	<ol style="list-style-type: none">1. Floor slabs should be structurally independent of building footings or walls to reduce the possibility of floor slab cracking caused by differential movements between the slab and foundation.2. Modulus of subgrade reaction is an estimated value based upon our experience with the subgrade condition, the requirements noted in Earthwork, and the floor slab support as noted in this table. It is provided for point loads. For large area loads the modulus of subgrade reaction would be lower.3. Free-draining granular material should have less than 5% fines (material passing the No. 200 sieve). Other design considerations such as cold temperatures and condensation development could warrant more extensive design provisions.

The use of a vapor retarder should be considered beneath concrete slabs on grade covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, when the project includes humidity-controlled areas, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Saw-cut contraction joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations, refer to the ACI Design Manual. Joints or cracks should be sealed with a waterproof, non-extruding compressible

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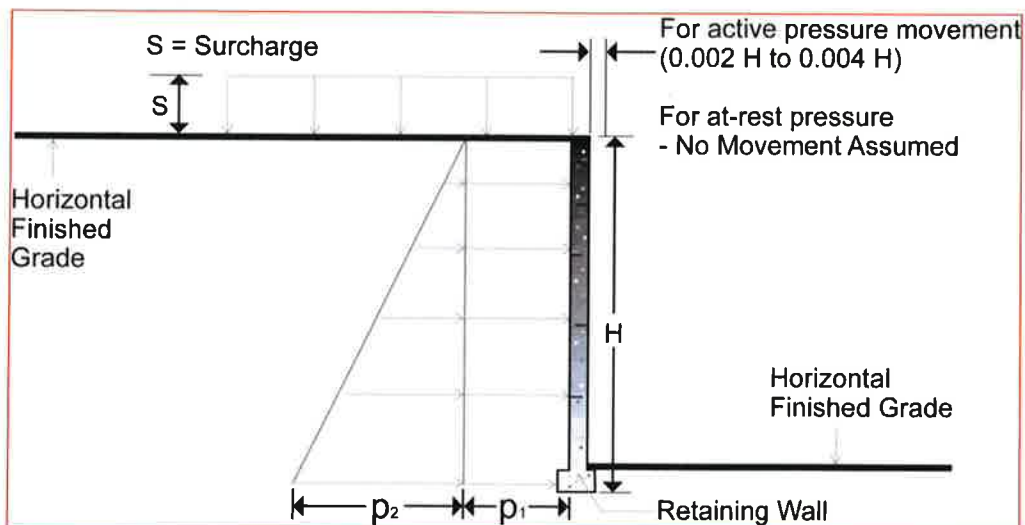
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- Using designs which allow vertical movement between the exterior features and adjoining structural elements;
- Placing effective control joints on relatively close centers.
- Ensure clay subgrade soils are in a moist condition prior to slab construction.
- Reinforce exterior slabs and flatwork with a minimum No. 4 bars at 12 inches on center.

Lateral Earth Pressures

Design Parameters

Below-grade construction is expected to be limited to building elevator pits and utility vaults. We have assumed the pits/vaults will be 5 feet deep or less. Structures with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to values indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction, and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown in the following diagram. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The "at-rest" condition assumes no wall movement and is commonly used for basement walls, loading dock walls, or other walls restrained at the top. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls (unless stated).



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Heavy equipment should not operate within a distance closer than the exposed height of below-grade walls to prevent lateral pressures more than those provided. Compaction of each lift adjacent to wall should be accomplished with hand-operated tampers for other lightweight compactors. Over-compaction may cause excessive lateral earth pressures which could result in wall movement.

Footings, floor slabs or other loads bearing on backfill behind walls may have a significant influence on the lateral earth pressure. Placing footings within wall backfill and in the zone of active soil influence on the wall should be avoided unless structural analyses indicate the wall can safely withstand the increased pressure.

The lateral earth pressure recommendations given in this section are applicable to the design of rigid retaining walls subject to slight rotation, such as cantilever, or gravity type concrete walls. These recommendations are not applicable to the design of modular block - geogrid reinforced backfill walls (also termed MSE walls). Recommendations covering these types of wall systems are beyond the scope of services for this assignment. However, we would be pleased to develop a proposal for evaluation and design of such wall systems upon request.

Subsurface Drainage for Below-Grade Walls

A perforated rigid plastic drain line installed behind the base of walls and extends below adjacent grade is recommended to prevent hydrostatic loading on the walls. The invert of a drain line around a below-grade building area or exterior retaining wall should be placed near foundation bearing level. The drain line should be sloped to provide positive gravity drainage to daylight or to a sump pit and pump. The drain line should be surrounded by clean, free-draining granular material having less than 5% passing the No. 200 sieve, such as No. 57 aggregate. The free-draining aggregate should be encapsulated in a filter fabric. The granular fill should extend to within 1 foot of final grade, where it should be capped with compacted cohesive fill to reduce infiltration of surface water into the drain system.

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areas, heavy traffic from concrete trucks and other delivery vehicles disturbs the subgrade and many surface irregularities are filled in with loose soils to improve trafficability temporarily. As a result, the pavement subgrades, initially prepared early in the project, should be carefully evaluated as the time for pavement construction approaches.

We recommend the moisture content and density of the top 12 inches of the subgrade be evaluated and the pavement subgrades be proofrolled within two days prior to commencement of actual paving operations. Areas not in compliance with the required ranges of moisture or density should be moisture conditioned and recompacted. Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the materials with properly compacted fills.

If a significant precipitation event occurs after the evaluation or if the surface becomes disturbed, the subgrade should be reviewed by qualified personnel immediately prior to paving. The subgrade should be in its finished form at the time of the final review.

Pavement Design Parameters

Design of Asphaltic Concrete (AC) pavement sections were calculated using the Caltrans Highway Design Manual, latest edition, and a 20-year design life. Design of Portland Cement Concrete (PCC) pavement sections were designed using ACI 330R-21, "Guide for the Design and Construction of Concrete Parking Lots."

Bulk samples of the near surface native soils were collected to perform Hveem Stabilometer (R-Value) testing. Representative bulk samples from Borings B12, B13 and HA1 were selected for testing. The testing resulted in R-Values of 8, 40 & 19 respectfully. Subsequently, an R-Value of 8 was used for the subgrade for the asphaltic concrete (AC) pavement designs. Additional R-Value testing may be performed following rough grading of the site on the subgrade soils that will ultimately support proposed pavements in order to determine if a more favorable R-Value result may be used in design reducing planning pavement sections. A modulus of subgrade reaction of 50 pci was used for the Portland cement concrete (PCC) pavement designs. The value was empirically derived based upon our experience with the sandy lean clay subgrade soils and our expectation of the quality of the subgrade as prescribed by the **Site Preparation** conditions as outlined in **Earthwork**. A modulus of rupture of 550 psi was used in design for the concrete (based on correlations with a minimum 28-day compressive strength of 4,500 psi).

Based on this relatively low R-value the conventional pavement sections will be relatively thick. The deeper pavement sections will require more off haul of material on site if the same grades are kept. As an alternative to conventional pavement sections,

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Asphaltic Concrete Design with Chemically Treated Subgrade

Layer	Thickness (inches)			
	Auto Parking Areas (TI=5.0) ¹	Auto Road (TI=5.5) ¹	Truck Parking Areas (TI=6.0) ¹	Truck Ramp and Road (TI=8.0) ¹
AC ^{2, 3}	3.0	3.5	3.5	5.0
Aggregate Base ²	5.0	5.5	6.0	8.0
Chemically Treated Subgrade ⁴	12.0	12.0	12.0	12.0

1. See [Project Description](#) for more specifics regarding traffic assumptions.
2. All materials should meet the current Caltrans Highway Design Manual specifications.
 - Base – Caltrans Class 2 aggregate base
3. A minimum 1.5-inch surface course should be used on ACC pavements.
4. Chemically treated material shall have a minimum unconfined compressive strength of 300 psi.

The following table provides our estimated minimum thickness of PCC pavements.

Portland Cement Concrete Design

Layer	Thickness (inches)			
	Traffic Category A ¹	Traffic Category B ¹	Traffic Category C ¹	Traffic Category E ¹
PCC ²	6.0	6.5	8.5	7.25
Aggregate Base	6.0	6.0	6.0	6.0

1. See [Project Description](#) for more specifics regarding traffic classifications.
2. All materials should meet the current Caltrans Highway Design Manual specifications.

Areas for parking of heavy vehicles, concentrated turn areas, and start/stop maneuvers could require thicker pavement sections. Edge restraints (i.e. concrete curbs or aggregate shoulders) should be planned along curves and areas of maneuvering vehicles.

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Pavement Maintenance

The pavement sections represent minimum recommended thicknesses and, as such, periodic upkeep should be anticipated. Preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Pavement care consists of both localized (e.g., crack, and joint sealing and patching) and global maintenance (e.g., surface sealing). Additional engineering consultation is recommended to determine the type and extent of a cost-effective program. Even with periodic maintenance, some movements and related cracking may still occur, and repairs may be required.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Final grade adjacent to paved areas should slope down from the edges at a minimum 2%.
- Subgrade and pavement surfaces should have a minimum 2% slope to promote proper surface drainage.
- Install pavement drainage systems surrounding areas anticipated for frequent wetting.
- Install joint sealant and seal cracks immediately.
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.
- Place compacted, low permeability backfill against the exterior side of curb and gutter.
- Place curb, gutter and/or sidewalk directly on clay subgrade soils rather than on unbound granular base course materials.

General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.



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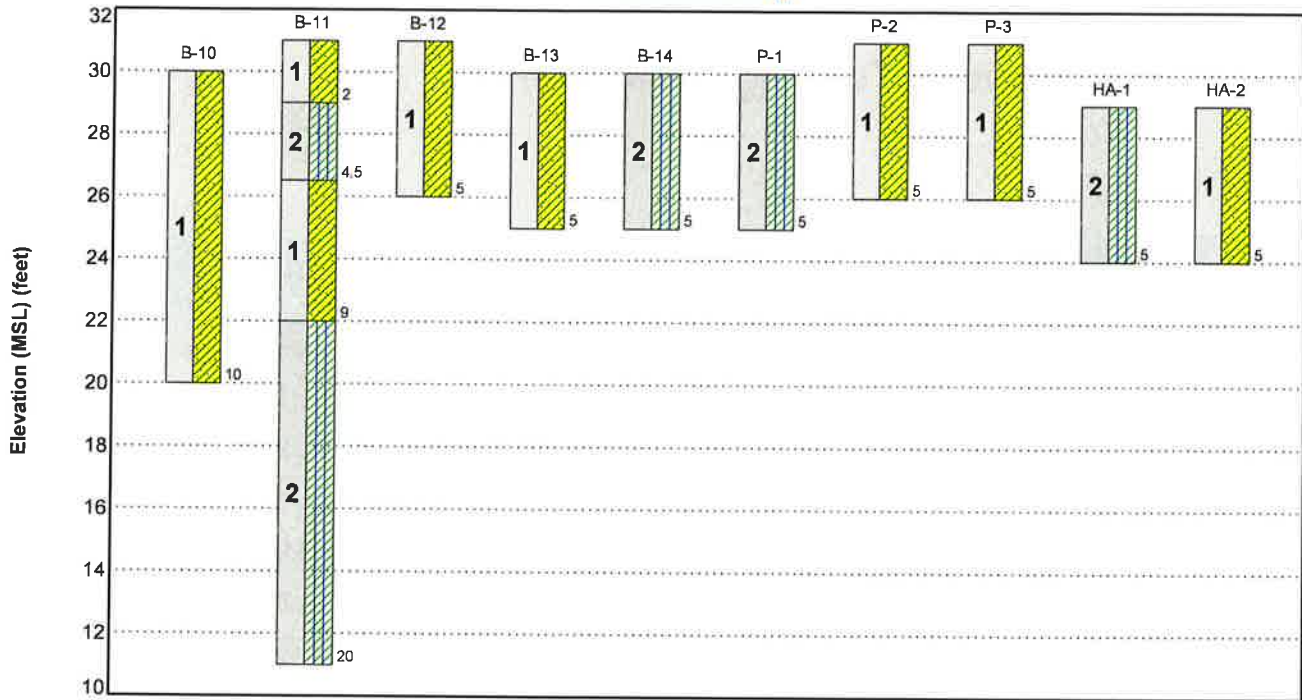
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Figures

Contents:

GeoModel

Geomodel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Sandy Lean Clay	Soft to hard sandy lean clay.
2	Silty Clay	Medium stiff to hard silty clay.
3	Clayey Sand	Medium dense to very dense clayey sand.
4	Poorly Graded Sand with Gravel	Very dense poorly graded sand with gravel.

LEGEND

- Sandy Lean Clay
- Silty Clay

- First Water Observation
- Second Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
 Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:

Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.



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The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials observed during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests. The laboratory testing program included the following types of tests:

- Moisture Content
- Dry Unit Weight
- Atterberg Limits
- Expansion Index
- Grain Size Analysis
- Unconfined Compression
- Chemical Analysis – pH, Sulfate, Chloride Ion, Electrical Resistivity
- Hveem Stabilometer (R-value)

The laboratory testing program often included examination of soil samples by an engineer. Based on the results of our field and laboratory programs, we described and classified the soil samples in accordance with the Unified Soil Classification System.