ASBESTOS ABATEMENT WORK PLAN
Treasure Island Buildings 1123 & 1321
Non-Time Critical Removal Action
N68711-01-D-6011 CTO 0010

PURPOSE

The purpose of this work plan is to establish a safe working environment for the employees of Bayview Environmental Services, Inc. (Bayview) as well as to ensure the completion of the project within compliance of all Federal, State, Local regulations as well as the project specifications while conducting Asbestos Abatement for Buildings 1123 & 1321 at former Naval Station Treasure Island. This Asbestos Abatement Plan is compliant with the current CTO 010 Accident Prevention Plan/Site Safety Health Plan/Radiological Protection Plan.

SCOPE

Buildings 1123 & 1321

The scope of work for Buildings 1123 and 1321 includes the removal and disposal of the following asbestos containing materials:

- Thermal System Insulation/Aircell
- TSI Tape associated with HVAC duct
- Floor tile and associated mastics found throughout the units
- Sheet flooring found in kitchens and baths
- Sink undercoating
- Stair tread mastic
- Exterior stucco on the storage sheds
- Asbestos roofing materials

APPLICABLE CODES AND REGULATIONS

Code of Federal Regulations (CFR)
California Code of Regulations (CCR)

U.S. DEPARTMENT OF LABOR, (OSHA)

- Asbestos, General Industry - 29 CFR 1910.1001
- Asbestos, Construction Industry - 29 CFR 1926.1101
- Respiratory Protection -29 CFR 1910.134, 1926.103
- Access to Employee Exposure & Medical Records - 29 CFR 1910.20, 1926.33
- Hazard Communication - 29 CFR 1910.1200, 1926.59
- Specifications for Accident Prevention Signs & Tags -29 CFR 1910.145, 1926.200
- Title 8 CCR 5208, Asbestos
- Title 8 CCR 1529, Asbestos

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

- Asbestos Abatement Projects: Worker Protection - 40 CFR 763.120-126
- Asbestos-Containing Materials in Schools: (AHERA)- 40 CFR 763 Amended
- National Emission Standards For Hazardous Air Pollutants (NESHAP) - 40 CFR 61-Sub-part A, General Provisions and Sub-part M, National Emission Standard for Asbestos

NOTIFICATION REQUIREMENTS

As required, Bayview will notify, in writing, the Local Office of the Environmental Protection Agency (BAAQMD) of the planned asbestos abatement operation, at least ten (10) days prior to the start of the asbestos abatement work on the project. Cal / OSHA will be notified at least 24 hours prior to the removal of any asbestos per CCR Title 8 1529 (r) (1).

ACCIDENT REPORTING
In accordance with our Injury Illness Prevention Plan and CCR Title 8 342, 330, Bayview will prepare and document reports of significant accidents at the job site and will forward copies of all accident reports to all related parties. For this purpose, a significant accident is defined to include those injuries and illnesses deemed recordable on the OSHA 200/300/ 300a form, or where a property loss of substance is sustained.

COMPETENT PERSON
The Bayview Superintendent (Cairo Vrizuela) and the Foreman assigned to this project will be Bayview's Competent Person and will have the necessary training, competency, and authority to maintain this position. All supervisory personnel will have completed, and passed by written examination, an EPA / AHERA course in Supervision of Asbestos Abatement Procedures and a 40 hour HAZWOPER (29CFR 1910.120) training will be required of all workers and supervisors.

The Operations Manager or Project Manager will also be Bayview's representative for compliance with all applicable local, state and federal codes and regulations, particularly those relating to asbestos-containing materials.

The competent person's duties shall include:
29 CFR 1926.1101 (o)(3)(i).
On all worksites where employees are engaged in Class I or Class II asbestos work, the competent person designated in accordance with paragraph (e)(6) of this section shall perform or supervise the following duties, as applicable:

1926.1101(o)(3)(i)(A)
Set up the regulated area, enclosure, or other containment;

1926.1101(o)(3)(i)(B)
Ensure (by on-site inspection) the integrity of the enclosure or containment;

1926.1101(o)(3)(i)(C)
Set up procedures to control entry to and exit from the enclosure and/or area;

1926.1101(o)(3)(i)(D)
Supervise all employee exposure monitoring required by this section and ensure that it is conducted as required by paragraph (f) of this section;

1926.1101(o)(3)(i)(E)
Ensure that employees working within the enclosure and/or using glove bags wear respirators and protective clothing as required by paragraphs (h) and (i) of this section;

1926.1101(o)(3)(i)(F)
Ensure through on-site supervision, that employees set up, use and remove engineering controls, use work practices and personal protective equipment in compliance with all requirements;

1926.1101(o)(3)(i)(G)
Ensure that employees use the hygiene facilities and observe the decontamination procedures specified in paragraph (j) of this section;

1926.1101(o)(3)(i)(H)
Ensure that through on-site inspection, engineering controls are functioning properly and employees are using proper work practices; and,

1926.1101(o)(3)(i)(I)
Ensure that notification requirement in paragraph (k) of this section are met.

Bayview Environmental supervisors have been trained and certified in the following:

- First Aid, CCR Title 8 1512
- CPR, CCR Title 8 1504
- Fire Extinguisher, CCR Title 8 1920
- Powder actuated tools, CCR Title 8 1685

SAFETY COORDINATOR

Bayview has designated Peter Warren and Daniel Ledesma as the individuals having the responsibility for ensuring workers compliance with all aspects of the Corporate Safety Program. These individuals, in addition to having successfully completed all EPA Training Center courses in asbestos abatement procedures and the proper procedures for lead abatement, have also received specialized training in construction safety practices. The Safety Coordinator and the project Superintendent will conduct periodic safety audits and worker training at each job site.

WORKER TRAINING

All employees who will be working on this project will be trained and certified as an EPA / AHERA asbestos worker. They will be trained and made aware of the dangers inherent in handling asbestos, in the proper work procedures, and in the use of protective measures as outlined in 29 CFR 1926.1101, 8 CCR 1529. HAZWOPER training will be required for workers. On site radiation awareness training will be provided by CBI prior to beginning work.

MEDICAL EXAMINATIONS

All personnel entering the regulated work areas where respiratory protection is required will have received a medical examination in compliance with the medical examination requirements of CCR Title 8 1529 and 8 CCR 5192 standards within the past twelve (12) months. For all personnel entering the regulated work area, Bayview will provide on-site a copy of a written certificate from the physician attesting to his opinion that the individual may enter an atmosphere in which asbestos fibers are present and is allowed the use of a respiratory device.

All Bayview personnel will be trained in the proper use and cleaning of the respiratory device, they will also be fit-tested for the respiratory device, the fit-test will be documented and a copy of the fit-test will be on site for all personnel that will enter into the work area or is required to wear respiratory protection. Fit test shall be current within the past 12 months.

PROTECTIVE EQUIPMENT

Respirators

All Bayview employees that will be engaging in the removal of asbestos removal will be provided with and required to wear the appropriate respirators and filters all times per CCR Title 8 1529 (g) 1531. Respirators will be equipped with HEPA filters P-100 for particulate. A Powered Air Purifying Respirator (PAPR) will be required for removing friable asbestos containing materials. Negative pressure respirators may be used for non-friable asbestos containing materials. Bayview may downgrade the personal protective equipment based upon analytical sampling results.

Coveralls

Bayview will provide disposable coveralls and head covers, and require that all persons entering the work area wear them. Bayview will provide a sufficient amount of protective clothing for the required number of changes for all workers in the work area.

Rubber or Leather Boots

Rubber boots will be required to be worn in the regulated work area, they will be required to remain in the work area until the completion of the project, at which time they must be thoroughly cleaned and decontaminated, both inside and out, and put into a plastic bag before removal from the area. Foot protection to conform with ANSI Z41.1-1983, class75.

Hard Hats

Bayview will provide hard hats and require that they be worn at all times when work is in progress that has the potential for causing head injuries per CCR Title 8 3381. Contaminated hard hats must remain in the work area until

they can be thoroughly cleaned and decontaminated, and placed into a plastic bag before removal from the work area at the end of the project. Hard hats shall conform with ANSI Z89.1-1981, Class A or B.

Safety Glasses/Goggles
Where required per CCR Title 8 3382, Bayview will provide eye protection in the form of safety glasses and/or goggles for all employees in the work area when full-facepiece respirators are not being used. The safety glasses and/or goggles will remain in the work area and will be appropriately cleaned or disposed of at the completion of the project. Eye protection shall conform with ANSI Z87.1-1989.

Work Gloves
Bayview will provide appropriate work gloves per CCR Title 8 1520, to all personnel in the work area. The gloves must remain in the work area until the completion of the project, at which time they will be disposed of.

MATERIALS AND EQUIPMENT
Bayview will provide either new or used materials and equipment that is undamaged and in serviceable condition, and only that equipment that is recognized as being suitable for the intended use and in compliance with the appropriate standards.

Electrical Service
Power for this project will be via a 25 KW generator which will be located at ground level. Bayview will run 50 amp power cords from the generator to the appropriate floor where work will be performed. Temporary power distribution boxes will be attached to the 50 amp cords. These distribution boxes are GFCI 125/250 volt and are UL Listed for outdoor use. The boxes come with 6 – 20 amp straight blade GFCI protected receptacles. Bayview will use a 12 amp extension cord with manufactured ends to connect equipment to the power distribution boxes. Extension cords are inspected prior to being sent out to the job site but will be inspected again prior to placing in service and on each day of service. Cords which are damaged or worn to the extent that could become unsafe or deemed a potential hazard will be pulled from the work area, labeled as damaged and sent back to our warehouse facilities.

Water Service
Only heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system will be used to provide water to the work area or the decontamination facilities.

Hot Water Heater
In the absence of hot water, Bayview will provide a UL rated electric hot water heater for the decontamination unit shower. The hot water heater comes with a manufactured 110 volt 20 amp power cord which will plug directly into the power distribution box.

Ground Fault Circuit Interrupter
Power for this project will be provided by 25 KW generators with temporary power cords and spider boxes that will be dispersed through the various work areas. All electrical circuits in the area will be connected to a Ground Fault Circuit Interrupter per 8 CCR 2405.4.

Lighting
Bayview will provide sufficient temporary lighting to ensure proper workmanship throughout the work area. This will include the use of daylight, general lighting, or portable plug-in lighting, or any combination of these.

Fire Extinguishers
Bayview will comply with CCR Title 8 1922 and recognized recommendations within the construction industry for providing portable fire extinguishers at the abatement site. The fire extinguishers will be located where they will be most convenient and effective for their intended purpose, with at least one (1) extinguisher for every 3,000 square feet of work area and one (I) outside the work area. A fire extinguisher rated not less than 2A, shall be provided for not less than 3,000 square feet of the floor area or fraction thereof. Where the floor area is less than 3,000 square feet at least one extinguisher will be provided. Travel distance between any point of the protected area to the nearest fire

extinguisher shall not exceed 75 feet. Personnel will be cautioned to use fire extinguishers to combat fires which are in the incipient or beginning stages only, and that if the fire becomes life threatening, they are to evacuate the area immediately and sound the alarm.

Job Site Postings
Bayview will comply with all CAL-OSHA regulations in regards to job site posting requirements. All postings shall be in English and Spanish every job site will have the required job site postings as well as:

- a copy of the company Injury and Illness Prevention Program (CCR Title 8 1509)
- Prop 65 signage
- Emergency Action Plan (8 CCR 3220)
- Current Material Safety Data Sheets for all chemicals that will be brought on site
- Emergency eye wash meeting ANSI Z358-1 (0.4 gpm for 15 minutes) (8 CCR 5162)
- First aid kit (CCR Title 8 1512)

DECONTAMINATION FACILITIES
For abatement of non-friable Class II asbestos containing materials, Bayview will provide a two stage air lock at the entrance to each containment. Clean water, soap and towels will be available outside the containment area for personnel to decontaminate.

A central shower will be set up on the first floor for the crew to utilize as well. One shower will be provided for every 10 workers or shifts/breaks will be staggered to minimize overloading of the shower facilities. The shower will be supplied with hot and cold running water. Waste water will be run through a series of filters and the water will be filtered down to 5 micron before being discharged down the sanitary sewer.

For friable asbestos and Class I work such as TSI and sheet flooring abatement, a three stage decontamination unit with a full shower will be installed at the entrance to the negative pressure enclosure.

WORK AREA PREPARATION
Bayview will construct critical barriers, which will ensure the work space is isolated and contained, by erecting impermeable barriers at all exits or openings, including doorways, duct chases, mechanical shafts, floor openings, drains, and the like, so that all possible exit or entrance routes are effectively barricaded and sealed with 2 layers of fire retardant 6 mil polyethylene sheeting. Bayview will utilize tape 2” or wider capable of sealing joints of adjacent sheets of polyethylene and attaching polyethylene sheets to finished or unfinished surfaces of similar materials. Tape will be capable of adhering under dry and wet conditions.

Bayview will utilize spray adhesive for sealing polyethylene to polyethylene that does not contain methylene chloride or methyl chloroform (1.1.1-Trichloroethane) compounds. Bayview shall provide manufactures Material Safety Data Sheets (MSDS) for this product to CBI prior to the start of the work and a copy of the MSDS book will be on site for review.

For floor tile and mastic abatement Bayview will install a poly splash guard on all walls within the work area to protect the existing wall surfaces from contamination.

For removal of Class II non-friable asbestos floor tile and mastic, sink undercoating, stair tread mastic, and exterior stucco, Bayview will perform this work within regulated work areas. The regulated work area will be identified by installing a 20’ barricade around the designated work area by utilizing asbestos danger ribbon and delineators and asbestos danger signs. No persons will be allowed beyond the designated barriers without first donning the proper PPE. Only authorized personnel will be allowed into a containment or regulated work area.

ACCESS CONTROL
Access to the work area will be permitted only through a personnel decontamination unit, air lock or other designated work area entrance. All other means of access will be closed off and sealed, and warning signs will be displayed on the clean side of the closed access. No one will be allowed to enter the work area that does not have a direct need to do so. Persons entering the work area must follow all entry procedures, including the removal of street

clothing, donning protective clothing, using the appropriate respiratory protective device, and complying with the requirements of the company's respiratory protection program.

WARNING SIGNS
Bayview will post a sufficient number of appropriately worded warning signs per CAL-OSHA regulations to adequately notify all persons in the vicinity of the work area of the dangers involved. The signs will normally be posted directly onto the clean side of the work area isolation barrier and at each entrance to the work area and the decontamination units, signs will be visible from 20' away.

Warning signs, which are 20 inches high by 14 inches wide, comply with the requirements of the Occupational Safety and Health Administration's standard on warning signs and shall be posted in English and Spanish, each sign has the following legend and is red, white and black in color:

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

DIFFERENTIAL PRESSURE CONTAINMENT SYSTEM
Required for Class I work only:
The Differential Pressure Containment System is a fully operational engineering control system, which exhausts only the minimum amount of air from the work area necessary to create a continuous pressure of-0.025 to -0.04 inches of water within the enclosure with respect to the area outside the enclosure. The Air Filtration Device or AFD's will be placed in the containment to assure the proper amount of air exchanges is achieved.

This is achieved by using an Air Filtering Device (AFD), which is a self-contained filtering machine capable of producing airflow and using a HEPA filter to collect and retain the airborne asbestos fibers.

Bayview will demonstrate the pressure differential by use of a pressure differential meter, such as a Manometer. The Manometer will continuously monitor and record the pressure differential between the work area enclosure and the building outside of the work area on a strip chart recorder.

The methodology used in the Differential Pressure Containment System is to seal all potential air paths into the work area as tightly as possible and provide a filtered exhaust system which removes only enough air from the sealed, isolated work area to establish a lower pressure to offset any air leakage which occurs, and to provide additional engineering controls within the work area to lower airborne asbestos fibers.

DOP TESTING
All HEPA filtered equipment will be DOP (dioctylphthalate) challenge tested on site prior to being placed into service. Bayview shall provide manufactures Material Safety Data Sheets (MSDS) for this product to CBI prior to the start of the work and a copy of the MSDS book will be on site for review. All testing and results of testing will be documented by Bayview.

REMOVAL OF ASBESTOS-CONTAINING MATERIAL
Floor Tile & Associated Floor Mastics
This Class II work will be performed within a regulated work area with splash guards. Negative air machines will be installed but negative pressure containment is not required for Class II work.

The asbestos containing floor tile will be removed by a combination of hand tools and mechanical means such as an electric chipping gun or propane powered floor scraper. Efforts will be taken to minimize breakage of tiles. The material will be kept wet with water during the entire removal process. The tile will be bagged promptly during removal into 6 mil bags.

The asbestos containing floor tile mastic will be removed by a wet scrape. Water will be applied to the floor surface and the three dimensional mastics will be removed by running a 4" razor scraper over the floor surface.

The wetted mastic waste will be bagged in two six mil poly bags and the bags will be removed from the containment and taken to the waste container for storage.

Thermal Systems Insulation (TSI) and HVAC Duct Tape
TSI will be removed manually by cutting the insulation materials from the insulated pipes or duct systems. Water will be applied to the insulation material during the removal process and maintained wet. Bags will be placed beneath the pipe insulation and the wetted insulation will be placed directly into the bags. The appropriate bags/containments will be used for the work and will be evaluated on a case-by-case basis before work activities in the field take place.

Exterior Stucco
Non-friable exterior stucco will be removed within a regulated work area. Poly drop sheets will be installed around the perimeter of the building or storage shed. Water will be applied to the stucco during the removal process. The stucco will be removed by pulling the stucco and wire from the substrate. The stucco will be cut into manageable sections and placed into sealed containers, bagged or placed directly into a double lined waste container.
Once the gross debris has been properly containerized the poly drop sheet will be carefully rolled up in a manner that does not allow any debris to spill off the poly. The poly drop sheet will be containerized and the work area will be visually inspected for debris to ensure none have gotten beneath the drop sheet. Once the area has been visually cleared the barrier tape will be removed and the site cleared for re-occupancy.

Sheet Flooring
Sheet flooring will be removed within a negative pressure enclosure. The sheet flooring will be removed by manually scraping the flooring material from the substrate. Water will be applied to the sheet flooring as it is being removed. The sheet flooring debris will be bagged as it accumulates.

Roofing Removal
Asbestos containing roofing materials will be removed within a regulated work area. The work area will be defined by installing barricade tape at ground level. The barricades and barrier tape will be placed at a distance of 20 feet from the building. The danger tape will read "Danger Asbestos Hazard".

Bayview will install roof anchors for fall protection of crews performing the roof abatement. Bayview will utilize an elevated work platform (EWP) Genie 260/34-LP 60' (or other comparable model) Articulating boom lift with dual fuel capability for access to the roof to install the roof anchors. The crew installing the roof anchors will tie off to the EWP during the installation of the anchors. Workers will wear safety harnesses and use appropriate lanyards for all activities where a fall hazard exists. EWPs have manufacturer-designated anchorage points located inside the platform. Anchorage points on EWPs are designed by manufacturers of the equipment. As part of the EWP inspection, these points are inspected for damage or other signs of defects. All other anchorage points will be capable of supporting 5,000 lbs as required per OSHA Standards, and have been designed by the manufacturer for this purpose. Installation according to the manufacturer's specification and use will be under the supervision of the fall protection competent person and will maintain a safety factor of at least two. Bayview will utilize Guardian Brand (or other comparable brands) roof anchors with appropriate fasteners designed for anchorage into a wood substrate. The design and location of the anchorage points will be performed on site. Bayview will utilize the Guardian Brand full body harnesses (or other comparable brands), with a 3/16" self-retracting cable and rope grab.

Asbestos roofing will be removed by manually scraping the roofing materials from the substrate utilizing a roofing shovel, pry bar or other tools. The materials will be wetted with an airless sprayer and water. The asbestos waste will placed into a dump box and lowered to the ground by use of a high reach fork lift. The waste materials will be dumped into an open top 20 to 40 yard waste debris box. The debris box will be lined with two layers of six mil poly prior to placing the waste into the container. Once the container is full the waste will be burrito wrapped with two layers of six mil poly to seal the waste within the container prior to transportation to the landfill.

WORK AREA CLEANUP PROCEDURES
Work areas will be left in a clean state prior to leaving the site for the day. Asbestos debris will be bagged or covered and sealed prior to the end of the work shift.

This involves applying a sealant to the substrate and all of the remaining poly sheeting to “lock down" any fibers, which might remain. The mist, which occurs during application of the encapsulant, helps in settling and sticking down the fibers, which are still airborne.

After the removal of all-visible asbestos material and debris, all surfaces in the work area and the decontamination units will be thoroughly cleaned with HEPA filtered vacuums and wet wiped.

All tools and equipment remaining in the work area and the decontamination units will be decontaminated by HEPA vacuuming and/or wet wiping and then removed from the area.

The representative of the independent air-monitoring firm will visually inspect the work areas. If the results of the inspection are satisfactory, the individual conducting the inspection will allow the work area to be encapsulated.

Encapsulation
Upon completion of ACM removal and cleanup by Bayview Environmental, an Encapsulation (Fiberset manufactured by Fiberlock Technologies or equivalent) will be applied to removal areas. Application of a penetrating encapsulant is a standard practice in the asbestos abatement industry to lock down asbestos fibers that may be present and to insure air clearance testing is successful. Bayview shall provide manufactures Material Safety Data Sheets (MSDS) for this product to CBI prior to the start of the work and a copy of the MSDS book will be on site for review.

AIR MONITORING
Bayview will conduct all personal air sampling. These samples will be taken each shift, and for each distinctive crew operation, and shall be used to verify adequacy of fiber control and respiratory protection. Personal breathing zone air sampling shall be in accordance with the Cal-OSHA asbestos standard. A minimum of 25% of the work force shall be monitored during each shift. All sample results shall be available on site within 24 hours of sample collection. This procedure will be applied to each containment. The competent person for conducting air samples will be Cairo Vrizuela, and / or other competent foreman that are assigned to the project or a specific building. Air monitoring will be conducted daily in all locations that abatement is taking place**.**

The competent person will perform the required air sampling in accordance with all regulations to accurately determine the airborne concentrations of asbestos fibers in the work area to ensure that the proper work procedures and engineering controls are adequate. Bayview will post the results of the air monitoring on site where it may be reviewed.

WARNING LABELS
In compliance with the OSHA's Hazard Communication Standard, which requires each employer to ensure that all containers of hazardous chemicals in the workplace are labeled, tagged, or marked with the identity of the hazardous chemical contained therein, and an appropriate warning of the hazards of the chemical, all asbestos waste disposal bags utilized by the company will be appropriately marked as follows:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD
BREATHING AIRBORNE ASBESTOS FIBERS IS HAZARDOUS TO YOUR HEALTH

These labels are three (3) inches high by five (5) inches wide and conform to the requirements.

In addition to the warning label required by both OSHA and EPA, the United States Department of Transportation (DOT) also requires a warning label on each bag of asbestos-containing waste that is transported away from the removal site. This label must read as follows:

RQ HAZARDOUS SUBSTANCE
SOLID, N.O.S. (ASBESTOS)
ORM-E, NA-2212

HANDLING OF ASBESTOS WASTE
Asbestos waste will be double bagged and each bag will be individually sealed by goose neck method and duct tape. The individual bags will be handled by a team of workers. The workers will pass the bags from the containment side through a waste pass-out chamber. The chamber will be at a minimum a two stage chamber with air locks at each compartment. The bags will be handed through the chamber to workers outside the containment. The waste will then be transported by carts or other means to the locked waste container.

DISPOSAL/WASTE HAULING
All asbestos containing materials will be placed into 40 yard closed top waste containers. The waste containers will be lined with two layers of 6-mil poly. The waste containers will be closed and locked when not in use. The waste will be manifested as either a hazardous friable asbestos waste or as a non-hazardous, non-friable asbestos waste.

DEMOBILIZATION
CBI will provide visual inspection and air clearance sampling for any containments that are erected. Upon clearance of the air monitoring results by the CAC, Bayview will dismantle the remaining work area, decontamination units, and critical barriers.

All equipment utilized during the abatement process will be decontaminated and run through the radiological screening provided by CBI.

Prepared By:
Dave Davis
Project Manager
Bayview Environmental Services, INC.
August 28, 2013

Attachments:

1. Training Records
2. Activity Hazard Analyses
3. Response-to-Comments

Attachment 1

Training Records

(To ensure that Training Records are current, they will be provided and amended to the plan prior to commencement of field work.)

Attachment 2
Activity Hazard Analyses

Activity Hazard Analysis (AHA) #1

Job/Task: Removal of friable asbestos containing materials	**Overall Risk Assessment Code (RAC) (Use highest code)**	**M**
Project Location: Site 12, Treasure Island, Buildings 1123 & 1321	**Risk Assessment Code (RAC) Matrix**	
Contract Number: N68711-01-D-6011, Contract Task Order 0010		
Date Prepared: August, 2013		
Prepared by (Name/Title): Dave Davis – Bayview Environmental Project Manager		
Reviewed by (Name/Title): Fred Mlakar, HSM		

Severity	**Probability**				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	**E**	**E**	**H**	**H**	**M**
Critical	**E**	**H**	**H**	**M**	**L**
Marginal	**H**	**M**	**M**	**L**	**L**
Negligible	**M**	**L**	**L**	**L**	**L**

Notes: (Field Notes, Review Comments, etc.)

In addition to the information listed in this AHA, all field personnel must review and be familiar with all provisions of the approved APP/SSHP.

Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (see above).

"Probability" is the likelihood to cause an incident, near miss, or accident and is identified as Frequent, Likely, Occasional, Seldom, or Unlikely.

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and is identified as Catastrophic, Critical, Marginal, or Negligible.

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on the AHA. Annotate the overall highest RAC at the top of the AHA.

RAC Chart
E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

AHA #1 – Job/Task: Removal of friable asbestos containing materials

Job Steps	Hazards	Controls	RAC
1. Inspect work area.	Failure to inspect work area may result in trips and falls from the same level or falls to a lower level.	Ensure that the work area has no tripping or fall hazards. Openings in the floor or walls which may present a hazard must be secured and clearly identified prior to performing any work. Identify and remediate any tripping hazards. Remove loose debris or other tripping hazards. Make sure the area has proper lighting.	L

AHA #1 – Job/Task: Removal of friable asbestos containing materials			
Job Steps	**Hazards**	**Controls**	**RAC**
		Extension cords should be out of walking paths or secured overhead.	
	Inadequate lighting can cause accidents.	Make sure the area has proper lighting. Extension cords should be out of walking paths or secured overhead. Only use temporary lighting that is rated for the task. Bulbs must not be exposed and must be guarded by protective covers. Power cords and lights will not be nailed or supported by nails	
Site mobilization. Unloading 2. Equipment such as air filters and hand tools and materials such as containment plastic sheeting and duct tape from truck. Moving equipment and materials second floor.	Workers could experience back injury or muscle strain.	Use the buddy system. Get help with loads of 50 pounds or more. Use proper lifting techniques. Always bend at the knees and not the back. Never twist the torso while holding a load. Use mechanical means whenever possible to assist in moving heavy items. Wear proper PPE, hard hat, safety shoes, safety glasses and hand protection.	M
	Pinch point and bag rupture hazards could be present while lifting and carrying materials.	When moving bagged material be aware of sharp edges and pinch points which could potentially puncture bags Use heavy work gloves to protect hands from pinch abrasions and sharp edges. Use steel toe work boots to protect toes if an item is dropped.	
3. Install containment Cutting visqueen to size and installing to walls and openings utilizing duct tape.	Potential for cuts	Workers using utility knifes to cut poly sheeting shall wear cut resistant gloves. Cut away from the body and never cut towards your body or hands. Ensure blades are sharp. Wear safety glasses at all times in case knife slips towards eyes. Blades and knives will not be placed in pockets on the body; they may only be carried in a storage compartment on a utility belt.	L
	Contact with asbestos, dust, debris, or dead animals, biological hazards and needles.	Workers will wear non-permeable, protective suit with hood and booties; proper respirator, heavy duty work gloves; steel toe work boots; safety glasses meeting the requirements of ANSI Z87; and hard hat. Water spray will be used to minimize dust generated and to suppress asbestos fibers during removal. Care should be taken when using water spray to prevent excessive water collection on the floor which could create a slip hazard. A 10% bleach to 90% water solution will be sprayed and allowed to sit for 15 minutes on any areas of animal feces or where mold may have accumulated to neutralize any potentially harmful bacteria or spores. Workers will pay very close attention to where they step or put their hands, do not reach into areas you can't see, if you see a needle do not touch it with your hands but notify CB&I safety and construction manager for assistance.	

AHA #1 – Job/Task: Removal of friable asbestos containing materials			
Job Steps	**Hazards**	**Controls**	**RAC**
4. Removal of friable asbestos insulation, thermal system insulation, and HVAC duct tape	Inhalation of asbestos fibers. contusions	All personnel will be required to wear at a minimum a full face negative pressure respirator to protect against inhalation hazards from asbestos fibers. . Follow proper wetting techniques when working with asbestos materials. Do not use excessive amounts of water spray that may cause standing water to become a slip hazard. Bag debris immediately to minimize fibers released into the air. All asbestos removal work will be conducted inside a negative pressure containment system supplied with air filtration equipment. Remove materials intact wherever possible. All workers will be required to follow decontamination procedures when exiting the containment area to prevent asbestos exposure. Ensure workers are familiar with and trained to conduct the above procedure.	M
Removal of friable asbestos insulation, thermal system insulation, and HVAC duct tape continued	Eye hazards from flying debris.	Use of full face respirators inside the containment also provides for eye protection. Safety glasses must be donned anytime a worker removes the respirator when exiting the containment.	
	Back or muscle strains.	Take appropriate rest breaks to prevent muscle or back fatigue. Follow all safe lifting practices. Perform stretching prior to strenuous work activities.	
	Tripping hazards	Keep work area free from tripping hazards. Maintain good housekeeping practices by cleaning as work progresses. Keep materials and supplies neatly organized and sorted. Inspect the work area before starting to identify any existing trip hazards and remove if possible. If the hazard cannot be removed then barricade around it or mark it with spray paint or caution tape to communicate its location to others.	
	Heat stress and dehydration.	Drink plenty of fluids before beginning work in the area. Take breaks as needed to cool off while wearing protective suits. Maintain ventilation through the containment to keep the work area cool. Know the symptoms of heat stress and let someone know if you are experiencing any. Always exit the containment and decon before eating, drinking, or smoking.	
	Blisters or hand contusions.	Wear heavy duty work gloves when working with hand tools. Always inspect tools before use and remove damaged tools from service.	

AHA #1 – Job/Task: Removal of friable asbestos containing materials			
Job Steps	**Hazards**	**Controls**	**RAC**
5. Loading out asbestos waste Bagging of asbestos waste and moving the bags out of the containment to the waste container	Back and muscle strain.	Use the buddy system when handling loads of 50 lbs or more. Use proper lifting techniques. Be aware of potential pinch points while lifting or moving objects. Wear proper hand and foot protection. Use caution for uneven walking surfaces and check pathway prior to moving bags. Use proper lifting techniques when necessary. Take appropriate rest breaks to prevent muscle or back fatigue. Perform stretching prior to strenuous work activities.	M
	Heat stress and dehydration.	Drink plenty of fluids before beginning work in the area. Take breaks as needed to cool off while wearing protective suits. Maintain ventilation through the containment to keep the work area cool. Know the symptoms of heat stress and let someone know if you are experiencing any. Always exit the containment and decon before eating, drinking, or smoking.	
Dismantle the containment 6. Removing poly sheeting protection from walls and openings.	Potential for cuts	Workers using utility knifes to cut poly sheeting shall cut resistant gloves. Cut away from the body and never cut towards your body or hands. Wear proper safety glasses at all times in case knife slips towards eyes. Ensure knife blades are sharp. Blades and knives will not be placed in pockets on the body; they may only be carried in a storage compartment on a utility belt.	L
	Fall or trip hazards from ladder use.	Use the proper rated ladder for the task. Do not overextend or exceed the recommended limits of the ladder. Maintain 3-point contact. Ensure that the ladder is tied off at 3 points. Do not set ladders on unstable or uneven surfaces. Always demarcate the work area by the ladder. See AHA #3 Use of 6-8 Foot Step Ladder for specific hazards related to ladder use.	

AHA #1 – Job/Task: Removal of friable asbestos containing materials		
Equipment to be Used	**Training Requirements/Competent or Qualified Personnel Name(s)**	**Inspection Requirements**
Equipment – Hand tools, floor scrapers, dollies or carts, air sampling pump, airless sprayer PPE: Full face respirator, non-permeable protective suit, steel toed boots, safety glasses, hard hat cut and abrasion resistant gloves.	Asbestos Worker Training, HAZWOPER Training, Asbestos competent persons; Cairo Vrizueal, Jaime Nuno, Heriberto Ledesma	Inspect equipment daily, before each use. Make sure damaged equipment is tagged and removed from the site. Document inspection on an inspection form. Inspect containments every day for integrity. Visual clearance and air sampling of regulated areas will be performed by a 3rd Party CAC. Ladders will be inspected for damage daily and damaged ladders will be disposed of.

Abbreviations and Acronyms:
AHA – Activity Hazard Analysis
ANSI – American National Standards Institute
APP – Accident Prevention Plan
CIH – Certified Industrial Hygienist
CSP – Certified Safety Professional
CTO – Contract Task Order
EM – Engineer Manual
EWP – elevating work platform
OSHA – Occupational Safety and Health Administration
RAC – Risk Assessment Code
ROICC – Resident Officer in Charge of Construction
SHM – Safety and Health Manager
SSHO – Site Safety and Health Officer
SSHP – Site Safety and Health Plan

Activity Hazard Analysis (AHA) #2

Job/Task: Use of Self-Propelled Elevating Work Platform (EWP)	**Overall Risk Assessment Code (RAC) (Use highest code)**					**M**
Project Location: Site 12, Treasure Island Buildings 1123 & 1321	**Risk Assessment Code (RAC) Matrix**					
Contract Number: N68711-01-D-6011, Contract Task Order 0010	**Severity**	**Probability**				
Date Prepared: July, 2013		Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Dave Davis – Bayview Environmental Project Manager	Catastrophic	**E**	**E**	**H**	**H**	**M**
	Critical	**E**	**H**	**H**	**M**	**L**
Reviewed by (Name/Title): Fred Mlakar, HSM	Marginal	**H**	**M**	**M**	**L**	**L**
	Negligible	**M**	**L**	**L**	**L**	**L**

Notes: (Field Notes, Review Comments, etc.)

A self-propelled elevating work platform (Snorkel TB-60) or similar will be used to access points up to a 60-foot height above ground level. The machine will meet ANSI specifications, and will be inspected and operated as specified in the manufacturer's operating instructions. All workers must have a certificate of training documenting that they have received training in the use of the equipment and that they meet requirements for the use of the equipment. The certificate is normally signed by the supervisor or project manager as required by OSHA.

In addition to the information listed in this AHA, all field personnel must review and be familiar with all provisions of the approved APP/SSHP.

Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (see above).

"Probability" is the likelihood to cause an incident, near miss, or accident and is identified as Frequent, Likely, Occasional, Seldom, or Unlikely.

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and is identified as Catastrophic, Critical, Marginal, or Negligible.

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on the AHA. Annotate the overall highest RAC at the top of the AHA.

RAC Chart
E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

AHA #2 – Job/Task: Use of Self-Propelled Elevating Work Platform (EWP)			
Job Steps	**Hazards**	**Controls**	**RAC**
1. Inspect elevating work platform.	Failure to inspect properly could cause workers to use a defective unit causing injury to workers and possible damage to the equipment and nearby property.	The SSHO or other competent person and the trained equipment operator will inspect the unit when it arrives on-site. Be sure to notify the ROICC in advance of the estimated day and time of arrival. Inspect unit and perform a function test each day before use by following the manufacturer's pre-start inspection procedure. Use a form provided by the manufacturer or use a specific inspection form created for this project to document inspection.	L
2. Climb onto elevating work platform.	Worker could fall while climbing into the unit. Worker could hit their head on the top rail as gate rail is lifted to crawl under top rail to gain access.	Normally workers enter the platform when it is positioned on the ground. Otherwise, follow manufacturer's instructions. Ensure EWP is on a firm, level surface. Use equipment footholds and handholds provided for safe access. Ensure footholds are kept free of mud or debris that could create a slip hazard. Do not carry materials since three points of contact must be made while climbing. Use one hand to hold rail up while crawling under rail gate. Wear hard hat, safety glasses and safety shoes. Wear work gloves to protect from pinch points. Ensure rails are closed and locked before raising or operating platform.	M
3. Carry and place needed work items and tools on platform.	Materials could be heavy, causing injury to worker when lifting. Weight of workers plus materials could exceed capacity of platform.	Workers will not lift loads heavier than 50 pounds without assistance. Ensure the rated capacity of the platform is not exceeded (stamped on plate on platform). Evenly distribute weight on work platform.	L
4. Position elevating work platform.	Unit could come in contact with overhead obstructions, such as nearby building parts, power lines, and communication lines. Equipment could tip over due to uneven ground, holes, or obstacles.	Inspect area before positioning the unit. Only position it on firm, level ground. Check for soft or unstable ground areas. Observe for overhead hazards, obstacles, uneven ground, and depressions. The expected path of travel of the EWP will be inspected by an engineer to evaluate stability of the ground and any other features (such as vault covers, manholes, buried features such as pipes, etc.). Identify all overhead lines. Know the voltages and heights of each line. Boom and/or the work platform must be a minimum of 15 feet from any line for voltages less than 200 kV. For voltages higher than 200 kV, consult EM 385-1-1, Table 11-1. Follow the manufacturer instructions for locking wheels to ensure the unit will not move once positioned.	M
5. Connect lanyard to full-body harness and to designated anchorage point inside work	Failure to connect lanyard could cause worker to fall out of platform during use. Lanyard must by 6-foot free fall (FF) if	The SSHO or other competent person will verify that each worker is wearing a full-body harness and that the lanyard connections are made before allowing the unit to be raised. The connection is made on the D-ring on the back of the	M

AHA #2 – Job/Task: Use of Self-Propelled Elevating Work Platform (EWP)			
Job Steps	**Hazards**	**Controls**	**RAC**
platform.	anchorage point is below the dorsal D-ring.	full-body harness and the anchor point inside the platform. The anchor point is designated by the manufacturer. The anchor point is never the guardrail. Supervisors will monitor compliance throughout the day.	
6. Operate platform.		Follow operating instructions. Supervisor review of operation. Ensure training of operators. Ensure that assigned ground person (likely the competent person or a supervisor) is also trained in operating the platform in the event the ground person has to use the controls on the ground to lower a unit that an operator may not be able to lower (due to equipment malfunction or operator injury).	M
7. Test operation of elevating work platform.	Failure to test platform before use could cause workers to be injured by malfunctioning equipment.	Follow manufacturer's operating instructions. Operator's manual must be available and on-site. At least one worker will be on the ground.	M
8. Raise platform.	Failure to clear above, on sides, and bottom of platform when raising, lowering, swinging, and telescoping could cause injury to worker, damage to platform, or other property. Wind can destabilize platform, especially at heights.	Always check clearances at all times. Communicate with ground supervisor. Do not operate EWPs in winds that equal or exceed 20 mph. Refer to operator's manual for wind limitations. Never place yourself between the platform rails and any overhead or side hazards.	M
9. Communicate with ground supervisor during elevation, moving, or lowering platform.	Failure to communicate with ground supervisor could cause lift to hit obstructions, other object, or people.	Verify that radios between ground supervisor and person on platform function before using platform. Supervisor must authorize move of platform on ground before equipment moves on ground.	M
10. Move elevating work platform.	Obstructions around machine and overhead. Uneven ground, holes, persons on ground.	Follow operating instructions. The manufacturer of the EWPs allows the unit to be moved with personnel in platform as long as boom is lowered and over the rear (drive) axle in line with direction of travel. Maintain communications with a ground supervisor.	M
11. Lower elevating work platform.	Could crush nearby workers or hit objects placed in area after machine was positioned.	Always keep the area under the machine and within 6 feet of the machine clear of people and objects.	L
12. Work from platform for radiological survey.	Workers may want to reach out or climb rails to gain access to points along the roof. Workers may attempt to leave platform to transfer to roof or another platform.	Workers must keep feet flat on platform; workers may rest one foot or the other on the toe rail when using the platform for work. However, workers must have both feet flat inside the platform whenever the platform or the unit is moved. Workers will not climb on rails. Workers will not use any ladders, step stools, or anything that raises their feet off the platform. Workers will never open the	M

AHA #2 – Job/Task: Use of Self-Propelled Elevating Work Platform (EWP)			
Job Steps	**Hazards**	**Controls**	**RAC**
		platform gate to transfer to other platforms or the roof, except in an emergency situation where rescue is necessary. In this case, workers will need a second lanyard so they can tie off to a rescue ladder (probably provided by fire rescue squad) before they disconnect from the platform they were on. Note: this is for emergencies only regarding the rescue of a worker where the lift cannot be brought back to ground level.	
13. Exit elevating work platform. Remove lanyard. Climb off.	Worker attempts to walk the boom and could fall. Worker could fall off platform if platform is not on ground and lanyard is disconnected prematurely.	Never walk the boom. Use handholds and footholds for proper egress from unit or exit at ground level by placing platform on ground and turning off power to boom before disconnecting lanyard and opening gate.	M
14. Refuel EWP.	Fire, ignition of fuel, burns to workers.	Only refuel in open areas, at least 100 feet from buildings. Refueling will be conducted by the fuel subcontractor directly from their fuel truck. Do not smoke within 50 feet of refueling operations. Ensure a properly rated fire extinguisher is available at the refueling location. The fuel truck is supplied with a fire extinguisher. Call 911 for the fire department should a fire be ignited that cannot be easily extinguished.	M

AHA #2 – Job/Task: Use of Self-Propelled Elevating Work Platform (EWP)		
Equipment to be Used	**Training Requirements/Competent or Qualified Personnel Name(s)**	**Inspection Requirements**
Equipment – Snorkel TB-60 self-propelled elevating work platform or similar, safety lanyard, and full-body harness	Specific training for use of elevating work platform will be provided or worker already has documented training. Workers must have received training on the use of fall protection equipment and how to wear a full body harness and where to connect the safety lanyard. Fall Protection Competent Persons: To be named Fall Protection Qualified Person: To be named	Inspect equipment before each use following manufacturers' requirements. Document inspection on an inspection form. Inspect lanyard and harness before each use. Ensure that any lanyard or harness that has been subjected to a fall is removed from service after it has been subjected to the stress.

Abbreviations and Acronyms:
AHA – Activity Hazard Analysis
ANSI – American National Standards Institute
APP – Accident Prevention Plan
CIH – Certified Industrial Hygienist
CSP – Certified Safety Professional
CTO – Contract Task Order
EM – Engineer Manual
EWP – elevating work platform
kV – kilovolt
mph – miles per hour
OSHA – Occupational Safety and Health Administration
RAC – Risk Assessment Code
ROICC – Resident Officer in Charge of Construction
SHM – Safety and Health Manager
SSHO – Site Safety and Health Officer
SSHP – Site Safety and Health Plan

Activity Hazard Analysis (AHA) #3

Job/Task: Removal of asbestos roofing	**Overall Risk Assessment Code (RAC) (Use highest code)**	**M**
Project Location: Site 12, Treasure Island, Buildings 1123 & 1321	**Risk Assessment Code (RAC) Matrix**	
Contract Number: N68711-01-D-6011		
Date Prepared: August, 2013		
Prepared by (Name/Title): Dave Davis – Bayview Environmental Project Manager		
Reviewed by (Name/Title): Fred Mlakar, HSM		

Severity	**Probability**				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	**E**	**E**	**H**	**H**	**M**
Critical	**E**	**H**	**H**	**M**	**L**
Marginal	**H**	**M**	**M**	**L**	**L**
Negligible	**M**	**L**	**L**	**L**	**L**

Notes: (Field Notes, Review Comments, etc.)
In addition to the information listed in this AHA, all field personnel must review and be familiar with all provisions of the approved APP/SSHP.

Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (see above).

"Probability" is the likelihood to cause an incident, near miss, or accident and is identified as Frequent, Likely, Occasional, Seldom, or Unlikely.

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and is identified as Catastrophic, Critical, Marginal, or Negligible.

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on the AHA. Annotate the overall highest RAC at the top of the AHA.

RAC Chart

E = Extremely High Risk

H = High Risk

M = Moderate Risk

L = Low Risk

AHA #3 – Job/Task: Removal of asbestos roofing

Job Steps	Hazards	Controls	RAC
1. Inspect work area.	Failure to inspect work area may result in trips and falls from the same level or falls to a lower level.	Ensure that the work area has no tripping or fall hazards. Openings in the roof which may present a hazard must be secured and clearly identified prior to performing any work. Identify and remediate any tripping hazards. Remove loose debris or other tripping hazards.	L
2. Site mobilization.	Workers could experience back injury or muscle strain, and pinch point hazards could be present.	Use the buddy system. Get help with loads of 50 pounds or more. Use proper lifting techniques. Be aware of potential pinch points. Where proper hand and foot protection. Use proper lifting techniques and back brace when necessary.	M
3. Install fall protection	Fall hazard	Workers shall install roofing anchors for tie off points. Warning lines shall be placed six feet from the edge of the roof, per OSHA standards. The foreman will be designated as the safety monitor. All stanchions and flags used meet	L

AHA #3 – Job/Task: Removal of asbestos roofing			
Job Steps	**Hazards**	**Controls**	**RAC**
		OSHA standards. While installing the warning line system, all employees will maintain 100% tie off. While the foreman is acting as the safety monitor, he will not engage in other tasks, and remain within communicable distance to his crew. If any employee is required to pass a warning line, he will be required to wear full fall protection gear, and be attached to a compliant anchor. All workers working within the warning line system will be involved in a fall protection plan review and sign on to the written plan, prior to beginning work. All workers to follow the approved site specific Fall Protection Plan	
4. Removal of asbestos containing materials	Eye hazards from flying debris. Back or muscle strains. Tripping hazards. Inhalation of asbestos fibers. Dehydration. Cutting Visqueen.	All personnel will be required to wear at a minimum a full face negative pressure respirator to protect against inhalation hazards from asbestos fibers. Full face respirator for eye protection. Follow proper wetting techniques when working with asbestos materials. Bag debris and keep work area free from tripping hazards. When cutting visqueen use appropriate safety knife and cut away from yourself. All workers will be required to follow decontamination procedures when exiting the containment area to prevent asbestos exposure. Take appropriate rest breaks to prevent muscle or back strains. Drink plenty of fluids and perform stretching prior to strenuous work activities.	M
5. Loading out asbestos waste	Back and muscle strain. Dehydration	Use the buddy system when handling loads of 50 lbs or more. Use proper lifting techniques. Be aware of potential pinch points and tripping hazards from uneven surfaces. Where proper hand, foot and eye protection. Use proper lifting techniques and back brace when necessary. Drink plenty of fluids and perform stretching prior to strenuous work activities. All personnel will be required to wear at a minimum a full face negative pressure respirator to protect against inhalation hazards from asbestos fibers. Full face respirator for eye protection. Follow proper wetting techniques when working with asbestos materials. Bag debris and keep work area free from tripping hazards. All workers will be required to follow decontamination procedures when exiting the containment area to prevent asbestos exposure. Take appropriate rest breaks to prevent muscle or back strains. Drink plenty of fluids and perform stretching prior to strenuous work activities.	M
6. Working from and moving self-propelled elevating platform	Tipping while moving if platform is raised, possible contact with overhead utilities, uneven or soft ground surfaces	Use of ground spotter is required at all times, prior to moving lift all overhead utilities will be accounted for and tracked by ground spotter, Ground spotter will notify lift operator of any changes in ground conditions. Provide reference material from manufactures operations manual for moving self-propelled platform if planning to move while elevated.	

AHA #3 – Job/Task: Removal of asbestos roofing		
Equipment to be Used	**Training Requirements/Competent or Qualified Personnel Name(s)**	**Inspection Requirements**
Equipment – Snorkel TB-60 self-propelled elevating work platform or similar, safety lanyard, and full-body harness	Specific training for use of elevating work platform will be provided or worker already has documented training. Workers must have received training on the use of fall protection equipment and how to wear a full body harness and where to connect the safety lanyard. Fall Protection Competent Persons: To be named Fall Protection Qualified Person: To be named Asbestos Worker Training, HAZWOPER Training, Asbestos competent persons; Cairo Vrizueal, Jaime Nuno, Heriberto Ledesma	Inspect equipment before each use following manufacturers' requirements. Document inspection on an inspection form. Inspect lanyard and harness before each use. Ensure that any lanyard or harness that has been subjected to a fall is removed from service after it has been subjected to the stress.

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Attachment 3
Response-to-Comments

ROICC DOCUMENT REVIEW EVALUATION FORM

Date: 7/11/2013 and 20/8/2013
Contractor: CBI Contract #: N68711-01-D-6011
Reviewed By: Izzat Amadea and Fred Niehoff, ROICC SF Bay CTO/DO: 0010
Project Title: NTCRA, Site 12 Waste Disposal Area, Treasure Island

Document: Buildings 1123 &1321 Asbestos Abatement Plan (AAP) and Fall Protection Plan (FPP), July, 2013

CONTENT		**DOCUMENT**	
Adequate	( )	Complete	( )
Inadequate	( )	Incomplete	( )

REFERENCE DOCUMENTS:

US Army Corps of Engineers Safety and Health Manual, EM 385-1-1

COMMENTS:

The following comments should be resolved with the reviewer before submittal of the Final version.

No.	Page	Para-graph	Comment	CB&I Inc/Bayview Environmental Services, Inc. Response
			7/11/2013 via email from Izzat Amadea	
1.	FPP/ AAP	Title	Add: Contract and CTO number to titles	The contract number and CTO number were added to the title.
2.	AAP		Removing windows to facilitate removal of waste; are barricades sufficient as a fall protection measure? What will be done to openings after completion of waste load-out? Provide a schedule for asbestos abatement and building demolition.	The wall underneath the window will typically be sufficient to avoid generating a fall hazard. Upon completion of waste load-out, windows will be covered with plywood or equivalent. Asbestos abatement and building demolition are included as line items in the original project schedule. Unfortunately, due to the delays experienced by the Tetra Tech EC, Inc at adjacent buildings have impacted our start date. A two week notice will be given to the ROICC to allow for upfront scheduling of the work. In addition, the appropriate prep phase meetings will be scheduled accordingly.
3.	FPP/ AAP		Attach training records	Training records will be attached.
4.	FPP		Provide roof anchor specs, design and certification.	Roof anchor specs, design (if needed) and certification will be provide to the ROICC upon inspection of the current roof

No.	Page	Para-graph	Comment	CB&I Inc/Bayview Environmental Services, Inc. Response
				condition prior to executing work.
5.	AAP		TSI pipe sections removal. Is glove bag or containment required?	The appropriate bags/containments will be used for the work and will be evaluated on a case-by-case basis before work activities in the field take place.
6.	AAP		Encapsulation. What is the purpose of encapsulation? Can the area be cleared without encapsulation? Is encapsulation required for demolition and disposal?	Encapsulation is industry standard practice. The purpose of applying the material is to lock down residual asbestos fibers that may be present and to insure air clearance testing is successful.
7.	FPP		Add: Fall Plan AHA	A Fall Plan AHA will be provided to the ROICC prior to the prep phase meeting and attached to the health and safety plan.
8.	APP		Add: Asbestos Abatement AHA	An Asbestos Abatement AHA will be provided to the ROICC prior to the prep phase meeting and attached to the health and safety plan.
9.	APP/ AAP		Add a statement of compliance with project APP/SSHP/RPP	The following statement was added to the Final Asbestos Abatement Plan, Purpose, Second paragraph (page 1): "This Asbestos Abatement Plan is compliant with the current CTO 010 Accident Prevention Plan/Site Safety Health Plan/Radiological Protection Plan."
			20/8/2013 via email from Fred Niehoff	
1	AAP		Asbestos work plan: I believe CFR requires sign posted in Spanish are required because some of the employees first language is Spanish.	References to dual language postings were added to the Asbestos Abatement Plan.
	AHA		AHA #1: 1. Is the work classified as per the CFR as Cass 1, 2, or 3? If so please state on AHA. 2. Inspect work area for proper signage.	Both comments were incorporated into the appropriate AHA.
	AHA		AHA #2: 1. For the warning line, EM-385-1-1 talks about roof slope not exceeding certain slope. Make sure existing roof slope meets this criteria. 2. Have the name of the competent person on the AHA prior to commencing work. 3. Preliminary Equipment checklist needs to be submitted on any equipment brought to jobsite.	All three comments were considered and incorporated based on current information into the appropriate AHA. The name of the competent person will be added to the AHA prior to commencing work. An equipment list from the subcontractor will be required prior to bringing equipment onto the jobsite.
	AHA		AHA #3: 1. Preliminary equipment checklist needs to be submitted on any equipment brought to jobsite.	An equipment list from the subcontractor will be required prior to bringing equipment onto the jobsite.

Attachment 4
Site-Specific Fall Protection Plan

SITE-SPECIFIC FALL PROTECTION PLAN
BUILDINGS 1123 AND 1321 TREASURE ISLAND
ASBESTOS ABATEMENT PROJECT

The following tasks have been identified as potentially posing a fall hazard:

- Working from elevated work platform to install roof anchors
- Working from ladders for various tasks
- Asbestos roof removal
- Loading out debris from open windows

Duties and Responsibilities

The fall protection competent persons are responsible for conducting the implementation and monitoring of the Fall Protection System as well as conducting the initial inspection of all equipment used for work at heights 6 feet or greater above the next lower level. These competent persons shall:

- Inspect all fall protection systems before and after installation.
- Conduct inspections of the buildings before work is performed in the buildings.
- Ensure that any floor openings are covered and marked or barricaded. Otherwise all openings, including broken or missing floor-to-ceiling windows, must be guarded with standard top rails and mid rails as required by regulations. Bayview will install guard rails or barricades at any windows that Bayview removes for loading out of waste.
- Inspect existing stairways to verify handrails are in place and open sides are guarded with top rails and mid rails.
- Verify personal fall arrest systems, connecting devices, and anchorages are appropriate, and are inspected by the user on a daily basis.
- Identify, evaluate, and address existing and potential fall hazards and to take prompt corrective measures with regards to such hazards.

Provide training to all employees who work at heights and who use fall protection systems and fall restraint systems. The fall protection competent persons for this project will be the on-site foremen assigned to the project (Jaime Nuno and/or Heriberto Ledesma) or other individuals that Bayview deems as a competent person. Also periodic inspections will be conducted by the following individuals. Mr. Peter Warren the Bayview Environmental Corporate Safety Officer, and Mr. Daniel Ledesma Bayview's General Superintendent, and Mr. Cairo Vrizuela Bayview's project Superintendent (qualifications are attached).

Bayview may also choose to assign other personnel to this project depending upon the availability of the individuals. Bayview will provide certifications for all personnel chosen prior to the start of the project.

These individuals have had training and experience with fall protection programs and systems. Only manufactured fall protection systems will be used.

Description of Project and Task

The purpose of this project is to remove asbestos containing materials so that the buildings can be demolished under a separate contract.

Bayview will be working through-out the two buildings to remove identified asbestos containing materials.

Windows may be removed on each floor to create access for the debris loading areas. The windows will be removed from the inside by workers attached to the fall restraint system described below.

Step ladders will not exceed 20 feet in height and be used for light work activities only.

An elevated work platform (EWP) Genie 260/34-LP 40-60' (or other comparable model) Articulating boom lift with dual fuel capability, may be used to access the roof and to assist in the installation of roof anchors. Workers will wear safety harnesses and use appropriate lanyards for all activities where a fall hazard exists. EWPs have manufacturer-designated anchorage points located inside the platform.

Waste may be removed from elevations by use of a high reach forklift. The high reach forklift will be utilized by trained Bayview personnel. Each loading area will be surrounded by a guardrail system to prevent unprotected access to the fall hazard. Two workers assisting in loading out the bins will be required to wear full-body harnesses attached to personal fall limiter lanyards.

Bayview will utilize the Guardian Brand full body harnesses (or other comparable brands), with a 3/16" self-retracting cable and rope grab. Bayview will utilize the roof anchors as a tie off point.

Training Requirements

All workers will be trained on the fall hazards in the work area, specifically the roof area, open windows, and openings over lower work areas or floor edges. Workers will be trained on the use, maintenance, and storage of fall protection equipment. Specific training includes how to put on and take off a full-body harness, how to connect the safety lanyard to the harness, and how to attach to designated anchorages. All workers will receive training on the limitations of the

systems and that no free fall of greater than 2 feet is permitted when the safety devices are used properly.

Workers will be trained on how to connect to an authorized anchorage point, how to move from one point to another point (if necessary), and the rules for work on an EWP and ladders.

At the start of the project, workers will receive hands-on training. Training will be verified on a safety meeting form with the date of the training, the signature of the trainer, and the signature of each person trained. A copy of this form will be maintained on site.

All EWP users will be trained in its use prior to being authorized to use the EWP. This training will consist of:

- Reading and understanding the manufacture's operating manual and any associated rules and instructions, or training by a Qualified Person on the contents of these documents
- Reading and understanding all decals, warnings, and instructions on the EWP

Prior to operation, the EWP operator will survey the work area for loose or soft ground, ditches, drop-offs or holes, bumps and floor obstructions, debris, overhead obstructions, ground and elevated energy sources, and other possible hazards. They will ensure the EWP is on a firm-level surface; the platform is loaded in accordance with the manufacturer's specifications' outriggers and/or stabilizers are used if required by the manufacture; wheels, if any, are locked or chocked; and that fall protection systems are in place.

When transporting EWP's, the boom will not be in an elevated position with personnel in the basket unless specifically designed for this type of operation. The boom will be inspected to make sure it is properly cradled and outriggers will be stowed in position.

Prevention and Control of Anticipated Hazards

Each task at heights is included in an AHA. The AHA describes the hazards and the control measures.

The hazard areas and control systems to be applied are summarized as follows:

- Installing roof anchors while working from an EWP
- Roof work with fall restraint and warning lines (Guardian Brand)
- Debris loading areas; Guardrails to define loading areas; and personal fall restraint system inside guardrails

The above are the only planned activities where fall protection is specified, selected, and to be implemented. No other activities where there is a potential for a fall 6 feet or greater to the next lower level are authorized without approved modification of this plan.

Rescue Plan and Procedures

All personnel using a full-body harness with safety lanyards will be instructed on how they would be rescued if they are connected to and should fall from an anchorage point. Workers will be restrained with retracting lanyards to mitigate fall risk. The lanyards will be installed such that workers will not be able to reach the open edge; therefore, no rescue would be required.

Work on a EWP always requires at least two workers to be in or operating the EWP. If one worker falls out of the EWP basket, the rescue is achieved by the other worker carefully rotating the EWP to a point where the worker can safely be lowered to the ground. This type of rescue will be reviewed in the fall protection training.

Should a more complex rescue be required, the San Francisco Fire Department will be promptly summoned by calling 911 or (415) 861-8020 from a cell phone, as per emergency response plan guidelines, the San Francisco Fire Department will be notified of fall protection work prior to the start of the activity.

Design of Anchorages

Anchorage points on EWPs are designed by manufacturers of the equipment. As part of the EWP inspection, these points are inspected for damage or other signs of defects. All other anchorage points will be capable of supporting 5,000 lbs as required per OSHA Standards, and have been designed by the manufacturer for this purpose. Installation according to the manufacturer's specification and use will be under the supervision of the fall protection competent person and will maintain a safety factor of at least two. Bayview will utilize Guardian Brand (or other comparable brand) roof anchors with appropriate fasteners. The design and location of the anchorage points will be performed on site.

Inspection, Maintenance, and Storage of Fall Protection Equipment

Daily inspections of the EWP and lifeline system are required and will be documented on an inspection form. The Bayview SSHO or the Bayview Foreman or other supervisory personnel will inspect personal fall arrest systems at least once each week. Each worker will inspect the full-body harness and lanyard before putting on the harness and lanyard. The supervisors will inspect each worker after the harness is put on by the worker.

All safety harnesses and lanyards will be stored in designated areas in a hanging position (not stored on the ground or lying flat on a surface). Any device that has been deployed will be removed from service and discarded. This includes the full-body safety harness as well as the used lanyard. When fall hazards are noted, workers will be advised of these hazards at morning safety meetings, on site radios throughout the day, and by use of barricades and signs.

Incident Investigation Procedures

Any incident, regardless of severity, will be reported to the SSHO immediately. The SSHO will implement an incident investigation as required by CBI policies and site specific accident prevention plan. The report will be submitted to CBI who will submit to the ROICC within 24 hours for review and comment.

Evaluation of Program Effectiveness

Since the project duration is less than 1 year, this program will be evaluated for effectiveness by the SSHO and the SHM at least each quarter and at the end of the project.

Inspection and Oversight Methods Employed

As noted above, Bayview or CBI's SSHO, SHM, or site supervisors and managers or other supervisory personnel will conduct a weekly inspection of all fall protection equipment. A fall protection competent person must be in the location of the use of fall protection systems at all times when the systems are being used. Random inspections by the SSHO, site supervisors and managers, and the SHM will also be used for oversight. Fall Protection Program inspections are required by CBI's Accident Prevention Plan.

FINAL
DEMOLITION PLAN
ASBESTOS ABATEMENT, RADIOLOGICAL SURVEY, AND DEMOLITION
BUILDINGS 1123, 1319, AND 1321
INSTALLATION RESTORATION SITE 12

DATED 10 JULY 2012

IS RECORD NO. N60028_002045

CB&I
4005 Port Chicago Highway, Suite 200
Concord, CA 94520
Tel: +1 925 288 9898
Fax: +1 925 288 0888
www.CBI.com

September 13, 2013 DCN: SHAW-6011-0010-0204

Tony Konzen
Base Realignment and Closure,
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, California 92108

Subject: Final Asbestos Abatement Work Plan Treasure Island Buildings 1123 & 1321, Non-Time-critical Removal Action, N68711-01-D-6011 CTO 0010, San Francisco, California

Dear Mr. Konzen:

Shaw Environmental & Infrastructure, Inc., a CB&I company, is pleased to submit the *Asbestos Abatement Work Plan Treasure Island Buildings 1123 & 1321, Non-Time-critical Removal Action, N68711-01-D-6011 CTO 0010, San Francisco, California, SHAW-6011-0010-0204,* as prepared by our first tier subcontractor Bayview Environmental Services, Inc.

This Asbestos Abatement Work Plan supplements our *Final Demolition Plan Asbestos Abatement, Radiological Survey, and Demolition Buildings 1123, 1319, and 1321 Installation Restoration Site 12 Naval Station Treasure Island, San Francisco, California, July 2012, SHAW-6011-0010-0166* soon to be shipped for your records (Bldg 1319 was later de-scoped by the Navy from the contract as captured by Field Work Variance-014).

The Asbestos Abatement Work Plan includes a response-to-comments document in response to review comments provided by the ROICC. Should you have any questions with this matter, please do not hesitate to contact me at 619.446.4529.

Sincerely,

Ulrika Messer
Deputy Program Manager
CB&I Federal Services