



## INVITATION FOR BID

UNIVERSITY LINK LIGHT RAIL  
TBM TUNNEL UWS TO CHS  
LINK CONTRACT U220

IFB NO. RTA/LR 001-09

VOLUME 6 of 8

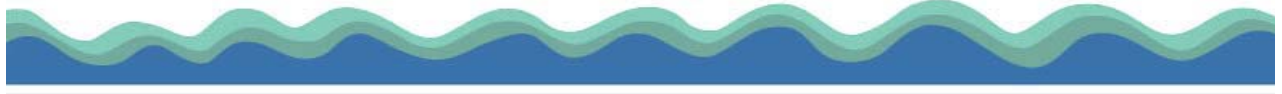
~~CONSTRUCTION SAFETY AND SECURITY MANUAL~~

NOT USED

DECEMBER 2008

**THE PREPARATION OF THIS DOCUMENT HAS BEEN FINANCED IN PART THROUGH A GRANT FROM THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL TRANSIT ADMINISTRATION, UNDER THE URBAN MASS TRANSPORTATION ACT OF 1964, AS AMENDED, AND IN PART BY THE CENTRAL PUGET SOUND REGIONAL AUTHORITY (SOUND TRANSIT).**

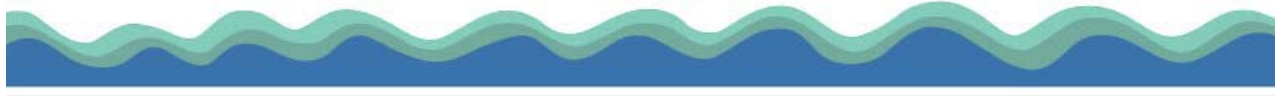
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# **Link Construction Safety and Security Manual**

**Revision 2**

**August 2008**



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## Policy Statement



The Central Puget Sound Regional Transit Authority (Sound Transit) places safety above all other aspects of the Link Light Rail Project. The impact and aftermath of a serious accident sends a strong message reminding us all of the hazards and dangers associated with construction projects. Safety is essential and the first priority on all Sound Transit projects.

Sound Transit has developed the Link Construction Safety and Security Manual as the agency's duty of care to establish and maintain a safe and secured work environment for all project personnel, employees, site visitors, and the general public.

The policies and procedures in this manual are mandatory and require full participation, cooperation, and communication from our contractors, employees and partners. To further meet our responsibilities and duty of care, the Sound Transit construction oversight staff for safety and security is provided full support, resources, and effort to ensure the contractor is diligent in providing for the safety, security, health, and welfare of all persons and property associated with Sound Transit projects.

Safety and security is everyone's responsibility and an integral part of every job. Our goal is to complete the project accident and injury-free, without incident. With your assistance and participation, we can meet this goal.

  
Jonj Earl, Chief Executive Officer

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## 1.0 ADMINISTRATION AND ORGANIZATION

### 1.1 PURPOSE AND SCOPE

The purpose of this Link Construction Safety and Security Manual (CSSM) is to establish a practical, sound, and effective program for the prevention of and response to incidents, and to outline those responsibilities that Contractors, subcontractors, and construction management personnel and Sound Transit (ST) employees are required to monitor, enforce and adhere to for program compliance. A culture of safety and security begins with the consistent message that:

SAFETY AND SECURITY IS EVERYONE'S RESPONSIBILITY.

The CSSM provides procedures for instituting the Sound Transit Construction Safety and Security Program for construction projects to develop a consistent and uniform monitoring, reporting, and documentation program. The objective is for all project personnel to recognize, evaluate, and control hazardous and insecure activities or conditions within their respective areas of contract responsibility. Ultimately, the goal is to complete all project phases with zero safety incidents and zero security breaches.

The CSSM is a Sound Transit contract document as defined in the General Conditions for Link construction contracts. The Construction Management team members, Contractors, and subcontractors are required to ensure that employees, visitors, lower-tiered subcontractors, and suppliers/vendors, while on the work site and in the performance of Sound Transit contracts, comply with the provisions of this document and the minimum standards set forth under the Fed/OSHA 29 Code of Federal Regulations, Parts 1910 and 1926; the Washington Administrative Codes cited in the Summary of Contractual Requirements; and any other applicable municipal, state, and federal safety and security, health, or environmental regulations. Contractors must comply with all federal, state and local laws and regulations as well as requirements outlined in this document. In the event of any conflict the most stringent safety and security requirement shall apply. The requirements stated in this document apply to Link construction contracts awarded after August 31, 2008.

At a minimum, each Contractor is expected to develop, implement, and enforce a comprehensive safety and security program that complies at a minimum, with the requirements cited in this manual and any added safety and security requirements cited in the awarded contract documents. **Contractors must submit for Resident Engineer (RE) and Sound Transit review and comment, a site-specific Construction Safety and Security Plan (CSSP). No contractor shall be permitted to perform any physical work on a project until the CSSP has been submitted, resolution to comments have been obtained and the CSSP has been accepted by the Sound Transit Safety, Security and Quality Assurance (SSQA) Department.**

## 1.2 CONTRACTOR RESPONSIBILITIES

The Contractor shall be solely and completely responsible for conditions of the site and the safety and security of all persons and property, 24 hours per day beginning with the Notice-To-Proceed and ending with the Final Acceptance.

The Contractor shall comply with all safety and security directives and corrective actions required for safety/security issues or violations identified to remedy safety/security deficiencies. These deficiencies may be related to means, methods, work plans, hazards analyses, or threat and vulnerability analyses. Sound Transit retains the right to stop work as outlined in the General Conditions until such deficiencies are corrected to meet regulatory and/or construction safety and security requirements.

The following requirements and responsibilities apply to construction contracts:

### 1.2.1 Job Hazard Analyses

For each construction operation to be performed by any contractor or subcontractor, a Job Hazard Analysis (JHA) shall be prepared to identify any hazards presented by the work, and methods to be deployed to reduce such hazards. The JHA must be submitted to ST and the RE, and reviewed and accepted by ST SSQA **before beginning** the stated work, as further described in Section 5.2, Planning.

The Job Hazard Analyses shall identify foreseeable hazards and threats, planned protective measures, provide drawings or other documentation of protective measures prepared, signed and stamped by a Professional Engineer or other Competent Person. The Competent Person shall be clearly identified and present on-site and available for random workplace inspections.

### 1.2.2 Worksite Threat Analyses

The contractor must prepare a Worksite Threat Analysis (WTA) for each construction site under their control before physical work may begin. Threat Analyses must be submitted to the Sound Transit SSQA Division and the Resident Engineer (RE) for review and comment and all comments must be satisfactorily reconciled. The Threat Analyses shall identify specific personnel security hazards, property security hazards, third-party liability hazards, and planned protective measures designed to minimize exposure to Threats.

The Worksite Threat Analysis may be included as part of the Construction Safety and Security Plan (CSSP) described in section 1.2.7. Refer to section 2.6 for guidelines on identifying security threats on construction sites.

### 1.2.3 Worker Hazard Awareness

The contractor shall conduct a documented review and discussion of the approved JHA and the WTA prior to any field activities. Workers shall be informed of foreseeable hazards and threats, and the required protective measures described within the approved hazard analysis before starting work on the affected construction operation. All required PPE and security measures shall be present and workers trained in proper use prior to beginning JHA-related work.

#### 1.2.4 Workplace Inspections and Hazard/Threat Abatement

The Contractor shall have a designated Site Safety and Security Representative (SSSR) with no other responsibilities outside of safety and security on site for all shifts, at all times. The SSSR(s) shall report to the Contractor's Corporate Safety Manager (ConSM). The SSSR shall conduct and document daily inspections of the construction activities and job sites to identify and correct hazards, vulnerabilities, and instances of noncompliance with safety, security, health, and security requirements. All items of noncompliance shall be corrected immediately.

If immediate corrective action is not possible or the hazard/threat falls outside of contract scope, the Contractor shall immediately notify affected workers, post appropriate warning signs, implement needed interim control measures, and notify the Resident Engineer (RE) and the Sound Transit Construction Safety Manager (CSM) both verbally and in writing of the issue and the actions taken.

#### 1.2.5 Health and Safety and Security Laws and Codes

The Contractor shall comply with the safety and security standards and provisions of all applicable local, state, and federal laws, and building and construction codes. The Contractor shall comply with the provisions of the Washington Industrial Safety Act of 1973, including Washington Administrative Code (WAC) 296-62, General Occupational Health Standards, WAC 296-155, Safety Standards for Construction Work, WAC 296-800, Safety and Health Core Rules, and, all revisions, amendments and regulations issued subsequent by the Washington State Department of Labor and Industries.

#### 1.2.6 Compliance with this Construction Safety and Security Manual

The Contractor shall comply with conditions of this CSSM. In addition, the contractor will designate one person for each work crew or at each work site that, in addition to their other duties or responsibilities, is responsible for safety and security of the work crew or work site. This designated person will be clearly identified in the JHA, the WTA or Construction Work Plan, and is required to be present at each work site whenever the SSSR or an alternate project safety/security officer is not immediately present. The designated person shall be a foreman, superintendent, or other person having job site authority.

Any deficiency identified by the CM team or the Sound Transit SSQA Division must be corrected immediately. Deficiencies may be transmitted by either verbal or written notification to the SSSR or superintendent. Any deficiency that puts

any worker in danger of injury or property loss must be corrected immediately. Other safety or security deficiencies must be corrected upon inspection within 24 hours. Failure to correct deficiencies in a timely manner may result in work stoppage.

#### 1.2.7 Site-Specific Construction Safety and Security Plan (CSSP)

The Contractor shall submit for review and comment a site-specific Construction Safety and Security Plan (CSSP). The CSSP shall, at a minimum, meet all the requirements detailed in this Construction Safety and Security Manual (CSSM) and additional safety and security requirements cited elsewhere in the awarded contract documents. The CSSP shall address general and specific conditions to be encountered during the construction phase. No physical work will be allowed on the project site until the CSSP has been reviewed and comments from Sound Transit SSQA and the RE have been satisfactorily reconciled and incorporated into the CSSP. Final acceptance of the CSSP is required from Sound Transit SSQA before physical work may proceed.

The Contractor shall also designate the individual(s) responsible for on-site implementation of the plan, specify qualifications for those individuals, and provide a comprehensive list of those activities for which a JHA and WTA will be submitted. Refer to the Contract Specifications, and to Appendix A, Summary of Reports in the CSSM for additional details.

The CSSP shall include provisions that fully detail the Contractors implementation plans and procedures for the following:

- A. Contractor's full-time Site Safety and Security Representative (SSSR) priorities description. This position is required staffing on-site at all times and shifts that physical work is occurring. A description of the individuals, organizational reporting and staffing plan across shifts is required.
- B. Contractor's competent person for JHA and WTA's. The competent person for performing these safety and security analyses must be identified.
- C. Minimum requirements, forms and procedures for both JHA's and WTA's.
- D. List and description of both JHA's and WTA's.
- E. Organizational Chart.
- F. List of key personnel, resumes and time with their current employer.
- G. Schedule and budget for Safety and Security personnel and equipment.
- H. Safety and Security Incident Plan, including schedule, budget and milestones.
- I. Safety and Security requirement analysis of applicable codes, requirements and industry standards.

- J. Schedule of safety and security related meetings and holdpoints.
- K. Safety and security procedures and forms.

#### 1.2.8 Coordination

The Contractor shall coordinate with the RE and the ST CSM (or designee) in maintaining, enforcing, and documenting a safety and security program that is effective in practice. All Contractor submittals and SSQA acceptance of documents take place through the RE, not directly between the Contractor and ST. However, any review of safety and security documents, plans, or submittals by the RE, the CSM, or their designees shall not constitute approval of the safety or security elements, mitigations, or hazard/threat precautions employed by the Contractor during construction, or constitute approval of Contractor's means or methods of construction.

The Contractor shall submit to the RE and the ST CSM as part of the monthly pay application, a Monthly Injury/Illness Report, and a Monthly Safety and Security Tracking Form (for the prior month) on forms provided by Sound Transit herein (Ref Figures 1-1 and 1-2).

**Sound Transit Security Dispatch [(206) 398-5628] shall be notified of any safety or security incident immediately upon discovery.** For all types of incidents or potential third-party claims, a Supervisor's Incident Investigation Report, shown in Figure 7-1a, will be completed and submitted within 24 hours to Sound Transit SSQA.

### 1.3 PROGRAM OBJECTIVES

Sound Transit has a duty of care for all persons and property associated with the Link construction projects. Sound Transit is dedicated to the principles of safety and security developing a strong safety and security culture among employees, consultants, and contractors. Sound Transit is determined to achieve the goal of **ZERO INCIDENTS and ZERO SECURITY BREACHES** for the Link Project.

This CSSM promulgates policies and procedures that reinforce the Sound Transit objective to plan, construct, and complete the Link project with professionalism and diligence in meeting regulatory requirements, identifying and controlling hazards and threats, reducing risks to personnel and property, and building a light rail system safely and securely. Proper planning will enable meeting all safety and security objectives while fully meeting planned production and maintaining the project schedule.

The Sound Transit Safety and Security culture expects all project personnel take ownership for job safety and security. Sound Transit expects that this message will be constantly and consistently delivered to project personnel by the Contractor. The CSM and the RE, in conjunction with the ConSM, will implement practical steps and monitor program adherence to assure safe and secure work sites and work practices.

## 1.4 PROGRAM EFFECTIVENESS

The effectiveness of the safety and security measures for Link construction depends upon the active participation and personal cooperation from contractors' corporate management, site management, project employees, and contractor site safety/security professionals to promote positive coordination of efforts to carry out the following responsibilities:

- A. Plan and document all work activities to minimize threats, hazards, exposures, reduce personal injury, property damage or loss, and loss of productive efforts;
- B. Consistently enforce and educate the work force to establish and maintain a safety and security program to detect and correct unsafe and insecure practices and conditions;
- C. Provide adequate protection of workers, equipment, inspectors, and adjacent public and private properties;
- D. Provide for the safety and security of the public by minimizing third party exposures, by adequate planning and maintaining adequate surveillance, traffic control, signage, lighting, and barriers; and
- E. Establish and implement regularly scheduled safety and security education programs and promote a documented safety and security incentive program designed to stimulate and maintain the interest and active participation of all personnel involved with the project. The incentive program shall include monetary incentives to workers and supervisory staff equal to or greater than 0.1% of the contract bid total.
- F. The Contractor's CSSP shall describe and include documentation of:
  1. Employee indoctrination and safety and security orientation sessions;
  2. Pre-task safety and security meetings and hazard analyses, threat assessments, safety and security communications, and lessons learned;
  3. Investigations and documentation of all incidents and safety incidents or security incidents to determine root cause and necessary corrective actions;
  4. Training sessions for the use of proper work procedures, equipment, personal protective equipment, mechanical guards, and security devices;
  5. Weekly safety and security meetings with safety and security topics and instructions for individual employees and group safety and security training programs;
  6. Maintenance of records of safety incidents, security incidents, and development of safety incident, security incident, and loss experience summaries;
  7. Monthly Safety and Security Committee meetings with representatives from all trades and crafts on site including the ST CSM;
  8. Safety and Security incentive program to reward employees and crews for working safely and securely.

9. Employee involvement and input through several different means, which includes readily accessible means for anonymous input.
10. Quarterly corporate management review and report by the Contractor regarding safety and security program effectiveness.
11. Quarterly meetings between ST SSQA management, ConSM, Construction Corporate Project management and ST Program Executive Director.
12. Quarterly meetings with ST SSQA management and ConSM to review safety program, reports, documentation and status.
13. Monthly meetings between the SSSR, the RE's Site Safety and Security Manager, ST CSM, ST Chief SSQA Officer and ST Chief Security Officer.

The information gathered from monthly reports, incident and incident reports, and construction site safety and security survey forms will be reviewed by the RE and ST CSM to address recurring safety or security concerns or identify elements or areas for improvement or modifications. It is the intent of Sound Transit to serve as a safety and security resource and to monitor the Contractor's action and procedures to ensure and document a duty of care for all project personnel and the general public.

It is not the intent of Sound Transit to develop or manage the safety, security, and health, programs of the Contractor, its Subcontractors, or suppliers, or in any way assume the responsibility for the safety, security, or health of their employees.

**FIGURE 1-1  
SAFETY AND SECURITY TRACKING SUMMARY FORM**

ITEM	OBSERVATION	SITE	DATE OBSERVED	WAC REGULATION REFERENCE (IF APPLICABLE)	HAZARD RATING	CORRECTIVE ACTION	DATE CLOSED

**HAZARD RATING DEFINITIONS**

- I: *A condition, practice, or vulnerability likely to cause permanent disability; loss of life or body part, or extensive loss of structure or material.*
- II: *A condition, practice, or vulnerability or practice likely to cause serious injury or illness, resulting in temporary disability or moderate property damage.*
- III: *A condition, practice, or vulnerability or practice likely to cause minor (non-disabling) injury or illness or non-disruptive property damage.*
- IV: *A condition, practice, or vulnerability or practice likely to cause trivial injury or damage but has the potential to become more severe.*



**FIGURE 1-2  
CONTRACTOR'S MONTHLY INJURY/ILLNESS REPORT FORM**

CONTRACTOR MONTHLY INJURY/ILLNESS REPORT FOR YEAR OF 20\_\_

Data/Measure	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Recordable Injury/Illness Cases												
Days Away From Work Cases												
Total Days Away From Work												
Restricted/Modified Work Cases												
Total Days Restricted/Modified Work												
First Aid Cases												
Reported Near Misses												
Average Number of Employees on Worksite												
Man Hours Worked												

Contractor Company Name: \_\_\_\_\_

Contractor Safety/Security Representative Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **1.5 ROLES AND RESPONSIBILITIES**

### **1.5.1 Authority**

Sound Transit has established minimum standards of performance for safety and security during the construction of the Link Light Rail System as described in this CSSM. These standards of performance are administered through the Sound Transit CSM and his/her staff.

Sound Transit SSQA Division will monitor individual Contractor safety and security performance. Contractors shall comply with all applicable federal, state, local, and Sound Transit safety, security and environmental requirements. The ST CSM and the RE shall monitor all construction safety, security, health, and security matters on the project sites and will hold each Contractor fully responsible for all safety, security, health, and contractual duties. The CSM refers throughout this document either to the CSM or his/her Sound Transit designees in the ST Safety Division. The Sound Transit Chief Security Officer will provide oversight and guidance to the ST CSM on security matters, and the ST Chief Safety Officer will provide oversight and guidance to the ST CSM on safety matters.

The CSM reports to the ST Chief Safety Officer. Both the ST Chief Safety Officer and ST Chief Security Officer report to the ST Chief of Safety, Security and Quality Assurance. The CSM is responsible for auditing and assuring that Contractors are implementing all requirements of the CSSM. The CSM, ST Chief Safety Officer, Chief Security Officer or Chief of SSQA has the authority to stop work or require immediate correction of deficiencies as detailed in the CSSM. All submittals required in the CSSM must be reviewed, have comments reconciled, and obtain final acceptance from ST SSQA.

Each Contractor shall be held accountable for the safe, secure and healthful performance of work by their employees, suppliers, and subcontractors, regardless of tier. Each Contractor is directly and fully responsible for the implementation and administration of all applicable federal, state, local, and Sound Transit safety, security, health, and environmental standards that apply to its own operations and those of its subcontractors. Each Contractor shall have a full-time SSSR with no duties other than safety and security for each shift work is performed.

Before any physical work begins on-site, the Contractor's project manager, superintendents, corporate safety and security managers, ConSM and SSSR shall attend a safety and security pre-construction and coordination conference with the ST CSM, the ST Chief Safety Officer, the ST Chief Security Officer, the Sound Transit Construction Manager, the RE, and the Sound Transit Risk Manager.

Sound Transit retains the right for any of its employees, agents, regulatory personnel or other designated safety and security or insurance personnel to conduct unannounced site surveys, visits, surveillances or audits.

Whenever a job safety or security issue or concern is observed, the Contractor will be notified verbally or in writing to correct the observed violation. The Contractor shall respond to the item identified with a written response to the RE within 24 hours of these notices. Immediate corrective action of the safety hazard or security vulnerability is expected. Copies of safety or security violation reports shall be distributed in accordance with Appendix A, Summary of Construction Safety and Security Reports. Failure to perform corrective actions within 24 hours of written notice may result in a Stop-Work Order for any and all related work. Observation of imminent safety or security dangers may result in an immediate Stop-Work Order with no prior notice. In the event of a Stop-Work Order, the Contractor shall be solely responsible for any impact to Contract Price and/or the Contract Time.

## 1.5.2 Safety and Security Responsibilities

### A. Contractor

The Contractor is solely responsible for compliance with the incident prevention and safety and security requirements and as required in the Contract Documents. To fulfill these requirements, the Contractor shall:

1. Within 30 days of notice to proceed (NTP) and before the start of construction, whichever comes first, submit to the RE and ST SSQA for review, for ultimate acceptance by ST SSQA, a CSSP that reflects the Contractor's plan for compliance with all federal, state, local, and Sound Transit safety, security, health, and environmental requirements. The CSSP shall include the following:
  - a. A detailed organizational chart and a statement that clearly identifies from the corporate to the field level who is responsible for safety and security during all phases of the project for the duration of the contract.
  - b. A statement of the Contractor's safety and security policy for compliance with the CSSM;
  - c. A detailed safety and security plan that details the Contractor's full and complete compliance with the CSSM and Contract Documents;
  - d. A statement that reflects the Contractor's awareness and knowledge of all local, state, and federal health and safety and security codes applicable to its agreement with Sound Transit; and
  - e. A written safety and security incentive program stating how the program is managed, and what type of incentives are available for employees who work safely.

2. The Contractor shall directly employ a full-time SSSR whose sole duty is safety, security, health, and environmental control and monitoring. A SSSR representative shall be on-site when any work is in progress. The SSSR reports to the ConSM and, the ConSM may act in place of the SSSR. At any time the ConSM acts in place of the SSSR, the ConSM must be physically on-site and must have no other responsibilities in addition to those required of the SSSR.

For contracts involving tunneling operations, the SSSR shall meet the requirements contained in the Contract Specifications. The SSSR shall be responsible for on-site safety and security coordination with the full support and cooperation of the Contractor's project manager. The SSSR shall be assigned full-time to a contract project and shall not be utilized on any other concurrent Sound Transit contracts or projects or other Contractor projects. The SSSR shall have full support from corporate management and the authority to immediately correct unsafe conditions and unsafe practices. The SSSR shall be responsible for managing the safety, security program for the project during their shifts as the sole Contractor safety and security representative. The SSSR shall have the authority to stop Work until unsafe conditions or practices are corrected.

3. The Contractor shall submit for acceptance to Sound Transit within 30 days of NTP, a resume of the qualifications and work experience of the ConSM and any SSSR representatives proposed for assignment to the contract. The ConSM and SSSRs will be required to provide references from three previous projects and they may be requested to appear for a personal interview prior to their approval by Sound Transit and their deployment on any project. References shall include owners and construction management team members from previous projects.

All ConSMs and SSSRs shall be on a 90-day evaluation period starting from the initial date of assignment to the project. Evaluations will be conducted by the Link Construction Manager, RE, and Sound Transit SSQA. If any of these parties are not reasonably satisfied with performance, they may request that the Contractor remove an individual from the project and the Contractor shall remove that individual within 30 days of receiving the written request from Sound Transit or the RE.

4. Establish and maintain an applicable and comprehensive orientation program for all new employees.
5. When the contract involves tunneling operations, the Contractor shall have a "Competent Person" as described in the pertinent federal and state regulations present on each work shift to perform the required air and noise testing. Testing shall be performed in accordance with the

applicable regulations. The Competent Person shall have the authority to shut down the tunnel or any work area when gas concentrations reach a potentially dangerous level, as defined by the applicable regulations. This Competent Person shall be under the direct supervision of the ConSM or SSSR.

6. The Contractor, for both tunneling and surface work, as required by the contract, shall have onsite at all times certified, calibrated equipment for testing that includes, but is not limited to, the following:
  - a. Noise,
  - b. Gases,
  - c. Air flow,
  - d. Lighting, and
  - e. Air quality.

The Contractor is responsible for submitting to the RE and the Sound Transit CSM an appropriate schedule for testing of these and any other physical or environmental exposures that may impact the health and safety or security of workers. Testing may be necessary on a continuous, task, or daily basis depending on the activity and conditions.

7. The Contractor shall notify the RE and Sound Transit CSM immediately of inspections conducted at the work site by the Washington State Department of Labor and Industries Division of Occupational Safety and Health (DOSH) or other federal, state, or county safety, security, health, or environmental organization/agency. The Contractor shall furnish the RE with copies of all citations and/or warnings of safety or security violations within five days of receiving the citations and/or warnings.
8. The Contractor's Site Safety Manager shall write an NCR for each citation or warning of safety violation and perform a safety inspection of the site within 3 days after each citation.
9. The Contractor shall respond to the ST CSM within 5 days with a corrective action plan and a root cause analysis report for each NCR.
10. The Contractor shall have a bulletin board located at all work sites adjacent to the field office or other conspicuous location. Items including, but not limited to, the following shall be posted on the bulletin board:
  - a. Emergency procedures,
  - b. Emergency phone numbers,
  - c. State Labor required Posters – Job Safety and Health Protection (Form F416-081-000),

- d. Right to Know – Statement of the results of a hazardous chemical survey, and
  - e. OSHA 300 Summary (during February of every year). Summaries, findings, or notices of violations received from Labor & Industry, inspection agencies or other authority having jurisdiction (AJH).
  - f. All Notices of Violation, citations and safety warnings from ST or any of the AJHs
  - g. All NCR's Corrective Action Plans and Root Cause Analysis
  - h. A list of all JHAs and TUAs including reference to where they are filed.
11. The Contractor shall conduct training classes on a monthly basis, or more often if needed, on safety and security related topics, that may include first aid, fire prevention, site security, or other areas or topics the Contractor deems appropriate. The Contractor can seek assistance with these classes through the ST Construction Manager, the Sound Transit CSM, or the insurance carrier. See the Contract Specifications for additional training required for tunnel construction. All such training shall be approved by the ST CSM and conducted jointly with ST CSM.
12. The Contractor shall have a security plan for each site where work is performed, material is stored, or personnel are stationed, that controls access to only authorized personnel and protects property.

#### B. Contractor Safety and Security Manager

In order to increase the level of line responsibility for safe work conditions, the Contractor will appoint a designated Contractor Safety and Security Manager (ConSM). The ConSM shall report directly to the Contractor's corporate safety director (or the Contractor's equivalent) with a dotted-line responsibility to the Contractor's project manager. The ConSM should be on-site everyday. The ConSM or a member of his safety and security staff shall at a minimum:

- 1. Submit a weekly safety and security report (Figure 4.2) to the RE detailing issues and inspections of the job site(s) and adjacent public areas to document activities, site controls, and conditions. The reports will also provide detail of the corrective action(s) taken to eliminate unsafe acts and/or conditions.
- 2. Prepare and submit the Monthly Injury/Illness Report, which appeared as Figure 1-2.
- 3. Review and submit to the RE and ST Safety incident and investigation reports and root cause analysis summaries, as required, to assure timely submission and to initiate corrective action(s) to prevent recurrence.

4. Provide superintendents and foremen with material suitable and topics, document weekly toolbox safety and security meetings and attend all such meetings.
5. Review safety and security meeting reports submitted by superintendents and foremen to ensure adequacy of training as well as subject matter and the conduct of the safety and security meetings.
6. Notify and assist in incident investigations with Sound Transit to preserve the incident site. Prepare required reports and complete root cause analysis to identify contributing factors.
7. Establish and implement a monthly safety and security training program for supervisors and field managers as applicable to their specific jobs.
8. Manage and distribute a project safety and security incentive program to recognize and reward individual employees or work crews safety and security efforts and contributions towards improved safety and security.
9. Attend the Monthly Safety and Security Committee meetings held by the Sound Transit CSM.
10. Ensure that all required safety equipment is available and that a written log for worker training is maintained.
11. Ensure that all subcontractor employees comply with job-site safety and security rules and regulations, and ensure that the subcontractors' reports are completed according to the rules and regulations stated in this manual and the requirements of the relevant regulatory agencies.
12. Perform Safety and Security Audits monthly on each work site location.
13. Perform Safety and Security Surveillances weekly on each crew.
14. Respond to any Corrective Action Requests and Non-Conformance Reports issued by ST or the RE.
15. Attend all toolbox safety meetings.
16. For tunneling operations, the ConSM shall have the following added responsibilities:
  - a. Provide for control, availability, and use of safety equipment, including employee personal protective equipment, emergency respirator units, and adequate means of communication. The ConSM shall ensure that all safety equipment used in tunnels or underground work is approved by the U.S. Bureau of Mines and /or acceptable by DOSH and OSHA.
  - b. Ensure that "No Smoking" restrictions in ALL underground areas are strictly enforced.

- c. Ensure that timely and accurate safety and security and daily monitoring records are maintained onsite at all times by a designated Competent Person. These records shall be readily available upon request.
  - d. Ensure that all tunnel access points are secure so that unauthorized persons may not gain entry.
17. Perform atmosphere and environmental testing as required, but at a minimum of four (4) times for each shift or when conditions change to document noise levels, air flow, and air quality in underground areas. Written records of such tests shall be kept and made available upon request. The ConSM shall ensure that the Contractor complies with all worker safety, security and health regulations for underground operations.
18. Provide copies to the RE and ST Safety of all Contractor safety and security reports listed in Appendix A, Summary of Construction Safety and Security Reports.
19. Attend weekly/monthly progress and relevant project meetings with the Contractor and the RE.
20. Supervise any subordinate safety or security personnel, Competent Persons, traffic control supervisor, and any other safety or security personnel.
- C. Resident Engineer (RE)

The RE shall oversee the Contractor's application of safety, security and incident prevention procedures for all construction activities and all personnel under its control, including subcontractors, visitors, and suppliers of materials or equipment. The RE shall assign one or more Inspectors to monitor the Contractor's activities whenever work is being done.

The RE or a member of his/her inspection staff shall report any unsafe working conditions to the Contractor's foreman, ConSM, or to the project manager and/or general superintendent. The Contractor shall immediately correct the unsafe working condition.

In the event the RE deems it necessary to notify the Contractor in writing for any non-action, consistent noncompliance, or repeat issues related to a safety or security requirement, the RE shall send copies of all such notices to the Contractor, the Link Construction Manager, the Link CSM, and the Link Director. The Chief Security Officer will also be notified for any security-related issues.

The RE may remove from the work site any of Contractor's employees who continually or deliberately violates safety or security requirements.

If unsafe conditions exist, the RE may order a work stoppage until such time as the condition is corrected.

The RE shall receive copies of the Contractor's Safety and Security Tracking Form (Figure 1-1), Monthly Injury/Illness Report (Figure 1-2), and Construction Safety and Security Survey (Figure 4-1 at the end of Chapter 4). These reports will be monitored by the RE and Sound Transit CSM to initiate any appropriate action deemed necessary from report findings.

The RE's inspectors shall attend the Contractor's Monthly Project Safety and Security meetings.

#### D. Risk Manager

Both Sound Transit and the Contractor will make available or designate a Risk Manager whose role shall be loss control, risk aversion, and risk management related issues. The Risk Manager's duties include, but are not limited to, the following:

1. Assist Sound Transit in the continued development and maintenance of the construction safety and security program;
2. Plan and coordinate future loss control activities;
3. Assist Sound Transit in coordination of on-site loss control audits by the Sound Transit CSM and the insurance carrier's loss control consultant; and
4. In cooperation with Sound Transit, develop and disseminate construction safety and security information and training materials to the Contractor and the RE(s).

#### E. Superintendents and Field Managers

Field supervisors are key individuals and essential to develop, maintain and sustain an effective safety and security program and develop a strong safety and security culture. Their initiative efforts toward incident prevention on their daily assignments determine the degree of safety and security that exists on the job.

All project superintendents and field manager's safety and security responsibilities are critical in establishing a **ZERO Accident Culture**. Their responsibilities will require at a minimum:

1. Daily and documented inspections of the assigned job area to ensure that any deficiencies in procedures or any unsafe acts or site conditions are identified and corrected.
2. Document daily pre-task analysis (tailgate safety and security meetings) discussions are conducted and that workers under their supervision attend and participate to ensure site personnel are aware of the safety and security requirements and reminded that safety and security policies are to be adhered to and enforced.
3. Demonstrate knowledge of safety and security requirements and keep up to date on changes and re-fresher trainings. OSHA 10-hour training is required at a minimum for employees at the supervisory level or above.
4. Provide and require the use of proper personal protective equipment, request or provide proper training, and have available suitable tools for the job.
5. Set a good example for their crews by working safely and making safety and security a priority over production.
6. Ensure that good housekeeping is enforced by maintaining orderly work sites.
7. Note that assigned work crews are properly instructed in safe work practices and physically and mentally prepared for assigned job tasks.
8. With the ConSM and CSM, investigate all incidents that occur in areas under their direct control to determine facts necessary for corrective action.
9. Complete and submit a written incident report within 24 hours of a security or safety incident, property damage, or possible 3<sup>rd</sup> party claim.
10. The project Superintendent shall conduct and document a formal weekly safety and security meeting of at least 20 minutes, with all project personnel to:
  - a. Present a 10 – 15 minute safety education topic and discuss how it relates to the work at hand.
  - b. Plan weekly safety meetings in conjunction with ST Safety
  - c. Review the work plans, list of tools needed, and personal protective equipment needed for the upcoming week and discuss potential hazards.

- d. Discuss unsafe work practices and conditions noted;
  - e. Review incident experience with crews and discuss corrective action(s);
  - f. Encourage personnel to make safety and security suggestions and to pass these on to the safety and security representatives for evaluation and possible implementation; and
  - g. Ensure that fire extinguishers and first aid kits, and other safety equipment are available for each crew and kept in usable condition.
11. Conduct, at a minimum, quarterly review of the CSSP effectiveness which includes identification of corrective actions to improve the implementation of safety and security on the project.

All the above, at a minimum, shall be included and documented in the contractor's orientation for superintendents and field managers.

F. Subcontractor Safety and Security Representative

1. Each subcontractor shall assign a safety and security representative for each shift.
2. Assign a full-time safety and security representative if the subcontractor employs more than 20 people on a work shift.
3. Assign a foreman or lead worker if the subcontractor employs less than 20 people on a work shift.
4. Develop and submit to the prime Contractor all job hazard and vulnerability analyses for tasks assigned to and under direct control of the subcontractor.
5. The subcontractor safety and security representative will conduct, document, and submit to the RE through the prime Contractor, a weekly inspection of the subcontractor's work site.
6. The subcontractor safety and security representative will notify the ConSM or CSM of the weekly surveys so Sound Transit may participate in the walkthroughs.
7. In relation to the subcontractor's activities, the subcontractor's safety and security representative will have the same duties and reporting requirements as the SSSR and ConSM.

## 2.0 SAFETY AND SECURITY REQUIREMENTS

### 2.1 PURPOSE AND SCOPE

The purpose of this chapter is to set forth minimum regulatory safety and security requirements, emergency procedures, and guidelines to protect employees, property, and the general public, including site visitors.

### 2.2 OBJECTIVES

This chapter establishes the following objectives:

- A. To instill a culture of safety for site personnel and Contractor's employees to enforce and adhere to safe work practices;
- B. To comply with regulatory safety and security standards;
- C. To comply with Sound Transit construction safety and security standards;
- D. To establish guidelines for required emergency procedures;
- E. To establish site security requirements and policies; and
- F. To develop administrative and safety and security guidelines for job-site tours.

### 2.3 COMPLIANCE WITH SAFETY & SECURITY REQUIREMENTS

The Contractor shall comply with federal, state, and local laws and regulations; and Sound Transit safety and security rules and regulations applicable to the work performed by the Contractor and its subcontractors.

As a minimum, the Contractor shall be familiar with and maintain onsite at least one current copy for reference each of the following documents:

#### Washington Administrative Codes

- WAC 296-24, General Safety & Health Standards
- WAC 296-27, Recordkeeping and Reporting
- WAC 296-36, DOSH Safety Standards - Compressed Air Work
- WAC 296-45, Safety Standards for Electrical Workers
- WAC 296-46A, Safety Standards – Installing Electrical Wires and Equipment – Administrative Rules
- WAC 296-62, General Occupational Health Standards

- WAC 296-155, Safety Standards for Construction Work
- WAC 296-350, DOSH Administrative Rules
- WAC 296-800, Safety and Health Core Rules
- WAC 296-803, Lockout/Tagout
- WAC 296-806, Machine Safety and Conveyors
- WAC 296-809, Confined Spaces
- WAC 296-818, Abrasive Blasting
- WAC 296-800 to 296-878 Specific DOSH Safety Rules
- WAC 173-370, Model Toxic Control Act Cleanup (Hazardous Materials)

#### Code of Federal Regulations

- 29 CFR 1910, OSHA General Health and Safety Standards
- 29 CFR 1926, OSHA Construction Industry Safety and Health Standards
- 40 CFR 300, Emergency Planning and Community Right-to-Know

#### National Fire Prevention Association

- NFPA 70, National Electric Code, 2004 Edition
- All NFPA regulations for standpipe installation and testing
- NFPA 130, Standard for Fixed Guideway Transit and Passenger Rail System

#### Federal Transit Administration

- FTA Guidance Circular 5800.1, Safety and Security Management for Major Capital Projects

#### City of Seattle

- Seattle Fire Code
- Seattle Electrical Code
- Seattle Mechanical Code
- Stormwater, Grading and Drainage Control Code
- Sign Code
- Street Use Code
- Seattle Noise Ordinance

In addition, the Contractor shall be required to comply with special Sound Transit construction safety and security requirements set forth in this CSSM.

#### 2.3.1 DOSH and Fed/OSHA Compliance

Under the Washington Industrial Safety and Health Act, the Department of Labor and Industries publishes a complete set of Safety Standards that help define the duty of care and safe working conditions in all places of employment in Washington. The Washington Administrative Code, Title 296 – Department of

Labor and Industries, contains Safety Standards for specific industries such as construction as well as General Industry Orders which apply to all industries.

Under the Federal Occupational Safety and Health Act (Fed/OSHA), the federal government publishes a complete set of safety standards (29 CFR 1910 – OSHA General Health and Safety Standards and 29 CFR 1926 Construction Industry Safety and Health Standards).

Employers must comply with all DOSH Safety Standards and/or Fed/OSHA Standards (whichever are the most stringent) that apply to their type of business or work activity. All employers must meet reporting requirements, and employers with eleven or more employees must meet recordkeeping requirements specified in the booklet *“Injury and Illness Reporting”* by the State of Washington Department of Labor and Industry and/or *“Recordkeeping Requirements Under Federal Occupational Safety and Health Act”*.

Each Contractor must be familiar with the State and/or Federal Occupational Safety and Health Act (DOSH and/or Fed/OSHA) as they pertain to the Contractor's work responsibility.

A fatality case and/or serious incidents or illness having two or more persons hospitalized shall be reported to DOSH and/or Fed/OSHA immediately by phone to a Department of Labor and Industries (DOSH) district office or federal area office. Employers must immediately report all incidents to the RE. Serious incidents may also be reported to the Department of Labor and Industry at the discretion of Sound Transit.

Part of the DOSH and/or Fed/OSHA requirements is that each employer must post in a prominent location the "Safety and Health Protection on the Job" poster. The poster briefly states the intent and coverage of the Act. Failure to post this document is a citable offense under the Act.

Sound Transit strongly recommends and encourages the Contractor and all subcontractors to participate in the DOSH consultation program. More information about this program and enrollment can be assessed at:

[www.lni.wa.gov/safety/basics/assistanceconsultation/default.asp](http://www.lni.wa.gov/safety/basics/assistanceconsultation/default.asp)

### 2.3.2 Ordering DOSH and/or Fed/OSHA safety materials

Copies of the Washington and/or Federal Occupational Safety and Health Act, Safety Orders/Standards and related information on education and training programs are available electronically and hardcopies may be secured from:

Washington State Department of Labor and Industries  
Division of Occupational Safety & Health  
Standards & Information  
PO Box 44620

Olympia, WA 98504-4620  
360-902-4622  
or 1-800-423-7233 Hotline

Web Site: <http://www.lni.wa.gov/Safety/Rules/Find/default.htm>

Federal OSHA

U.S. Department of Labor  
71 Stevenson Street, Room 415  
San Francisco, CA 94105  
(415) 995-5672

Web Site: <http://www.osha.gov/comp-links.html>

US Government Printing Office

Superintendent of Documents  
P. O. Box 371954  
Pittsburg, PA 15250-7954  
Telephone: (202) 512-1800  
Fax: (202) 512-2250

Web site: <http://bookstore.gpo.gov/>

If the standards presented above do not address a specific procedure or hazard, the employer is still charged with the employee's general safety and security. The employer's failure to discharge its responsibilities is a DOSH and Fed/OSHA citable offense.

## **2.4 REQUIRED EMERGENCY PROCEDURES**

### **2.4.1 Emergency Action Plan**

In an emergency, dial 911. The Contractor shall have a written Emergency Action Plan as part of the CSSM, that shall include, but not be limited to, actions to be taken for the following:

- A. Injuries to employees;
- B. Injuries to the general public on or adjacent to the work site;
- C. Property damage with particular emphasis on utilities;
- D. Fire;
- E. Natural disasters such as earthquakes;
- F. Public demonstrations such as mobs, riots, etc.;
- G. Bombs or other destructive threats; and
- H. Other exposures or potential hazards that may occur at the work site.

Elements of the Emergency Action Plan shall be compatible with local police and fire department procedures, Fed/OSHA and DOSH standards, and Sound Transit's Emergency Response Plan. Procedures shall ensure that the Contractor has a well developed emergency contact, a defined notification procedure, and that an identified Incident Coordinator in their plan that will be charged with directing and handling emergency situations.

Emergency procedures shall be reviewed frequently to ensure that Contractor personnel are familiar with the proper actions to take, and that emergency telephone numbers are current. The emergency procedures shall be posted on the Contractor's bulletin board at each work site and/or office.

All emergency procedures shall be reviewed by Sound Transit, and shall be reconciled with any comments provided as a result thereof, and coordinated with the RE and Link Construction Manager. These procedures shall be submitted to Sound Transit within 30 days of receiving NTP, or before mobilization onto the site, whichever comes first, for review and comment. No physical work may occur on-site before any comments from Sound Transit are reconciled and final acceptance is received from ST SSQA.

Emergency procedures and actions required shall be discussed regularly with the Contractor's supervisory personnel and regularly at toolbox safety and security meetings. Emergency rescue plans must at a minimum be in compliance with all applicable local, state and federal regulations for the work being performed. Tunnel rescue operations have additional requirements which are detailed in section 6.31.

#### 2.4.2 First-Aid Facility and Staffing Requirements

The Contractor shall provide appropriate first-aid facilities for the treatment of on-the-job injuries. The first-aid facilities and staffing, as a minimum, will comply with the applicable safety and security regulations and with Contract Specifications.

First-aid kit(s) adequate to serve the crew(s) shall be immediately available onsite at all times. The location of the first-aid kits shall be discussed at the daily toolbox safety and security meetings.

#### 2.4.3 Incidents

All safety and security incidents shall be reported immediately to the RE, the Link Construction Manager, and the Sound Transit CSM. The RE and the Sound Transit CSM will notify Sound Transit Link management. The Sound Transit Chief Security Officer must also be notified by the Contractor of security-related incidents.

Contractors shall issue standing orders to all supervisors directly in charge of operations that the scene of the incident shall not be disturbed, except for rescue or other emergency measures, until otherwise directed. Contractors' personnel, either witnessing or party to the incident, shall complete an independent incident report to provide detailed accounting of facts.

The Contractor shall designate responsible personnel to make emergency calls to 911 and have standing communication with first responders for coordinating site response and designated work site access points. All personnel on-site should be trained to call 911 in an emergency if a designated caller is not immediately present.

#### 2.4.4 Emergency Action Plan Implementation

Should an emergency occur, the Contractor shall:

- A. Immediately secure the area and implement the emergency action plan;
- B. Notify the RE; and
- C. Provide information regarding the emergency to authorized Sound Transit representatives only. Questions from the press shall be referred to Sound Transit Media Relations. Employees or any other project personnel should not speak to the press.

## 2.5 PROTECTION OF THE PUBLIC

All reasonable precautions to prevent injury to the public, damage to, or theft of the property of others shall be taken. The public is defined as all persons not employed by or under contract or subcontract to Sound Transit. Temporary barriers and/or fencing designated to protect the public shall be installed immediately when a hazard or exposure is present. Precautions shall include, but not be limited to, the following;

- A. Work shall not be performed in any area occupied by the public unless specifically permitted by the contract or approved in writing by Sound Transit and other authorities having jurisdiction or authority such as the City of Seattle, University of Washington, or other third parties.
- B. When necessary to maintain public use of work areas involving sidewalks, entrances to buildings, lobbies, corridors, aisles, stairways, vehicular roadways, etc., the Contractor shall protect the public in accordance with all applicable laws and regulations.
- C. Sidewalks, entrances to buildings, lobbies, corridors, aisles, doors, or exits shall be kept clear of obstructions, holes, materials, water, and other conditions to permit safe ingress and egress of the public at all times.

- D. Appropriate warnings, signs, and instructional safety and security signs shall be conspicuously posted where necessary. In addition, a Certified Traffic Control Specialist shall control the movement of motorized equipment where the public might be endangered. Signs, signals, or other control devices used to regulate vehicular traffic shall meet the requirements of MUTCD, University of Washington Safety for work on University property, and the applicable work zone traffic control handbook, City of Seattle In-Street Use requirements and other pertinent rules and regulations.
- E. Sidewalks, sheds, canopies, catch platforms, and appropriate fences shall be provided, when necessary, to maintain public pedestrian traffic adjacent to the erection, demolition, or structural alteration of outside walls on any structure is underway.
- F. Temporary fencing shall be properly secured and anchored and provided around the perimeter of aboveground operations adjacent to public areas, except where a sidewalk, shed, or fence is provided by the Contractor as required by subparagraph E. above. Perimeter fences shall be at least six feet high. Fencing may be constructed of wood or metal and sheathing, chain link, or a combination of both, or as otherwise provided in the Contract Documents.
- G. All gates and work zone entrances shall be manned when opened or kept closed and locked when unmanned and during all non-working hours.
- H. Guardrails shall be provided on both sides of vehicular and pedestrian bridges, ramps, runways, and platforms. Pedestrian walkways elevated above adjoining surfaces, or walkways within four feet of the top of excavated slopes or vertical banks, shall be protected by guardrails, except where sidewalk, sheds, or fences are provided as required by subparagraph E. above. Guardrails shall be constructed in accordance with DOSH, Fed/OSHA standards, and other applicable laws and regulations.
- I. Barricades shall be provided when a permanent sidewalk, shed, fence, or guardrail, as referenced above, is not required between work areas and pedestrian walkways, roadways, or occupied buildings. When a barricade is removed temporarily for the purpose of work, a designated safety and security watch shall be placed at the opening. K-rail or barricades adjacent to public roadways shall have adequate reflector tabs and attenuators in place at the ends.
- J. Temporary sidewalks shall be provided when a permanent sidewalk is obstructed by the Contractor's operations. If appropriate and necessary, guardrails shall be provided on both sides of temporary sidewalks.
- K. Warning signs and lights shall be maintained along guardrails, barricades, temporary sidewalks, and at every obstruction to the public. Lights shall be placed at both ends of such protection or obstructions and not over 20 feet apart alongside of such protection or obstruction.

- L. The Contractor shall maintain adequate traffic control measure when activities or project associated trucks or vehicles impact the public roadway or traffic flows. Traffic barriers will be maintained with ballast, anchors, and proper functioning lighting.

## 2.6 SECURITY DURING CONSTRUCTION and SITE SECURITY

Security refers to the protection of both Sound Transit property and the personnel and property of the Contractor from theft, vandalism, pilfering, or other destructive activities. It is solely the Contractor's responsibility to provide protection for any property (including equipment and supplies) under the Contractor's care, custody, and control. The Contractor shall submit with its CSSP a written security procedure for review and comment by Sound Transit. This CSSP shall detail the methods of protecting and securing the Contractor's construction site. The CSSP must address both active and passive security measures to be implemented by the Contractor. Security measures will include, but not be limited to, the following:

- A. Physical barriers such as fencing and barricades. Snow or plastic fencing is not permitted;
- B. On-site security guard service;
- C. Lighting;
- D. Alarm systems;
- E. Cameras and recorders
- F. Video surveillance;
- G. Perimeter detection system
- H. Law enforcement surveillance;
- I. Inventory control and materials marking; and
- J. Community involvement.

Once the CSSP has been accepted by Sound Transit SSQA, the CSSP shall be implemented by the Contractor. Physical security of the construction site is the responsibility of the Prime Contractor with guidance, monitoring and oversight provided by Sound Transit and the RE, subject to the concurrence of the Seattle Police Department and/or any other law enforcement agencies that may have jurisdiction over all or part of a work site.

### 2.6.1 Construction Safety and Security Plan Elements:

Sound Transit program elements for construction safety and security on the Link Project are included in the Contract Documents. Each contractor for the Link Project is required to develop and implement a CSSP specific to its Contract Work on the Link Project. Each contractor's written CSSP is submitted to Sound

Transit and the RE for review and comment and must address site controls for the work to be performed under the contract before work can proceed.

Assessment of each Contractor's performance against the CSSP is done by the RE and the ST SSQA Office, who directs and assigns the CSM and CSM. The Sound Transit Security Officer is tasked with auditing the security elements of the CSSP. The Sound Transit CSM is tasked with auditing the safety elements of the CSSP.

Site security is the responsibility of the Contractor regardless of project completion status until care and custody has been formally given to another contractor entity or Sound Transit. When care and custody is transferred to another contractor, regardless of contract scope, the Contractor assuming care and custody must comply with all safety and security elements required in this document, and assumes the responsibilities of the Prime Contractor.

The Contractor's CSSP must define the duties and responsibilities of contractor and sub-contractor employees. In addition to safety requirements, the CSSP will require that each contractor must perform the following security duties:

- A. Submit a CSSP for construction activities;
- B. Document sub-contractor safety/security practices;
- C. Submit a written site-specific security plan for each worksite;
- D. Assign a Security lead (may be the ConSM);
- E. Describe site characteristics and access points;
- F. Provide site and traffic control maps;
- G. Include the on-site emergency procedures (such as fire, earthquake, chemical spills; social disturbances; vandalism);
- H. Include local emergency and medical addresses/numbers (e.g., fire/police, hospital);
- I. Describe the means and methods for site security (e.g., fencing, guards, visitor control)
- J. Provide for hazard and threat and vulnerability identification and response
- K. Investigate security incidents investigation and issue reports
- L. Include procedures for adequate daily and emergency site communications
- M. Develop a site security audit program

- N. Ensure prompt reporting of any security incidents to Sound Transit Security Dispatch

Sound Transit has developed the following construction site security guidelines for contractors working on Sound Transit projects to provide a safe and secure work site for employees (both Contractor and Sound Transit).

2.6.2 Construction Site Security Guidelines for Contractor's Safety and Security Plan (CSSP)

A crucial aspect of construction site security is establishing a written security policy. The CSSM defines objectives and priorities, ensuring alignment between Sound Transit and Contractor. The Contractor will be responsible for its daily oversight and enforcement of security while the construction site is active.

Any exceptions to the CSSM must be resolved between Sound Transit and the Contractor. This is crucial in cases where the CSSP will result in schedule or budget impact.

To document and assess the effectiveness of the CSSP, the Contractor shall generate monthly written reports to summarize any security related issue, problem or concern. The Contractor will submit to the RE security incident reports within 24-hours of the incident's discovery.

If Sound Transit's Security Representative determines that the CSSP is being violated, immediate corrective action must be taken by the Contractor.

A. Organization

1. The contractor must have a designated SSSR or ConSM who is responsible as the security supervisor. It is crucial to have an individual responsible for security on-site at all times.
2. Define the security chain of command such that the contractor's designated security supervisor must have access to Sound Transit's Security Officer to address security related issues. The CSSP will detail the chain of command and communications from the Contractor's security representative up through the RE and Construction Manager to the CSM and finally to the Sound Transit Security Officer.
3. The Contractor is responsible for security after hours and on weekends. Work site access points must be manned or secured 24 hours a day; 7 days a week.
3. Ensure any contracted security personnel are licensed and have received Washington State Department of Licensing minimum security training as specified by guidelines for security personnel selection and training are available for the American Society of Industrial Security (ASIS) and

Washington state. Department of Licensing minimum security training can be found at their website:

<http://www.dol.wa.gov/business/securityguards/sggetunarmed.html>.

4. The SSSR should maintain contact with local law enforcement agencies to keep abreast of criminal activities and potential disorder in the community.

#### B. Access Control

1. Access must be controlled to the construction site.
  - a. All gates should be staffed or locked after work hours or when unguarded.
  - b. All access points to Underground Construction areas or tunnel access points MUST be staffed or secured 24 hours a day; 7 days a week.
  - c. Workers' personal vehicles should not be allowed to access the construction site. A separate parking location shall be designated.
  - d. No Trespassing Signage with applicable RCW and City Municipal Codes should be clearly posted at all entrance points and spaced at reasonable intervals along the entire fenced perimeter. The Contractor shall establish a trespassing agreement with the local law enforcement agency. A copy of the agreement shall be submitted as part of the CSSP submittal.
  - e. Designate a point of contact that is responsible for controlling access to the site.

#### C. Identification Badges

The Contractor shall issue identification badges to all personnel and subcontractors. Photo identification is required. Badges must be readily available on the person for inspection. When possible, the badges should be visible on the outer most garments. Wearing enforcement must take place at all levels. Badge recipients must sign an acknowledgement that they will report any lost, stolen, or damaged badges.

#### D. On-site Vehicles

1. Clearly post the personnel and vehicle search policy at all entrances.
2. All persons and vehicles on the project sites are subject to inspection at any time while site. An approved vehicle access roster should be kept by the security officers at the access gates. All approved vehicles needing access to the site shall be registered and issued a vehicle placard or a

parking pass. Parking passes shall be easily recognizable and shall be prominently displayed at all times while the vehicle is on site.

3. Vehicle policies and procedures should include requirements for:
  - a. Employees
  - b. Visitors
  - c. Deliveries
4. Written authorization and sign out shall be in place for vehicles departing the sites with contractor property, including salvage material and rental equipment. An inspection and sign out sheet shall be signed prior to vehicles departing the site. The designated property control authority shall approve each item departing the construction site. Equipment bearing the Contractor's name shall be signed for by the authorized representative of that Contractor.

#### E. Physical Security

1. Barriers
  - a. A continuous fence must be placed around the entire construction site.
  - b. The fence must be of adequate sturdy construction. At a minimum the fence shall be 6 feet high, 2 inch square mesh, 11-gauge wire or heavier. Contract Specifications may dictate greater fencing requirements.
  - c. The fence must be kept in good repair.
  - d. All fence connectors, bands, bolts and other fasteners shall be protected to prevent access from the outside of the fence.
  - e. There shall be no gap in the fence greater than 2-inches, including the gap between the bottom of the fence and the ground, and each side.
  - f. Continuous rails shall be bolted to the top and bottom of the fence fabric.
  - g. Top and bottom rails shall be of the same material, diameter and have the same fastener parts.
  - h. Gates
    1. Gates must be the same height and construction as the fence.
    2. Gates must be kept in good repair.
    3. Open only when required for operations.
    4. Locked when closed.

5. Directly supervised when open.
6. Alternate access gates should be installed.
  - a) For emergency egress
  - b) Organized Demonstrations blocking main access
    - o Labor Disputes
    - o Protest Rallies
- i. Posts
  1. Post shall be continuously connected to fence fabric.
  2. Where multiple posts are adjacent they shall be banded and bolted together to provide continuous fencing.
  3. Gaps between posts and fabric, between posts and gates, and between two gates shall be less than 1.5 inches.

#### F. Lighting

1. Contract Specifications may dictate varying lighting requirements.
2. The entire perimeter should be illuminated to a minimum of 10-foot candles at any point within 25 feet from the fence.
3. Both sides of fence should be lighted in such a way that an intruder would be detected at 300 feet prior to and after fence line.
4. Access points must have additional lighting:
  - a. To eliminate shadows and blind spots
  - b. Provide for vehicle inspection
5. Lights must be checked daily, prior to darkness, so that deficiencies may be corrected prior to their use.
6. Intentional damage to light fixtures and equipment must be reported immediately to the ConSM and the RE, and repaired within 8-hours.
7. Repeat damage must be reported to Sound Transit's Security Officer.
8. Power source for perimeter lighting must be secured for limited access and be tamper proof.
9. Switches and controls must be inaccessible from outside perimeter.
10. Materials and equipment in shipping, receiving, and storage areas must be adequately lighted.

#### G. Lock and Key Control

1. Establish a lock and key control policy.

2. Define and designate in the CSSP who is responsible for lock and key control.
  - a. The ConSM should have overall authority for the issue and replacement of all locks and keys for the construction site.
  - b. Access to construction site by Sound Transit Security Officer will be coordinated with the ConSM, with the exception of audits.
  - c. Audits of construction site security can occur with no prior notification.
  - d. Develop a key control register.
  - e. All key recipients should sign a key control register.
  - f. Non-employees should not be allowed to sign for keys.
  - g. Key recipients must sign an acknowledgment that they will report any lost keys and that they may not duplicate any keys.
  - h. Master keys should not be identifiable as such.
  - i. Spare locks and keys should be double locked (i.e. located in a locked container within a locked room).
  - j. Padlocks should be locked to a hasp or staple when door or gate is open to prevent substitution.
  - k. Locks on active and inactive doors and gates should be checked regularly for evidence of tampering.

#### H. Alarms

1. The Contractor may decide what, if any, alarm devices are to be used on site for intrusion and fire. The Contractor should also decide if used, how alarms will be monitored. Either by a central monitoring center or local annunciation only.

#### I. Communications

1. There should be separate communications for security and emergency use.
2. Define what type of communication devices are to be used for security and emergency.
  - a. Telephone
  - b. Phones should be Caller ID capable
  - c. Radio
  - d. If radio is shared with other users, security should have a separate frequency or the ability to override other users in an emergency situation.

- e. Cellular Phone
3. Define how emergencies are reported to:
  - a. Communicate and coordinate with local Police and Fire
  - b. Work with emergency services to establish central locations or special access routes to the various construction sites.
  - c. Contact local emergency responders to determine if there is a direct number to contact emergency dispatchers in case of 911 system failure or is overwhelmed during a catastrophic event.
4. The RE and Sound Transit Security Dispatch [(206) 398-5628] must be notified of any security incident immediately upon discovery or occurrence by the contractor.

#### 2.6.3 Safety and Security Oversight

The RE, the ST CSM, and the ST Security Office will monitor the Contactor's day-to-day compliance with security elements of the Contractor's CSSP.

The Contractor is tasked with the following:

- Performing daily site-inspections for safety and security practices;
- Monitoring compliance with submitted plans;
- Taking corrective actions as necessary; and,
- Reporting information and submitting to the RE, CSM, and the Sound Transit Security Officer

The Sound Transit Security Officer will review all contractor submittals regarding security activities and conduct construction site security inspections concurrent with construction activity. Factors used to determine the frequency and scope of on-site security inspections include:

- The number and type of threats and vulnerabilities involved
- The total level of risk to the workforce, property, and surrounding environment
- The presence of qualified contractor and/or subcontractor security personnel
- The duration of the project
- The time elapsed since the last security inspection
- Previous experience with the contractor and/or subcontractor

Inspections may be made at any time. The Sound Transit Security Officer reports his findings to the Link Director and assists with security issues as they arise. If appropriate, the Sound Transit Security Officer will report findings to the Seattle Police and the University of Washington Police Department.

Guidance and recommendations developed during safety and security reviews will be kept on file in the Sound Transit Safety and Security Division according to the document retention schedule. A copy will be distributed to affected parties.

## 2.7 SITE VISITORS AND GROUP TOURS

Often the project will have requests for site visits. Regardless of affiliation, all site visitors MUST be:

Expected – by notifying the RE in a timely manner of their intended visit.

Accompanied – all tours and persons not directly assigned to the project will be escorted onsite by the ConSM, a SSSR, or an RE designee. No visitors or non-project personnel will be allowed to walk the site unaccompanied.

Purpose – all site visits must have a business, technical, or public relations objective. These are active construction sites with many hazards. Drop-in visits, lunch hour walks, or employee sightseeing tours are strictly prohibited.

Establish categories of visitors.

Establish minimum safety training requirements for visitors in each category.

### 2.7.1 Conduct of Tours

It is particularly important that a high degree of protection be afforded all persons on authorized tours of construction work sites.

- A. In all cases, the RE and the Contractor shall be advised of any tour in a timely manner prior to the tour taking place.
- B. Group tours must be cleared through Sound Transit, allowing maximum advance notice and in compliance with Sound Transit policy.
- C. Sound Transit will coordinate the tour arrangements and ensure that proper notice is provided to the RE.
- D. The Contractor, RE and CSM will develop a written site visitor policy stating access procedures, physical requirements for participants, and who is the approving authority for tours. In addition, the policy will:
  1. Develop a written visitor registration procedure.
  2. Designate an area where visitors report.
  3. Visitors should be escorted at all times while on the construction site.
  4. Develop a vehicle admittance policy.

- 
- E. Sound Transit will coordinate the following with the individual or organization requesting the tour:
1. Number of visitors – Tours in hazardous areas will be limited to no more than 10 persons per tour guide and 20 persons for non-hazardous areas.
  2. Clothing – Visitors will be required to wear long pants or slacks, shirt or blouse, and leather or work shoes. Sneakers, high heels, and skirts are prohibited.
  3. Minors -- Persons under 18 years of age are not permitted on site tours.
  4. Protective equipment – Hard hats, safety vests, eye protection, ear-plugs, gloves, Self-Contained Self-Rescuer (SCSR), and other devices will be required and provided, as necessary.
  5. Release and hold-harmless agreement – Each visitor shall be required to sign a release and hold-harmless agreement, contained in Figure 2-1, before beginning the tour.
  6. All visitors shall comply with CSSP.

Before entering the work site, the Sound Transit CSM, the RE, and/or tour guides shall conduct and document with their group(s) a safety orientation and debrief for all hazards likely to be encountered on the tour.

## 2.8 LOCATING UTILITIES

Before the start of any underground work, all utilities shall be located in accordance with RCW 19.122.

- A. The Contractor shall contact the underground utility locator service One Call Center of the Washington Utility Coordination Council at 811 or 1-800- 424-5555 and have all utilities within the area of work located. A request to have utilities located must be communicated to the underground utility locator service not less than two business days or more than ten business days before the scheduled date to begin excavation. Periodic re-notification may be required.
- B. The Contract Drawings and Contract Specifications shall be reviewed by the Contractor for notations of utility companies that may not be members of an underground service alert group. Those who are not members of an underground service alert group must be contacted directly.
- C. All location request number provided by the utility locator service [One Dig Center] or utility companies concerning underground utilities shall be logged and submitted with the JHA. This log will be made available to Sound Transit upon request. A template of the utility request log is presented as Figure 2-2.

- D. The Contractor shall visually check the area and confirm the surface marking of locating services and check for recent underground relocation work by an outside entity.
- E. The Contractor shall notify the RE at the weekly RE meeting well in advance, and at least 48 hours before underground work to alert the RE to the upcoming underground work.
- F. The Contractor shall take all necessary steps to protect all utilities from damage.
- G. The Contractor shall not use any motorized equipment to dig, uncover or excavate within two feet of any utility until such utility has been physically uncovered and identified.

## 2.9 TRAFFIC SAFETY MANAGEMENT

### 2.9.1 Requirements

The Link right of way is located in a variety of neighborhood communities. Traffic safety management throughout all of the areas is of utmost importance and will be prudently managed by all Contractors. Contractual requirements are provided in the Contract Specifications.

Changes from normal traffic patterns will be planned, documented, and submitted well in advance of the actual construction to the local jurisdiction. Most importantly, it is the responsibility of the Contractor, who is making traffic changes, to warn the motoring public what changes are to be made and when the changes will take place.

Notification shall also be provided to emergency services providers, METRO, school districts, and solid waste collection services if streets are closed or major traffic revisions are required for construction activities. A combination of mechanical light signage, posted warning signs, public radio broadcast, direct notifications to businesses and residents, and community outreach briefings will be used to accomplish this notification process. The Contractor shall coordinate with the Sound Transit Community Outreach Division to assist with street or access notifications.

Adequate warnings and notifications will begin at least a week in advance of the actual traffic pattern change and continue (1) for the duration of that temporary change, or (2) throughout the establishment of a permanent change in accordance with the Contract Drawings and Contract Specifications.

#### A. Internal Job-site Traffic Control

Contractors must develop an internal traffic control plan (ITCP) for their jobsite that details movement of vehicles, communication and control of hazards such as vehicle backing and protection of workers on foot. Use of

broadband back-up alarms on vehicles is subject to approval and possible evaluation by the Sound Transit Safety Division, in addition to any approvals by municipal authorities.

## 2.9.2 Technical References

The Contractor will comply with all applicable standards, including at a minimum but not limited to the following or updates to these that are current during construction. It is the contractor's responsibility to monitor and comply with any updates that are issued.

For All Work:

- Manual on Uniform Traffic Control Devices (MUTCD), U.S. Department of Transportation, Federal Highway Administration

For work within State Highway:

- 2002 Standard Specifications for Road, Bridge and Municipal Construction, Washington State Department of Transportation
- Traffic Manual M51-02, Washington State Department of Transportation
- Work Zones Traffic Control Guidelines M54-44, Washington State Department of Transportation
- Other applicable local codes and standards

For work within the jurisdiction of the City of Seattle:

- 2005 Traffic Control Manual for In-Street Work, City of Seattle
- Standard Specifications for Road, Bridge and Municipal Construction, City of Seattle.

## 2.10 OFFICE SAFETY AND SECURITY

Offices are comparatively safe places to work, however incidents do occur. To assure the safety and security of all personnel, the Contractor shall address in their CSSP office safety and security for project administrative and field office personnel.

All project personnel including office staff should be familiar with the CSSP and the included emergency procedures. Training should be provided for procedures when threats, fire or medical emergency arise. The Contractor shall have at least one CPR certified office employee, a first aid kit, and fire extinguisher present in each project office. Sound Transit also encourages, but does not require AED's to be installed in project offices.

Office safety and security elements should address ergonomics, emergency procedures, and office safety and security rules that may include these office safety and security hints:

- A. Do not run in corridors or on stairs. Use hand rails.
- B. Do not stand in front of closed doors as they may open suddenly.
- C. Do not read correspondence or other material while walking.
- D. Do not push or crowd at elevators, entrances, exits, or on stairways.
- E. Be careful of swivel chairs. Do not lean back in them without testing your weight gradually.
- F. Electrical or telephone cords shall not be placed across aisles or doorways unless properly protected.
- G. Use handles when closing files, desk drawers, and safe or vault doors.
- H. Keep file drawers, desk drawers, and locker doors closed when not in use. Open only one file or desk drawer at a time. File cabinets and bookcases shall be properly secured to prevent overturning.
- I. Check the office furniture regularly to assess safe conditions.
- J. Be familiar with emergency office procedures for fire, earthquakes, and bomb threats.
- K. Conduct periodic ergonomic assessments of work stations and spaces.
- L. Provide workplace violence and anti-bullying training for employees.
- M. Provide confidential means for reporting potential domestic violence which may impact the workplace and other workplace violence issues.
- N. Immediately implement controls to protect personnel from any suspected threat.
- O. Provide secure working facilities and assure safe access to transportation during all shifts.

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**FIGURE 2-1  
VISITOR'S RELEASE AND HOLD HARMLESS AGREEMENT**

Contractor: \_\_\_\_\_

Contract No: \_\_\_\_\_ Date: \_\_\_\_\_

**I am voluntarily entering a potentially hazardous Link Light Rail Project construction site for my own purposes and interests. As consideration for such entry, it is my intent to release, hold harmless, and indemnify Sound Transit, the construction managers, Contractors, subcontractors, and their agents and employees from any liability for injury or damages of whatsoever nature to the maximum extent permitted by law.**

Specifically, in consideration of being permitted, for my own purposes and interests, to enter upon the premises or construction site of the Link Light Rail Project, I hereby release, hold harmless, and indemnify Sound Transit, the construction managers, Contractors, subcontractors from and against, and assume the risk, for and on behalf of myself, my heirs, my survivors and my estate, for all damages, losses, injuries, and any and all other claims of any type whatsoever for personal injury (including death) and other loss or damage of any nature whatsoever including damage to my personal property, sustained or caused while on such premises or site, except (1) those injuries which are caused solely by the negligence of one or more of the Indemnified Parties, or (2) those injuries caused by or resulting from the concurrent negligence of one or more of the Indemnified Parties but in such case only to the extent of the negligence of the Indemnified Parties. In the event any clause, term, or provision of this agreement shall be declared or adjudicated void or invalid, it shall in no manner affect the other clauses, terms, and provisions hereof, which shall remain in full force and effect, as if the clause, term, or provision so declared or adjudicated invalid was not originally a part hereof.

Print Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Address: \_\_\_\_\_

Date: \_\_\_\_\_



## 3.0 INSTRUCTION AND TRAINING

### 3.1 PURPOSE AND SCOPE

This section establishes required safety and security training and instruction activities that each Contractor is required to perform, while working on the Sound Transit Link Light Rail Program.

Instruction and training assure that all personnel are aware of the hazards involved and are informed of their individual responsibilities in carrying out their assignments in an efficient and incident-free manner. Instruction and training also assure that Contractors are in compliance with the specific requirements of the Washington Industrial Safety and Health Act, Federal Occupational Safety & Health Act of 1970, and local safety and security rules and regulations.

The basic elements of instruction and training are:

- A. Indoctrinations
- B. Work assignments
- C. Meetings
- D. Personal contact

The Link CSM, the Link Safety/Security Specialist, the RE, the OCIP administrator, and the insurance carrier safety and security personnel are available to assist Contractors in carrying out their incident prevention instruction and training responsibilities.

### 3.2 INDOCTRINATION

Newly employed, promoted, and/or transferred personnel shall be fully instructed by audio/visual means in the safety and security practices required for their assignments. Initial indoctrination for all personnel shall include, but not be limited to, instruction on the following:

- A. For each individual, the hazards present in the work assignment and in the general area in which he/she will be working.
- B. Personal protective equipment required.
- C. Instructions on the proper procedure for reporting unsafe job conditions that he/she may encounter

- D. Reporting of any and all injuries, incidents, and damage, no matter how slight.
- E. Contractor's job rules.
- F. Location of first-aid and medical facilities.
- G. Tool box safety and security meeting requirements.
- H. Emergency service notification procedure for fire, medical emergencies, police problems, or other emergency situations.
- I. An orientation by the foreman or superintendent of the new employee work area.

The Contractor is responsible for indoctrinating subcontractor personnel before they begin work. All personnel shall sign the form shown as Figure 3-1 to acknowledge receiving and understanding safety and security indoctrination.

### 3.3 WORK ASSIGNMENTS

All work assignments, regardless of level, shall include specific instruction on safety and security. Supervisors shall follow up under actual working conditions to verify that safety and security instructions are being followed. See also Section 5.2.a of this manual concerning JHA.

### 3.4 MEETINGS

Properly conducted safety and security meetings of reasonable length can be an effective means of communicating with employees. Contractors shall include subcontractor personnel in these meetings. To be effective, the material presented must be specific as well as practical. All safety meetings shall include a technical presentation of safety practices relevant to the particular work of this Contract. All safety meetings shall include a discussion and checklist of equipment for the tasks currently underway.

- A. Daily Pre Task Analysis (PTA) Safety/Security Briefings: The foreman or superintendent for each crew (contractor and subcontractors) shall conduct a daily safety and security "tailgate" briefing for a minimum of 15-minutes, to discuss the work activities, potential hazards, and preventive measures to each crew performing any work at the beginning of each shift and when conditions change. The PTA card (Figure 3-2) is the suggested form used to document these meetings. The cards used must at a minimum include the elements on the suggested form. Completed PTA cards (or equivalent) shall be made available for review by any of the contractor's employees and construction management staff. Also, completed copies of the PTA card may be requested as a formal submittal from the RE or CSM at any time.
- B. Weekly Toolbox (Crew) Safety and Security Meetings: The job supervisor, superintendent or Project Manager is responsible for leading the discussion during

crew-safety and security meeting. Crew safety and security meetings must be held at the beginning of every job and at least weekly thereafter for a minimum of 30-minutes. To comply with the CSSM and WAC 296-800-130, the Contractor must:

1. Review reports of walk-around safety and security inspections conducted since the last safety and security meeting.
2. Review any citations received so that hazards can be corrected and prevented.
3. Evaluate incident investigations conducted since the last meeting to determine if the causes of the unsafe situation were properly identified and corrected.
4. Document attendance and the subjects discussed at meetings.
5. Prepare minutes of each meeting. Minutes must be kept by the Contractor and made available for review by Labor and Industries and Sound Transit, if requested. Keep minutes in a location where the majority of the employees of each construction site report for work each day.
6. Hold an at least monthly “all hands” safety and security meeting including all subcontractors to ensure all crews are benefiting from the crew toolbox safety and security meetings.

Meetings will be most useful if the Contractor includes the following:

- a. Discuss and/or demonstrate proper equipment operation for any new equipment or equipment involved in an incident.
- b. Discuss and/or view physical changes in the job site, changes in job procedures, new job assignments or other conditions that may affect employees.
- c. Involve employees in establishing safety and security procedures, which promotes cooperation and improves the prospects for self-enforcement.

Following these meetings, a Report of Safety and Security Meeting (shown as Figure 3-3a) shall be completed; the Attendance Roster (shown as Figure 3-3b) will be signed by attendees. These shall be distributed in accordance with Appendix A, Summary of Construction Safety and Security Reports.

- C. Operational or Progress Meetings (held monthly by RE): Incident prevention shall be the first agenda item and the record of these meetings should reflect the specific items discussed. The SSSR shall be required to attend.
- D. Monthly Safety and Security Committee Meetings: All Contractors **must** establish a safety and security committee in accordance with WAC 296-800-130, and conduct monthly safety committee meetings of at 1-hour. Subcontractors have the choice of either establishing a safety and security committee or holding safety and security meetings with a management representative present. Safety and security committee meetings shall cover the following topics:
  1. Review safety, security and health inspection reports to help correct safety or security hazards.

2. Evaluate the incident investigations conducted since the last meeting to determine if the cause(s) of the unsafe situation was identified and corrected.
  3. Evaluate your workplace incident and illness prevention program and discuss recommendations for improvement, if needed.
  4. Document attendance.
  5. Write down subjects discussed.
  6. Review monthly statistics and trend analysis of incidents, near misses, accidents, lost time, days away from work, modified duty, injuries, and Drug & Alcohol Program.
  7. Develop corrective actions plans for any statistic that indicates a trend of two consecutive months increase in any item noted in number 6, above.
- E. Contractor Coordination Meetings and Training: Daily meetings between Contractors are required when both are performing activities in the same work area. Each Contractor must detail work schedules and locations to coordinate activities. If a Contractor is working in an area controlled by another Contractor, additional training may be required to conform to procedures on the site under the other Contractor's control. Requirements will be coordinated between Contractors with review by the RE and the Sound Transit CSM.
- F. Supervisor and Management Safety and Security Training: All supervisor-level employees and above for all contractors must have documented completion of the OSHA 10-hour training. This training is recommended and strongly advised for all site personnel. Any personnel with primary responsibility for safety must have documented OSHA 30-hour training certification.

### 3.5 PERSONAL CONTACTS

All levels of supervision shall call to the attention of individuals under their direction pertinent safety and security items relative to the work. This personalized "on the spot" instruction is an extremely valuable training technique, as well as a continuing indication of management's awareness and concern for safety and security. It is recommended that the safety and security incentive program include positive reinforcement through personal contacts. Imminent hazards observed must be corrected immediately.

### 3.6 UNDERGROUND SAFETY/SECURITY TRAINING

Safety/Security training requirements for underground construction are addressed by the Contract Documents, and primarily the Contract Specifications for each contract involving underground work. Refer to Section 6.32 for specific requirements for visitors and tunnel rescue. Any person, including escorted visitors, entering a tunnel must receive safety and security training which complies with all applicable regulations and rules.

Frequent, unescorted visitors, who must be members of the project staff must receive additional training beyond what escorted visitors receive. This will include hands-on demonstration and use of all safety equipment, and use of a presentation reviewed and comments reconciled with the CSM.

**FIGURE 3-1  
ACKNOWLEDGEMENT OF SAFETY/SECURITY INDOCTRINATION**

Contract No: \_\_\_\_\_

Date: \_\_\_\_\_

I, \_\_\_\_\_, attended the safety and security indoctrination session on \_\_\_\_\_ given by \_\_\_\_\_ covering the following information:

- ✓ *Hazards present in the work assignment and in the general area in which I will be working;*
- ✓ *Personal protective equipment required;*
- ✓ *Instructions on the proper procedure for reporting unsafe job conditions that I may encounter;*
- ✓ *Reporting of any and all injuries, incidents, and damage (no matter how slight);*
- ✓ *Contractor's job safety and security rules;*
- ✓ *Location of first aid and medical facilities;*
- ✓ *Toolbox safety and security meeting requirements;*
- ✓ *Emergency service notification procedure for fire, medical emergencies, police problems, or other emergency situations;*
- ✓ *An orientation by the foreman or superintendent of my work area.*

I affirm I understand the information and will abide by the requirements presented.

Signature: \_\_\_\_\_

Affiliation: \_\_\_\_\_

**FIGURE 3-2  
PRE-TASK ANALYSIS (PTA) CARD**

<div style="text-align: center;"> <p><b>PRE-TASK ANALYSIS (PTA) RISK REDUCTION TALK</b></p> </div> <p>SUPERVISOR: _____          DATE: _____          JOB DESCRIPTION: _____</p> <p>LOCATION: _____          DOES TASK REQUIRE SPECIAL TRAINING? Y ___ N ___          JHA REQUIRED Yes ___ No ___ COMPLETED Yes ___ No ___</p> <p style="text-align: center;"><b>PTA CHECKLIST</b></p> <table style="width:100%; border: none;"> <tr> <td style="width:50%; border: none;"> <b>ELECTRICAL</b>                  POWER LINES _____                  OVERHEAD Y ___ N ___                  EMERGENCY PARTS Y ___ N ___                  ASSURED GRINDING Y ___ N ___                  EXCAVATION                  EQUIPMENT CHECKS Y ___ N ___                  SHORED/SLOPED Y ___ N ___                  LADDER PROVIDED Y ___ N ___                  ENTRY LOG MADE Y ___ N ___                  UTILITIES LOCATED Y ___ N ___                  CONTAMINATED SOIL Y ___ N ___                  HAZARDS (BODY)                  FALL POTENTIAL Y ___ N ___                  PINCH POINTS Y ___ N ___                  ELECTRICAL SHOCK Y ___ N ___                  HOUSEKEEPING Y ___ N ___                  SLIP-TRIP Y ___ N ___                  FLYING PARTICLES Y ___ N ___                  THERMAL BURNS Y ___ N ___                  MANUAL LIFTING Y ___ N ___                  SHARP OBJECTS Y ___ N ___                  PERMITS                  CONFINED SPACE Y ___ N ___                  CRITICAL LIFT PLAN Y ___ N ___                  TRAFFIC PLAN Y ___ N ___                  TRACK ACCESS Y ___ N ___                  M/N LOGGER Y ___ N ___                  TRAFFIC / Ped CONTROLS                  VEHICLE TRAFFIC CONTROLS IN PLACE Y ___ N ___                  CROSS STREET TRAFFIC                  ADDRESSED Y ___ N ___                  SIDEWALK UPEN Y ___ N ___                  Ped BRIDGES O.K. 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Y ___ N ___                  VAPORS Y ___ N ___                  HOT/COLD SURFACES Y ___ N ___                  NOISE Y ___ N ___                  TRAFFIC EXPOSURE Y ___ N ___                  SUB CONTRACTOR COORDINATION Y ___ N ___                  PROPER EQUIPMENT                  SCISSORS LIFT Y ___ N ___                  PERSONAL BASKET Y ___ N ___                  FORKLIFT Y ___ N ___                  BOOM LIFT Y ___ N ___                  CRANE Y ___ N ___                  CHAINFALL Y ___ N ___                  HAND TOOLS Y ___ N ___                  HAND POWER TOOLS Y ___ N ___                  PROPER RIGGING Y ___ N ___                  CURRENT INSPECT. 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**FIGURE 3-3a**  
**REPORT OF SAFETY & SECURITY MEETING**

<b>REPORT OF SAFETY &amp; SECURITY MEETING</b>	
DATE:	SHIFT:
CONTRACT NO:	
CONTRACT TITLE:	
CONTRACTOR:	SUBCONTRACTOR:
NO. ATTENDING:	
TOPICS DISCUSSED (attach agenda if possible):	
SUGGESTIONS FOR IMPROVEMENT:	
FOREMAN'S SIGNATURE:	
SITE SAFETY/SECURITY SUPERVISOR'S SIGNATURE:	

**FIGURE 3-3b  
 ATTENDANCE ROSTER**

Date: \_\_\_\_\_  
 Shift: \_\_\_\_\_

<b>ATTENDANCE ROSTER</b>		
<b>NAME-PRINTED</b>	<b>SIGNATURE</b>	<b>COMPANY NAME</b>
1.		
2.		
3.		
4.		
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22.		
23.		
24.		

## **4.0 WORK PRACTICES CONTROL**

### **4.1 PURPOSE AND SCOPE**

All Contractors shall institute and apply a basic program to control and eliminate unsafe practices by employees under the Contractor's direction, including all subcontractors, during the construction of the Link Light Rail Program. The majority of construction incidents are attributable to unsafe acts by employees. Control of these acts is a major factor in the effectiveness of the overall safety/security and loss control program.

### **4.2 CONTRACTOR CONTROL**

- A. Contractor – Each Contractor shall be responsible for continuous surveillance of its operations in order to eliminate the probable sources of potential injuries or losses due to unsafe acts or procedures.
- B. Contractor Supervision – Supervisors' practical safety and security experience shall be directed at controlling the actions of those under their direction.
- C. Never, under any circumstance, will any employee perform work assignments alone in isolated work areas.

### **4.3 CONSTRUCTION MANAGEMENT CONTROL**

While the Contractors is solely responsible for safety and security on-site, the RE, the CSM, Sound Transit Chief Security Officer (CSO), and other Sound Transit representatives will monitor and audit the safety and security performance of Contractors. Contractors will be notified in writing of serious unsafe practices observed. Failure to notify the Contractor shall not relieve the Contractor of its obligation to identify and correct unsafe conditions or practices or to enforce safety and security requirements.

The SSSR and the CSM shall complete the Construction Safety and Security Survey shown as Figure 4-1a and b with instructions, to record unsafe practices and/or conditions.

### **4.4 SUBSTANCE ABUSE**

Sound Transit is committed to the establishment and maintenance of a safe and efficient work environment for all personnel, free from the effects of alcohol, illegal drugs, and other controlled substances.

Sound Transit prohibits, on the worksite, the use, possession, concealment, transportation, promotion, or sale of any of the following:

- A. Alcoholic beverages;
- B. Marijuana and other illegal drugs, look-alikes, and designer drugs;
- C. Drug Paraphernalia; and
- D. Controlled substances such as medications when usage is abused or when the substance is possessed without proper prescription labeling.

To be under the influence of any of the above substances while working on the site or to use, possess, conceal, transport, promote, or sell any of the above substances will be grounds for disciplinary action, up to and including termination of employment.

Contractors shall be required to maintain an effective employee substance abuse program. Contractors are responsible for reporting to Sound Transit, via the RE any incidents in violation of the substance abuse program and the disposition of the violation. If a Project Labor Agreement is in place and contains a Substance Abuse and Prevention Program, Contractors must ensure that their employee substance abuse program at least complies with all elements of the employee substance abuse program contained in the Project Labor Agreement.

The Contractor shall maintain required records and submit to periodic audits of its substance abuse program by the CSM or their designee. If required, the Contractor will use a third-party designated by Sound Transit for all random, for cause, and post-accident testing.

#### **4.5 OTHER CONTROLLED ITEMS**

Sound Transit prohibits the use, possession, concealment, transportation, promotion, or sale of the following controlled items:

- A. Firearms, weapons, and ammunition – except when authorized for security reasons;
- B. Switchblades;
- C. Unauthorized explosives, including fireworks; and
- D. Stolen property or contraband.

**FIGURE 4-1a**  
**INSTRUCTIONS FOR CONSTRUCTION SAFETY/SECURITY SURVEY**

1. The Construction Safety and Security Survey is required for recording all unsafe condition and/or acts noted by the ConSM, SSSR or RE personnel.
2. This form is primarily intended for the use of the Contractor's safety and security personnel in accordance with the requirements of CSSM. Unsafe conditions and/or actions shall be corrected immediately and reported daily on this form.
3. Completed copies of all construction safety and security survey forms indicating action taken and/or date completed shall be submitted to the RE on a weekly basis. These forms shall be signed by the Contractor's project manager and Sound Transit's RE.
4. This form shall be used by the RE and/or the CSM to document any unsafe act and/or conditions noted. The CSM will make recommendations to the Contractor's safety and security representative and/or project manager or superintendent for immediate corrective action.
5. This form, when filled out by anyone other than the ConSM or SSSR, shall be handled in the following manner:
  - a. The original shall be given to the Contractor and a copy to the RE.
  - b. The Contractor shall complete the action taken and/or date completed section of the original survey and return it signed by the project manager to the RE.
  - c. The RE shall sign the survey and distribute it in accordance with Appendix A, Summary of Construction Safety and Security Reports.
6. Failure to take immediate corrective action in a timely manner may result in a Stop-Work Order issued by Sound Transit. In such case, the Contractor shall be solely responsible for any impacts to the Contract Time and/or Contract Price that result therefrom.

**FIGURE: 4-1b  
 CONSTRUCTION SAFETY/SECURITY SURVEY FORM**

DATE: \_\_\_\_\_  
 CONTRACT NO. \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_  
 SUBCONTRACTOR: \_\_\_\_\_  
 SAFETY OFFICER: \_\_\_\_\_

	OK	LTA	NA		OK	LTA	NA		OK	LTA	NA
				HOUSEKEEPING/ SANITATION				FIRE PREVENTION			
ELECTRICAL INSTALLATIONS				HAND/POWER TOOLS				LADDERS			
SCAFFOLDING				HOISTS, CRANES & DERRICKS				HEAVY EQUIPMENT OPERATIONS			
MOTOR VEHICLE OPERATIONS				TRAFFIC CONTROL / BARRICADES				RESPIRATORY PROTECTION			
MATERIAL STORAGE / FACILITIES				EXCAVATION & SHORING				SITE CONTROLS Safety and Security			
PILE DRIVING				LOTO				FLAMMABLE LIQUIDS/GAS			
MASONRY				FALL PROTECTION				PPE			

TO BE COMPLETED BY SOUND TRANSIT CONSTRUCTION SAFETY SPECIALIST/SAFETY OFFICER

<b>OBSERVATIONS:</b>	
<b>ORIGINATOR SIGNATURE:</b> _____	<b>DATE:</b> _____

TO BE COMPLETED BY CONTACTOR SITE SAFETY/SECURITY REPRESENTATIVE

<b>RESPONSE / CORRECTIVE ACTIONS TAKEN:</b>	
<b>RESPONDENT SIGNATURE:</b> _____	<b>DATE:</b> _____

Original: Contractor

Copy: Link Safety/Security Specialist

Copy: RE

## 5.0 PHYSICAL CONDITIONS CONTROL

### 5.1 PURPOSE AND SCOPE

This section establishes minimum standards for maintaining safe physical site conditions. At a minimum these standards are established and maintained by developing and instilling a good, comprehensive housekeeping program.

### 5.2 PLANNING

Planning for the safety and security of personnel and equipment requires continuous attention. Contractors shall plan the safety and security procedures to be followed for each phase of construction. The ConSM or SSSR, in conjunction with the project manager, supervisor, or engineer that is directly responsible for the work will develop and implement a Job Hazard Analysis (JHA) that is both site and task specific for each work plan and significant project activity where hazards may be present in completing the tasks. Planning or readiness review meetings must involve the Contractor, supervisors (including the foreman and safety and security representative), the RE and appropriate members of the RE's staff, the ST Construction Safety Manager, and any other responsible party who may contribute to the safety and security of the operation.

#### A. Job Hazard Analysis (JHA)

A written job hazard analysis shall be developed by the Contractor or subcontractor when a known safety or security hazard exists, as well as for all major construction operations. Contractor shall use a standardized Job Hazard Analysis form or a similar ST approved format of the template worksheet shown as Figure 5-1.

1. The Contractor shall submit within 30 days following Notice to Proceed (NTP) a schedule for the preparation and submittal of JHA's to the RE for review by Sound Transit.
2. A minimum of twenty-one (21) business days before beginning an on-site activity (including mobilization activities), the JHA's for these activities will be submitted to Sound Transit.
3. No work identified as requiring a JHA shall begin until the JHA has been submitted, reviewed, and final acceptance is obtained from ST SSQA.

4. A JHA is required when (a) no JHA has been submitted and accepted for the particular operations and conditions, or (b) the Contractor's ConSM, SSSR or supervisors and/or other safety and security personnel and/or Sound Transit and the RE determine that the process, equipment, or procedure indicates a potential for injury and/or property damage exists, with special emphasis involving one or more of the following hazard events:
  - a. Activities involving electrical, elevated heights, pressure, confined spaces, excessive noises, etc.
  - b. Danger of striking against or being struck by
  - c. Potential injury from burns, either chemical or thermal
  - d. Potential for oxygen-deficient environments
  - e. Limited access or exit conditions
  - f. Potential of crushing or pinch point or between objects
  - g. Potential injury from strain by pushing, pulling, or lifting
  - h. Potential for property damage or loss of function (i.e., critical lifts, power outages, etc.).

#### B. Posting of JHA's and Training

The JHA serves as an operating procedure and the Contractor shall review, discuss with and provide a copy to each individual performing the work. A copy of the JHA will be retained by the SSSR in the reference file and a copy provided to the RE.

Personnel involved with the operation will be instructed as to the hazards involved, provided with required PPE and adequate training, and instructed in proper methods required to eliminate the hazards, including emergency action to be taken in the event of an incident. The Contractor will document during weekly safety and security tailgate meetings that crew members have reviewed and understand the JHA before work begins.

### 5.3 RESPONSIBILITY

The Contractor is responsible for effective performance through its supervisors and foremen. The supervisor or foreman has direct control of the work being performed. Although the Contractor is solely and completely responsible for conditions on the site, everyone has the responsibility to report and correct any unsafe acts or conditions observed or that may exist.

## 5.4 INSPECTIONS

There are many physical inspections required by DOSH and/or Fed/OSHA.

### A. Contractor's Safety and Security Representative

In addition to the other inspection responsibilities contained herein, the Contractor shall ensure that its ConSM or SSSR makes a weekly and a comprehensive monthly inspection of each of the work areas (including storage, office, and shop facilities) to ensure compliance with Sound Transit, Federal/OSHA, and DOSH requirements. The SSSR shall complete the Construction Safety and Security Inspection Checklist, shown as Figure 5-2 for each monthly inspection, or a customized form that at a minimum includes the elements contained in form shown in the figure.

Safety or Security deficiencies that are noted during the inspection shall be recorded on the form and those deficient items shall be corrected immediately. All deficiencies shall be communicated to the Contractor's project management in a timely manner. The Contractor's project management shall be responsible for documenting the corrective action(s) and submit that documentation to the RE. The ConSM or SSSR will follow up and note the status of each safety or security deficiency and record the deficiencies on the Construction Safety and Security Inspection Checklist. The issues or safety and security items noted will be reviewed during each subsequent site inspection to ensure the concerns have been adequately addressed.

The Contractor shall perform crane inspections and maintain daily, monthly, quarterly, and annual logs. The Crane Inspection Record and the Wire Rope Inspection Record shown as Figures 5-3 and 5-4, respectively, are to be completed on schedule and maintained on-site by the Contractor. A copy of the crane inspection reports shall be submitted to the RE. These requirements may change with updates to DOSH standards and crane inspection procedures. The Contractor is responsible for monitoring and complying with all applicable standards.

### B. DOSH and/or Fed/OSHA Compliance Officers

Contractors shall immediately notify the RE, who shall then notify the Sound Transit CSM, whenever a DOSH or Fed/OSHA compliance officer arrives on the site.

### C. Link Safety/Security Staff

Contractors should expect periodic to continuous monitoring and auditing of their safety and security practices and procedures by the Sound Transit CSM and his/her staff and SSQA staff. The Contractor shall cooperate fully to correct any safety or security discrepancies noted verbally or in writing by Sound Transit. These monitoring and audits shall not relieve the Contractor of any of its reporting, documentation, or safety and security obligations.

Sound Transit Safety and Security may at its discretion hire outside consultants or request the Washington State Department of Labor & Industries or other external organizations to perform consultations of any site. The Contractor will provide access with appropriate warning for scheduling and orientation.

Any ST Safety and Security staff member within SSQA may issue a Stop-Work Order for failure to comply with requirements of the CSSM. In the event of a Stop-Work Order, the Contractor shall be solely responsible for any impact to Contract Price and/or the Contract Time.

D. Seattle Fire Department

Contractors shall immediately notify the RE and the CSM of visits by the fire department and/or fire/safety inspectors. The Contractor shall cooperate fully to correct any safety or security discrepancies noted verbally or in writing by Seattle Fire. A copy of any issue, citations or notices of violation shall be submitted to the RE.

## 5.5 HOUSEKEEPING AND WORK SITE CONDITIONS

Housekeeping is an imperative element in developing a safety and security culture and reducing incidents. A well organized and maintained work site also increases production and creates a better work environment. Sound Transit requires at a minimum that the Contractor will maintain good housekeeping on work sites and adjacent public roadways. Good housekeeping practices express professionalism and indicate expectations to sustain an injury/incident free project.

Some tasks where good housekeeping is a major safety and security consideration are:

- Working surfaces
- Hoses and supply lines
- Tight or restricted work spaces
- Tunnel boring operations

The Contractor is solely responsible for maintaining good site conditions and housekeeping policies. When issues or deficiencies are identified, the RE will provide the Contractor verbal notification with a follow-up in writing. The Contractor shall address housekeeping concerns immediately and provide to the RE a signed Construction Safety and Security Survey form to acknowledge the items have been corrected.

Tunnel walking and working surfaces must be kept free of mud, water and debris anytime personnel are present. Conveyance systems for debris must minimize dropping of debris on walkways or rails. Tunneling locomotive rails must be kept free of mud, water and debris at all times. Walking and working surfaces must be level and free of holes, gaps or edges to prevent slips, trips and falls. All walking and working surfaces must, at a minimum, be compliant with DOSH and other applicable standards. Failure to properly maintain housekeeping and work site conditions, may result in a Stop-Work Order. In the event of a Stop-Work Order, the Contractor shall be solely responsible for any impact to Contract Price and/or the Contract Time.

## **5.6 INFORMATION EXCHANGE**

The free flow and exchange of information between the Contractor's safety and security representative, the RE, the CSM, the Link Construction Manager, the OCIP administrator, and the insurance company loss control consultant is a must.

Contractors shall notify the RE who will then notify the CSM, in writing, of the existence of any hazardous conditions, property or equipment at the work site that are not under the Contractor's control. However, it shall be the Contractor's responsibility to take all necessary precautions against injury to persons or damage to property from such hazardous conditions until they are corrected by the responsible party.

**FIGURE 5-1  
WORKSHEET FOR JOB HAZARD ANALYSIS**

Contractor:		JHA by:
Craft:		Date of Analysis
Briefly Describe the Job or Operation:		
Required and/or Recommended Personal Protective Equipment:		
Work Operation	Potential Incidents or Hazards	Safe Job Actions Needed

**FIGURE 5-2  
MONTHLY SAFETY & SECURITY INSPECTION CHECKLIST**

Contractor:	Date:	Time:	
Contract No.	Job-site Location:		
Person(s) making inspection:	Observers/Others on Inspection:		
Column: A = Adequate B = Inadequate			
<b>1. PROGRAM ADMINISTRATION:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Posting job-site warning posters.			
(b) Do you have safety and security meetings?			
(c) Do you have job safety and security training, including first-aid training?			
(d) Are there medical service and first-aid equipment, stretchers and emergency vehicles available?			
(e) Are job-site injury records being kept?			
(f) Are emergency telephone numbers, such as police department, fire department, doctor, hospital, and ambulance posted?			
(g) Can you provide records of pre-employment, for cause, post-accident and random drug testing?			
<b>2. HOUSEKEEPING AND SANITATION:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) General neatness of working areas.			
(b) Regular disposal of waste and trash.			
(c) Passageways and walkways clear?			
(d) Adequate lighting.			
(e) Projecting nails removed.			
(f) Oil and grease removed.			
(g) Walking/working surfaces free of mud, water and debris			
(h) Walking/working surfaces free of holes, trip hazards and level changes			
(i) Waste containers provided and used.			
(j) Sanitary facilities adequate and clean.			
(k) Drinking water tested and approved.			
(l) Adequate supply of water.			

(m) Disposable drinking cups.			
<b>3. FIRE PREVENTION:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Fire instructions to personnel.			
(b) Fire extinguishers identified, checked, and lighted.			
(c) Fire department phone number posted.			
(d) Hydrants clear, access to public thoroughfare open.			
(e) Good housekeeping.			
(f) "No Smoking" posted and enforced where needed.			
(g) Fire brigades.			
<b>4. ELECTRICAL INSTALLATIONS:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Adequate and properly insulated wiring			
(b) Fuses provided.			
(c) Fire hazards checked.			
(d) Electrical dangers posted.			
(e) Proper fire extinguishing provided.			
(f) Are terminal boxes equipped with required covers? Are covers used?			
(g) Electrical work is conducted de-energized.			
(h) Only electricians are performing work on or near electrical equipment.			
<b>5. HAND TOOLS:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Proper tool being used for each job.			
(b) Neat storage, safe carrying.			
(c) Inspection and maintenance.			
(d) Damaged tools repaired or replaced promptly. Are employee's tools inspected and repaired?			
<b>6. POWER TOOLS:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Good housekeeping where tools used.			
(b) Tools and cords in good condition.			
(c) Proper grounding.			
(d) Proper instruction in use.			
(e) All mechanical safeguards in use.			
(f) Tool extensions used for repetitive work overhead or at foot-level.			

(g) Right tool being used for the job.			
(h) Wiring properly installed.			
(i) Hand-arm vibration dampening addressed for tools with high vibration levels.			
<b>7. POWER-ACTUATED TOOLS:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Local law and ordinances complied with.			
(b) All operators qualified.			
(c) Tools and charges protected from unauthorized use.			
(d) Competent instruction and supervision.			
(e) Tools checked and in good working order.			
(f) Tools not used on any but recommended materials.			
(g) Safety goggles or face shields.			
(h) Flying hazard checked by backing up, removal of personnel, or use of captive stud tool.			
<b>8. LADDERS:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Ladders inspected and in good condition?			
(b) Properly secured to prevent slipping, sliding or falling?			
(c) Do side rails extend above top of landing?			
(d) Stepladders fully open when in use.			
(e) Metal ladders not used around electrical hazards.			
(f) Is the right ladder used for the job?			
(g) Are ladders painted?			
(h) Straight ladders at correct angle?			
<b>9. SCAFFOLDING:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Is erection properly supervised? Designated Competent Person			
(b) Will all structural members meet the safety factor?			
(c) Good housekeeping where scaffolds are used.			
(d) Are all connections secure?			

(e) Is scaffold tied into structure?			
(f) Are working areas free of debris, snow, ice, and grease?			
(g) Are foot sills and mud sills provided?			
(h) Are workers protected from falling objects?			
(i) Is the scaffold plumb and square with cross-bracing?			
(j) Are guardrails, intermediate rails, and toe boards in place?			
(k) Is scaffold equipment in good working order?			
(l) Are ropes and cables in good condition?			
(m) Can a personnel lift be used instead?			
<b>10. HOISTS, CRANES, AND DERRICKS:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Inspect cables and sheaves.			
(b) Check slings and chains, hooks and eyes.			
(c) Equipment firmly supported.			
(d) Outriggers used if needed.			
(e) Power line inactivated, removed or at safe distance.			
(f) Proper loading for capacity at lifting radius.			
(g) All equipment properly lubricated and maintained.			
(h) Signalman where needed.			
(i) Signals understood and observed.			
(j) Are inspection and maintenance logs maintained?			
<b>11. HEAVY EQUIPMENT:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Regular inspection and maintenance.			
(b) Lubrication and repair of moving parts.			
(c) Lights, brakes, warning signals operative.			
(d) Wheels chocked when necessary.			
(e) Haul roads well maintained and laid out properly.			
(f) Protection when equipment is not in use.			
(g) Are shut-off device on hose lines in case of hose failures?			

(h) Are noise arresters in use?			
<b>12. MOTOR VEHICLES:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Regular inspection and maintenance.			
(b) Qualified operators.			
(c) Local and state vehicle laws and regulations observed.			
(d) Brakes, lights, warning devices operative.			
(e) Weight limits and load sizes controlled.			
(f) Personnel carried in a safe manner - seated.			
(g) Personnel carried in a safe manner – non-seated.			
(h) Are back-up signals provided?			
(i) Are fire extinguishers installed where required?			
<b>13. GARAGES AND REPAIR SHOPS:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Fire hazards.			
(b) Dispensing of fuels and lubricants.			
(c) Good housekeeping.			
(d) Lighting.			
(e) Carbon monoxide dangers.			
(f) Are all fuels and lubricants in proper containers?			
(g) Proper ventilation.			
(h) Proper grounding and bonding.			
(i) Chemical hazards posted correctly?			
<b>14. BARRICADES:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Floor openings planked over or barricaded.			
(b) Roadways and sidewalks effectively protected.			
(c) Adequate lighting provided.			
(d) Traffic controlled.			
(e) Access to site and all entrances controlled and secured at all hours			
<b>15. HANDLING &amp; STORAGE OF MATERIALS:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Are materials properly stored or stacked?			

(b) Are passageways clear?			
(c) Stacks on firm footings, not too high.			
(d) Proper number of men for each operation.			
(e) Are personnel lifting loads correctly?			
(f) Are materials protected from weather conditions?			
(g) Protection against falling.			
(h) Is dust protection observed?			
(i) Extinguishers and other fire protection.			
(j) Is traffic controlled in the storage area?			
<b>16. EXCAVATION AND SHORING:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Are adjacent structures properly shored?			
(b) Is shoring and sheathing used for soil and depth?			
(c) Are roads and sidewalks supported and protected?			
(d) Is material stored too close to excavations?			
(e) Is excavation barricaded and lighting provided?			
(f) Is equipment a safe distance from edge of excavation?			
(g) Are ladders provided where needed?			
(h) Are equipment ramps adequate?			
(i) Is job supervision adequate?			
<b>17. DEMOLITION:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Are operations planned ahead?			
(b) Is there shoring of adjacent structures?			
(c) Are material chutes used?			
(d) Is there sidewalk and other public protection?			
(e) Clear operating space for trucks and other vehicles.			
(f) Adequate access ladders or stairs.			
<b>18. PILE DRIVING:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Are there proper storage procedures?			
(b) Is unloading performed only by properly instructed workmen?			

(c) Are tag lines, slings, etc. in good condition?			
(d) Are pile driving rigs properly supported?			
(e) Are ladders on frames?			
(f) Are cofferdams maintained and inspected?			
(g) Is adequate pumping available?			
(h) Is personnel protection adequate? Hearing protection?			
<b>19. EXPLOSIVES:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Qualified operators and supervision.			
(b) Proper transport vehicles.			
(c) Local laws and regulations observed.			
(d) Storage magazines constructed per regulations or as recommended.			
(e) Experienced personnel handling explosives at all times.			
(f) Cases opened properly.			
(g) "No Smoking" posted and observed where appropriate.			
(h) Detonators tested before each shot.			
(i) All personnel familiar with signals, and signals properly used at all times.			
(j) Inspection after each shot.			
(k) Proper protection and accounting for all explosives at all times.			
(l) Proper disposition of wrappings, waste and scrap.			
(m) Advise residents nearby of blasting cap danger, and inspect potential damage points.			
(n) Check radio frequency hazards.			
<b>20. FLAMMABLE GASES AND LIQUIDS:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) All containers clearly identified.			
(b) Proper storage practices observed.			
(c) Fire hazards checked.			
(d) Proper storage temperatures and protection.			
(e) Proper types and number of extinguishers nearby.			

(f) Carts for moving cylinders.			
<b>21. MASONRY:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Proper scaffolding.			
(b) Masonry saws properly equipped, dust protection provided.			
(c) Safe hoisting equipment.			
<b>22. ROADWAY CONSTRUCTION:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Laws and ordinances observed. State/local police approval?			
(b) Competent flaggers properly dressed, instructed and posted.			
(c) Adequate warning signs and markers.			
(d) Equipment not blocking right-way.			
(e) Traffic control through construction site.			
(f) Adequate marking and maintenance of detours.			
(g) Dust control.			
(h) Adequate lighting.			
(i) Meets specification requirements			
<b>23. PERSONAL PROTECTIVE EQUIPMENT:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Eye protection.			
(b) Face shields.			
(c) Respirators and masks.			
(d) Helmets and hoods.			
(e) Head protection.			
(f) Gloves, aprons, and sleeves; rubber or plastic, designed to afford protection from alkalis and acid; electrician's rubber gloves with protectors.			
<b>24. SECURITY VULNERABILITIES:</b>	<b>A</b>	<b>B</b>	<b>CONDITION AND ACTION PLAN</b>
(a) Threats from known individuals are controlled			
(b) Site-specific threats have been analyzed and controlled			
(c) Property and material is secured at all times			

<p>(g) Respirators for harmful dust, asbestos, sand blasting, welding (lead paint, silica, chromium and galvanized zinc or cadmium).</p> <p>Compliance with hazmat requirements.</p> <p>Provide adequate ventilation when painting or applying epoxy resins.</p> <p>[When there is a question about injurious exposure, notify superior immediately who in turn shall arrange for atmospheric samples to be taken.]</p>			
<p>24. UNSAFE ACTS AND/OR PRACTICES OBSERVED (list):</p>			
Empty space for listing unsafe acts			
<p>25. REPETITIVE VIOLATIONS OBSERVED:</p>			
Empty space for listing repetitive violations			

**FIGURE 5-3  
 CRANE INSPECTION RECORD**

CONTRACTOR: _____			CONTRACT NO.: _____		
CRANE NO: _____		MILEAGE: _____	HOURS: _____		DATE: _____
<b>A. GENERAL REQUIREMENTS</b>	<b>OK</b>	<b>*REP</b>	<b>C. MAIN MACHINE</b>	<b>OK</b>	<b>*REP</b>
1. Capacity Charts in cab			1. Controls		
2. Special instruction posted			2. Clutches		
3. Barricades (tailswing)			3. Brakes		
4. Exhaust, pipes guarded			4. Brake locks		
5. BC fire ext. in cab			5. Main drum		
6. First-aid kit in cab			6. Boom hoist		
7. Safety glass in cab			7. Boom hoist panel		
8. Guardrails/hand holds			8. Boom hoist kickout		
9. Platform and steps/non-skid			9. Oil leaks		
10. Proximity signs, 10 ft. min.			10. Hook rollers and turret		
11.			11.		
<b>B. ATTACHMENTS</b>			<b>D. CARRIER</b>		
1. *Hooks and blocks (safety latch on hook)			1. Steering		
2. Sockets and rope clamps			2. Brake (all system)		
3. Boom and lacing			3. Lights, horn, wipers		
4. Boom stops			4. Transmission		
5. Spreaders and gantry			5. Differential		
6. Jib and stops			6. Clutch		
7. Outriggers and pads			7. Engine		
8. Counterweights			8. Tires and wheels		
9.			9. Gauges		
10.			10.		
<b>USE WIRE ROPE FORM FOR CABLE INSPECTIONS</b>					
Inspected at: (Location) _____			By: _____		
* Repair or Replace - Respond on reverse side by specific item letter and number. Requires separate, recorded annual inspection for deformation and/or cracks.					

**FIGURE 5-4  
 MONTHLY WIRE ROPE INSPECTION RECORD**

CONTRACTOR:				CONTRACT NO.:				
CRANE NO:		MILEAGE:		HOURS:		DATE INSPECTED:		
WIRE ROPE		(A) NUMBER OF BROKEN WIRES PER:		(B) %DIAMETER REDUCTION (WEAR OR CORE DAMAGE)		(C) KINKED CRUSHED OR CUT, LOSS OF LAV., ETC.?	(D) LUBED, CORROSION (INTERNAL OR EXTERNAL) HEAT DAMAGE?	(E) TERMINAL TACKLE, BLOCKS, HOOKS, ETC.?
Main Hoist (LD. Line)								
Boom Hoist (Top Lift)								
Jib Hoist (Whip Line)								
Pendants (Main)								
Pendants (150 foot boom +)								
Jib guys (Upper)								
Jib guys (Lower)								
<p>Replacement of hoisting rope shall be done in compliance with the equipment manufacturers published replacement criteria and the Washington Administrative Code Chapter 296-155 Part L.</p> <p>Inspected at: (Location) _____ By: _____</p> <p>Comments:</p>								

## 6.0 SAFE PRACTICE STANDARDS

### 6.1 PURPOSE AND SCOPE

This section establishes the minimum safe work practice standards that shall be observed by all Contractors, subcontractors, vendors, and visitors while on the Sound Transit sites. The Contractor shall comply with minimum requirements of the Washington Industrial Safety and Health Act, the Federal Occupational Safety & Health Act, DOSH standards and directives, local safety and security requirements, and this manual. The most stringent requirement shall prevail.

### 6.2 ORDERLINESS / HOUSEKEEPING

Orderliness and/or housekeeping mean specifically that, at any time, each and every piece of equipment, tool, material, facility, or apparatus shall be stored, stacked, located, placed, temporarily spotted, or set up for manipulation in such a manner as will render an incident highly improbable and gives the direct and obvious impression of a clean and orderly work place. This applies to station structures, tunnels, elevated guideways, platforms, maintenance facilities, yards, parking lots, interior of bins, tool boxes, cabinets, rooms, cubicles, whole floors, buildings, and all other areas associated with the Link Light Rail Program.

#### A. Orderliness Responsibility

Responsibility for material or equipment placement belongs to the Contractor and craft that will use or install it.

1. Material and equipment shall be stored or parked in an orderly manner, in keeping with the character of the material or equipment.
2. The Contractor shall designate storage areas with the RE notifying the Contractor if any designated storage areas are not authorized. The Contractor will correct any noncompliance.
3. When a Contractor or craft begins work in an area, that Contractor and/or craft is responsible for the orderliness and housekeeping of that area, regardless whether the area was left disorderly by a previous Contractor or work crew.
4. The manner in which the Contractor controls the orderliness and housekeeping in its work areas is a direct reflection of the overall safety and security attitude of the Contractor.

## B. Orderliness and Housekeeping in the Work Areas

Orderliness and housekeeping are prerequisites to achieving the goal of no work injuries. It takes the cooperation and participation of each employee to keep work and storage areas orderly. The following basic requirements shall be expected of all Contractors and employees:

1. Do not block access ways.
2. Clean work areas daily as work progresses.
3. Do not leave cables, cords, or loose objects in passageways, stairways, walkways, or underfoot.
4. Remove all materials, tools, and equipment such as shackles, slings, ladders, safety equipment, etc., from work areas and return them to storage areas when not needed.
5. Return all tools, supplies, materials, and equipment to their proper storage area after completion of job.
6. Keep welding rod, nuts, bolts, and round stock in proper containers and not piled on floors, ground, or deck.
7. Place trash containers at appropriate locations for disposal of all rubbish, trash, and debris.
8. Rubbish, trash, and/or debris will be removed from the work area daily.
9. Check the work area daily for the removal of rags, boxes, paper, and other debris for housekeeping and fire prevention.
10. Store dunnage in neat storage piles or remove it from the job site daily.

## C. Fire Prevention

1. Do not block access to fire extinguishers, exits, hydrants, or other fire-fighting equipment.
2. Keep all flammable liquids and combustible material away from any open flame or spark. Trash, rubbish, or debris shall not be stored in proximity to flammable liquid or combustible material.
3. Plan all burning and welding operations carefully, and remove all combustible or flammable material from the area before starting the job.

### 6.3 EQUIPMENT STANDARDS

To prevent personal injury and property damage incidents, the Contractor shall adhere to the following rules:

#### A. Motor Vehicles

1. Each operator is responsible for the site operation of his/her vehicle. Drivers shall make a daily inspection of the following: steering, brakes, mirrors, lights, horn, seat belts, backup alarm, tires, windshield wipers, and fire extinguishers. Noted defects shall be reported for prompt repair.
2. Preventive maintenance shall be regularly scheduled for all vehicles to ensure their safe operating condition. All vehicles shall be in compliance with federal and state requirements.
3. Trucks shall never be loaded beyond their rated capacities or in a manner that will obscure the driver's vision. All loads shall be securely fastened to prevent shifting or loss of material.
4. Motor vehicles shall be fueled only by approved methods. Smoking or open flames shall not be permitted near a vehicle being fueled.
5. Gasoline-powered equipment shall not be refueled while engine is running. Smoking or open flames shall not be permitted near equipment being fueled.
6. All mobile construction equipment shall be equipped with back-up alarms that can be heard for a distance of 200 feet. Hub-bells are not permitted on Sound Transit projects. Broadband back-up alarm use requires review and approval of SSQA.
7. All occupants of motor vehicles shall wear seat belts. Transportation of personnel in the back of any truck is prohibited.
8. Drivers must hold current licenses of the appropriate class to operate the vehicle, and be named on the Contractor's (or subcontractors) insurance roster.

#### B. Cranes

Crane standards and other standards may change prior to the start of construction or during the construction work. Contractors will comply with the most stringent current local, state or federal standards and are responsible for compliance under the contract.

1. Operators are responsible for the exercise of caution necessary for the safe operation of their equipment. Operators shall immediately report unsafe conditions, including defects in the machine, to their supervisor.
2. Operators shall not permit anyone to ride the hook, headache ball, or load.
3. When the operator leaves the machine or repairs are being made, it is the responsibility of the operator to set the brakes, secure the boom, take the machine out of gear, and turn off the engine.

4. Personnel will use a standardized set of hand signals while directing crane operations.
5. When making any lift, the operator will take operational signals only from the authorized signal person. The only exception is that the operator will accept an emergency stop signal given by anyone.
6. It is the joint responsibility of the operator and the riggers to see that all hitches are secure and that all loose material is removed before the loads are lifted.
7. Safety hooks, or properly moused hooks, shall be used on all operations where loads are being handled. All suspended loads shall be controlled by tag lines.
8. Booms shall be equipped with a boom angle indicator and approved boom stops. Boom heads, load blocks, and hooks shall be painted with high visibility paint.
9. All cranes, except crawler cranes and boom type excavators, shall be equipped with outriggers of a design and strength suitable for the work being performed. Outriggers shall be used in accordance with the manufacturer's instructions.
10. Hooks, wire rope, bearings, gears, friction clutches, chain drives, and other parts subject to wear must be inspected at regular intervals, and repaired or replaced as required. Records of such inspections shall be maintained by the Contractor.
11. All cranes over three tons manufacturer's rated capacity shall be certified annually per DOSH. This certification shall be submitted to the RE prior to use of the crane.
12. All overhead electrical lines shall be considered as high-voltage lines, and no crane or any part of a crane shall be permitted to work within ten feet of an overhead electrical line.
13. Vehicular and/or pedestrian traffic shall not be allowed to pass beneath the boom of any crane. When the boom of a crane must be placed over a street or pedestrian walkway the traffic, vehicular and/or pedestrian shall be stopped or rerouted.
14. All crane operators shall comply with the requirements of DOSH or Fed/OSHA as applicable.
15. Boatswain's chairs shall not be suspended from any crane.
16. All crane operators shall have current certification on file with the Contractor and available to Sound Transit on request.

#### C. Construction Equipment

1. The equipment shall be thoroughly checked at the beginning of each shift.
2. Operators shall not start or operate any equipment while other personnel are oiling or adjusting the equipment.
3. The glass in the cabs of cranes, loaders, and other equipment shall be approved safety glass.

4. Runways, stairways, and/or platforms shall be provided whenever required for the safe operation of the equipment.
5. No more than one person (the operator) shall ride any equipment unless the equipment is equipped with seats to accommodate such riders.
6. Back-up alarms are required on all motorized vehicles operating in construction zones.
7. All operators shall have proof of qualifications to operate their equipment on file with the Contractor and available to Sound Transit on request.

#### **6.4 ELECTRICAL**

- A. All electrical work, installation and wire capacities shall be in accordance with the pertinent provisions of the National Electrical Code (NEC), DOSH, Fed/OSHA, and any other applicable code or regulation.
- B. All switches shall be enclosed and grounded. Panel boards shall have provisions for closing and locking the main switch and fuse box compartment.
- C. Cables or cords passing through work areas shall be covered, elevated or strung so as to protect them from damage and to eliminate tripping hazards.
- D. Cables or cords crossing roadways shall be covered to prevent damage from vehicles and/or equipment.
- E. Cords shall not be allowed to lie in water.
- F. Extension cords used with portable electric tools and appliances shall be heavy duty, of the three-wire grounding type, and shall conform to the type and configuration required by the applicable DOSH and/or Fed/OSHA regulations and the NFPA.
- G. Suitable means shall be provided for identifying all electrical equipment and circuits, especially when two or more voltages are used on the same job. All circuits shall be marked for the voltage and the area of service they provide.
- H. All electrical work shall be performed by qualified electricians who are familiar with the codes.
- I. Ground-fault circuit interrupters (GFCI) or an approved assured grounding program shall be used. Should an assured grounding program be used, copies shall be submitted to the RE.
- J. Live parts of wiring or equipment shall be effectively guarded to prevent contact with personnel or objects.

- K. All electrical circuits and/or equipment shall be de-energized prior to any work being performed on the circuits and equipment. Exception: When electrical circuits and/or equipment cannot be de-energized and must be worked hot, then adequate voltage-rated insulated gloves, mats, aprons, and other protective equipment shall be used as required and shall be tested for leaks and insulating capabilities.

## 6.5 LOCK-OUT/TAG-OUT CLEARANCE PROCEDURE

- A. The following procedure is intended to provide a controlled method for rendering electrical equipment or operating systems inactive (including mechanical or piped) when equipment is down for any reason, such as repair, removal, or replacement of equipment and installation of new equipment, DOSH and/or Fed/OSHA requirements shall be followed.

This procedure includes the three basic phases of work on any system:

1. Shutting down equipment;
2. Repairing or installing equipment; and
3. Startup of equipment.

It is likely that some situations will not include all three phases as such; however, regardless of the operation and the phase or phases involved, the lock-out/ tag-out clearance procedure must be observed to ensure the safety and security of the operation.

Although this procedure generally provides for locking and tagging of equipment, the danger tag alone is to be considered a lock-out device. Any equipment bearing such a tag shall not be operated under any circumstances.

Before starting any major operation that involves locking and tagging procedures, a meeting shall be held involving the SSSR, the CSM, and the RE. Specific procedures should be adopted and reviewed by all concerned before work begins.

### B. Shutdown of Equipment or System

1. The craft supervisor shall cause equipment to be shut down in a manner consistent with good operating practice.
2. The main disconnect shall be opened in addition to any remote control switches. On electrical work, it is advisable, as a further precaution, that the electrician remove all of the supply fuses. On piped systems, the main valves shall be closed and pressures relieved.
3. After assurance that the equipment has been properly shut down in accordance with prescribed procedures, the craft supervisor shall positively determine that the equipment or system has been locked and tagged.

### C. Repair or Installation

1. Each individual craftsperson assigned to the job shall attach to the equipment or system a separate standard danger tag. The tag shall be dated and signed, and a short explanation for the reason for the tag should appear in the provided spaces.
2. The craft supervisor responsible for the work must ensure that the equipment has been deactivated and properly tagged before permitting his/her personnel to perform any work.

### D. Starting Up Equipment or System

1. As soon as the work is completed, the tags shall be removed only by the individuals installing them.
2. In the event the shift ends before the work is completed, the status of the work is to be reported in detail to the oncoming shift personnel and the names on the tags changed.
3. Upon completion of the work, the supervisor will make certain all workers' tags have been removed and that everyone is clear of the equipment or system. The supervisor shall return the equipment to normal operating conditions.

### E. General

1. In an emergency, the Contractor's project manager or superintendent shall have the authority to remove the tags and locks only after positively determining whether or not the equipment or system is safe for operation and that all personnel are in the clear.
2. Personnel that are deviating from these instructions or unauthorized persons removing danger tags shall be subject to immediate dismissal.

## 6.6 TOOLS

All hand tools, power tools and similar equipment, whether furnished by the Contractor or the employee, shall be maintained in a safe condition. Supervisors and craft employees shall be responsible for the inspection and repair of tools under their control. The use of many tools requires the use of a variety of personal protective equipment.

### A. Hand Tools

1. Insulated or non-conducting tools should be used when working near energized electrical circuits.
2. Tool handles should be tightly fitted. Wooden handles should be carefully checked: tightened with wedges, if necessary, or replaced if split or splintered.
3. All impact tools, such as chisels, punches, and wedges shall be regularly dressed to eliminate mushrooming or flaring of the point of impact.

### B. Power Tools

Power tool incidents are generally caused by improper handling or poor maintenance. The following shall apply to all types of power tools:

1. Only authorized personnel shall be permitted to operate or repair power tools.
2. Maintenance of power tools shall be systematic. All worn or damaged tools shall be promptly repaired or replaced. All tools shall be cleaned, tested, and inspected regularly.
3. Power tools shall not be used if permanent safety equipment, such as shields, tool rests, hoods, and guards have been removed or otherwise rendered inoperative.
4. Employees using tools under conditions that expose them to the hazards of flying objects or harmful dusts shall be provided with the required personal protective equipment.
5. All electrically powered tools shall be properly grounded or bonded.
6. Gasoline-powered tools shall not be used in unventilated areas. Gasoline shall be dispensed only in U.S. approved safety cans. *Plastic gas cans are not allowed on Sound Transit Projects.* (Special requirements apply to the use of gasoline and other similar products on underground construction projects.)
7. Portable grinders shall be provided with hood-type guards with side enclosures that cover the spindle and at least 50 percent of the wheel. All wheels will be inspected regularly for signs of fractures.
8. Bench grinders shall be equipped with deflector shields and side cover guards. Tool rests and tongue guards shall have a maximum clearance of 1/8 inch from the wheel.

9. Hoses supplying pneumatic tools shall have coupling, whip checks, and/or tie-wires secured to prevent incidental disconnection.
10. Air-supply lines shall be protected from damage, inspected regularly, and maintained in good condition.
11. Air sources supplying hoses exceeding 1/2 inch inside diameter shall be protected by excess flow valves to prevent whipping in the event of hose separation or failure.
12. The pressure of compressed air used for cleaning purposes shall be 30 psi or less (does not apply for cleaning forms, etc.).
13. All hand-held power drills; tapes; fastener drivers; horizontal, vertical, and angle grinders; disc sanders; belt sanders; reciprocating saws; saber saws; and all other similarly operating powered tools shall be equipped with a momentary contact on-off control switch/trigger.
14. All personnel who operate pneumatic, electric or gasoline-powered chain saws shall be trained in the safe operation of a chain saw. Documentation attesting to this training shall be on file in the Contractor's office and available upon request.
15. All chain saws shall be equipped with at least the following:
  - a. safety tip
  - b. hand guard/chain brake
  - c. spark arrester (gasoline only)
  - d. chain catcher
  - e. bumper spikes
16. Employees whose duties require them to operate a power chain saw shall wear chaps, leggings, or other equivalent protection that will protect the vulnerable areas of the legs. In addition they will wear eye and face protection and appropriate gloves.
17. Tool extensions will be used where feasible for repetitive tasks overhead or at foot-level.
18. Control of hand-arm vibration from power tool use will be implemented through provision of PPE, handle-wraps, or low-vibration tools.

### C. Power-Actuated Tools

1. Only employees who have furnished evidence of having been trained in its use shall be allowed to operate a powder-actuated tool. Eye and hearing protection shall be worn by all personnel using powder actuated tools.
2. Tools shall not be loaded until just prior to use. Loaded tools shall not be left unattended.
3. Tools shall not be used in an explosive or flammable atmosphere. Cartridges (power source) shall be kept separated from all other material.

4. Power-actuated tools used on this contract shall meet all applicable requirements of DOSH and/or Fed/OSHA.

D. Pneumatic Nailers/Staplers

1. To prevent incidental discharge, all pneumatically driven nailers and staplers shall have a safety device on the tool which shall prevent the tool from being operated unless the muzzle of the tool is in contact with the work surface.
2. When not in use, the nailer and/or stapler shall be disconnected from the air supply.
3. All personnel who operate pneumatic nailers and/or staplers shall be trained in their safe operation. Documentation attesting to the training shall be on file in the Contractor's office and available upon request.

## 6.7 WELDING AND CUTTING

A. Welding

1. A suitable, approved fire extinguisher shall be available for instant use in locations where welding is done. Screens, shields, or other safeguards shall be provided for the protection of personnel or materials below or otherwise exposed to sparks, slag, falling objects, or the direct rays of the arc.
2. The welder shall wear approved eye and head protection. Persons assisting the welder shall wear protective glasses.
3. Electric welding equipment, including cable, shall meet the requirements of the National Electric Code. Welding practices shall comply with all applicable regulations.

B. Burning or Cutting

1. When gas cylinders are stored, moved, or transported, the valve protection cap shall be in place.
2. When cylinders are hoisted, they shall be secured and upright in an approved cage or basket.
3. All cylinders shall be stored, transported, and used in an upright position. If the cylinder is not equipped with a valve wheel, a key shall be kept on the valve stem while in use.
4. An approved fire extinguisher shall be readily available in the event of fire.
5. Appropriate personal protective equipment, such as burning glasses, shields, and/or gloves must be used.

## 6.8 LADDERS

The Contractor shall provide a safe means of access to all work areas. These access ways shall consist of ladders, stairways, elevators, and other approved methods of access, and shall not be blocked by materials or debris.

### A. Manufactured Ladders

Manufactured ladders shall comply with the regulations of ANSI A14.2-1968, Safety Code for Portable Wood Ladders or ANSI A14.2-1972, Safety Code for Portable Metal Ladders.

1. Ladders with broken or missing rungs, broken or split side rails, or otherwise damaged, shall not be used and shall be immediately removed from the site.
2. All portable ladders shall be equipped with nonskid safety feet and shall be placed on a stable base. The access areas at the top and bottom of ladders shall be kept clear.
3. The side rails shall extend 36 inches above the landing. When this is not practical, grab rails shall be installed. All ladders in use shall be tied, blocked, or otherwise secured to prevent incidental displacement.
4. Stepladders shall not be used as straight ladders.
5. Standing on the top two steps of a stepladder is forbidden.
6. Extension ladders are not be dismantled and used as straight ladders.
7. At no time shall any employee work from any ladder above four feet unless fall protection is used.
8. At no time shall more than one employee work from a single ladder at a given time.

### B. Job-Made Ladders

1. Job-made ladders shall be fabricated in compliance with DOSH, Fed/OSHA, and appropriate ANSI standards.
2. The general rules applying to the use of manufactured ladders also apply to the use of job-made ladders.

### C. Fixed Ladders

All fixed ladders on worksites must meet ANSI A14.3, American National Standard for Ladders-Fixed-Safety Requirements, in effect at the time they are installed.

## 6.9 SCAFFOLDING

### A. Scaffolds

1. Scaffolds shall be designed, built, and inspected by competent persons. Is there a definition for this type of work. To avoid the use of makeshift platforms and scaffolding, each job should be carefully planned to ensure that scaffolding is used where required and that such scaffolding conforms to DOSH and/or Fed/OSHA Standards.
2. Guardrails and toe boards shall be installed on all open sides and ends of scaffolds. Guardrails shall be 2 x 4 inch stock, midrail 2 x 4 inch stock, or its equivalent. The top rail should be approximately 42 inches high and the midrail placed halfway between top rail and the platform.
3. The toe board, 4 inch minimum height, shall be securely fastened in place.
4. Other forms of employee protection may be used as per WISH or Fed/OSHA regulations.
5. Wooden railing posts (verticals) shall be made of at least 2 x 4 inch stock or its equivalent, and be spaced so as not to exceed 8 feet on center.
6. When working from a scaffold which is not completely decked and/or where guardrails are not installed, a fall arrest system shall be used.

### B. Railings

Other types, sizes, and arrangements of railing construction are acceptable, provided they meet the following requirements:

1. A smooth surfaced top rail approximately 42 inches above the floor.
2. Strength to withstand the minimum of 200 lb top rail pressure with a minimum of deflection.
3. For specific material requirements, refer to DOSH and/or Fed/OSHA.

### C. Stair Railings

A stair railing shall be constructed similar to a standard railing, but the vertical height shall be not more than 34 inches or less than 30 inches from the top rail to the surface of the tread in line with the face of the riser at the forward edge of the riser. All hand rails shall be provided with a clearance of at least 3 inches between the hand rail and any other surface or object.

### D. Stairways

A stairway or ladder shall be provided at all personnel points of access where there is a break in elevation of 19 inches (48 cm) or more, and no ramp, runway, sloped embankment, or personnel hoist is provided

1. Permanent stairway placement should follow as soon as practical.
2. All parts of stairways shall be free of hazardous projections. Debris and other loose material shall not be allowed to accumulate on stairways.
3. Permanent steel stairways having hollow-pan-type treads and landings that are to be used prior to concrete placement shall have the pans filled with solid material to the level of the nosing.
4. Temporary stairs shall have a landing not less than 30 inches wide, in the direction of travel, for every 12 feet or less of vertical rise. Wooden treads for temporary service shall be full width.
5. Riser height and tread width shall be uniform throughout any flight of stairs.

### E. Elevators

Refer to DOSH and/or Fed/OSHA for construction elevators in buildings, basements, excavations, and tunnels.

## 6.10 CONCRETE AND CONCRETE FORMS

All equipment and materials used in concrete construction and masonry work shall meet the applicable requirements as prescribed in ANSI standard on "Safety Requirements for Concrete Construction and Masonry Work."

- A. Employees working more than, four feet above any adjacent working surface, placing reinforcing steel, shall be provided with fall protection such as a Class III Full Body Harness or equivalent device or a standard railing.
- B. Employees shall not be permitted to work above vertically protruding reinforcing steel unless such steel has been protected to eliminate the impalement hazard.
- C. The riding of concrete buckets for any purpose shall be prohibited.

- D. Concrete troweling machines, the powered (electrical or otherwise) rotating-blade type shall be equipped with a control switch that shall automatically shut off the power whenever the operator's hand is removed from the equipment handle.

## **6.11 FLOOR, ROOF, WALL OPENINGS, AND OPEN-SIDED PLATFORMS**

To control conditions where there is a danger of employees or materials falling through floor, roof, or wall openings, such openings shall be protected in accordance with DOSH and Fed/OSHA.

## **6.12 STEEL ERECTION**

- A. Permanent floors shall be installed as soon as practical following the erection of structural members. At no time shall there be more than four floors or 48 feet of unfinished bolting or welding above the foundation or uppermost secured floor.
- B. Temporary Flooring
  - 1. The erection floor shall be solidly planked over its entire surface except for access openings. Planking shall be not less than 2 inches thick, full-size, undressed, and shall be laid tight and secured against movement.
  - 2. Floor openings shall be guarded by a standard railing and toe boards or cover. In general, the railing shall be provided on all exposed sides, except at entrances to stairways.
  - 3. On structures not adaptable to temporary floors, safety nets shall be installed and maintained whenever the potential fall distance exceeds two stories or 25 feet.
- C. General Requirements
  - 1. Bundles of sheets or small material shall be so secured as to prevent their falling.
  - 2. When setting structural steel, each piece shall be secured with not fewer than two bolts at each connection and drawn up wrench tight before the load is released.
  - 3. Avoid walking on the top flange of beams. Class III Full Body Harness (fall arrest system) shall be used at all times.
  - 4. Avoid walking under the lift or permit an employee to be exposed to the swing of the lift.
  - 5. A tag line shall be used to control all loads.
  - 6. For the protection of other crafts on the site, signs shall be posted in the erection area, "Danger Men Working Overhead."

### 6.13 EXCAVATIONS, TRENCHING, AND SHORING

- A. All work shall be in accordance with DOSH and/or Fed/OSHA.
- B. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence.
- C. A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet or more in depth so as to require no more than 25 feet of lateral travel for employees.
- D. The determination of the angle of repose and design of the supporting system shall be based on careful consideration of the following: depth of the cut; anticipated changes in the soil due to air, sun and water; and ground movement caused by vehicle vibration or blasting; and earth pressures
- E. Positive barrier or plating shall be provided when a trench is placed adjacent to any roadway.

### 6.14 CONTROLLING EXPOSURE TO VOLATILE ORGANIC COMPOUNDS

The term volatile organic compounds (VOCs) is a very broad category of carbon-based compounds which includes both polar and non-polar VOCs, ranging from those that evaporate easily (e.g., hexane) to those which may be only semi-volatile (e.g., chlorinated hydrocarbons). VOCs most commonly encountered on construction sites include solvents used in adhesives, coatings, sealants, thinners, caulking, fuels, material treatments, and preservatives. They may have a strong odor (e.g., aromatic hydrocarbons in gasoline) or they may be nearly odorless (e.g., odorless mineral spirits).

Many VOCs are flammable and can be explosion hazards depending on use and space configurations. However, in most cases, VOC use in construction results in a respiratory health hazard, a disagreeable odor, or both. VOCs may be carcinogenic (e.g., benzene), strongly irritating (methylene chloride), or of low toxicity (acetone or ethanol).

This procedure sets forth requirements which all Contractors and subcontractors must follow when using VOC-containing products during construction of tunnels, underground stations, and underground chambers. All airborne VOC concentrations shall be kept as low as reasonably achievable.

Records of material safety data sheets (MSDSs), exposure monitoring results, VOC measurements, and other tests or VOC-related inspections shall be maintained on the

surface by the SSSR and/or the monitoring team member, and shall be made available on request to the RE, CSM, DOSH, and Fed/OSHA.

A. Substitution

1. Products and processes shall be specified which minimize odors and chemical emissions while maintaining safety and efficacy. Contractors shall review the general information provided by product labels and MSDSs, and request information from suppliers about chemical emissions of products being considered for purchase.
2. Contractors and subcontractors shall endeavor to the greatest extent possible to substitute volatile or otherwise hazardous VOC-containing products with those which are non-volatile (low vapor pressure), low-VOC, water-based, low-odor, or less hazardous.
3. Contractors and subcontractor shall pay special attention to those products marked as “use adequate ventilation” or “use only outdoors or in a well-ventilated space.”

B. Submittals

1. Prior to using any VOC-containing product inside a tunnel or underground work area, a product specification sheet or label and an MSDS for the product shall be submitted for review.
2. All submittals are subject to review and comment by Sound Transit, the RE, and its agent(s). Sound Transit and the RE reserve the right for final approval in selecting and approving VOC-containing products.
3. Prior to using any VOC-containing product inside a tunnel or underground work area, contractors and subcontractors shall detail their use in a submitted Construction Work Plan (CWP) outlining the means and methods by which worker exposure and chemical emissions will be controlled. The work plan may be submitted in the form of a checklist or outline.
4. Documentation of calibration tests and procedures for any exposure measurement equipment will be submitted with the CWP and updated as needed according to calibration schedule by submittal to the RE.

C. Hazard Communication

1. Contractors and subcontractors will comply with all requirements of WAC 296-800-170, *Hazard Communication*, including a written chemical hazard communication program, identification and listing of all hazardous chemicals present at the construction site, obtaining and maintaining MSDSs for each hazardous chemical used, the labeling of containers, and training of employees.

2. Hazard communication to employees, subcontractors, and visitors may occur individually, at scheduled training sessions, or at pre-construction meetings. Training and program requirements shall be verified through completion checklists or other documentation records.

#### D. Controls for Anticipated Work with VOCs

1. Contractors and subcontractors shall determine the severity of potential VOC exposure by analyzing the toxicity of product constituents, their likely volatility, volume and rate of anticipated product use, and the anticipated space and ventilation configurations. To appropriately categorize exposure severity, Contractors shall consult their safety personnel, a board-Certified Industrial Hygienist, or the classification system used in *IAQ Guidelines for Occupied Buildings Under Construction – 2007*, published by the Sheet Metal and Air-conditioning Contractors' National Association (SMACNA).
2. The CWP shall establish means for controlling worker exposure. This shall include historical exposure monitoring data, real-time measurements, anticipated industrial hygiene data collection strategy, ventilation, or respiratory protection measures.
3. The CWP shall identify critical pathways through which VOCs could move through the work space. The work plan shall establish means for controlling migration of fugitive emissions to adjacent work areas. Such controls may include:
  - a. Relocating VOC sources or VOC usage
  - b. Protection of air conveyance systems (e.g., heating, ventilating, and air-conditioning [HVAC] equipment)
  - c. Use of barriers (e.g., polyethylene containments),
  - d. Negative pressurization
  - e. Air cleaning
  - f. Local exhaust ventilation
  - g. Dilution ventilation
4. The SSSR and other Contractor and subcontractor safety personnel, superintendents, and crew leaders shall continuously survey and monitor the worksite for unapproved chemical use, unusual odors, worker signs of overexposure to volatile organic chemicals, or concerns from co-workers regarding VOCs.
5. The CWP shall also include a list emergency response measures the Contractor or subcontractor plan on following to respond to exposure incidents involving VOCs.

#### E. Responding to Incidents Involving VOCs

1. In the event that concern is raised among construction personnel regarding VOC exposure, Contractors and subcontractors shall immediately respond (within two hours) by identifying the source and potential exposures to affected personnel and work areas.
2. In responding to exposure concerns, Contractors and subcontractors shall identify and evaluate the source of VOC exposure, including identifying the source product or process and reviewing product constituents.
3. Contractors and subcontractors shall estimate the severity of exposure by analyzing the toxicity of product constituents, their likely volatility, volume and rate of product use, and the known space and ventilation configurations. To appropriately estimate exposure severity, Contractors may need to consult their safety personnel or a board-Certified Industrial Hygienist.
4. Contractors and subcontractors shall estimate likely worker exposures to VOCs by reviewing past industrial hygiene exposure data. Where no exposure data exists, Contractors and subcontractors shall collect industrial hygiene exposure data using approved methods.
5. Where industrial hygiene exposure data is not available or monitoring results are not immediately available, Contractors and subcontractors shall collect themselves or utilize a Certified Industrial Hygienist (CIH) to collect real-time direct-reading breathing zone measurements using a calibrated photo-ionization detector (PID) or flame ionization detector (FID). Equipment readings above background concentrations may need interpretation by a CIH and may require respiratory protection, ventilation, or a suspension of work activities.
6. PID or FID readings shall be used in combination with known instrument response factors to determine likely airborne VOC concentrations. Measured VOC concentrations shall be compared to applicable DOSH and/or Fed/OSHA permissible exposure limits to determine whether overexposures have occurred or may occur.
7. Where instrument response factors are not known and the presence of acutely toxic and/or carcinogenic VOCs (e.g., benzene, phosgene, methylene chloride, or isocyanates) can be ruled out, a general PID/FID measurement rule of thumb below may apply:
  - a. Less than 5 ppm – Continue to monitor, respiratory protection not required
  - b. Less than 10 ppm – Ventilate area, continue to monitor, respiratory protection not required
  - c. Less than 25 ppm – Half-face respirators with organic vapor cartridges must be worn, in addition to above requirements
  - d. 25 - 100 ppm – Full-face respirators with organic vapor cartridges must be worn with additional dermal protection, in addition to above requirements

- e. More than 100 ppm – Stop work and evaluate exposures and engineering controls
- 8. The Contractor or subcontractor shall immediately (within 24 hours) report all incident data, including affected personnel, employers, product information, exposure data, personal protective equipment, and engineering controls used during an incident response to the CSM, the RE, and their agent(s).

## 6.15 PERSONAL PROTECTIVE EQUIPMENT

This section establishes the minimum requirements of personal protective equipment to be used. Only equipment complying with DOSH Safety Orders and/or Fed/OSHA Safety Standards shall be used. All Contractors shall be responsible for compliance by their employees. The SSSR shall make regular field inspections to ensure compliance.

### A. Head Protection

Hard hats shall be mandatory. Hard hats shall meet the requirements of ANSI Z89.1 or ANSI Z89.2, as appropriate, as specified by DOSH and/or Fed/OSHA. Metallic (metal) hard hats shall not be worn on any work under a Sound Transit contract. Both the employee's name and the Contractor's name shall clearly appear on the hard hat.

### B. Eye Protection

Contractor employees shall be provided with, and be required to wear, eye protection when the tools or operations involved create potential eye hazards resulting from physical, chemical, or radiation agents. Eye and face protection shall meet the requirements of ANSI Z87.1 as specified by DOSH and/or Fed/OSHA.

### C. Respiratory Protection

Respiratory protection devices approved by the National Institute of Occupational Safety and Health (NIOSH) shall be supplied by the Contractor and worn by all employees (as required by DOSH and/or OSHA regulations) when exposed to hazardous concentrations of toxic or noxious dust, fumes, or mists.

Where respiratory protection is required, the Contractor shall have a written respiratory protection program in accordance with applicable DOSH and/or Fed/OSHA standards.

#### D. Hearing Protection

Approved hearing protection shall be made available by Contractors, and such protection shall be worn by all employees exposed to sound levels in excess of DOSH's and/or Fed/OSHA's permissible exposure limits (PEL).

#### E. Fall Restraint Protection

Class III Full Body Harness meeting DOSH and/or Fed/OSHA safety standards shall be made available by the Contractor and shall be worn by all employees exposed to falls from an unprotected height of four feet or more. The use of the fall restraint protection will conform to the requirements of the applicable safety standards. A fall protection work plan must be completed when rules apply, and available for inspection by the RE and Sound Transit.

#### F. Safety Shoes

While the Contractor may not be responsible for furnishing safety shoes to its employees, the Contractor is required to ensure that its employees wear suitable work shoes while on the project. Sneaker, deck shoes, sandals, and opened-toed shoes are not permitted on the job.

#### G. Suitable Clothing

All Contractor employees will be required to wear full-length pants, free of holes, and made of durable material. An employee will not be permitted to wear clothing that has been saturated by gasoline, diesel fuel, oil, or any other flammable or combustible substance. Polyester clothing is not allowed.

An employee's shirt must completely cover his/her shoulders as well as his/her entire mid-section to the waist. Tank tops and fish-net-type shirts are not allowed. The minimum shirt allowed will be a standard T-shirt.

#### H. Reflective Apparel

Reflective apparel will be worn as required by DOSH, Fed/OSHA, MUTCD and WSDOT. Type 3 apparel may be required on roadways for all personnel.

#### I. Other Personal Protective Equipment

Other personal protective equipment to be used under unusual circumstances, such as high-temperature work, handling corrosive liquids, or other activities not specifically covered in this section shall be reviewed with the CSM.

J. Gloves

Gloves appropriate to the hazard/task will be worn. Tasks are only to be performed without gloves where safety is compromised by glove-use or fine finger manipulation is needed to accomplish the activity.

K. Maintenance

Personal protective equipment that has been altered in any manner so as to reduce its effectiveness shall be repossessed, and then repaired or destroyed. Personal protective equipment which has been worn or used previously shall not be reissued to another employee until the article has been cleaned and sterilized.

## 6.16 FIRE PREVENTION/FIRE PROTECTION

Fire prevention/fire protection is of special importance during construction. There are considerably more hazards present during construction than *will* be present in the completed facility. Constant attention to the fundamentals of fire prevention/fire protection is vital.

The Contractor shall comply with the recommendations of the National Fire Protection Association and applicable local rules, ordinances, and regulations of DOSH and/or Fed/OSHA regulations.

The SSSR shall make fire hazard inspections of the entire site on a regular basis. Immediate correction of substandard conditions is mandatory.

The Contractor's attention is particularly directed to the requirements of WAC 296-155-265, WAC 296-155-400, WAC 296-155-405, WAC 296-155-404, and WAC 296-155-410.

## 6.17 CRANE-SUSPENDED WORK PLATFORMS

The use of crane-suspended work platforms shall be permitted on the Link Light Rail Project only when permitted by the applicable safety and security regulations. The Contractor's attention is particularly directed to WAC 296-155 Part L. The Contractor must request and receive permission from Sound Transit prior to use of a crane-suspended work platform.

#### A. Request Procedure

1. Requests for use of a crane-suspended work platform shall be submitted to the RE for review and comment with the following:
  - a. A statement of why conditions, methods, or operations require the use of a crane-suspended work platform;
  - b. A description of the crane to be used and the manufacturer's requirements in the use of the crane to suspend a personnel work platform;
  - c. Certification, by letter, that the work platform and other components, including hardware, have been designed and/or reviewed by a qualified registered civil, mechanical, or structural engineer; and
  - d. Documented emergency plan in the event of a crane failure.
2. The Contractor shall notify the RE in writing prior to putting the crane and work platform into service, stating that it has complied with the entire crane and work platform requirements.
3. Copies of the last annual crane inspection report and the latest monthly crane inspection report shall be submitted to the RE.
4. The Contractor shall ensure that daily inspections of the crane are made and that the RE receives copies of the daily crane inspection reports.
5. When a crane and work platform is to be used, the Contractor shall be responsible for ensuring compliance with the most stringent regulations governing the use of a crane-suspended work platform.
6. The Contractor shall comply with the crane manufacturer's recommendations and requirements in the selection and use of a crane for suspending personnel on a work platform.

#### **6.18 POLE-CLIMBING SPIKES**

Pole-climbing spikes are not considered a normal tool of the trade in the construction industry. The use of pole climbing spikes must be reviewed with the CSM and approved by the CSM for a specific activity prior to use.

#### **6.19 INACTIVE RAIL / ON-TRACK EQUIPMENT**

Contractor shall ensure the safe operation of all on-track equipment during construction operations. This procedure outlines minimum requirements by which all on-track equipment shall be operated during the construction of the Link Light Rail Program.

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- A. The Contractor shall obtain approval from Sound Transit on the type of equipment to be used on the tracks (i.e., axle load, wheel base, wheel profile, etc.) by submitting the request in advance as directed by the RE.
  - B. The movement of on-track equipment shall be coordinated with the RE's inspectors and other concerned individuals as to the following:
    - 1. Limits of work area;
    - 2. Interface with other contracts; and
    - 3. Inspection hi-rail trips, etc.
  - C. The supervisor or foreman shall make sure the travel route is clear prior to authorizing the movement of on-track equipment.
  - D. The supervisor or foreman shall contact other supervisors or foremen in the vicinity of the proposed work regarding the track outage prior to rendering a section of track impassable. Flaggers shall be posted.
  - E. On-track equipment shall not be operated without the authorization of the supervisor or foreman.
  - F. No employee shall ascend or descend equipment which is in motion.
  - G. The on-track equipment shall be operated at a safe speed not to exceed twenty-five miles per hour and be able to stop safely within half the distance of the operator's line of sight.
  - H. The speed of on-track equipment at switches and crossings shall not exceed four miles per hour.
  - I. When approaching individuals on or near the track, the on-track equipment shall be slowed to five miles per hour. The operator shall sound a warning bell/horn as he/she approaches individuals on or near the track. The speed of the equipment shall not exceed five miles per hour until it is safely past the individuals.
  - J. Before starting any work on or near the rail tracks, a flagger shall be posted by the Contractor performing the work at least one hundred feet in each direction along the track to warn oncoming equipment to slow down.
  - K. The foreman shall make sure that each flagger has been instructed in proper flagging procedures, and is reliable and competent.
  - L. The flagger shall be stationed in such a manner so that he/she is visible to oncoming equipment.

- M. The flagger shall be equipped with the following:
1. A paddle with "slow" on one side and "stop" on the other side;
  2. A horn;
  3. An orange vest;
  4. A radio; and
  5. An orange flag.
- N. When approaching a flagger waving an orange flag in a horizontal (side to side) motion, the equipment operator shall stop the equipment and receive instructions from the flagger prior to proceeding.
- O. A flagger shall be stationed at all intersections where vehicular and/or pedestrian traffic might cross. The flagger shall ensure a clear crossing.
- P. When working in the vicinity of any rail tracks, employees must be alert at all times to the movement of the on-track equipment. This equipment may be located on either track and be moving in either direction. Treat all rail tracks as active.

## 6.20 ACTIVE RAIL LINE SAFETY & SECURITY

- A. Contractor shall ensure safe operations and construction procedures are followed during construction activities on or near active rail lines. At a minimum, Contractor shall ensure that:
1. All personnel who may be within fifteen feet of any rail system shall receive a minimum of one hour safety and security training and must possess a special identification badge or a hard hat decal.
  2. Employees shall not cross tracks immediately after a rail vehicle or train has passed, but shall wait until adjacent tracks can be observed for a safe distance in both directions before crossing.
  3. Employees shall not cross tracks directly in front of or behind rail equipment or a train that has just stopped, but shall cross at least ten feet in front of or behind the standing train or rail equipment.
  4. Employees shall not step, stand, sit, or walk on any part of the track way unless it is necessary in the performance of their work. When required to perform duties in the track areas, walking on or crossing the tracks must be on the cross-ties and ballast only.
  5. Rail vehicle and train movement shall be anticipated at any time from any direction. Employees shall be trained to look in each direction prior to entering trackway area.

6. When working at a stationary location, a flagger must be posted to warn on-coming rail equipment, trains, or other vehicles to slow down or stop.
7. Before permitting employees to be on the track, the foreman in charge of the work crew shall instruct all crew members as to where each person will go when it is necessary to clear the track for rail vehicle or train movement. All crew members shall clear the track on the same side.
8. Walking or stepping on rails, switches, guardrails, interlocking machinery, or movable connections is prohibited.
9. All employees working on or near the tracks shall wear orange reflective traffic vests.
10. All air hoses, electrical cords, and other similar equipment shall be kept clear of the track(s). If such equipment must be placed across any track, it shall be run under the rail.
11. All vehicles shall be kept at least fifteen feet away from any active track.
12. Personnel shall not work within ten feet of any active track without authorization.
13. All overhead wires shall be considered energized at all times.
14. Employees shall not touch dangling wires or foreign objects hanging from such wires nor attempt to move them by any means. They shall report their location immediately to their supervisor and shall, if possible, leave someone to protect such wires or foreign objects until removal by a qualified employee. Other persons in danger must be warned.
15. Loose or broken impedance bond connections in the tracks shall be regarded as energized and reported immediately to the supervisor in charge.
16. When an overhead wire failure occurs that may obstruct tracks, the immediate supervisor shall be notified at once. All personnel in the area shall be protected from the potential danger.
17. Employees must not walk along track with back to trains, but always face traffic if possible and take an occasional look back. Supervisors shall check the work area for safe locations to go to when tracks must be cleared, and inform all workers as to these locations.
18. Employees shall avoid crossing tracks near or at switch points or crossovers. Employees shall never step on moving parts of switch points, turnouts, or crossovers, but always walk on ties, invert, or walkways.
19. Personnel shall not jump off platforms to gain access to tracks. Use ladders or platform stairs.
20. All tools used on work on or near electrical equipment or circuits shall be adequately insulated. Fuse pullers shall be used for removing and replacing fuses. Electrical equipment and circuits shall be de-energized before any work is done.

21. Only dry cloth or fiberglass measuring tapes may be used in the vicinity of electric lights/power wires in the proximity of operating tracks. Dry cloth tapes must not contain metallic threads.
22. Personnel will carry tools in a non-metallic canvas bags or carryall wooden boxes.
23. The overhead wire is charged with 1500 volts, and must be treated as hot at all times.

### **6.21 AERIAL LIFTS**

- A. Aerial lifts mounted on the beds of trucks shall be installed by an authorized manufacturer.
- B. Personnel who operate the aerial lifts shall be trained by the manufacturer in the safe operation of the lift.
- C. All personnel shall wear and use personal fall arrest systems in accordance with the applicable safety regulations while on the lift.
- D. Aerial lifts shall only be used within the guidelines of the manufacturer.

### **6.22 NOISE CONTROL**

In addition to noise control requirements contained in the Contract Documents, the Contractor shall comply with all federal, state, local, or other jurisdictions' laws, rules, and regulations, regarding noise abatement, curfews, and other related issues.

### **6.23 LASERS**

- A. Only qualified and trained personnel shall be assigned to install, adjust, and operate laser equipment.
- B. Personnel shall wear proper eye protection where there is a potential exposure to laser light greater than 0.005 watts (5 milliwatts).
- C. Lasers shall be located and targeted at levels above the workers' sight, when possible.
- D. Beam shutters or caps shall be utilized, or the laser turned off, when laser transmission is not actually required.
- E. When the laser is left unattended for a substantial period of time, such as during lunch, overnight, or at changes of shifts, the laser shall be turned off.

- F. Signs warning all personnel of laser hazards shall be posted in the area(s) where lasers are being used.

#### **6.24 RADIOACTIVE MATERIAL**

- A. In the use, handling, or possession of radioactive material, the Contractor shall abide by regulations governing the use of radioactive material. The Contractor's attention is particularly directed to WAC 246-220 through WAC 246-254.

#### **6.25 HAZARDOUS SUBSTANCES**

- A. The Contractor will comply with the requirements of the Contract Documents and WAC 296-62, General Occupational Health Standard, and any other applicable rules and/or regulations.
- B. Each Contractor working on the Link Light Rail Program is required to provide the RE with a list of hazardous substances and copies of the MSDS that they will be using in their work-site operations. Contractors are required to provide a copy of their training program to the RE for review. See Appendix C, Sample Hazard Communication Program. The RE shall provide a copy of both to the CSM.
- C. Contractor shall ensure that all employee training required by applicable laws and regulations is conducted, including requirements contained in DOSH WAC 296-24 and WAC 296-62 and Fed OSHA Safety and Health standards 1926.59.

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## 6.26 ENVIRONMENTAL PROTECTION

No Contractor shall emit or discharge any substance into the environment in violation of the Environmental Protection Agency (EPA), Puget Sound Air Pollution Control Agency (PSAPCA), and Regional Water Quality Control Board, DOSH or other regulatory agencies. The SSSR shall be responsible for monitoring Contractor compliance with all environmental requirements, including all required environmental monitoring and testing. Where an incidental discharge occurs, in addition to any actions required by applicable laws or regulations, the following steps shall be implemented:

A. Immediate steps to minimize the discharge and resultant environmental impact.

B. Contact:

Sound Transit Safety, Security and QA (SSQA)  
Sound Transit

CSM(CSM)  
Link Light Rail - Sound Transit

Puget Sound Air Pollution Control Agency  
110 Union St., Suite 500  
Seattle, Washington 98101  
(206) 343-8800  
(800) 552-3565

Department of Emergency Management  
(800) 258-5990  
(24-hr hotline; they notify Department of Ecology and others as needed)

## 6.27 FUEL TRUCKS AND FUELING OPERATIONS

Fuel trucks and fueling operations shall conform to all applicable rules, regulations, and permit requirements.

## 6.28 WOODEN STREET DECKING

A. All wooden street decking timbers shall be sized as required by the application, but in no case shall they be less than 12 x 12 inch timbers.

B. Decking mats shall be closely fitted together to prevent cracks between the mats.

C. Hooks for lifting and placing the deck mats and other rigging hardware shall have a factor of safety in accordance with the industry standard and be capable of lifting at least five times the deck mat weight.

- D. When deck mats must be removed for any reason, the Contractor shall place standard guardrail with toe boards around the mat(s) to be removed prior to removal. If guardrails cannot be installed then all personnel working within five feet of the deck opening shall wear and be securely tied off with a Class III Full Body Harness and lanyard.
- E. All deck mat lifting eye holes and cracks shall be covered with a suitable material, such as, but not limited to, thin sheet metal to prevent objects from falling through and to prevent pedestrians from stepping into the holes or cracks. In pedestrian walkways, material used to cover the holes and cracks shall be kept flush to prevent tripping.
- F. The wooden street decking shall be coated with a non-skid material and continually maintained.

## 6.29 FALSEWORK AND VERTICAL SHORING

The initial working drawings and design calculations shall be submitted as specified in the Contract Specifications.

- A. Where wood shores are bun-spliced, they will be made with square joints and secured on four sides with not less than 2 inch material or 5/8 inch plywood of the same width as the post. The scabs shall extend at least two feet beyond the joint.
- B. If metal shore clamps are used, they shall be installed according to manufacturer's specifications.
- C. Standard railing shall be installed and maintained at all perimeters, floor openings, and sides of bridge decking at all times.
- D. Falsework design and erection shall conform to DOSH and Federal OSHA rules and regulations and the Contract Specifications.
- E. Protective sheeting or netting to prevent debris from falling shall be installed along railing where falsework spans a public street or pedestrian walkway.
- F. Material and debris shall not be allowed to accumulate along the soffit walls or the wing walls. At no time shall material or debris be stored at any ladder or stair lower landing.
- G. Proper walkways shall be constructed across wing walls.
- H. Prior to demolition or stripping of falsework, a CWP and JHA must be submitted to the RE describing how the Contractor intends to perform the work safely and in compliance with the Contract Specifications.

### **6.30 SAFE ACCESS**

The Contractor shall provide a safe means of access to all work areas. These access ways consist of ladders, scaffolds, doorways, aisle-ways, and elevators, and shall not be blocked by materials or debris.

### **6.31 CONFINED SPACE ENTRY PROCEDURE**

Comply with the requirements stated in DOSH Rule 296-809, and all applicable Fed/OSHA, and local rules and regulations.

### **6.32 TUNNELS AND UNDERGROUND STATION CONSTRUCTION**

All Contractors and subcontractors constructing tunnels, underground stations, and underground chambers for the Link Light Rail Program shall comply with all applicable legal requirements, including the DOSH and Federal/OSHA Tunnel Safety Standards and the requirements manual and the Contract Documents. Underground station construction and excavation, including those using top-down building methods and not involving tunnel boring operations, are considered underground work and are confined spaces but are not classified as tunneling. The contractor will maintain a job site that is organized, free of debris, and kept free of standing water and mud.

Records of gas tests and airflow measurements and other tests or inspections shall be maintained on the surface by the SSSR and/or the gas tester, and shall be made available on request to the RE, Sound Transit, DOSH, and Fed/OSHA.

#### **A. Transportation and Haulage**

1. All locomotives shall be equipped with lights, front and rear; an audible warning device (horn, bell or siren); a fire extinguisher; and self-rescuers.
2. Trains shall not be operated at a speed which will endanger any employee.
3. Locomotives and cars shall be equipped with automatic couplings and safety chains. These devices shall be fastened and checked before cars are moved.
4. All trains shall slow down to five miles per hour or less when anyone is alongside the track or when passing over switches.
5. Rails will be kept free of mud, water and debris at all times.

If conveyor are used for debris removal for tunneling operations, a person must be identified, with limited additional responsibilities, as responsible for maintenance. Failure to properly maintain conveyors for debris removal, resulting in debris spillage, may result in a Stop-Work Order. In the event of a Stop-Work Order, the Contractor shall be solely responsible for any impact to Contract Price and/or the Contract Time.

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7. Conveyor maintenance records that include work performed and parts replaced must be kept and available for audit and inspection at the request of the RE or Sound Transit.

#### B. Hoisting and Shafts

1. Personnel shall not be hoisted by crane in or out of the shafts except in the case of an emergency and then only in an approved man-cage or basket stretcher. This also applies to cut-and-cover work.
2. The top lander shall warn employees in the shaft, by the use of an air horn, of loads to be lowered into the shaft prior to the load being placed over the shaft.
3. Material hoisting, into and out of a shaft, shall be done by using appropriate hand signals or other approved communications systems such as voice communication with radios and voice-activated headset.
4. The top lander shall stand at the top of the shaft where he/she can see all vertical movement of the line and material being hoisted.
5. A dedicated personnel hoist/elevator, in addition to access/egress stairs, will be provided for station excavations and TBM staging excavations where the depth of the excavation exceeds 60 feet.

#### C. Check-In/Check-Out System and Visitors

1. A check-in/check-out system for personnel entering the underground work area shall be established to identify all personnel.
2. Visitors must report to the Contractor's or RE's field office and complete the Visitor Release and Hold-Harmless Agreement before going on-site or entering the shaft or tunnel. The ConSM, SSSR or a designated Contractor's representative shall give each visitor a brief safety and security talk on the safety and security requirements of tunnel operations and supply any necessary safety equipment with proper instruction. Prior to leaving the site visitors will sign-out.
3. Visitors shall be accompanied by the ConSM, SSSR, a designated Contractors representative, or the RE.

#### D. Tunnel-Driving Equipment

- (1) Only qualified and properly trained personnel shall be permitted to operate tunnel-driving equipment.
  1. The contractor will provide a training program specific to each piece of equipment that is approved or presented by the manufacturer.
  2. Training records must be submitted to the RE. Annual refresher trainings are required for all underground equipment operators.
  3. Tunneling locomotive operators must be specifically identified and trained before work begins.

4. The tunnel-driving equipment/tunnel-boring machine (TBM) shall be equipped with a gas detection system in accordance with DOSH/Fed OSHA requirements. The gas detection system shall be in working order at all times and shall be tested at least twice each week. Test records shall be kept by the Contractor and be made available to Sound Transit upon request.
5. The TBM gas detection system must transmit to remote monitoring locations available to the ConSM or the RE and CSM offices.
6. The TBM gas detection system will, at a minimum, monitor for oxygen, methane, carbon monoxide, hydrogen sulfide, nitrogen oxides, and aldehydes. No operations will be allowed to occur if any gas monitor is not calibrated and functioning. Spare monitors must be on-hand and calibrated according to manufacturer instructions.
7. Ventilation must be provided through a hard-line system, with intermediate booster fans, if necessary, to provide 90 ft/min of fresh air into the Heading. Main fans will include double mufflers to minimize noise.

#### E. Communications

An underground telephone communication system shall be installed in accordance with DOSH/Fed OSHA requirements.

Underground phones shall be located at, but not be limited to, the following:

1. Heading/working face
2. Bottom and top of shaft(s)
3. First-aid station
4. Contractor's office
5. At intervals not to exceed 1000 feet in tunnels

#### F. Walkways and Access

1. A clear, unobstructed walkway with adequate lighting shall be maintained throughout the tunnel.
2. The railhead will be kept clear of water and muck.
3. Roads and walkways in the Contractor's yard and buildings shall be kept clear of obstructions and materials.
4. All floors and walkways shall be maintained in good condition. Loose or broken components shall be repaired or replaced. Secure footing shall be ensured on all floors and walkways.
5. Pedestrian platforms in the tunnel must be kept clear to provide a safe area for workers when a locomotive is present.

#### G. Rescue Crew and Self-Contained Self-Rescuer (SCSR)

1. All personnel entering a tunnel shall be instructed in the use of, and provided, a self-contained, self-rescuer, when hired and periodically thereafter.
2. All self-rescuers shall be inspected at least once each month by the Safety and Security Representative to verify the operational status of these units. Any unsatisfactory unit will be replaced. The results of the inspection shall be recorded and kept on file in the Contractor's office and be made available to Sound Transit upon request.
3. The City of Seattle Fire Department will provide (at the Contractor's expense and which should be included in the Contract Price) the trained rescue crews for the tunnel construction within the City of Seattle unless the Contractor specifies in its bid that tunnel rescue will be performed by a different entity.

If any other entity performs tunnel rescue, a Tunnel Rescue Plan must be submitted for review and acceptance by ST SSQA before any physical work may begin. At a minimum, all members of Tunnel Rescue Teams for entities other than Seattle Fire Department, must have completed 120 hours of tunnel safety and rescue training, of which at least half consists of hands-on training. The Tunnel Rescue Plan will be subject to monthly audit by Sound Transit or its representatives. Audited items will include items required by all pertinent standard and regulatory entities, which include but are not limited to: OSHA, DOSH, MSHA, NFPA, ANSI and municipal codes. The plan will comply with all DOSH and MSHA requirements in addition to the following:

- a. Monthly drills simulating tunnel rescue must be conducted in coordination with the RE and the Link CSM. A report detailing findings from each drill will be prepared for review and submitted the RE, who will provide a copy to the CSM.
- b. The RE or CSM may stop work at any time if the tunnel rescue teams cannot demonstrate proficiency, and in such events all impacts to the Contract Price and/or Contract Time shall be the sole responsibility of the Contractor. If the Contractor has three deficient drills or three deficient audits during the contract period, and if requested by the CSM, Contractor shall contract directly with the City of Seattle Fire Department for all remaining tunnel rescue operations. Because such reassignment shall be as a result of deficient performance by the Contractor, all additional costs associated with this re-assignment of duties shall be borne solely by the Contractor.

#### H. Compressed Air Work

1. Where tunnel work is carried out under air pressure in excess of normal atmospheric pressure, the DOSH Compressed Air Safety Requirements, WAC 296-155-745 and WAC 296-36 shall apply and take precedence over any tunnel safety requirements that are in conflict.
2. Contractors are responsible for developing procedures for compressed air work and obtaining any necessary approval or variances from the Washington Department of Labor and Industries if WAC requirements are not specifically

defined for encountered conditions. These procedures should be addressed in the bid-phase;

3. The Contractor is responsible for any and all costs associated with compressed air work and safety requirements.
4. A dedicated decompression chamber will be available for tunnel workers. Specific requirements of the project work may require multiple decompression chambers, including rescue chambers, mobile chambers and on-site medical decompression facilities. Contractors performing tunneling operations will include all necessary chambers, equipment and personnel which include, but are not limited to a nurse or physician on-site when compressed air work occurs, a mobile decompression chamber immediately available to transport workers out of the tunnel, rescue chambers, and on-site medical decompression facilities.

I. Safety and Security Training Requirements for Gassy Classified Tunnels

For all employees working in a tunnel classified as "gassy" by DOSH/Fed OSHA standards, the Contractor shall provide not less than six hours of tunnel safety and security training. This training shall be completed within ten days after the employee starts work. A Certificate of Completion issued by the Contractor and a special numbered hard hat decal provided by Sound Transit shall be issued to those successfully completing this course. This program shall be acceptable by U.S. Department of Labor, Mine Safety and Health Administration, or DOSH/Fed OSHA.

A written list of employees completing this training shall be submitted to the RE. The list shall include employee name, craft, and date of completion.

A person who holds a Certificate of Completion of an approved safety course in gassy tunnel operations within the prior 12 months shall not be required to take this training program, but shall be required to take a four-hour refresher course within 24 months of the certificate date and every 24 months thereafter. The six-hour tunnel safety and security training program shall include, but not be limited to, the following subjects:

1. Mine Gases - Explosive and toxic effects, means of detection, identification, analysis, and legal requirements of each gas found in the tunnel atmosphere and methods used to control tunnel gases.
2. Personal Protective Equipment - Various devices used, why they are needed, where they are needed, and how to use and care for the equipment.
3. Construction methods and equipment for the specific project.
4. Fire Safety - Procedures to prevent fires and protect life and property when fires do occur. Location of fire extinguishers and how to use.
5. First-Aid - Specific measures to control a variety of injuries and disorders. Basic CPR (Cardio-Pulmonary Resuscitation) and methods to stop bleeding and control shock.

6. Tunnel Incident Prevention -Introduction to the causes and prevention of tunnel incidents.
  7. Tunnel Rescue and Emergency Training - Show in a step-by-step manner, the proper use of breathing apparatus.
  8. Site-Specific Emergency Evacuation Procedures
  9. Check-in/Check-out Procedures.
  10. Use of Self-Rescuer.
- J. Pre-Construction Meetings
1. A pre-construction safety and security meeting shall be conducted by the Sound Transit CSM before work may start on any tunnel or underground station. Required attendees are the RE, CSM, ST Chief Safety Officer, the OCIP risk manager, the insurance company loss control consultant, the Contractor project manager, the Contractor's superintendent, ConSM and the SSSR.
  2. The meeting will address the following:
    - a. General contractual safety, security, health, and environmental requirements and responsibilities.
    - b. Roles of the RE, the CSM, the OCIP administrator, insurance carriers, and other personnel at Sound Transit.
    - c. Incident reporting requirements.
- K. Illumination
1. Offices, workrooms, stairways, corridors, passageways, construction roads, working areas and tunnels shall be adequately lighted while work is in progress or when needed to protect the general public and construction personnel from construction hazards. Minimum foot-candles required for lighting are 10 foot-candles for indoor work areas and five (5) foot-candles for outdoor work areas. Average lighting required is 20 foot-candles for indoor work areas and 10 foot-candles for outdoor work areas.
  2. All lighting in compressed air chambers shall comply with applicable codes and requirements, including Washington Administrative Code.
  3. Each tunnel worker shall have portable, permissible hand or cap lamp wherever natural light is inadequate or no emergency lighting exists.
  4. All wiring shall comply with the latest edition of the National Electrical Code, DOSH, federal, state, and local regulations and requirements, where applicable.
- L. Additional Required Contractor Safety and Security Inspections

1. A daily inspection of all underground work areas shall be made by the Contractor safety, security representative. Inspection reports shall be prepared and kept on file for review by the RE's staff, CSM and other Sound Transit personnel, the OCIP administrator, and DOSH and Fed/OSHA.
2. The Contractor shall designate a Qualified Person to perform weekly inspections of track fasteners, fish plates, switches, de-railers, bumpers, etc., to ensure that these are maintained in a condition to prevent incidents. Any defects or deficiencies will be corrected in a timely manner.
3. The muck and water levels in the tunnel shall always be below the rail head.
4. The crane, hoist or elevator operator shall inspect and record the daily inspection of all hoisting machinery or equipment and related safety appliances. Any hazard noted shall be corrected immediately and so documented.
5. The locomotive operator shall perform and document a pre-shift inspection of the locomotive and associated equipment. Any hazard noted shall be corrected and documented immediately.

#### M. Gas Tester

1. In "gassy" classified tunnels, underground stations, or underground chambers, the Contractor shall employ a Competent Person on each work shift whose sole duty is gas testing. The gas tester shall be under the direct supervision of the SSSR.
2. The gas tester through the SSSR shall have the authority to stop work and remove employees from the work area when gas or toxic levels reach a dangerous level as defined by the applicable safety regulations.

## **7.0 INCIDENT INVESTIGATION, REPORTING & RECORDKEEPING**

### **7.1 PURPOSE AND SCOPE**

This section establishes requirements for thorough investigation of all incidents involving occupational illness or injury to any Contractor's or third-party personnel, and for the timely reporting of same. Incidents causing significant physical damage shall also be investigated and reported.

Contractor shall comply with all applicable laws and regulations related to workplace illnesses and injuries, including but not limited to DOSH and Federal OSHA statutory recordkeeping requirements. In addition, Contractor shall also adhere to the following Sound Transit incident investigation and reporting requirements.

### **7.2 INVESTIGATION AND CORRECTIVE ACTION**

Contractor shall notify the RE immediately, who will notify the CSM, of all occupational injuries or illnesses and, within 24 hours, submit a copy of the Employers First Report, supervisor's incident investigation, medical release form, and physician report. These documents assist the CSM staff in determining injury or illness trends, and verification that all work-related injuries and illnesses are properly recorded.

The Contractor shall investigate all incidents thoroughly without delay. The investigation is coordinated with emergency services, the RE, and the CSM and CSM as well as insurance personnel, to assure a comprehensive approach. A root cause analysis shall be completed by the Contractor with participation from Sound Transit to determine the causes or contributing factors of incidents or incidents. A Contractor may use a corporate root cause analysis format or use the information on the basics of a root cause analysis presented in Appendix D. The investigation should generate appropriate recommendations for corrective actions to prevent recurrence of similar incidents.

Corrective actions can only be taken when specific factors of an incident have been accurately determined and the resulting recommendations have been disseminated to the responsible persons.

In the event of a serious incident, prompt oral reporting of the preliminary details is mandatory. See Section 7.3.3 for required telephone reports. Serious injuries are defined as those injuries that are immediately life threatening, those that require hospitalization for any period of time, or those injuries that result in time lost from work as prescribed by a physician. A root cause analysis will be performed on all incidents.

In preparing written reports of an incident, statements and comments should be confined to objective finding of facts.

The Contractor's incident report, project records, progress reports and daily time reports may become important evidential material in any ensuing legal action. Accordingly, for the date on which a potential third-party incident has occurred, it is important to be specific and accurate in describing work being performed, crew and equipment being utilized, and their exact location.

## 7.3 REPORTING REQUIREMENTS

### 7.3.1 Forms

Sound Transit's recordkeeping policy is presented in Appendix B. Forms 4-1 and 7-1, show administrative instruction and report forms to be used by the Contractor and subcontractors for the following required reports:

- Construction Safety and Security Survey (Figure 4-1)
- Supervisor's Incident Investigation Report (Figure 7-1)
- Monthly Injury/Illnesses Statistics Form (Figure 1-2)

### 7.3.2 Photographs

The Contractor shall take photographs in conjunction with investigations of incidents involving serious personal injury, all third-party personnel injuries, substantial property damage (including motor vehicle), equipment or material failure, and all incidents that may, even remotely, involve third-party action.

Photographs shall be sufficient in number to show the general area as well as pertinent details from a variety of angles. It is better to take too many photographs than not enough. Photographs should be taken as soon as possible following the incident.

Photographs used in reports shall be identified as follows: name of injured (if equipment damage, type; if property damage, location); date of incident; photographer's initial, and time photographs taken (date if different from occurrence); direction facing; and a brief description of photo.

### 7.3.3 Telephone Reports

Should a serious incident occur resulting in damage to public or Sound Transit property; or bodily injury to the public or employees of Sound Transit, its

consultants, Contractors, or their subcontractors, it shall be reported (after calling 911) immediately by phone to the RE, the Link CSM and/or the CSM, and Sound Transit Security Dispatch. The RE shall notify all others as outlined in the RE's Manual.

#### **7.4 RECORDKEEPING**

Complete records are necessary incident prevention tools; in addition, specific records are required by DOSH and/or Fed/OSHA. Failure to maintain these records is a citable offense. Appendix B of this document sets forth the Sound Transit recordkeeping requirements which incorporate DOSH and/or Fed/OSHA guidelines.

**EXHIBIT 7-1a**  
**SUPERVISOR'S INCIDENT INVESTIGATION REPORT**

SUPERVISOR'S INCIDENT INVESTIGATION REPORT	
CONTRACTOR:	_____
INCIDENT DATE:	_____ TIME: _____ CONTRACT NO: _____
INCIDENT LOCATION (SPECIFIC):	_____
INJURY/ILLNESS	_____ NEAR MISS _____ SECURITY BREACH _____ PROPERTY DAMAGE _____ 3 <sup>RD</sup> PARTY _____
WHAT HAPPENED? (Describe operation, activity, condition and how incident or loss occurred. Use separate sheet and diagram if necessary.):	_____ _____ _____
PRIMARY CAUSE (Condition or act that caused the incident.):	_____ _____ _____
Recommended correction action:	_____ _____
Equipment involved:	_____ #: _____
Employee involved:	_____
Employee Injury (Describe):	_____ _____
Medical Referral:	_____
Company Property Damage or Loss (Describe):	_____ _____
Property, Damage or Injury to Others (Describe):	_____ _____
Owner/injured (Name, address,* phone):	_____ _____
Witnesses (Name, address, phone):	_____ _____
Police Report?:	_____ Agency: _____ Photos?: _____ Taken by: _____
Foreman/Supervisor:	_____ Date: _____

ORIGINAL: Contractor's File

COPY: Sound Transit

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**EXHIBIT 7-1b**  
**INSTRUCTIONS: SUPERVISOR'S INCIDENT INVESTIGATION REPORT**

1. This form shall be submitted by the Contractor for each incident involving any of the following:
    - a. Injury to an employee of the Contractor or any subcontractor.
    - b. Any injury to persons not directly connected with the project (including all alleged injuries reported by a member of the general public.)
    - c. Incidents resulting in damage to public, private or commercial property (including all alleged property damages).
  2. Submittals shall be made within twenty-four hours of the incident. Pertinent facts not available within the above time shall be submitted in a supplemental report.
  3. This form shall be prepared by the Contractor and distributed in accordance with Appendix A: Summary of Construction Safety and Security Reports.
- 

Complete investigation of any incident, whether or not injury or damage is involved, is a vital part of effective incident prevention. The investigation is not complete until the causes and proper corrective actions are determined.

The investigation and this report must be completed by you immediately after any incident or incident relating to your job which involves:

- Personal injury to any of our employees or any other persons.
- Damage or loss to company property, materials or equipment
- Damage or loss to property of other
- "Near misses" - which could have involved any of the above

If property damage or personal injury to others is involved, do not assume any responsibility or obligate the company or Sound Transit in any way. Do not sign anything for anyone except your employer's representative. You should politely refer any question to your project manager.

In your investigation and preparation of this report give extra attention to the following areas:

**WHAT HAPPENED?**

- (a) This does not mean list the injuries or damages that resulted. It means explain the events which led to the injuries or damages.
- (b) Describe the work or activity involved, the conditions and what the people involved were doing.

- (c) Describe the tools, equipment or materials involved, their condition, and how they were involved.
- (d) Describe the unexpected event or occurrence which resulted in the injury, damage or loss.
- (e) If more space is needed or if a diagram will help your description, please attach another sheet.

**CAUSES**

Primary and Secondary - See Common Causes of Incidents

**CORRECTIVE ACTIONS**

Primary and Secondary

**LOCATION**

Specific place a job-site (street and city when applicable).

**PROPERTY DAMAGE OR INJURY TO OTHERS**

Describe the property, extent of damage or nature of injury. If vehicle is involved, show year and model.

**DESCRIBE PRACTICES OF EMPLOYEE:**

Safety equipment provided but not used. Personal protective equipment provided but not used, improper or unsafe tool or equipment used. Horseplay or practical jokes. Instructions or rules disregarded. Inattention. Inexperience. Physical condition of employee. Improper method of doing work. Action of another person. Improper clothing.

**UNSAFE EQUIPMENT OR MATERIALS:**

Ineffectively guarded equipment. Unguarded equipment. Defective materials. Defective tools. Defective equipment (not motor vehicles). Defective motor vehicle equipment. Improper type or poor design. Unsafe equipment or material of another contractor or a customer.

**UNSAFE CONDITIONS:**

Poor light. Poor ventilation. Congested area. Improper storage of materials. Exits or emergency escapes inadequate or not provided. Faulty layout of plant or facilities. Tools or equipment improperly stored. Poor housekeeping. Unsafe conditions caused by another contractor or a customer.

- ✓ Submit original and copy to the RE
- ✓ Retain copy for your records
- ✓ Use a Medical Referral slip for any injured employee who goes to a Doctor
- ✓ Keep your office advised

**APPENDIX A  
SUMMARY OF CONSTRUCTION SAFETY AND SECURITY REPORTS**

SUMMARY OF CONSTRUCTION SAFETY AND SECURITY REPORTS				
TITLE	EVENT(S) GENERATING REQUIRED REPORT	PREPARED BY	DIST	REMARKS
Report of Safety/Security Meeting	Recording of twice weekly tool box meeting	Supervisor/ Foreman holding meeting	(2)	Subcontractors may hold separate tool box meetings or attend Contractor's.
Construction Safety/Security Survey	Recording of safety or security hazards	Contractor	(2)	Filled out daily and submitted weekly by the Contractor's Safety/Security Representative
Monthly Safety and Security Tracking Summary Form	Monthly report	Contractor	(1)	Submitted each month, covering the previous month.
Job Hazard Analysis	Known safety hazards and all major construction operations	Contractor	(1)	Filled out and submitted based on nature of work before work is started.
Monthly Safety/Security Inspection Checklist	Monthly Safety/Security Inspection	Contractor	(2)	Filled out and submitted monthly by the Contractor's Site Safety/Security Representative
Crane Inspection Record & Wire Rope Inspection Record	Monthly report(s)	Contractor	(2)	Completed by Rigging Supervisor
Lock and Tag Form	Isolation of energy sources to protect personnel	Contractor	(4)	Accounts for all locks and tags issued for energy isolation.
Supervisor's Incident Investigation Report	Any safety, security, property damage or 3 <sup>rd</sup> party incident to Contractor/ subcontractor employee or the general public	Contractor	(3)	Report must be submitted within 24 hours of the event
Monthly Injury/Illness Report	Monthly	Contractor	(1)	Submitted each month, covering previous month
Confined Space Entry Permit	Confined space work	Contractor	(4)	Posted at job site during confined space work
Log & Summary of Occupational Injuries & Illnesses	Employee occupation injury or illness	Contractor	(2)	Contractor required to retain Form 300 and related records for 5 years
Distribution: (1) Contractor Link Construction Safety RE (2) Contractor RE (3) Insurer Contractor RE Sound Transit SSQA (4) Contractor				

## APPENDIX B

### SOUND TRANSIT RECORDKEEPING POLICY FOR OCCUPATIONAL INJURIES AND ILLNESSES

#### Introduction

The methods outlined in this procedure are in compliance with American National Standards Institute (ANSI) Standard Z.16 for recording and measuring work injury and illness experiences, independent of workers compensation laws and rulings, but compatible with the recordkeeping requirements of the Bureau of Labor Statistics and Occupational Safety and Health Administration (OSHA).

The fact that an employer or employee did not have control over the cause of a work-related (occupational) injury or illness shall not be a criterion for excluding the case from being recorded under the provisions of this procedure.

Thorough investigation of all factors relating to the occurrence of each reported work-related injury or illness is essential. Determination as to whether or not the case should be considered recordable under ANSI Standard Z.16 shall be based upon the evidence developed in such investigations. Unless there is a preponderance of evidence that the injury or illness did not result from the work activity or environment of employment, the injury or illness shall be considered a work-related case.

#### Purpose

The purpose of reporting occupational injuries and illnesses to Sound Transit and the RE is to provide an accurate and uniform method for recording, classifying, and reporting as a means of evaluating programs designed to control such injuries and illnesses and establishing training requirements for the project. This procedure will allow management to measure their safety and security program against others and implement incentive and award programs. This procedure is not intended to replace employers' OSHA responsibility for reporting work-related injuries and illnesses.

#### Scope

This procedure shall be followed by all Sound Transit staff, consultants, prime contractors, and subcontractors.

#### Definitions

1. Employee: Any person engaged in activities for, and receiving direct payment for services, from an employer associated with the Link Light Rail System.
2. Exposure or Employee Hours: The total number of hours worked by all employees direct billing to a project or contract including craft workers, clerical, administrative, and supervision. This shall also include all hours for any subcontractor, but NOT for

suppliers and vendors. Actual hours worked are to be used for calculating incidence rate, frequency rate, and severity measure. However, when actual hours cannot be accurately determined, estimated hours may be used. Employee hours shall be calculated as set forth below:

- a. Actual Exposure Hours: Employee hours of exposure for non-exempt employees are to be taken from certified payroll records and include only actual straight-time hours worked and actual overtime hours worked.
- b. Estimated Exposure Hours: When actual employee hours of exposure are not available, estimated hours may be used. Such estimated hours should be obtained by multiplying the total employee days worked for the period by the average number of hours worked per day. If the hours worked per day vary among departments or crews, a separate estimate should be made for each department or crew and these estimates added to obtain the total hours. Estimates for overtime hours should be included.

If employee hours are estimated, indicate the reason or basis upon which estimates are made.

- c. Exempt Employee: For executives, project management, supervisors, and other employees whose working hours are not defined, the employer shall use an average of 8 hours per day for computing exposure hours.
  - d. For Sound Transit, 75 percent of projects direct charge employees' hours as identified in the monthly labor report maintained by the accounting department shall be utilized in determining exposure hours.
3. Work Environment: The work environment is comprised of the physical location, equipment used, and kinds of operations performed by an employee in the performance of work associated with the Sound Transit Link Light Rail System, whether on or off the project premises.
  4. First-Aid Treatment: One-time treatment and subsequent observation of minor injuries that may include minor scratches, cuts, burns, splinters, etc., which do not ordinarily require medical treatment. Treatment and observation for this purpose are considered first-aid even though provided by a physician or registered professional personnel.
  5. Medical Treatment: All non-first-aid treatment of injuries administered by physicians, registered professional personnel, or lay persons. Medical treatment does not include first-aid treatment provided by a physician or registered professional personnel as previously defined.
  6. Diagnostic Procedures: Certain diagnostic procedures performed by medical personnel may be classified as first-aid, such as the following:
    - a. Hospitalization for observation is considered first-aid as long as no medical treatment was provided;

- b. Visits to a physician or nurse for observation only or for a routine change of dressing;
  - c. X-ray examinations where negative findings and no other medical treatment was performed; and
  - d. Physical examinations yielding no findings and not substantiating subjective complaints.
7. Preventive Procedures: Certain preventive procedures and treatments may be classified as medical treatment or first-aid treatment.

Tetanus shots or tetanus boosters are considered preventive and not considered medical treatment. However, a tetanus shot administered because of an injury shall be considered medical treatment and is recordable.

Prescription medication administered as a single dose is considered not recordable. When prescription medication is administered for more than a single dose, it is considered medical treatment and is recordable.

8. Work-Related Case: Any occupational injury suffered by an employee which results from a work incident or from an exposure involving a single incident in the work environment, and any illness caused by exposure to environmental factors associated with employment. Work environment is made up of the physical location, equipment and materials used, and kinds of operations performed by an employee in the performance of his work, whether on or off the employer's premises. Therefore, injuries or illnesses occurring in such places as an employee parking lot, lunchroom, restroom, or another office or location, and during rest or lunch periods can be work-related. Whether any case is work-related will be determined by the employer.
9. Recordable Case: Any work-related injury case requiring more than first-aid and all occupational illnesses. Recordable cases include:
- a. Deaths, regardless of the time between occupational injury or illness and death.
  - b. Injuries resulting in any of the following:
    - (1) Lost work days - Days away from work.
    - (2) Medical treatment other than first-aid.
  - c. All work-related illnesses.

10. Lost Work Days:

Lost Work Days - Days Away From Work: Days away from work are those work days (consecutive or not) on which the employee would have worked but could not due to an occupational injury or illness. Lost work days shall not include the day of injury or onset

of illness or any days on which the employee would not normally have worked such as weekends and holidays.

Lost workday cases involving days of restricted work activity are those cases where, because of injury or illness, (1) the employee was assigned to another job on a temporary basis, or (2) the employee worked at a permanent job less than full time, or (3) the employee worked at his or her permanently assigned job but could not perform all the duties normally connected with it.

Restricted work activity occurs when the employee, because of the job-related injury or illness, is physically or mentally unable to perform all or any part of his or her normal assignment during all or any part of the normal workday or shift. The emphasis is on the employee's inability to perform normal job duties over a normal work shift.

11. Measurability of Recordable Injury and Illness Cases: Link light rail will measure:

- a. Total Recordable Incidence Rate: Total number of OSHA recordable cases for the reporting period.

$$\text{TOTAL RECORDABLE INCIDENCE RATE: } \frac{\text{NO. OF RECORDABLE CASES X 200,000}}{\text{ACTUAL EMPLOYEE HOURS}}$$

- b. Lost Workday Incidence Rate: Total recordable cases that resulted in death or lost work days/restricted duty for the reporting period.

$$\text{LOST WORKDAY INCIDENCE RATE: } \frac{\text{NO. OF LOST WORKDAY CASES X 200,000}}{\text{ACTUAL EMPLOYEE HOURS}}$$

- c. Severity Measure: Total number of work days lost that occurred during the reporting period.

$$\text{SEVERITY MEASURE: } \frac{\text{NO. OF LOST WORK DAYS X 200,000}}{\text{ACTUAL EMPLOYEE HOURS}}$$

For the purpose of the above formulas, the allocation of days when a death or a permanent total disability is involved is as follows:

- a. Each death from an occupational injury or illness is assigned a time of 6,000 days.
- b. Permanent Total Disability from an occupational injury or illness is assigned a time of 6,000 days.

### Procedure

Upon notification of a work-related injury or illness the employer shall determine if it is recordable or non-recordable. Employer shall use the established guidelines contained in this procedure and ANSI Standard Z.16.

Submitting a Workers Compensation Employer First Report does not alone determine that an occupational injury or illness is recordable. Employer First Reports may be submitted for cases for which only first-aid treatment was rendered by a physician or registered professional.

Employer shall notify the CSM or Link CSM immediately of all occupational injuries or illnesses and, within 24 hours, submit a copy of the Employers First Report, supervisor's incident investigation, medical release form, and physician report. These documents assist Link Safety/Security in determining injury or illness trends, and verification that all work-related injuries and illnesses are properly recorded.

By the twelfth business day of each month, each employer shall submit to the RE, the CSM, and the Link CSM the Monthly Statistics and the Safety and Security Information Summary with complete information for the previous month. These forms shall include, for prime contractors and subcontractors:

- Total hours worked
- Total number recordable cases for that month
- Total number of recordable lost time cases for that month
- Total lost work days for that month
- Lost work days resulting from an injury or illness from a preceding month
- Information on recordable injuries (name, craft, type injury, disposition, days off and Contractor).

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**APPENDIX C**  
**ACRONYMS AND ABBREVIATIONS**

AJH	Authority Having Jurisdiction
ANSI	American National Standards Institute
CCP	Construction Contract Package
CM	Sound Transit Construction Manager
ConSM	Contractor Safety Manager
CPR	Cardio-Pulmonary Resuscitation
CSEP	Confined Space Entry Permit/policy
CSM	Sound Transit Construction Safety Manager
CSSM	Construction Safety and Security Manual
CSO	Sound Transit Chief Security Officer
CSSP	Construction Safety and Security Plan
CWP	Construction Work Plan
DOSH	Washington State Labor and Industries Division of Occupational Safety and Health (Washington State OSHA)
EMT	Emergency Medical Technician
EPA	Environmental Protection Agency
FC	Foot Candles
GFCI	Ground-Fault Circuit Interrupter
JHA	Job Hazard Analysis
LEL	Lower Explosive Limit
Link	Link Light Rail Project
MSDS	Material Safety Data Sheet
MSHA	Mine Safety and Health Administration
MUTCD	Manual of Uniform Traffic Control Devices
NEC	National Electric Code
NFPA	National Fire Protection Association
NIOSH	National Institute of Occupational Safety and Health
NTP	Notice to Proceed

OCIP	Owner Controlled Insurance Program
OSHA	Occupational Safety & Health Act
PEL	Permissible Exposure Limits
PPE	Personal Protective Equipment
PSAPCA	Puget Sound Air Pollution Control Agency
RE	Resident Engineer
SCSR	Self-Contained Self Rescuer
SSQA	Sound Transit Safety, Security and Quality Assurance Department
SSSR	Contractor's Site Safety and Security Representative
ST	Sound Transit
STMT	Sound Transit Management Team
TBM	Tunnel Boring Maching
WTA	Worksite Threat Analysis

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**APPENDIX D**  
**DEFINITIONS**

Construction Manager	The individual responsible for construction of the Sound Transit project.
Contractor's Safety and Security Representative	A Contractor's safety and security professional who shall be responsible for the implementation and compliance of the Contractor's Construction Safety and Security Plan, and who shall be assigned full time to the job site whenever work is in progress. The Contractor's safety and security representative cannot be assigned a non-safety or security related task.
Contract	Any agreement between Sound Transit and the Contractor.
Competent Person	An individual identified as having the necessary experience and training to evaluate the presence and control of specific hazards on the site. This is a decision-making position, with responsibilities exceeding that of a Qualified Person. Different activities require specific training and expertise. WACs reference a competent person for different technical activities.
Gas tester	Individual who works directly for the Contractor's Safety and Security Representative and has been certified as a gas tester in gassy or hazardous classified tunnels.
Hot work	Any work involving a flame or sparks, such as a torch, grinder, or electric arc welder.
Moused	When a crane hook is secured with heavy wire or the latch is locked with a bolt or equal.
Qualified Person	An individual who has met the basic minimum requirements of training and experience to perform a given activity, where specific knowledge is needed.
Sound Transit Risk Manager	The Sound Transit individual responsible for monitoring the project losses and loss control program
Threat	A potential action or situation that may cause harm to people or property.
Toolbox Safety	

and Security Meeting

Weekly safety and security meeting held by the foremen for their crews, per Safety and Security Manual requirements.

Vulnerability

A weakness in the design, implementation, or operation of an asset, system, or network, that can be exploited by an adversary, or disrupted by a natural hazard or technological failure.