

HEALTH & SAFETY MANUAL



2018

Len Corcoran Excavating Ltd.

People before Profit.



Len Corcoran Excavating Ltd. Health & Safety Manual -2018-



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Policy Revisions:

Total reconstruction of LCE Policy/Procedures to H&S Manual (Jan1, 2015)

Violence and Harassment – Bill 168 (Jan 1, 2016)

Revision of Asbestos Containing Materials ACM Safe Work Practice (Jan 1, 2016)

Addition to Communication Policy; Media Relations, Internet and Social Media, Off-Duty Conduct Policies (July 28, 2016)

Addition of Pre-Task Safety Inspection (PSI)



SUBCONTRACTOR SAFETY COMMITMENT

I, _____, of _____
(Authorized Signature) (Company Name)

known as the subcontractor, will ensure that all our employees are familiar with and will comply with all applicable requirements of the Workers Compensation Act, Occupational Health & Safety Regulations, and LCE's *Health, Safety and Environmental (H&S) Program* when on LCE projects. We will provide LCE with notice of any activity our employees may undertake that may create a hazard to employees of other employers. We will ensure that the notice is provided in a timely manner to allow LCE to coordinate our workers' activities with those of the other employer's workers to minimize the risk associated with our hazardous activities.

I understand that a copy of this commitment will become a part of the project record file may be forwarded to MOL for their records.

Signature _____

Title _____

(Date) _____

To be kept on Contractor's File at LCE Head Office.





SECTION #1 H&S Policy, Responsibilities and Compliance



HEALTH AND SAFETY POLICY STATEMENT

H&S RULES and RESPONSIBILITIES

- Management, Supervisor, and Personnel Rules

- Workers

- Health and Safety Representative

- Health & Safety Coordinator (H&S)

- Subcontractors

 - Subcontractor Non-Compliance

- Supervisors

- Employer

- Constructor

- LCE Purchasing Department

- Visitors

COMPLIANCE

- Disciplinary Procedures

- Records



HEALTH AND SAFETY POLICY STATEMENT

Len Corcoran Excavating Ltd. (LCE) is committed to promoting a safe and healthy work environment for our employees, subcontractors, site visitors and the public. This will be accomplished through the implementation of a comprehensive Health & Safety (H&S) Program that exceeds regulatory requirements. It is our policy to give incident prevention the highest priority in every aspect on projects. All project personnel are required to make the same commitment.

LCE is responsible for the health and safety of our employees, and ensuring our subcontractors implement adequate measures to effectively prevent incidents. LCE will ensure our employees are informed of their H&S responsibilities and are held accountable for their actions. We will ensure that all subcontractors and visitors comply with H&S rules and regulatory requirements, and will provide effective controls to prevent public harm.

LCE's managers and supervisors will set a good example by following all applicable H&S regulatory requirements, and will actively promote the LCE H&S Program. They are responsible and accountable for ensuring adequate instruction and training is provided prior to assigning personnel their duties. Managers and supervisors will ensure personnel they supervise comply with applicable rules, regulatory requirements and safe work practices. Managers and supervisors will ensure that there are regular safety inspections, and will take prompt corrective action when unsafe conditions and/or practices are identified.

All project personnel will comply with H&S rules and regulatory requirements. They will conduct themselves in a manner that does not endanger the well-being of themselves or others, nor contribute to the cause of property damage. Personnel will report all work-related accidents, environmental incidents, near misses, injuries and occupational illnesses to their supervisor immediately. They are encouraged to submit recommendations for improving H&S measures through their supervisor, safety meetings and the Joint Occupational Health & Safety Committee.

To keep our work areas safe everyone including the management, supervisors and workers must be committed to reducing the risk of injury at all times. It is in the best interest of everyone to think about safety in every activity. Commitment to Health and Safety must form an integral part of this Company from the President through to the workers.

Len Corcoran Excavating Ltd.

Dan Corcoran
President
01 Jan 2018



H&S RULES and RESPONSIBILITIES

Management, Supervisors, and Personnel Rules

Len Corcoran Excavating Ltd. (LCE) management, supervisors, and personnel are responsible for ensuring (contravention to these may result in discipline under this policy):

1. Maintain a goal of 100% compliance from ENTIRE workforce with respect to hardhat using and wearing of safety vests and safety footwear (CSA approved) at all times on all Len Corcoran Excavating job-sites. In 2017 LCE will began the implementation of Safety Glasses at all times which will continue in 2018.
2. The requirements of LCE Constructors Health and Safety (H&S) Program are implemented and supported.
3. LCE H&S policies and procedures, and legal requirements are reviewed and enforced annually.
4. Periodic management meetings are held for the purpose of reviewing Work and H&S activities and incident trends, and determining necessary corrective actions.
5. Every reasonable precaution is taken for the protection of workers. Project personnel are informed of any potential or actual dangers to their health and safety, and instructed in LCE safe work practices and applicable legal requirements.
6. Supervisors, supervise the work on their site at all times, or if they must leave the site, appoint someone in charge who is a competent person as defined in Section 1 (1) of the OHSA.
7. Project personnel are not permitted to work when their actions indicate that the work would jeopardize themselves or others.
8. Horseplay & fighting are forbidden on company jobsites
9. The use of drugs or alcohol or persons under the influence of drugs or alcohol will not be permitted on the jobsites
10. Firearms are not permitted on Corcoran Excavating jobsites or property
11. In accordance with the Smoke-Free Ontario Act, smoking in LCE machines, equipment and vehicles is forbidden, The Act seeks to protect employees from exposure to second-hand smoke in the workplace. Supervisor shall use the discipline policy to manage this on LCE sites.
12. All managers, supervisors and workers must be trained on and be familiar with the most recent version of the Occupational Health and Safety Act and Construction Regulations sections that apply to their particular work activities.



They shall be especially familiar with the regulations relating to proper excavation, trenching, sloping and shoring

13. All supervisors must carry out the Company's Enforcement and see that all disciplinary warnings are given to workers are appropriately conducted and documented according to this policy
14. Appropriate records, statistics and paperwork are maintained and are available/submitted for review.
15. Notice of Projects (NOP) are completed and submitted prior to workers commencing work and a copy is posted at the construction site.
16. Project personnel shall receive training/re-certification, including Project Orientation, Site Specific Safety Orientation, and task/skill specific training. (i.e. first-aid, propane, working at heights, WHMIS, Confined space etc.), as required.
17. New work areas are inspected prior to commencement of work.
18. Daily informal inspections and weekly planned inspections of work areas, equipment, tools, work methods and practices are done.
19. Completed inspection reports are submitted to the LCE Manager H&S at the earliest opportunity or on a monthly basis.
20. Immediate action is taken to correct sub-standard practices and conditions identified through inspections or as reported to management/supervisory personnel.
21. Every work related accident must be immediately reported to the supervisor
22. All incidents are required to be investigated by regulation and the LCE H&S Program in order to identify causes and corrective actions.
23. Incident investigation reports are reviewed and corrective actions are implemented through directives to appropriate personnel.
24. Any worker that visits the hospital must be accompanied by another employee where possible and must have the doctor sign a Modified Work Form.
25. Any hospital visit related to a workplace incident must be reported to the office **immediately** by calling 613-542-0820. This will allow you to reach someone in the evenings or on weekends.
26. Copies of the *Occupational Health and Safety Act and Regulations for Construction Projects* (OHSA) and *LCE H&S Program Manual* are available on the job site.
27. Ensure an LCE Supervisor or H&S Representative accompanies Ministry of Labor (MOL) Officers performing inspections, and that MOL Officers are given the appropriate level of cooperation.



28. Copies of all MOL *Inspection Reports* are posted at the job site and forwarded to the LCE H&S Coordinator on the same day that the *Inspection Report* is delivered to the site by the MOL Officer.
29. Regulatory infractions/corrective actions identified on an MOL *Inspection Report* are corrected without delay, and follow up reports are sent to MOL
30. Job site H&S activities are coordinated with project subcontractors and the owner.
31. Subcontractors are familiar with and work in a manner with protective equipment and procedures as required by the Occupational Health and Safety Act and Regulations, and Corporate Health & Safety Policy.
32. LCE and subcontractor representatives form and participate in a site Joint Occupational Health and Safety Committee when there is a workforce at a job site of twenty or more workers.
33. Personal protective equipment (excluding Safety boots and personal clothing) is provided, used and maintained as required.
34. Required first aid and emergency facilities are provided as required.
35. Daily Hazard Discussions are held at job sites. The Tool-Box Talk will:
 - a. provide on-going health and safety education/training
 - b. include discussions on health and safety concerns
 - c. review corrective actions to eliminate unsafe practices and conditions
 - d. encourage safety suggestions for improvement
36. WHMIS-controlled products are identified and labeled, and appropriate Material Safety Data Sheets (M)SDS) are readily available on site; and there is compliance with the *Act & Regulation* and other environmental protection requirements as may be applicable.
37. Health risks are identified and effective occupational hygiene measures are implemented to protect the health of LCE employees and subcontractors.
38. Effective procedures are in place for periodically checking the well-being of workers assigned to work alone under conditions that present a risk of disabling injury.
39. Good due diligence is practiced that includes keeping a daily journal to record significant health & safety issues.
40. Worker shall take the time to properly evaluate any/all task through the use of LCE's Pre-task Safety Inspection (PSI) forms, to assess hazards and implement controls prior to beginning a task.



41. Supervisors shall support LCE employees to fill out Pre-task Safety Inspection (PSI) forms prior to beginning a task and or when circumstances change.
42. A good example is set for others to follow.
43. Responsible relations are maintained with members of the public, and persons from neighboring properties, in order to minimize any inconvenience that may result from construction activities.
44. The public is protected through the use of barricades, fences and overhead protection as well as signal persons for directing traffic on public roads. Open mesh steel modular fencing will be used to satisfy public curiosity while protecting them from job site hazards.

Len Corcoran Excavating prides itself on excellent relations with the public. Our employees are front-line advertising for this company on a daily basis so we expect polite and courteous interaction with the public at all times

Responsibilities

Health and safety activities are based on specific individual responsibilities. Most of these responsibilities/duties can be found in the Occupational Health and Safety Act and in the Regulations for Construction Projects. Outlined are details of responsibilities in the workplace to assist in carrying out health and safety functions. All individuals in the Company are responsible for understanding and carrying out their duties and responsibilities.

RESPONSIBILITIES ARE ASSIGNED TO THE FOLLOWING PARTIES:

- Workers
- Health and Safety Representatives
- Health and Safety Coordinator
- Subcontractors
- Supervisors
- Employer
- Constructor
- Purchasing
- Visitors



Workers

They fulfill the duties for worker outlined in the Occupational Health & Safety Act Section(s) 28 including the following:

LCE employees are responsible for ensuring:

1. They know and comply with LCE's H&S Program and H&S regulatory requirements including the *Occupational Health and Safety Act and Regulation* (OHSA), and work in compliance of these
2. Take every reasonable precaution to prevent accidents.
3. They report all unsafe conditions and practices, absence or defects in any equipment to their immediate supervisor and take corrective action, when practicable, to eliminate such hazards.
4. They do not operate equipment unless they are authorized and trained to do so, all safeguards are in place and functional, and no person will be endangered.
5. They immediately report all work-related injuries and health problems to an LCE supervisor and the first aid attendant. Report any breaking of LCE's H&S regulatory requirements, and the *Occupational Health and Safety Act and Regulation* (OHSA) or the existences of any hazard of which the worker is aware
6. They complete a Project Orientation and Site Specific Safety Orientation before starting work on the project.
7. They complete all required training.
8. Cooperation with incident investigations.
9. Their supervisor is informed of any physical or mental impairment which may affect their ability to work safely (e.g., back problems, epilepsy, etc.), and they do not work where the impairment may create an undue risk to themselves or others.
10. They do not enter or remain at the workplace if under the influence of alcohol, prescription or illegal drugs.
11. They do not engage in any improper activity or behavior (horseplay, scuffling, fighting, practical jokes or similar conduct) that may endanger themselves or others.
12. They maintain good housekeeping.
13. They enter and leave their work area using safe routes.
14. They use or wear appropriate personal protective equipment, devices, clothing that the Employer or Constructor and maintain it in good working order.
15. They do not use or operate or cause to be operated any tool, appliance, equipment, device or thing in a manner that will endanger anyone or if there is



reasonable cause to believe that to do so would create an undue hazard to the health or safety of any person.

16. They actively participate in Safety Talks.
17. They use, transport, store and dispose of all hazardous materials in accordance with applicable safety requirements such as outlined by WHMIS, TDG and the Waste Management Acts.
18. The appropriate action is taken to protect their health and the health of co-workers from the effects of harmful materials and conditions, e.g., noise, chemicals, silica dust, etc.
19. Help new employees recognize hazards and follow proper procedures and answer questions from fellow employees to which they know the answer.
20. Be aware that disciplinary action will be carried out if Company Safety rules, Corporate Health & Safety Policy, Occupational Health and Safety Act and Regulations are not followed.
21. They set a safe example for other project personnel

Rights of the worker under the OHSA:

- The “**right to participate**” to be a part of the process of identifying and resolving health and safety concerns. This right is expressed mainly in the requirements for Joint Health and Safety Committees and representatives.
- The “**right to know**” about any hazards to which they may be exposed. The requirements of the Workplace Hazardous Materials Information System (WHMIS) is an important example.
- The “**right to refuse work**” that they believe is dangerous and under certain circumstances, certified Joint and Health and Safety Committee members can stop work that is dangerous.

Health and Safety Representative

Worker Health and Safety Representative’s in addition to worker responsibilities they are responsible for ensuring:

1. Attend and participate in all Company-sponsored safety training to maintain Familiarity with Occupational Health and Safety Act and Regulations, and Corporate Health & Safety Policy.
2. Conduct monthly workplace inspections and identify sources of dangers; all observations should be reported to the Supervisors and recorded on the inspection form, a copy of the form shall be kept on site and a copy is to be sent to the office.



3. All first aid supplies and equipment meet or exceed the standards as specified in the OHS Regulation.
4. They are readily available, accessible and easily summoned for rendering first aid. They render first aid services as required take charge of the treatment of injured personnel until relieved by a more qualified person.
5. First aid and emergency transportation procedures are adequate, communicated and posted as required by the regulatory requirements.
6. Communications equipment is tested daily, or more frequently as may be required, to ensure proper functioning and operation.
7. They wear all personal protective devices or apparel required by site safety rules and/or regulatory requirements.
8. They keep records of all first aid treatments rendered in a "First Aid Treatment Record Book", and complete injury report forms as may be required.
9. They maintain patient confidentiality for all treatments rendered.
10. Relay concerns of workers and make recommendations to the Employer and the Health & Safety Coordinator
11. They are a role model for the H&S standards to be implemented and maintained.

Health & Safety Coordinator (H&S)

The LCE H&S Coordinator is responsible for ensuring:

1. They fulfill the role of *Qualified Coordinator* for Len Corcoran Excavating Ltd. (LCE). They set a good example for other project personnel.
2. LCE project management is informed about H&S requirements at a corporate level.
3. LCE management and supervisory personnel receive timely and accurate advice on H&S matters.
4. They are current on applicable H&S information, programs and procedures. Maintain records of training, inspections, disciplinary warnings, injuries, and reports at the office.
5. Liaise between all workplace members who have responsibilities under this policy. Including answering questions, researching solutions and providing council.
6. Site specific H&S issues are resolved in a timely manner and advice on coordinating site specific H&S is provided as required.
7. Suitable H&S information resources are made available to project personnel.



8. The LCE H&S Program is promulgated and the H&S Program manual is revised and reviewed as required.
9. Concerns and issues raised by H&S regulatory agencies, including matters of non-compliance or response to incidents, are dealt with in a timely and effective manner.
10. Project personnel receive advice on compliance with MOL, TSSA, TDG and WHMIS regulations.
11. Information and data on inspections and incidents are collected, analyzed, and disseminated to track H&S performance.
12. Research on H&S issues is conducted to stay current on developments in industry best practice and regulatory compliance.
13. Assistance is provided to LCE management, supervisors and subcontractors for conducting investigations of serious accidents.
14. Periodic planned and unplanned site inspections are completed to monitor compliance with H&S Program and regulatory requirements.

Subcontractors

Subcontractors working on LCE Projects are expected to comply with all applicable of the LCE H&S Program requirements, and they are responsible for ensuring:

1. They have a health and safety program that is compliant with legal requirements, that meets or exceeds the requirements as specified in the LCE H&S Program manual, and work within compliance with the Occupational Health and Safety Act and Regulations (OHSA)
2. They take all practicable precautions to prevent accidents, against the risk of loss of life, injury, and disease to their employees, LCE employees, any other persons employed about the project location, and site visitors.
3. They provide the name of a *qualified person* designated to be responsible for their site health and safety activities, and the name of a *qualified person* who will act as back-up should the primary contact be unavailable.
4. They contact LCE before they start work to receive any special instructions regarding site hazards and safe work requirements specific to the site.
5. Compliance all instructions given by LCE in regards to site hazards and safe work requirements.
6. They provide LCE with sufficient notice of any planned work that may create a hazard to anyone on or adjacent to the site in order enable LCE to coordinate work activities that will minimize or eliminate the hazard.



7. Report unsafe situations such as absence or defect in any equipment or protective device of which the worker is aware immediately to LCE Supervisor
8. Not use operate use or operate any equipment, machine, device or thing or work in a manner that will endanger anyone.
9. All personnel working on the LCE Project attend the LCE Constructors' **Project Orientation** training before personnel start work on the project sites.
10. Subcontractor personnel receive **Site Specific Safety Orientation** training for each site they report to for work.
11. They conduct Daily informal inspections of work areas, equipment, tools, work methods and practices, daily work site hazard assessments and crew safety briefings.
12. Workers receive instruction in the safe performance of their work, including any applicable LCE H&S Program or legal (OHSA) requirements.
13. They conduct weekly inspections of their work area.
14. Compliance with project H&S requirements.
15. They assume responsibility for the coordination of their own sub-subcontractor's compliance with the requirements of this program and MOL, OHSA.
16. They provide and enforce the use of appropriate personal protective equipment.
17. Unsafe conditions, practices, incidents and injuries are reported to the site supervisor, and incidents are investigated to determine necessary corrective actions.
18. Incidents, including near miss occurrences, are reported to the LCE H&S Coordinator on the same day they occur.
19. Emergency transportation is provided for their employees.
20. They cooperate with other subcontractors and workers in promoting safe work practices and maintaining safe conditions throughout the site.
21. They submit a monthly summary report of incidents, hours worked and personnel working on the project.

NOTE

The term "*qualified*" as used in Item 3 is defined by MOL as: "*being knowledgeable of the work, the hazards involved and the means to control the hazards, by reason of education, training, experience or a combination thereof*".



Subcontractor Non-Compliance

Subcontractors that engage in unsafe work practices will be notified in writing that they are in breach of LCE H&S Program requirements and/or the OHS regulatory requirements. Non-compliance with H&S requirements is often a breach of contractual compliance.

Receipt of a notice of non-compliance will require a written response specifying what actions have or will be taken to rectify the situation. Continued or repeat non-compliance may result in cancellation of the contract for non-performance of contract conditions.

SUPERVISOR

They fulfill the duties for Supervisor outlined in the Occupational Health & Safety Act Sections 27 including the following: **Supervisor are most responsible on the site.**

The SUPERVISOR shall ensure that:

1. Their workers work in the manner and with the protective devices, measure & procedures required by the Occupational Health & Safety Act, Regulations for Construction Projects and the Corporate Health & Safety Policy
2. The worker wears the personal protective equipment and other protective devices provided and required by the Employer
3. They advise workers immediately if they become aware of the existence of any potential or actual dangers to the health & safety of the worker
4. They take every precaution reasonable in the circumstances for the protection of the worker
5. The workers are aware of the site-specific emergency procedures, hazards and traffic control procedures
6. They supervise the work on their site at all times or, if they must leave the site, appoint someone in charge who is a competent person as defined in Section 1 (1) of the Occupational Health & Safety Act
7. They submit paperwork and follow procedures as outlined in the Corporate Health & Safety Policy
8. All accidents are reported to management immediately
9. Sub-trades are familiar with and work in a manner with protective equipment and procedures as required by the Occupational Health and Safety Act and the Corporate Health & Safety Policy



10. They perform weekly inspections of their jobsites and record completion and any findings in their daybook
11. They support and assist the Site Health & Safety Representative in the completion of their duties and functions
12. All disciplinary warnings given to workers are appropriately conducted and documented according to this Policy

Employer

The EMPLOYER who carries the most responsibility under the OHSA, shall ensure that: They fulfill the duties for Employers outlined in the Occupational Health & Safety Act Sections 25 & 26 including the following:

1. Workers have been provided information, trained and supervised to protect their safety
2. A competent person is appointed as the supervisor
3. Support & assistance are provided to the Joint Health & Safety Committee, Site Health & Safety Representatives and the Health & Safety Coordinator in the carrying out of any of their functions
4. Every reasonable precaution is taken for the protection of workers
5. Develop and implement a health and safety program that is updated, maintained and reviewed annually with the Joint health & Safety Committee, Supervisors and the Workforce
6. Post in a conspicuous location a copy of the Corporate health & Safety Policy and the Occupational Health & Safety Act and regulations for Construction Projects
7. Provide safety equipment required by law and maintain said equipment to protect the safety of the Workforce
8. Provide training to the workers, Supervisors and JHSC as needed and keep record of this training on file at the Office. At minimum an annual review of the Corporate safety Policy, OHSA & Construction Regulations, WHMIS, First Aid training and Confined Space Hazard Awareness Refresher courses will be held
9. Conduct company safety meetings monthly



Constructor

They fulfill the duties for Employers outlined in the Occupational Health & Safety Act Sections 23 including the following:

The CONSTRUCTOR shall ensure that:

1. Appropriate documentation for project startup has been processed
2. Measures and procedures required by the Occupational Health and Safety Act and Regulations of Construction Projects are carried out
3. Employers and employees on the project comply with the Act and Regulations
4. Health and safety of employees on a project is protected by following the Safety Policy as stated
5. Establish for the project written emergency procedures and post them in a conspicuous location
6. Ensure that these procedures have been reviewed with the Onsite Supervisor and Site Health & Safety representative

LCE Purchasing Department

The Purchasing Department is responsible for ensuring:

1. They consult with the H&S Coordinator so that new equipment, machinery and tools to be purchased, rented or leased meet with required regulatory and internal safety standards.
2. Legal and internal safety requirements are checked prior to making major purchases.
3. Personal protective equipment and clothing meets the required standards, is practical for the use intended, and will have a high level of acceptance by end users.
4. The least hazardous materials are purchased and that new materials brought on site meet LCE's H&S standards.
5. Hazardous materials are checked at time of delivery to ensure they have appropriate hazard warning labels and are accompanied by at the correct Material Safety Data Sheet (MSDS).
6. A master copy of MSDSs for all hazardous materials used by LCE is kept on file in the warehouse, and the MSDS are available for distribution.
7. Provide a copy of MSDS to the LCE H&S Coordinator, and to personnel using the hazardous materials.



Visitors

Visitors to the LCE project are responsible for ensuring they:

1. May be required to attend LCE *Project Orientation* training and receive a *Site Specific Safety Orientation* by the site supervisor before entering a work site. Visitors that do not receive the orientation training must be escorted while on site by someone that has received the orientation training.
2. Comply with all *Work Site Safety Rules*.
3. Take responsibility for their personal safety while on site. LCE does not assume any responsibility for visitor safety during these visits.
4. Do not enter the work area without proper authorization to do so.
5. Comply with the LCE's H&S Program requirements, and OHSA and other applicable legal requirements.
6. Wear the required personal protective equipment.
7. Report all injuries to the site supervisor and first aid attendant.
8. Report unsafe conditions or practices to the site supervisor.

COMPLIANCE

LCE is committed to achieving our health and safety goals. This will not be possible without an equal commitment from our employees and subcontractors. Compliance with H&S program and legal requirements will demonstrate this commitment. Non-compliance is not acceptable.

Compliance Requirements

The rules and instructions presented in LCE's H&S Program manual are intended to protect all project personnel. Your cooperation is vital to achieving compliance with regulatory and program requirements. If you have any health, safety or environmental concerns about a work process, tool or equipment, please notify your supervisor or LCE supervisory personnel prior to commencing the work.

Compliance with LCE's H&S Program and regulatory requirements, including all applicable federal, provincial or local regulations, is mandatory. With particular importance in regard to

Ministry of labor (MOL), Technical Standards & Safety Authority (TSSA), Workplace Safety and Insurance Board (WSIB), and Occupational Health and Safety Regulation (OHSA). Disregard or negligence in complying with LCE H&S Program or legal



requirements, by anyone, can result in a loss producing incident and will therefore be cause for disciplinary action.

Discriminatory Actions Prohibited

No LCE employee or subcontractor will be disciplined in any way for acting on their H&S responsibilities outlined in our H&S Program Manual or as specified by regulatory requirement. Discriminatory actions (as defined in the *Occupational Health and safety Act and Regulations*;) against persons acting on their responsibilities will not be tolerated. Persons practicing discriminatory actions will be subject to disciplinary procedures.

Disciplinary Procedures

LCE employees and subcontractors who engage in hazardous activities will be subject to disciplinary action. Examples of unacceptable activities include the following:

- operating equipment without authorization
- abuse of equipment or lack of maintenance by the operator
- entering or remaining at the workplace while under the influence of drugs or alcohol
- non-compliance with safety rules and/or safe work procedures
- willfully or carelessly endangering the health and safety of any other worker or the public
- failure to lock-out or use fall protection measures
- dumping waste oil, solvents, paints, concrete, asphalt or other waste into a watercourse

Personnel that do not follow the prescribed standards will subject to the following disciplinary actions:

1. **first offence:** verbal warning - supervisor will record event in daily journal written warning
2. **second offence:** written warning - to be kept in the individual's personnel file
3. **third offence:** minimum three day suspension without pay, possible termination of employment

This will be the normal process for almost all situations; however, some situation/events may require immediate, more serious, disciplinary action. Any behavior or practice that



showed a blatant and deliberate disregard for health, safety or the environment will result in an elevated level of disciplinary action. Examples are:

- actions that could or did result in harm to another person
- equipment/property damage due to negligence
- contamination of a watercourse resulting in long-term effects
- Employees entering a confined space who **have** training but are not following all of the required procedures will receive a suspension without pay. Any further offenses will result in job termination
- Supervisors who knowingly or unknowingly allow an illegal confined space entry to happen on their site will receive a one-week suspension without pay. Any further offenses will result in job termination

In these situations, the disciplinary process will normally be:

1. **first offence:** written warning and time off without pay, to be documented in the individual's personnel file
2. **second offence:** termination of employment

Some situations are serious enough to warrant automatic termination of employment. These include:

- Employees caught operating LCE licensed vehicles without a valid driver's license or with a driver's license under suspension.
- Employees entering a confined space without confined space training.
- committing or threatening acts of violence causing harm to another person, either the public or co-worker
- working under the influence of illegal drugs or alcohol
- engaging in criminal activity (e.g., arson, theft)

Records

Records of all disciplinary actions will be kept in the individual's personnel file. The *Disciplinary Action Report* will be used for this purpose. (A copy can be found in *Section 19- Forms*). The individual's supervisor will also keep a record, and this can be done with a short notation in the supervisor's daily journal. Disciplinary records may be required if there is an investigation into an accident, a Coroner's Inquest, or the legal prosecution of individuals.



SPECIAL NOTE: Repeat non-compliance will be responded to as stated regardless of whether it is a repeat of the same offence. If the violation is of a serious nature, such as contravention of Confined Space requirements or endangering the life of another worker, the employee may be suspended without pay or have their employment terminated without prior verbal or written warning.





SECTION #2 Prime Contractor and H&S Coordination



LEN CORCORAN EXCAVATING Ltd. (LCE) AS CONSTRUCTOR

Notice of Project

PRIME (GENERAL) CONTRACTOR SAFETY PLANNING

SUBCONTRACTOR SAFETY

RFP Process and Subcontractor Selection

Subcontractor Start-up

Additional Start-up Requirements

On-Going Coordination and Periodic Checks

SITES WHERE ANOTHER EMPLOYER IS PRIME CONTRACTOR

LCE Site H&S Responsibilities



LEN CORCORAN EXCAVATING Ltd. (LCE) AS CONSTRUCTOR

When Len Corcoran Excavating Ltd. (LCE) is acting “Constructor” on projects we will ensure compliance with Contract responsibilities on behalf of the “Owner” or its representatives.

As an employer, LCE is responsible for ensuring the on-going H&S compliance of our employees. Details of these responsibilities are provided through this program manual. Acting on behalf of the Concessionaire and fulfilling the duties of “Constructor” on a project, we are responsible for ensuring that project subcontractors have an effective program for the prevention of accidents and injuries. The expectation is that all project subcontractors will have in effect an occupational health and safety (OH&S) program that meets or exceeds regulatory requirements, and that their program will be consistent with the requirements specified in the LCE H&S Program manual.

Prior to starting work on a Project, subcontractors with a workforce of 20 or more workers LCE may review their OH&S program manual. For subcontractors with less than 20 workers, the plan will be written to meet the requirements as specified in the Occupational Health and Safety Act and Regulation (OHSA).

The Ministry of Labor (MOL) has set out guidelines to assist construction project owners, contractors and subcontractors in understanding who the “constructor” is under the Occupational Health and Safety Act. To help manage working on Projects where multiple trades/organizations are working in close proximity of one another.

There are occasions where an “owner” (i.e. Utilities, Hydro etc.) or another secondary contractor must also work within or in close proximity to a working project. To circumvent issues or incident arising from works of this nature. The MOL has set out the guidelines where time and/or space is created between different works. Another option to this is to create a subcontractor agreement where there is a company named/labelled as the “constructor”. Details on how this plan will be implemented are found throughout this H&S Program manual and at www.labour.gov.on.ca/english/hs/pdf/gl_cnstr.pdf

Notice of Project

LCE will provide a Notice of Project (NOP) in a timely and effective manner consistent with regulatory requirements set out on the OHSA Section 6(1), O.Reg. 213/91. LCE will provide a copy of the NOP to the Ministry of Labor and the Project Owner. In summary, and as applicable to this project, the requirements for NOPs are as follows:

1. A written Notice of Project will be submitted to, by fax or courier at least 24 hours before starting construction when:

(1) This section applies with respect to a project if,



-
- (a) the total cost of labor and materials for the project is expected to exceed \$50,000;
 - (b) the work is the erection or structural alteration of a building more than two stories or more than 7.5 meters high;
 - (c) the work is the demolition of a building at least four meters high with a floor area of at least thirty square meters;
 - (d) the work is the erection, structural alteration or structural repair of a bridge, an earth-retaining structure or a water-retaining structure more than three meters high or of a silo, chimney or a similar structure more than 7.5 meters high;
 - (e) work in compressed air is to be done at the project;
 - (f) a tunnel, caisson, cofferdam or well into which a person may enter is to be constructed at the project;
 - (g) a trench into which a person may enter is to be excavated at the project and the trench is more than 300 meters long or more than 1.2 meters deep and over thirty meters long; or
 - (h) a part of the permanent or temporary work is required by this Regulation to be designed by a professional engineer. O. Reg. 213/91, s. 6 (1).

LCE will submit an NOP to MOL for project start-up; however, it may be necessary to submit subsequent NOPs as the project progresses.

As a minimum, the NOP will include the following:

- LCE's business name and address,
- A description of the location of the project (municipal address, or its location in relation to the nearest highway),
- A description of the project,
- The starting date and the anticipated duration of the project,
- The estimated total cost of labor and materials for the project, and
- Detailed written work procedures that will be used to minimize the risk to workers who might be exposed to a hazardous material when the project involves any of the following:
 - removal, encapsulation or enclosure of friable asbestos building materials
 - demolition, dismantling or repair of any building or structure, where insulating materials contain asbestos, or where asbestos products have been manufactured



- an abatement project or other activity involving significant disturbance of lead containing coatings on buildings or structures
- similar activities which may expose workers to a significant risk of occupational disease

PRIME (GENERAL) CONTRACTOR SAFETY PLANNING

LCE will implement a Project Safety Plan for ensuring Prime (General) Contractor responsibilities are identified and met when working as the Prime Contractor. A summary of the plan is as follows:

SUBCONTRACTOR SAFETY

Acting on behalf of the Prime Contractor, LCE has overall management responsibility for ensuring all work on the project is completed in a safe manner. Subcontractors have a responsibility to ensure the work they undertake is done in a safe manner. LCE is responsible for ensuring subcontractors can meet our safety performance expectations. This will be managed through a three step process:

1. Subcontractor selection based on “best value” through the bidding (RFP, Tender, RFQ etc.) process
2. Subcontractor start-up
3. On-going coordination and periodic checks

RFP Process and Subcontractor Selection

During the Request for Pricing (RFP) process LCE will take action to ensure that the most qualified subcontractors are chosen for work on the project. A criteria for evaluation has been established to determine “best value” when selecting subcontractors, which includes safety record and program. This criteria can also be applied to subcontractor pre-qualification process.

During the RFP (and pre-qualification) process a *Request for Safety Information* will be sent to the subcontractor to obtain information on their safety record. LCE should consider unsuitable any potential subcontractors that:

- are unable or unwilling to provide their safety history
- have a high number of injury incidents and lost time due to incidents
- have excessive, outstanding or serious non-compliance issues
- have been required to pay Penalty Assessments (fines) to MOL



- have/are facing prosecution for safety related infractions either by MOL or under Section 217.1 of the Criminal Code of Canada (*Duty of persons directing work*)
- do not provide accurate safety information

LCE will consider subcontractors suitable that:

- provide the safety information willingly and in a timely manner
- have no incidents, non-compliance issues, fines or prosecutions
- are a COR* certified company

***NOTE:** Preference will be given to hiring subcontractors that have achieved the Certificate of Recognition (COR). The Certificate of Recognition is a nationally recognized program which has been specifically designed to assist the construction industry to improve its safety culture. COR companies have developed and implemented a formalized occupational health and safety (OH&S) program that is audited for compliance on an annual basis. The OH&S program must effectively address the hazards found in the company's operations. Hiring COR certified subcontractors provides a level of assurance that the subcontractor will be able to perform in accordance with LCE's H&S Program requirements. Information on COR in construction industry can be found at the following website. <http://www.ihsa.ca/cor/>

Subcontractor Start-up

The LCE contract management team and field staff will work with the selected subcontractors to help ensure a smooth and safe start-up. The emphasis at this stage of the project work must be effective planning and communication of project safety requirements. LCE will do the following during start-up:

1. Conduct Pre-Construction Meeting: LCE will meet with the subcontractor to confirm how work will be conducted in a safe and complaint manner. During the meeting(s) LCE's H&S performance expectations for the project will be discussed. Accurate minutes of these meetings may be kept as part of good contract management practice and for due diligence. The subcontractor will provide the following at this time:
 - a. Name of subcontractor's Qualified Person
 - b. Name of Designated Supervisor
 - c. Safe work procedures to be used on project



2. Communicate Known Hazard Information: During or prior to the Pre-Construction Meeting, and subsequently as required, LCE will inform subcontractors about any known site hazards associated with the work to be performed, e.g., utilities locates, power lines, etc. The hazard communication process will also include strategies and actions required coordinate work on site. Coordination will be required to prevent work undertaken by LCE, its employees and subcontractors from creating hazards for one another.
3. Provide Direction on Appropriate Hazard Control Requirements: The hazard mitigation strategies/actions identified in the work planning phase will be provided to the subcontractor. The subcontractor must to be able to incorporate these strategies/actions into their work processes. Safe work procedures developed and used must adequately address the hazards.
4. Provide Project Orientation Training: LCE will provide any Project Orientation training for all project personnel. This training communicates baseline H&S and environmental performance expectations, and informs project personnel about existing hazards and required safe work procedures. Subcontractors will ensure their personnel first attend the Project Orientation training before conducting any work on site.

Additional Start-up Requirements

The following must occur prior to the subcontractor performing work on site:

- Site safety and emergency information is posted including the names and contact numbers of the subcontractor's Qualified Person and LCE's Qualified Coordinator
- First aid services/equipment suitable for the risk are in place
- Subcontractor personnel receive a Site Specific Safety Orientation and a record is kept of the orientation
- Appropriate personal protective equipment is issued and used
- Safe work procedures are developed and reviewed with the crew
- A daily crew safety briefing is conducted and a record kept

On-Going Coordination and Periodic Checks

Ensuring project safety requirements are met will require LCE to provide on-going coordination of site activities, and periodic checks to ensure compliance. The site coordination is best achieved through normal project site supervision as provided by LCE construction field staff. Assistance is provided to LCE's field staff for on-going coordination by the LCE H&S Coordinator. LCE has appointed the H&S Coordinator as



the designated Qualified Coordinator to act on behalf of the Prime Contractor in this capacity. The Qualified Coordinator will assist LCE field staff to:

1. Ensure on-going coordination of site health and safety activities.
2. Inform subcontractors and LCE personnel about hazards in a timely manner
3. Ensure hazards are adequately addressed throughout the duration of the work activities.
4. Post information on site that includes as a minimum:
 - a. The name of the Qualified Coordinator and how they can be contacted, e.g., cellular phone number and/or pager. (See *Construction Site Health and Safety Coordination* form in *Section 18 - Forms*).
 - b. A site drawing showing the project layout, location of first aid services, emergency transportation provisions, site evacuation procedures and evacuation marshaling point.
 - c. A set of construction procedures designed to protect the health and safety of workers at the workplace.
5. Check periodically for subcontractor compliance with H&S program and regulatory compliance through on-going informal inspections, and planned formal inspections.

Subcontractors working on the project will provide LCE H&S Coordinator with the name of a Qualified Person designated to be responsible for that subcontractor's H&S compliance. A means to contact this qualified person must also be provided. The subcontractor's Qualified Person must be accessible whenever the subcontractor has personnel working on site. LCE will conduct periodic checks to ensure initial and on-going compliance with H&S requirements.

SITES WHERE ANOTHER EMPLOYER IS PRIME CONTRACTOR

LCE Site H&S Responsibilities

When LCE is working on a site where the Owner has designated another company (not LCE) to be the Constructor on a Project, LCE will:

- Ensure we have an effective Health and Safety (H&S) Program in place.
- Provide the name of a Qualified Person to the Prime Contractor.
- Work under the direction of the Prime Contractor for coordination of site work and addressing H&S issues.



SECTION #3 Health and Safety Meetings



H&S MEETING POLICY

SUBCONTRACTOR START-UP

Bidding Process (RFP, Tender, RFQ etc.) Communication

Pre-Construction Meeting

CONSTRUCTION PROGRESS MEETING



H&S MEETING POLICY

Len Corcoran Excavating Ltd. (LCE) will ensure that health and safety (H&S) is addressed and receives a high priority in project meetings. It is the policy of LCE that the following meetings will be used to address a projects H&S on an on-going basis:

- start-up meetings or Pre construction meetings
- Monthly company H&S coordination meetings
- Daily Hazard Discussion meetings or Tool Box Talk
- Joint Occupational Health and Safety Committee (JOHSC) meetings*

***Note:** JOHSC meetings are addressed in Section 5. Discussion of H&S issues at these meetings will generate suggestions and recommendations for improvements to project safety compliance. LCE is committed to reviewing and evaluating these suggestions and recommendations. Each suggestion and recommendation will receive careful consideration on how they can be implemented. In general, LCE will support the meetings by providing:

- company representatives (workers and/or management) where required
- access to relevant records and statistics
- facilities for meetings (where required)
- the time required for representatives to attend meetings
- supplies and equipment which promote record keeping and the timely transfer of information (e.g., record forms, photocopiers, fax machines)

SUBCONTRACTOR START-UP

Subcontractor start-up is a two stage process used to bring subcontractors on board and inform them of project requirements. LCE representatives will communicate with potential subcontractors during the Bidding process (RFP, Tender, RFQ etc.), and after acceptance of a successful contract bid prior to starting work on the project. Key H&S conditions and requirements will be communicated during this process.

Bidding Process (RFP, Tender, RFQ etc.) Communication

LCE representatives will provide information to potential subcontractors prior to the subcontractor being approved to work on the project. The communication process may involve electronic document transfer, paper documents, and/or meeting(s) with potential subcontractors. Project H&S is a major component of bid communications.



As a minimum, the following will be communicated to subcontractors during the Bidding stage of letting a subcontract:

- submittals information including “*Request for Safety Information*”
- project H&S Program, training and reporting requirements
- environmental issues that (could) affect the subcontractor’s scope of work.

Subcontractors bidding for work on the Project will need to include these considerations in the contract bid process. The subcontractor must be prepared to submit a copy of their health and safety program manual to LCE prior to starting work on the project.

Pre-Construction Meetings

LCE will conduct Pre-Construction Meeting(s) with subcontractors to confirm project H&S requirements affecting the subcontractor’s work. At these meetings it is important to:

- Review the items discussed during the Bidding process.
- Clarify and communicate the H&S responsibilities of LCE and the subcontractor.
- Confirm the subcontractor’s understanding of project H&S requirements.
- Explain how LCE will monitor for compliance with contract standards, including H&S.
- Meet the subcontractors’ Qualified Person, and discuss coordination issues. If the Qualified Person is not at the meeting, obtain their name and contact information.
- Review any site hazards with the subcontractor, especially any high hazard activities requiring additional safety plans, e.g., fall protection, confined spaces, proximity to power lines, traffic control, etc.
- Review requirements for the subcontractor to conduct a site hazard assessment and develop the necessary written safe work procedures, and site specific safety plan.

The subcontractor will be required to commit their company to complying with the project H&S requirements, which is endorsed by signing LCE’s *Sub-Contractor Safety Commitment* form.



CONSTRUCTION PROGRESS MEETINGS

LCE may hold weekly Construction Progress Meetings. Project health and safety issues are discussed at these meetings. H&S topics tabled during the Construction Progress Meetings include:

- incident/injury reports and statistics
- H&S Program activities
- actions required for improvements to project H&S
- training
- H&S resources available
- any other issue impacting project H&S

Meeting minutes are to be taken and kept on file.





SECTION #4 Training



TRAINING POLICY

PROJECT SPECIFIC REQUIREMENTS

OCCUPATION/ACTIVITY BASED REQUIREMENTS

NEW HIRE INDUCTION PROCESS

ORIENTATION TRAINING

- Project Orientation Training

- Record of Orientation

- Exceptions to Regular Project Orientation Requirements

- Site Specific Orientation Training for LCE Employees

- Record of site specific Orientation Training

- Subcontractor's Site Specific Safety Orientation Training

Daily Hazard Discussions (TOOL-BOX TALKS)

- Preparing to Deliver a Tool-Box Talk

- Delivering Tool-Box Talks

- Tool-Box Talk Records

PREVIOUS QUALIFICATIONS AND TRAINING

- Records

ON-GOING TRAINING AND SUPERVISION

- Records of On-Going Training

SPACIFIC COMPETENCIES

- Mobile equipment

- Rigging

- Confined Space Entry



TRAINING POLICY

Len Corcoran Excavating Ltd. (LCE) recognizes that all work must be done by trained and competent personnel. Proper training and competencies are vital to the success of our H&S Program and projects. All LCE personnel must have the skills and knowledge to do their work in a safe and productive manner.

LCE will ensure adequate training and confirmation of competencies are provided for all LCE employees. LCE requires our subcontractors do the same for their personnel. The expectation is that all project personnel will perform their duties in keeping with their training and experience. LCE will reinforce this by conducting periodic checks for compliance with this policy.

Adequate training and competencies for this project will be accomplished by:

1. Delivery of project specific training where needed.
2. Ensuring occupation or activity based training and competency requirements are met.
3. Verifying prior qualifications and training.

PROJECT SPECIFIC REQUIREMENTS

The following project specific training requirements must be met:

- Project Orientation – sets the baseline expectations for project health & safety, and environmental protection. It is provided by LCE and mandatory before working on project sites.
- Site Specific Safety Orientation – provides H&S information specific to the site, must be conducted prior to starting work on site, and must be re-delivered when site conditions or locations change.
- Daily Hazard Discussions – are conducted daily to help ensure personnel receive information on current H&S issues.
- Verification of previous training, qualifications and/or certification – determines the previous skills and knowledge required for job related competencies.
- Workplace Hazardous Materials Information System (WHMIS) – all personnel must have general WHMIS education, either as a condition of employment or subsequently after being hired. Personnel assigned responsibility for handling hazardous materials will receive additional training on safe use and storage.



- Noise – all project personnel will be educated on noise hazards and trained on use of hearing protection. Noise hazard education will be accomplished through Site Specific Safety Orientations, Daily Hazard Discussions, and
- through distributed educational literature. Hearing protection requirements will be included in daily crew safety briefings.
- Personal Protective Equipment (PPE) - all project personnel will be educated in the use and care of PPE required for this project. The primary delivery of this training will
- be Site Specific Safety Orientations, daily crew safety briefings. Specialized training will be delivered as needed.
- Occupational First Aid Certification – for all first aid attendants (One First Aider for every five workers).
- Emergency Evacuation – all persons must receive a briefing on site specific emergency evacuation and marshaling points. The primary delivery of this training will be Site Specific Safety Orientations and daily crew safety briefings.
- Vehicles – all persons operating vehicles will have a valid Driver’s License with the correct classification for vehicle type driven.

OCCUPATION/ACTIVITY BASED REQUIREMENTS

The following is a summary of occupation or activity based training requirements that may apply:

- Asbestos All Supervisors and Safety Representatives to aid personnel handling or removing asbestos
- Confined Space – safe confined space entry and rescue for personnel entering confined spaces
- Electrical Work – all electrical work will be done by ticketed Electricians or Electrician’s apprentice under the supervision of an Electrician
- Emergency Eyewash – personnel who may come into dangerous contact with hazardous materials must be training on use emergency eyewash facilities
- Equipment/Machinery operation – for personnel that operate this type of equipment
- Fall protection – for personnel working at heights
- High Voltage Line Safety Watcher – when a “Safety Watcher” is required for work around high-voltage power lines, the Safety Watcher must be someone who is a competent Person



- Lock-out and De-Energization – any person required to repair, maintain or operate machinery or equipment where the unexpected energization or startup of machinery or equipment or the unexpected release of an energy source could cause injury must receive lock-out training
- Mobile Equipment – any person operating mobile equipment will be familiar with the operating instructions for the equipment, will have received adequate instruction in the safe use of the equipment, demonstrated to a qualified supervisor or instructor competency in operating the equipment, and if operating equipment with air brakes, have a valid air brake certificate or a driver's license with an air brake endorsement
- Musculoskeletal Injury (MSD's) – personnel at risk of MSD's must be educated in risk identification and training in methods of prevention
- Rescue and Evacuation – personnel designated to provide rescue or evacuation services must be adequately trained, and the training program must include simulated rescue or evacuation exercises and regular retraining, appropriate to the type of rescue or evacuation being provided
- Respirators – personnel required to use a respirator
- Rigging – personnel conducting rigging and slinging work must be under the direct supervision of qualified workers familiar with the rigging to be used and with signals authorized for controlling hoisting operations
- Traffic Control – for traffic control personnel
- Transportation of Dangerous Goods (TDG) – required for all persons who ship, receive and transport dangerous goods
- Tree Pruning – this work will be conducted by qualified electrical workers, certified arborists, or an apprentice arborist working under the direct supervision of a certified arborist, or a qualified electrical worker will be authorized to do this work
- Tree Falling – this work will be conducted by qualified tree fallers as certified by acceptable certifying agencies such as arborists
- Violence Prevention – workplace violence prevention education and training is for persons who may be exposed to the risk of violence in the workplace
- Working alone – personnel who may work alone, and persons with responsibilities for checking of persons working, alone must be trained in safe procedures



NEW HIRE INDUCTION PROCESS

Personnel hired by LCE to work will participate in a new employee induction process. The process will start with the Management and will culminate with the new hire beginning work on site. The process and events at each step are summarized as follows:

1. LCE makes an offer of an employment and the employee accepts. Induction process initiated.
2. Employee reports to project office at 2122 Sydenham Road, Elginburg Ontario to begin new employee induction. The following occur:
 - Review of job description and expectations for H&S performance.
 - Verification of previous training and qualifications.
 - Identification of special instructions/training requirements for the position and how it will be delivered.
 - A question and answer period to provide personnel with any additional information they require.
3. The required induction and employment records are completed.
4. Employee is issued personal protective equipment (PPE):
 - hard hat
 - eye protection (over the glasses style available, as required)
 - hearing protection (as required)
 - hi-visibility vest
 - gloves (as required)

In addition (as required), the employee may be issued with:

- specialized protective equipment as required for occupation, e.g., fall protection harness, specialized gloves, etc.
5. Employee attends Orientation delivered by H&S Coordinator
 6. Employee reports to work site location and connects with their supervisor. The employee receives a Site Specific Safety Orientation by Site Supervisor/ Superintendent
 7. Employee begins work and receives any required on-the-job training supervised by a qualified person.



ORIENTATION TRAINING

There are two distinct orientation training sessions required before working on LCE sites:

1. Annual H&S/Project Orientation
2. Site Specific Safety Orientation

The Project Orientation training is delivered by an LCE representative. The training establishes project/industry-wide baseline expectations for health & safety performance and environmental protection.

The Site Specific Safety Orientation training is delivered on site by a site supervisor or designate, and addresses important H&S requirements for that specific work site

Project Orientation Training

All project personnel will attend the annual LCE H&S Orientation prior to accessing project site locations. This requirement applies to LCE employees and subcontractor's employees. Topics covered include:

- Scope of projects
- LCE acting on behalf of the Constructor – Coordination of H&S Activities
- H&S Program – Goal of Program and Overview
- Subcontractor Responsibilities for H&S
- Project Hazards and Safe Procedures
- Project First Aid
- Reporting Incidents and Injuries
- Protecting the Environment
- Actions During Protests
- Important Contact Information

Record of Orientation

A record of attendance of persons attending the **Orientation** training will be kept by LCE. This will serve as proof of participation. Each person attending this training will be issued a Training Record to be put in file.



Exceptions to Regular Project Orientation Requirements

1. **Site Visitors** – Site visitors may access project site locations without Orientation training if they are escorted while on site by a person that has received the Project Orientation and is authorized by LCE to access the site. Site Visitors must report to the site supervisor before accessing the project site locations. Visitors may be required to complete a Site Specific Safety Orientation if required
2. by the site supervisor. Site Visitors that do not comply with these requirements will be removed from the site.
3. **Deliveries and Mechanical Repair Services** – Delivery drivers and mechanical service personnel are not required to attend the Project Orientation or complete a Site Specific Safety Orientation if the following conditions are met:
 - the delivery/mechanical repair is at a location pre-designated by LCE or an LCE subcontractor
 - the delivery/mechanical repair location does not interfere or interact with other construction activities
 - a trained and authorized LCE employee or LCE subcontractor meets the delivery driver/mechanical service provider and supervises the delivery/repairs
 - the delivery/repair service does not involve frequent or extensive travel on the site right-of-way Delivery companies and mechanical service providers that have a contract to provide regular services to the project may be required to attend the Project Orientation.
4. **Dispatched Dump Trucks** – LCE may require the services of dump trucks that are dispatched from off-site, and the sole duties of the driver is to drive the truck, transfer and dump materials. The trucking company may not dispatch the same drivers each time. A typical example is a contract for deliveries from a gravel pit where the truck drivers are dispatched for the delivery through a central dispatch system. In these situations, the dispatched dump truck drivers do not have to attend the Project Orientation; however, they must be made aware of site safety and be made aware of any and all traffic hazards. They must make contact with any site traffic control personnel before making a delivery to LCE sites. The discussion should consist of a any site hazards, hand signals, and the route of entry to the location of the delivery.

This type of Project Orientation delivery is only valid if the following two conditions are met:

- a. The trucks are only driving on and off the site.



- b. Truck drivers do not do any work or site activities outside of the vehicle while on site, except for “truck and pup-transfer”.

Truck drivers assigned to work on the project on a regular basis, or that have other duties on site, must attend the Project Orientation training. This requirement for regular Orientation training also applies to LCE regularly contracted truck drivers.

Site Specific Orientation Training for LCE Employees

LCE employees will receive Site Specific Safety Orientation when they first report to work at a new site. The orientation will include safety information specific to the site and the expected duties the worker will perform. The Site Supervisor, Superintendent or designate will conduct the orientation session. As a minimum the Site Specific Safety Orientation must include, but not necessarily be limited to, the following:

- a review of H&S program requirements
- the identification of site hazards, and the safe procedures for dealing with these hazards
- how to report hazards, injuries, accidents and near misses
- information regarding current site-specific safe work procedures in use
- the requirements for personal protective equipment to be used generally on site, and for specific task
- the location of safety reference materials including:
 - LCE H&S Program Manual
 - Material Safety Data Sheets (MSDS)
 - Occupational Health & Safety Act and Regulation (OHSA)
- the location of first aid facility(s), services and emergency equipment
- the means of summoning aid in emergency signal
- name of their supervisor and or the site superintendent, and how to contact them
- names of safety committee members and how to contact them
- name of site Qualified Safety Representative and H& S Coordinator and how to contact



Record of Site Specific Orientation Training

A record of orientation training will be forwarded to LCE's H&S Coordinator to be placed on file as a permanent record. The *Site Safety Orientation Training Record* form will be used for this purpose. (See *Section 19 – Forms*).

Subcontractor's Site Specific Safety Orientation Training

All subcontractors working on LCE Projects will provide their personnel with **Site Specific Safety Orientation** training. The requirements as outlined previously for the site specific orientation training provided to LCE employees will also apply to project

subcontractors and their personnel. Subcontractors are encouraged to use training delivery processes and records that are best suited to their needs. The *Site Safety Orientation Training Record* provided in this manual may be used by project subcontractors with permission by LCE.

Daily Hazard Discussions (TOOL-BOX TALKS)

Daily Hazard Discussions (*Tool-Box Talks*) are an effective way for supervisory personnel to exhibit continuing commitment to project H&S goals. Tool-Box Talks are a key part of worker education and training. Tool-Box Talks must be conducted with a specific topic for discussion such as a safety rule, safe job procedure, a recent incident, inspection results, projection of daily work etc.

Tool-Box Talks will also be used to discuss hazards and provide information on how to minimize or remove the hazard.

Crew Supervisors (Superintendents) must ensure all of their crew is present when delivering a Tool-Box Talk. Supervisors should try to ensure that Tool-Box Talks are no more than 10 minutes in duration, should be accompanied by a sign in sheet.

The following basic guidelines for Tool-Box Talks are to be followed:

1. Toolbox Talks are to be held a minimum of once per day.
2. Each supervisor or designate will conduct a Toolbox Talk with their crew.
3. All workers must attend.
4. Meetings should be limited to 5 to 10 minutes.
5. Toolbox Talks are first, and foremost, a presentation of essential safety information for the purpose of on-going education of workers.
6. Examples of typical Tool-Box Talk topics include:



A recent incident and corrective actions	Back care
Care & use of personal protective equip.	Defensive driving
Eye protection	Fall protection
Guards on equipment	Housekeeping on the job
Inspecting equipment before use	Jobsite emergency procedures
Keep out of danger areas	Ladder safety
Management's commitment to safety	Noise destroys hearing
Operating equipment safely	Participating in the safety program
Qualified first aid attendants	Reporting accidents and hazards
Responsibilities	Scaffold safety
Traffic control	Upkeep of power tools
Violations of health and safety rules	Wearing appropriate clothing

Preparing to Deliver a Tool-Box Talk

The following guidelines will be helpful when preparing to deliver Tool-Box Talks (Form 005):

1. Decide on a topic and limit the presentation to one main idea. The following should be considered and will assist you in your preparation:
 - think of your own experiences and observations
 - think of your area of control, repeated problems, recent accomplishments, needs for improvement
 - think of your crew, their wants and needs, opinions, abilities and attitudes
 - keep notes of day-to-day occurrences that could form a basis for a pertinent Tool- Box Talk
 - read health and safety-related material, and clip out articles for discussion
2. Summarize your talk in point form for reference by:
 - knowing what you are going to say
 - writing down the key points, facts and examples
3. Practice your talk if needed - run through your material before presenting it to your crew.

Delivering Tool-Box Talks

When you deliver your talk:

1. Relate to your crew members' attitudes, abilities and interests.



2. Make sure your crew hears and sees your talk. Where possible, use brief demonstrations, simple graphs or displays, H&S posters, news articles, etc.
3. Involve your crew by encouraging questions and discussion on the topic.
4. Keep your message clear and understandable.
5. Answer spoken and unspoken questions. Your crew members will always have the following questions in mind:
 - What does it mean to me?
 - What do you want me to do?
6. Leave time for discussion of issues that the crew feel are important.

Tool-Box Talk Records

Use the Daily Hazard Awareness Discussion (*Tool-Box Talk*) Record form (Form 005) to document the topic(s) discussed, crew members attending, suggestions, unanswered questions for later comment or follow-up, and any corrective actions recommended or taken. *Toolbox Talk Records* can be reviewed at the monthly Joint Occupational Health & Safety Committee (JOHSC) meetings. Keep a copy of the completed record on the work site and forward one copy to LCE's Head Office.

PREVIOUS QUALIFICATIONS AND TRAINING

Previous qualifications, certificates, prior training, etc. must be verified when personnel are hired. Verification requires having documents or other records on file that shows the completion of training programs, licenses or other qualifications. This is especially important if qualifications are required to do a specific job, e.g., electrician, blaster, crane operator, etc.

Records

The Health and Safety Coordinator will ensure that the information provided by the employee is correct. Once the information has been verified (by copy of certificate, diploma, license, trade ticket, etc.) a record of the information will be kept on the employee's personnel file.

ON-GOING TRAINING AND SUPERVISION

Previous training and experience is no guarantee that personnel will perform as required. It is the responsibility of the employee and the employee's Supervisor to



ensure that all work is completed in a manner consistent with prior training, experience and qualifications. All work must be undertaken in compliance with the H&S program and legal requirements. Re-training may be required should there be any performance deficiencies. Supervisors will be responsible for re-training employees. Assistance from the H&S Coordinator is available. In some situations, the work may be new and therefore require new skills and knowledge training. This can be delivered in a number of ways that include but are not limited to:

- courses delivered by a competent trainer
- supervised, on-the-job training
- job coaching by the supervisor or a peer training
- delivered on-the-job by a qualified peer

Supervisors should seek out assistance from the H&S Coordinator and the Management when determining the best approach to training delivery.

Following are some general guidelines for supervisors or other personnel that can be used to help organize training, and in particular on-the-job training:

1. The employee will review applicable written work procedures (as often as required to digest the information). Questions should be encouraged and answered as thoroughly as possible.
2. The “trainer” will motivate the employee to learn. The points of motivation will vary from trainer-to-trainer, and from learner-to-learner. In general, motivation will center on stressing the importance of doing the job correctly, the employee’s safety and their importance to the project.
3. The trainer will then explain to the employee the correct way of performing the task(s). Explain fully what is expected from the employee.
4. If it is a physical task, the next part of the process is to show or demonstrate how to perform the task.
5. Test through written and/or practical exercise to ensure that the employee understands the proper way to perform the task. Correct any errors.
6. Check back periodically to ensure that the employee continues to use the correct procedures. (Checking to ensure continued use of correct procedures should also be part of the day-to-day normal supervisory process.)
7. Sign-off the employee as trained once they have demonstrated competency, i.e., they can perform the task according to proper procedures. Use the training record designed for this purpose. Ensure that the employee signs off only if they



understood the training and they feel confident in being able to safely perform the task.

Records of On-Going Training

The *Training Record* form (or similar document) can be used to record training conducted for LCE employees. Project subcontractors may also use this form. The employee's supervisor will keep a record on site and send a copy to LCE Office to be included on the employee's personnel file.

SPECIFIC COMPETENCIES

During the project, and in response to identified need, specific training competencies will be developed. The Management and Health and Safety departments will work together to develop and implement this requirement.

Mobile Equipment

Mobile equipment operators must receive adequate instruction/Training in the safe use of the equipment such that they can demonstrate competency in operating the equipment to a qualified supervisor or instructor. This may include any required air brake endorsements if the equipment is so equipped. Assessment of operator competencies must be consistent with the operating instructions for the equipment. LCE will keep a record of the competency assessment on the employee's training file. LCE subcontractors must be prepared to submit records for their employees to LCE.

Rigging

Rigging and slinging work will be performed by persons that have demonstrated competency to a qualified supervisor. Competency standards assessment will include:

- Inspection of rigging to determine if it is safe for use
- Estimating load weights and determining safe working loads
- Selecting correct rigging gear and method of connection
- Using the correct signals for controlling hoisting operations

Confined Space Entry

Confined Space Entry can be dangerous and has vital prescribed regulations documented in the OHSA. Staff who are to do this must receive adequate instruction in



the safe procedures and use of the equipment such that they can demonstrate competency in following the procedures entering a confined space operating the equipment to a qualified supervisor or instructor.

Assessment of competencies must be consistent with the OHSA and H&S Procedures. LCE will keep a record of the competency assessment on the employee's training file. LCE subcontractors must be prepared to submit records for their employees to LCE. Competency assessments will include:

- Initial certificate training through an accredited certified training agency (Infrastructure Health and Safety Association) in Confined Space Entry and Working at Heights
- Inspection proper use of entry equipment including harness, tripod or davit entry system, use of gas detection equipment
- Proper documentation of entry and following prescribed OHSA and H&S Policy and procedures





SECTION #5 Joint Occupational Health and Safety Committee (JOHSC)



JOINT OCCUPATIONAL HEALTH AND SAFETY COMMITTEE POLICY JOHSC GUIDELINES

Selecting JOHSC Members

Quorum

Selection and Duties of Co-Chairs

Agenda

Conducting the Meeting

JOHSC TERMS OF REFERENCE

Constituency

Records

Meetings

Minutes and Agendas

Committee Officers

Recommendations to Project Management

Amendments



JOINT OCCUPATIONAL HEALTH AND SAFETY COMMITTEE POLICY

Len Corcoran Excavating Ltd (LCE) recognizes the importance of having an effective Joint Occupational Health & Safety Committee(s) (JOHSC). Establishment of a JOHSC is also a legal requirement that must be met. An effective JOHSC is a real benefit to the corporation and is an integral part of ensuring a safe and healthy workplace.

LCE will establish a Joint Occupational Health & Safety Committee (JOHSC) as required by the OHSA (R.S.O. 1990, c. 01, s. 9 (2))

Individual subcontractors, regardless of crew size, are not required to form a separate JOHSC on the same site, but may elect to do so voluntarily.

LCE may also require a JOHSC be established at a work site even though the above criteria are not met. This will be done in cases where a need is determined by LCE Management and/or upon recommendation by the H&S Coordinator.

JOHSC GUIDELINES

The JOHSC is a medium for workers and management to communicate and exchange information on health and safety matters. The JOHSC's purpose is to assist in creating and maintaining a safe place of work. This is accomplished through recommending actions for improving the effectiveness of the H&S program, and promoting compliance with the program and regulatory requirements. The JOHSC consists of management and worker representatives who are directly involved in site operations. The JOHSC acts primarily in an advisory capacity and has the ability to make recommendations to management. Management is required to respond to written recommendations if the JOHSC asks for a response.

JOHSC Duties

The Joint Occupational Health & Safety Committee (JOHSC) will:

- a) identify situations that may be unhealthy or unsafe for workers and advise on effective systems for responding to those situations
- b) consider and expeditiously deal with complaints relating to the health and safety of workers
- c) consult with workers and the employer on issues related to occupational health and safety and the occupational environment
- d) make recommendations to the employer and the workers for the improvement of the occupational health and safety and occupational environment of workers



- e) make recommendations to the employer on educational programs promoting the health and safety of workers and to monitor their effectiveness
- f) make recommendations to the employer on compliance with the Workers Compensation Act (WCA) and Occupational Health and Safety Act and Regulation (OHSR) and to monitor their effectiveness
- g) advise the employer on programs and policies required under the WCA & OHSR and to monitor their effectiveness
- h) advise the employer on proposed changes to the workplace or the work processes that may affect the health or safety of workers
- i) ensure that incident investigations and regular inspections are carried out as required by the WCA & OHSR
- j) participate in inspections and investigations
- k) hold meetings to review:
 - 1. reports of current incidents or occupational diseases, their causes & means of prevention
 - 2. action taken or required by reports of investigations and inspections
 - 3. any other health and safety matters
- l) record proceedings of meetings may forward minutes to:
 - LCE site office
 - LCE Head Office
 - the nearest MOL office (if required)
 - subcontractors (if required)
 - committee members
 - unions (if required)

Selecting JOHSC Members

Worker representatives of the JOHSC are selected from workers at the workplace who do not exercise managerial functions. The selection of worker representatives must meet the following requirements:

- a) If the workers are represented by one or more unions, the worker representatives are to be selected according to the procedures established or agreed on by the union or unions.



-
- b) If none of the workers are represented by a union, the worker representatives are to be elected by secret ballot.
 - c) If some of the workers are represented by one or more unions and some are not represented by a union, the worker representatives are to be selected in accordance with paragraphs (a) and (b) in equitable proportion to their relative numbers and relative risks to health and safety.
 - d) If the workers do not make their own selection after being given the opportunity under paragraphs (a) to (c), management must seek out and assign persons to act as worker representatives.

Management representatives of the JOHSC are to be selected by management from among persons who exercise managerial functions at the workplace for which the JOHSC is established.

Substitutes

Each JOHSC will decide whether or not to use member substitutes, and whether to grant them the full rights and authority of the members they replace. Vacation, sick leave, time away from work due to injury, and jobsite and personal commitments are good reasons to allow substitute members.

Quorum

The committee must decide how many members will constitute a quorum. (A quorum is the number of members that must be present to constitute a valid committee meeting.) Management representatives must not out-number worker representatives. Generally speaking, the committee should consist of a minimum of four (4) members – two each from management and the workforce.

Selection and Duties of Co-Chairs

The committee must elect two Co-Chairs from its members with management representing one position and a worker representing the other. The management Co-Chair is to be selected by the JOHSC management members, and the worker Co-Chair from the worker members.

The Co-Chairs have the following duties:

- a) Planning the meeting topics and prepare a meeting agenda.
- b) Controlling the direction of the meeting but not the discussion.



- d) Ensuring that every item on the agenda receives attention. Conclusion should be reached on each item. This may mean referring a matter for further consideration.
- e) Keeping the meeting on track by quickly ending any irrelevant discussions.
- f) Bringing to a close any discussion that is not getting anywhere and move to the next item, deferring the discussion to the next meeting if necessary, or referring the matter to another forum for resolution.
- g) Preventing confrontations between members. This may entail calling a brief recess during which mediation should be attempted.
- h) Preparing, posting and distributing meeting notices and minutes, and maintaining meeting records.
- i) Compiling materials for meeting discussion.
- j) Notifying members of time and place of meetings.

Agenda

The meeting agenda should be standardized in an order such as the following:

1. Roll call (record members present and absent, and guests).
2. The revision (if necessary) and adoption of previous meeting minutes. Minutes should be read prior to the meeting and members prepared to advise the secretary of any errors or omissions that require correction.
3. Discussion of old or unfinished business.
4. Review of recent incidents, investigations and corrective actions.
5. Discussion of health and safety related concerns and suggestions.
6. Reports on special assignments.
7. Reports on inspections, with recommendations.
8. Training and education of committee members.
9. Discussion of any other new business.
10. Schedule next meeting.
11. Adjournment.

Conducting the Meeting

1. At the first meeting members are to elect the Co-Chairs, and prepare and issue the *JOHSC Terms of Reference* provided in this section of the manual. The members



are to adopt the terms of reference as is, or amend and adopt the terms of reference.

2. Members should prepare for the meeting by being aware of, and prepared for, what is on the agenda.
3. Committee meetings should work by consensus to recommend solutions rather than deciding matters by majority vote.
4. Committee meetings are not required to follow formal meeting structures requiring motions, amendments and votes on each motion. None-the-less, meetings must be conducted in an orderly manner with a means to bring issues to resolution. The JOHSC meetings should generally proceed as follows:
 - an agenda item is presented
 - a discussion follows to ensure all members understand the issue
 - members discuss solutions in an effort to find the best
 - the Co-Chair running the meeting states the consensus of the committee and summarizes recommendations, decisions and assignments
5. Meetings should start on time without waiting for late arrivals
6. The agenda should be followed and each issue dealt with in a timely manner.
7. The meeting should adjourn on a positive note.

JOHSC TERMS OF REFERENCE

Constituency

The committee will consist of:

- Management and worker site representatives with the management representatives not exceeding the number of worker representatives.
- Substitute members to temporarily replace absent members. Substitute members are to be granted same rights as regular committee members.

Records

The committee will keep minutes of all meetings. The minutes relevant matters that come before it. The *JOHSC Meeting Minutes* form can be used for this purpose.



Meetings

1. The committee will meet on _____ (day and time, e.g., the first Thursday of every month at 11:00 a.m., or 15:30 hours on two-shift operations).
2. Special meetings may be held at the Co-Chair's request.
3. A quorum will consist of a minimum of four members.

Minutes and Agendas

1. The Co-Chairs will prepare an agenda. The agenda will be distributed to members at least one week prior to the meeting.
2. Minutes will be prepared promptly after the meeting and will be distributed to all members and substitutes, LCE, Subcontractors, Unions (if requested) and posted.
3. Copies of minutes and reports will be kept on file at the site for the duration of the project.

Committee Officers

1. The committee will elect two Co-Chairs from its members with management representing one position and worker representing the other. The management Co-Chair is to be selected by the JOHSC management members, and the worker Co-Chair from the worker members.
2. The Co-Chairs will share the responsibility for keeping records of meetings, and preparing and distributing agendas and minutes.

Recommendations to Project Management

The JOHSC can make written recommendations to management for the correction of health and safety concerns. The written recommendations can include a request for a written response, which management must respond to within 21 days of the request being submitted.

Amendments

The terms of reference may be amended by consensus or by majority vote of committee members.



SECTION #6 Supervision and Due Diligence



SUPERVISOR AND DUE DILIGENCE POLICY
SUPERVISOR COMPETENCY
SUPERVISION OF WORK
REINFORCING AND PROMOTING DESIRED BEHAVIORS
DUE DILIGENCE CONSIDERATIONS

- Record Keeping
- Supervisor's Daily Journal
- Appropriate Format



SUPERVISION AND DUE DILIGENCE POLICY

Len Corcoran Excavating (LCE) is committed to taking reasonable steps to ensure the safety of our employees, subcontractors and site visitors. Good due diligence generated by superior management and supervision makes this happen. It is everything done right, the first time, every time, and the ability to prove the right thing has been done.

LCE will provide resources, guidance and training necessary to ensure project due diligence requirements are met. Compliance with Health & Safety (H&S) Program and regulatory requirements is essential for due diligence. It is through good record keeping that we can prove due diligence. Personnel with supervisory responsibility are central in this process. LCE will support our supervisory personnel in achieving H&S Program and regulatory compliance.

SUPERVISORY COMPETENCY

Supervisory personnel must be competent in order to meet due diligence requirements. LCE's management will support supervisors in meeting due diligence requirements by:

1. Ensuring supervisory personnel are competent with respect to:
 - a) health and safety responsibilities
 - b) training, instructing and motivating workers to work safely through the use of worker orientations, tool-box talks and one-on-one discussions
 - c) supervising workers, monitoring worker safety performance, correcting unsafe behavior and enforcing program requirements
 - d) recognizing and controlling hazards
 - e) performing safety inspections
 - f) conducting incident investigations
2. Ensuring supervisory personnel have demonstrated abilities in:
 - a) effective communication
 - b) leadership and safe organization of work
 - c) problem solving
 - d) compatibility with LCE's philosophy
3. Providing supervisory personnel with achievable H&S objectives and feedback on their performance.



4. Employing and promoting only those supervisors who demonstrate a concern for the health and safety of the employees they supervise.
5. Providing materials to assist supervisors in developing and maintaining worker interest in the H&S Program.
6. Providing suitable record keeping formats.
7. Communicating to construction purchasers, subcontractors, regulatory agencies, and employees that our supervisory personnel are committed to achieving H&S program goals.

SUPERVISION OF WORK

In the event of a serious accident or non-compliance with regulatory requirements, the two main factors under investigation are always **supervision** and **training**.

The importance of good supervision cannot therefore be understated. Well-trained supervisors, that perform their duties conscientiously and effectively, are essential for ensuring a safe and productive workplace. They are one of the cornerstones for the success on a project, or of a corporation.

Supervisors have an incredible amount of responsibility for worker safety and training. They are accountable for workplace conditions, worker safety and training, and compliance with the regulatory requirements. Here are the duties that supervisors are expected to carry out on a regular or as-needed basis. Supervisors will:

- ensure all personnel on site have completed the **Project Orientation**
- ensure that **Site Specific Safety Orientation** training is provided and that a record is kept of the training
- ensure that all employees working under their direction are given specific on-the-job training, and a record of that training is kept
- ensure that training is effective and that employees perform tasks without undue risk
- communicate safety and health information to employees
- enforce compliance with LCE's rules, policies and procedures, and the Workers' Compensation Act (WCA), and Occupational Health & Safety Act and Regulation (OHSA)
- enforce the wearing of personal protective equipment and clothing
- conduct regular (weekly) on-going workplace inspections for their work areas to ensure hazards are identified and corrected



- report accidents and serious near misses (incidents) to the H&S Coordinator without delay, and then ensure investigations are conducted within the specified time
- respond to, and keep a record of, H&S issues brought forth by employees, and ensure that such issues are resolved in a reasonable period of time
- be a role model for safety
- attend all required training

REINFORCING AND PROMOTING DESIRED BEHAVIOURS

Supervisors must take an active role in reinforcing and promoting the behaviors needed to achieve an effective H&S Program, and specifically, the behaviors necessary for a safe and healthy workplace. Supervisors will use three important techniques to help ensure that people they supervise are clear about what is required to meet H&S Program and regulatory requirements. These techniques are referred to as modeling, rewarding, and correcting.

Modeling is any means used to demonstrate the proper way to perform a task. It also refers to behaving in a manner that people will imitate. Supervisors will model appropriate behavior for the promotion of safety and health. In other words, set a good example! This includes, but is not limited to, the following:

- using the correct work procedures
- wearing the required personal protective equipment (head protection, eyewear, footwear, hearing protection, hi-visibility clothing, etc.)
- using the correct technique, tools, equipment, and/or machinery when performing or demonstrating a task
- operating machinery only if the guards, safety switches, etc. are in place and functioning properly
- locking-out machinery and equipment before performing maintenance or repairs

Rewarding is recognizing personnel that use good work practices. Rewarding and encouraging correct behavior will help make it occur more often. Supervisors will reinforce correct behavior by:

- recognizing when a job or task is performed properly (i.e., using correct procedures, equipment, etc.)



- providing verbal (positive feedback) acknowledgement and reinforcement of the correct behavior

Supervisors are encouraged to intentionally look for correct/safe behaviors and let project personnel know they appreciate the effort that goes into doing a job the right way.

Correcting involves telling personnel when their behavior, work practices, etc. are not correct. The correction must be immediate. Supervisors should use the following technique for correcting incorrect/hazardous behaviors:

1. Identify the hazardous action and/or condition.
2. Restate your position if the person disagrees with your observation.
3. Inform the person of the correct method that is to be used. Demonstrate if required.
4. Check to ensure that the person understands what changes are required.
5. Emphasize the importance of the person's well-being to yourself and LCE.
6. Record your observations for reference at a later date should disciplinary actions become necessary. If a situation is serious enough to require corrective action, then be sure to record the events, and follow LCE's policy on disciplinary procedures.

DUE DILIGENCE CONSIDERATIONS

The need for due diligence is never more apparent than after a serious accident. Our H&S Program efforts must be focused on the prevention of all accidents. The goal of a zero accident rate is attainable. However, if a serious accident does unfortunately occur, it will be necessary to be able to prove to the investigating agency that project personnel have done everything reasonable to prevent the accident. This is in effect the due diligence defense. It consists of proof that LCE's management and supervisors have:

- communicated safety and health responsibilities and objectives
- put systems in place to identify and control hazards
- supervised and trained project personnel adequately
- ensured trainers are qualified to train
- corrected unsafe conditions and actions (including using disciplinary actions when warranted)



- implemented a viable H&S Program that is supported by the management, supervisors, employees and subcontractors

The burden of proof for due diligence will be the responsibility of LCE and our subcontractors. Written records are the only way to prove that events have taken place; therefore, supervisors (and management) must ensure good record keeping. Supervisors need to keep records of the actions they take to ensure employees are competent, and actions to enforce H&S Program and regulatory requirements.

Record Keeping

Supervisors and management need to work together to ensure the following are recorded and the following records are accessible to an investigating agency upon request:

- orientation and training records
- protective equipment issue records
- disciplinary actions
- inspection reports
- hazard correction (e.g. a Supervisor's Daily Journal)
- incident investigation reports

Supervisor's Daily Journal

A daily journal should be kept and continually updated by LCE supervisory personnel. Information that should be recorded includes:

- compliance issues that have been identified and resolved
- safety performance, and issues related to discipline of workers and subcontractors
- actions taken by supervisor to correct unsafe acts and conditions
- activities that have helped promote compliance and a improve workplace safety
- on-going training provided that is not otherwise recorded elsewhere

The daily journal provides a record of ongoing activities that help to protect the health and safety of LCE and sub-trade employees.



Appropriate Format

The supervisor's journal may become admissible evidence in a Coroner's inquest and/or other regulatory investigation; therefore, journals should meet the following minimum criteria:

- pages are permanently bound (not easily removed) and sequentially numbered
- entries include date, time, place and details of issues/actions/events
- entries are made in permanent ink and are legible
- entries are sequential
- entries that have been corrected are initialed by the writer to indicate an authorized correction



SECTION #7 Rules, Practices, and Procedures



RULES, PRACTICES, AND PROCEDURES POLICY

RULES, PRACTICES, AND PROCEDURES IN THIS MANUAL

- Development and Revisions

- Enforcement

- Regulatory Compliance

PROJECT(S) RULES

- Project Rules – Compliance Details

RIGHT TO REFUSE UNSAFE WORK



RULES, PRACTICES, AND PROCEDURES POLICY

Len Corcoran Excavating Ltd. (LCE) will provide and enforce rules, practices and procedures that support the goal of a zero accident project. The applicable rules, practices and procedures will be communicated to our employees and subcontractors.

Compliance with the *Project Rules* is mandatory, and a zero tolerance for non-compliance is in effect. Written practices and procedures must be followed and any required deviations communicated without delay to the H&S Coordinator and/or Site Supervisor.

Rules, practices and procedures will be reviewed on a regular basis and the need for revisions determined by any or all of the following:

- reviewing inspection, incident investigation and first aid records
- observing project personnel performing their work activities
- evaluating project personnel and Joint Occupational Health & Safety Committee recommendations
- reviewing regulatory requirements
- analyzing new work processes and contract specifications

Supervisory staff is responsible for ensuring personnel they supervise understand and comply with all rules, practices and procedures.

RULES, PRACTICES, AND PROCEDURES IN THIS MANUAL

This Section of the H&S Program manual contains the *Rules, Practices, and Procedures Policy* and the *Project Rules*. All task/work related procedures are found in *Section 17 – Safe Work Practices*.

Other procedures specific to H&S program requirements are found in the Section of the manual to which they pertain. For example, all information on incident reporting is found in *Section 12 – Incidents-Reporting and Investigating*.

Development and Revisions

Rules, practices, and procedures will require periodic revision. The *Safe Work Practices* in Section 18 will not cover all workplace safety requirements and may need to be augmented with additional information. It may also be necessary to develop additional rules, practices, or procedures for specific situations not previously considered. Consult your immediate supervisor or contact the LCE H&S Coordinator if rules, practices or



procedures require development or revision. Whenever practicable, workers will participate in the development, revision or review of practices and procedures.

Enforcement

Project Rules will be strictly enforced and non-compliance viewed as a serious issue. Safe work practices and procedures will be equally enforced. Rules, practices, and procedures reflect legal compliance requirements; therefore, willful or negligent non-compliance with LCE rules, practices or procedures will result in disciplinary action.

Safety is the First Consideration. There is no chance worth taking that may jeopardize the safety or health of project personnel or the public. Rules, practices, and procedures are intended to reinforce this philosophy. Your commitment and cooperation are essential for achieving compliance and a zero accident rate project.

Subcontractors are responsible for their own safety, but they must comply with LCE's H&S Program. If subcontractors are observed doing something that may cause a health or safety hazard to themselves or others, report it at the earliest opportunity to the LCE Site Supervisor.

Regulatory Compliance

The *Workers' Compensation Act (WCA)* & *Occupational Health and Safety Act and Regulations (OHSA)* set the minimum standard for workplace health and safety. A copy of the OHSA with applicable WCA excerpts will be accessible on site for your reference, either electronically or in hard copy. Cooperate with Ministry of Labor Officers. Personnel can discuss the intent or requirements of the WCA and OHSA Regulation with a MOL Officer if they have a safety concern.

PROJECT(S) RULES

The following *Project Rules* are the same as the *Work Site Safety Rules* posted at project sites:

1. All workers and visitors must report to supervisor on arrival and when leaving site.
2. All workers and visitors must wear personal protective equipment while on site:
Mandatory
 - hardhat, safety-toed work boots, appropriate clothing, high visibility apparel
 - eye protection, hearing protection, gloves, fall protection, respirator, etc. (as required for work hazards)
3. All workers using respirators must be clean shaven and fit tested.



4. All workers must use fall protection as required by OHS regulations.
5. All workers must inspect tools, ladders and equipment prior to using them & be trained in the safe use of the equipment.
6. All ladders must be secured from movement and workers must maintain 3 point contact while on ladders.
7. All workers must help to maintain clear, unobstructed walkways and emergency access routes.
8. All workers must report all known hazards, and participate in the safety briefings and meetings.
9. All workers shall use the LCE Pre-Task Safety Inspection (PSI) forms prior to beginning a task on site to identify task hazards and implement controls
10. All workers must report to their supervisor all accidents, incidents, injuries and near misses.
11. All injuries must be reported to the first aid attendant and supervisor on the same day the injury occurs.
12. Operators, drivers and passengers must wear seatbelts when vehicle or mobile equipment is moving.
13. Only authorized persons may operate vehicles and mobile equipment.
14. No worker will enter a job site while under the influence of drugs or alcohol.
15. No worker will enter an excavation deeper than 4' without meeting the excavation criteria set out by the OHS (Sections 222 through 241) procedure, or without side wall protection or a documented engineered procedure.
16. No worker will leave openings in floors or walls unguarded or uncovered.
17. No worker will engage in horseplay, fighting or practical jokes.
18. No cell phone use while working on site or operating mobile equipment. Calls must be taken away from active work area.
19. Good housekeeping is mandatory.
20. Equipment or trucks are not permitted to reverse on any LCE site unless they are under the direction of a signal-person.
21. Any truck reversing without a signal-person must be reported to the Supervisor; drivers will receive one warning before they are removed from the site.
22. Any trucks or equipment found to have non-functional back-up alarms must be reported to the Supervisor and sent off-site or have it repaired immediately.



Project Rules – Compliance Details

The *Project Rules* are succinct one sentence instructions required for safe work. Following are important details on what is expected for compliance with the *Project Rules*:

1. **All workers and visitors must report to supervisor on arrival and when leaving site.**
 - All visitors must report to the project site office prior to accessing the site. If there is no site office, they must contact the site supervisor.
 - The proper posting of signs will assist in directing and controlling visitor site access on sites that do not have security staff.
 - Visiting professionals such as engineers, surveyors, etc. may attend **Project Orientation** and then receive a **Site Specific Safety Orientation**; otherwise, they must be escorted by personnel that have received the orientation training.

2. **All workers and visitors must wear personal protective equipment while on site:**

Mandatory – hardhat, safety-toed work boots, appropriate clothing, high visibility apparel

Job Specific – eye protection, hearing protection, gloves, fall protection, respirator, etc. (as required for work hazards)

Hardhats must be worn at all times on site unless the worker or visitor is:

- inside a vehicle that provides protection from falling objects
 - operating equipment that is equipped with overhead protection, or
 - in a work location that has been designated by the site supervisor as having no danger of head injury from falling, flying or thrown objects, or other harmful contacts
- **Safety-toed Footwear** must be above the ankle, construction grade footwear adequate to protect personnel from foot/ankle injury. Footwear must be laced-up to the top of the boot.
 - **Appropriate Clothing** must be worn. Clothing worn must provide protection from weather and job-related hazards. Long pants are required on LCE Constructors job sites. Where clothing may come in contact with moving parts of equipment,



tools or machinery, the clothing must not be torn, ragged or loose, and pants must not have cuffs.

- **High Visibility Apparel** (vests or clothing OSHA) must be worn at all times, where there is exposure to the danger of moving vehicles or mobile equipment. This hazard exists throughout the Project.
 - **Eye protection** must be worn when:
 - Grinding, chipping, mixing grout, blowing, burning, drilling, welding or performing other work procedures where exposure to an eye injury hazard is present.
 - Working with power tools where there is a high risk of flying debris, a full face shield must also be used. Or where the tool itself may become a hazard by striking the individual in the face.
 - Working on or testing electrical equipment energized at a potential greater than 30 volts.
 - Wearing contact lenses, 20/200 or less vision in either eye, or blind in either eye. (**Important:** Personnel that wear contact lenses must inform their supervisor so that the lenses can be removed in case of an accident. Don't wear contact lenses where gases, vapors, flying objects, dust or other materials are present that may harm the eyes or be absorbed by the lenses.)
 - **Hearing protection devices** (plugs and/or muffs) must be worn when there is excessive noise (85 dBA or greater daily average) and when directed by the supervisor.
 - **Respiratory protection** that has been fit-tested must be worn or carried in locations identified by the supervisor. If any of this equipment is not readily available or is in unserviceable condition, alert the supervisor and it will be provided or replaced.
 - **Personal flotation devices** (life jackets), with at least 200 sq. cm (32 sq. in) of white or silver retro-reflective material fitted on surfaces normally above the water surface, must be worn properly zippered, buckled or tied on where a drowning hazard exists.
- 3. All workers using respirators must be clean shaven and fit tested.**
Personnel must be clean shaven in order to achieve a facial seal with the respirator, which is necessary in order for the respirator to effectively protect against the inhalation of contaminants.



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- 4. All workers must use fall protection when within 3 meters of any fall hazard.**
Fall protection must be used in fall hazard areas. Fall hazard areas have the potential for a fall of 3 m (10 ft.) or more, or where there is an injury hazard greater than the hazard of hitting the ground, e.g., above operating equipment or protruding rebar. Guardrails is the preferred method of fall protection, then fall restraint, fall arrest, and other methods.
 - 5. All workers must inspect tools, ladders and equipment prior to using them & be trained in the safe use of the equipment.**
 - Equipment and machinery must be shut down and locked-out before oiling, adjusting, repairing or maintaining.
 - Shut down equipment and machinery before fueling.
 - Use the tools and equipment necessary to do the job safely. Use them in the way they were meant to be used.
 - Take care of tools and equipment - keeping equipment in good working order helps prevent accidents.
 - All rigging, hoisting and work platform procedures must be performed safely in compliance with the regulatory requirements. Appropriate slings, chokers, etc. must be used for all lifts.
 - Accident prevention signs must be placed where there is an immediate or potential hazard. The only persons authorized to remove an accident prevention sign or tag are the person who placed it or a supervisor.
 - All safety guards, barriers, signs and tags must be present, and safety devices must be in good operating condition.
 - Report any safety devices or guards that are not performing their intended function to your immediate supervisor for correction. These devices are in place for your protection.
 - Use proper lifting techniques to avoid sprains, strains and back injuries. Get help or use lifting equipment for heavy or cumbersome loads.
 - Guard against getting into an unbalanced position when pulling, prying or pushing - particularly at heights.
 - 6. All ladders must be secured from movement and workers must maintain 3 point contact while on ladders. Ladder must meet OHSA (Grade 1)**
 - 7. All workers must help to maintain clear, unobstructed walkways and emergency access routes.**
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8. All workers must report all known hazards, and participate in the safety briefings and meetings.

- All hazardous conditions (work procedures, atmospheres, defective or malfunctioning tools, equipment, structures, protective clothing or equipment) must be immediately corrected and/or reported to your immediate supervisor.
- If the risk is serious, put up a temporary barrier, attach a "danger" tag or take any other appropriate step to prevent possible accidents or personal injury, then report it to your supervisor.
- If the hazard is easily correctable, correct it and bring it to the attention of your supervisor.
 - If you identify an unsafe condition or practice that is easily correctable, you are expected to correct the hazard.
 - If the easily correctable hazard was of a potentially serious nature, it must also be reported to your supervisor.
 - If the unsafe condition is not easily correctable, immediately report it to your supervisor who will determine and implement any necessary corrective action and record it.
- Consult with your immediate supervisor before proceeding with the task if you have any concerns or questions regarding the safety of a work procedure. Your supervisor has the final word, but if you feel there is a risk involved in following supervisory personnel instructions, do not carry on with the job. Contact LCE H&S Coordinator immediately to discuss the situation. You will not be reprimanded in any way for questioning the safety of a work procedure.

9. All workers must report to their supervisor all accidents, incidents, injuries and near misses.

- If a serious accident occurs do not change anything at the accident location unless it is necessary to prevent further injury.
- Emergencies must be reported to LCE H&S Coordinator at 613-929-5979.

10. All injuries must be reported to the first aid attendant and or supervisor on the same day the injury occurs.

11. Operators, drivers and passengers must wear seatbelts when vehicle or mobile equipment is moving.

12. Only authorized persons may operate vehicles and mobile equipment.



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- 13. No worker will enter a job site while under the influence of drugs or alcohol.**
If you are under the influence of, or impaired by, illicit drugs or alcohol, stay off the site.
 - 14. No worker will enter an excavation deeper than 4' without meeting the excavation criteria set out by the OHSA (Sections 222 through 241), or without side wall protection or a documented engineered procedure.**
 - 15. No worker will leave openings in floors or walls unguarded or uncovered.**
 - Inform others if you are going to work above or below them and ensure that safe guards or precautions have been arranged.
 - Never leave tools or equipment in an elevated position where they can be knocked off onto another person.
 - Prevent access of personnel by barricading the area designated for waste disposal from upper floors of structures.
 - Always use toe-boards on floor openings, elevated work platforms and scaffolds if materials, tools or equipment may otherwise be able to fall off and create a danger to other workers or there is a danger of slipping off the work surface due to environmental conditions or work practices being used.
 - 16. No worker will engage in horseplay, fighting or practical jokes.**
 - Engaging in horseplay, fighting, practical joking and other similar potentially hazardous conduct is forbidden and will result in disciplinary action.
 - Knowingly or intentionally engaging in hazardous behavior is forbidden and will result in disciplinary action. Improper activity or behavior must be reported and investigated.
 - 17. No cell phone use while working on site or operating mobile equipment. Calls must be taken away from active work area.**
 - The misuse of cellular phones and other electronic communication devices on jobsites and vehicles can put workers and the general public at risk.
 - While on site all personnel must:
 - Only authorized personnel will be allowed to use a mobile phone on site.
 - Take or make personal calls only during break times and only in designated areas. If you are expecting an urgent call, you must
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make arrangements with your supervisor, or arrange to take time off work to deal with the situation.

- Ensure that if you are taking or making a business related phone call that you are away from hazardous equipment or activities which might put you at risk.
 - Comply with local bylaws, regulations, site rules or other prohibitions regarding the use of cellular phones.
- While in a company vehicle all drivers must:
 - Use voice mail to answer all calls while driving.
 - Pull over to answer or make telephone calls in a vehicle.
 - Use hands free kits only when road conditions are adequate and the driver is able to concentrate on driving and the device can be initiated by pressing a single button.
 - Never dial or enter keystrokes, or otherwise become distracted by looking at the device while the vehicle is in operation.
 - Never use email or text messaging while the vehicle is in motion.
 - Turn the phone OFF while driving to avoid the temptation to talk on the phone while driving altogether. If an equipment operator must use a cell phone for a work related purpose:
 - Stop the operation of equipment prior to answering the call (or let the call go to voicemail).
 - Take precautions to ensure the workers and public are not placed at additional risk due to the work stoppage.

18. Good housekeeping is mandatory. Maintain good housekeeping in your work area and secure it against unlawful access during the off-shift.

Be safety smart - Consult the H&S Program manual. Your participation in our H&S Program is encouraged, and for your benefit. Some methods of getting involved include:

- Participating in safety meetings . . . don't just attend, bring a topic to discuss.
- Making suggestions to your supervisor on how we can improve safety.
- Working safely and encouraging fellow workers to do the same.

“To ignore safety practices doesn’t indicate bravery, only foolishness. To do things safely and correctly is the mark of a wise person, not a timid one.”

PLEASE BE CAREFUL - YOUR LIFE MAY DEPEND ON IT!

RIGHT TO REFUSE UNSAFE WORK

Never carry out or cause to be carried out any work process, or operate or cause to be operated any tool, appliance or equipment that would create an undue hazard to your health or safety or to the health or safety of any other worker.

"*Undue hazard*" means: A danger that is not normal for that occupation, or a danger under which a person engaged in that occupation would not normally carry out his work.

No one will be disciplined for exercising this right. Personnel may be temporarily assigned to alternative work at no loss in pay until the matter is resolved.

The steps that will be followed during a work refusal are:

1. Immediately report the unsafe work conditions to your supervisor.
2. The supervisor will investigate and either correct the unsafe conditions, or inform you that the concerns are not valid.
3. If there is no resolution at this point, the supervisor will re-investigate in the presence of your selected representative.
4. If there is no resolution at this point, your supervisor **and** you, or your worker representative, must notify MOL, which will then investigate. MOL will issue *Orders to Comply* if deemed necessary.
5. The directions in regards to the work being unsafe or safe received from MOL are final.

Procedure for a Work Refusal (OHSA)





SECTION #8 Hazard Control and Inspections



HAZARD CONTROL POLICY

ASSESSING HAZARD AND RISKS

- Consequence Probability Matrix
- LCE Probability Matrix Tool
- Specific Assessment Requirements
- Hazard Assessments
- Project Hazard Assessments
- Segment Hazard Awareness
- Job Hazard Assessment
- Pre-Task Safety Inspection (PSI)
- Safe Work Procedures
- Daily Crew Safety Talks

HAZARD REDUCTION AND CONTROL STRATAGIES

- Hazard Controls
 - 1) Engineering and Purchasing Controls
 - 2) Administrative Controls
 - 3) Personal Protective Equipment (PPE) Clothing

INSPECTIONS

- Operator's Daily Inspections
 - Mobile Equipment Log Books
- Renting or Leasing Equipment
- Daily Informal Inspections
 - Daily Informal Inspections
- Planned Inspections
 - Inspection Guidelines
 - Special Inspections



HAZARD CONTROL POLICY

Hazard control is the focal point of Len Corcoran Excavating Ltd. (LCE) H&S Program. Hazards that might put employees, subcontractors, site visitors or the public at risk will be identified and controlled. It is everyone's responsibility, a high priority, and must be an on-going process of continual improvement.

All LCE personnel must take an active role in the identification and control of hazards. Being alert to the possibility of hazards is a necessary part of the process of eliminating hazards. In doing so, we will be able to attain maximum workplace safety and prevent incidents. This will be accomplished by:

- Assessing hazards and risks during work planning
- Identifying appropriate hazard control methods
- Developing and communicating safe work procedures
- Inspecting to verify hazards are controlled and risks are minimized

ASSESSING HAZARDS AND RISKS

Construction sites are dynamic workplaces and have inherent hazards associated with the construction process. Establishing a process for identifying, assessing and controlling hazards is critical in this environment. This process **MUST** lead to the implementation of hazard controls to reduce the risk and protect project personnel. Failure to implement effective hazard controls means that the process is ineffective and a waste of time.

Hazard Assessments and Risk Assessments are two very closely related activities. In some cases, the regulatory requirements call specifically for a "*risk assessment*" or a "*hazard assessment*". The risk or hazard assessment is a necessary step for developing safe work procedures and identifying how to control the risks/hazards.

Consequence Probability Matrix

The consequence/probability matrix is a means of combining qualitative or quantitative ratings of consequence and probability to produce a level of risk rating.

A main focus of a consequence/probability matrix is to prioritize or rank risks. It is commonly used as a screening tool when many risks have been identified, for example to define which risks need further or more detailed analysis, which risks need treatment first, or which need to be referred to a higher level of management.

The process includes the use of customized scales, usually for consequence and probability and a matrix which combines the two.



The **probability scale** have a number of points. Definitions for probability need to be selected to be as clear as possible and need to span the range relevant to the risks

Probability	
Possible But Unlikely A	Exposure to hazard very unlikely
Possible B	Some chance of experiencing hazard
Probably C	Hazard likely to occur
Very Likely D	Hazard will be experience

The **consequence or type of injury likely to occur** covers the range of consequence to be considered and should extend from the maximum credible consequence to the lowest consequence of concern.

Type of Injury Likely to Occur	
Minor Injury (small cut)	First Aid or no significant risk
Significant Injury	Potential for moderate injury
More Significant Injury	Potential for severe injury
Serious Injury or Possible Fatality	Likely to result in serious injury or death

To rank risks, the user first finds the consequence description that best fits the situation. Next, the user defines the probability with which those consequences will occur. The level of risk is then read off from the matrix.

The level of risk defined by the matrix may be associated with a decision rule such as whether to treat or not treat the risk.

Low Risk / GREEN	To be managed for continues improvement “GO”
Medium Risk / ORANGE	Incorporate risk reducing control measure “CAUTION”
High Risk / RED	Fails to meet criteria. Must control “STOP”

LCE Probability Matrix Tool

The following Tool will be used by LCE staff, Supervisors, and Management. To assess hazards and implement controls to protect those on our sites.

		Type of Injury Likely To Occur			
		Minor Injury (small cut)	Significant Injury	More Significant Injury	Serious or Possible Fatality
Probability		1	2	3	4
Possible But Unlikely	A	Low Risk	Low Risk	Medium Risk	High Risk
Possible	B	Low Risk	Medium Risk	Medium Risk	High Risk
Probability	C	Medium Risk	Medium Risk	High Risk	High Risk
Very Likely	D	Medium Risk	Medium Risk	High Risk	High Risk



Specific Assessment Requirements

The following list is provided to make project personnel aware of the regulatory requirements for risk/hazard assessments:

- Air Quality - The indoor air quality is to be investigated and the hazards assessed when complaints are reported, occupancy in the space changes substantially, or renovations involving significant changes to the ventilation system occur.
- Asbestos - The employer must ensure that a risk assessment is conducted by a qualified person on asbestos-containing material if such material is present on the project worksite.
- Cold Stress - If a worker is or may be exposed to conditions which could cause hypothermia or cold-related injury, the employer must conduct a cold stress assessment to determine areas and tasks where workers may be at risk.
- Confined Spaces - Before a worker is required or permitted to enter a confined space, the employer is to assess the hazards and develop safe work procedures. The hazard assessment must be completed by a qualified person.
- Hazardous Materials Emergencies – The employer must ensure that an assessment is conducted of the risks posed by hazardous substances used on site that may result from accidental release, fire or other such emergency.
- Emergency Washing Facilities - The employer must ensure that the selection of emergency washing facilities is based upon an assessment of the risks present in the workplace.
- Ergonomics - When there are factors that may expose workers to a risk of MSD, the risk to workers must be assessed.
- Exposure to Chemical and Biological substances - If a worker is or may be exposed to a harmful substance, a walkthrough survey is to be conducted to assess the potential for overexposure taking into account all routes of exposure, including inhalation, ingestion and skin contact.
- Heat Stress - If a worker is or may be exposed to conditions which could cause heat-related disorders, the employer must conduct a heat stress assessment to determine the potential for overexposure of workers using acceptable standards.
- Rescue & Evacuation - A risk assessment is required in any workplace in which a need to rescue or evacuate workers may arise.
- Toxic Process Gases - The employer must ensure that a risk assessment is conducted if toxic process gases are produced on site.
- Vibration – Worker exposure to hand-arm and whole-body vibration must be assessed in accordance with acceptable standards of evaluation.



Hazard Assessments

The assessment of hazards, development of safe work methods, and communication of this information to the persons undertaking the work is required for a safe project. This will be managed as a six part process as follows:

1. Project Hazard Assessment: A project hazard assessment is completed at project start-up, and updated periodically as the project progresses. It is used as a guiding document to identify potential hazards and allocate resources.
2. Segment Hazard Assessments: Hazard assessments for each segment will be completed and updated at regular intervals. The Segment Hazard Assessments will be made available to subcontractors to assist in the development of their project specific safety plan. Providing hazard information to subcontractors is a function of the Constructor with regard to coordination with subcontractors.
3. Work Planning: Specific work activities that are high-risk and/or have a significant safety component are highlighted as part of the work planning process. Field staff use this information to identify the need for further assessment.
4. Job Hazard Assessment: A job (specific) hazard assessment is required where legislated, and in general, for high-risk activities. It is a critical step in developing effective hazard control methods and developing safe work procedures.
5. Pre-Task Safety Inspection (PSI): LCE worker or groups of workers are required to complete a PSI form prior to beginning a task in order to identify and control hazards
6. Safe Work Procedures: The safe work procedures are developed and communicated to personnel doing the work. It provides the work methods for ensuring hazards are controlled and risks are mitigated.
7. Daily Crew Briefings: A daily crew safety briefing is conducted by the crew supervisor prior to starting work. It is used to review the immediate hazards of the work to be completed and the safe methods for conducting the work. This process is repeated any time the crew starts new work or changes work site.

Project Hazard Assessment

The *Project Hazard Assessment* is completed at project start-up, updated periodically, and considers the following:

- Engineered plans, Utility locates, and drawings for project.



- Construction processes and equipment/materials to be used.
- Regional weather conditions, both normal and extreme, such as temperature extremes, high winds, tornadoes, hurricanes, flooding.
- Access to project and mode of travel.
- Existing overhead or underground utilities, gas, electricity, storm sewer, etc.
- Expertise of available subcontractor services.
- Health and hygiene issues.
- Environmental risk such as proximity to waterways, waste disposal, etc.
- Nearest hospital or clinic location, emergency response, ambulance, fire and police.

This assessment is used to assist in developing the site specific safety measures. The process may also lead to the need for further risk assessment. The LCE H&S Coordinator is responsible for conducting this assessment.

Segment Hazard Assessments

The Segment Hazard Assessment will be completed by the LCE H&S Coordinator and updated regularly. It will be circulated to LCE Supervisors, and contract administrators who will ensure that subcontractors receive this information. It is to be provided to subcontractors during the construction process.

Segment Hazard Assessments provide information on the site and work activity hazards at the time of assessment. It will also provide Segment specific information on emergency vehicle access points/routes.

Job Hazard Assessment

A job (specific) hazard assessment is required when the work is:

- hazardous, with a high degree of risk, and potential for serious injury,
- seldom performed and/or new to the crew, and/or
- identified as necessary through the Work process.

The job hazard assessment process is not normally required for low risk activities. It may not be required if there is existing and current hazard assessment for the work.

The job hazard assessment, or JHA, is completed by construction field staff in order to identify hazards specific to the work to be performed. There is a review of the work



activities, tools, equipment and the work environment. Once this is done the hazards associated with the work is identified. The steps to completing a JHA are as follows:

1. Review the scope of work to be performed.
2. Break the task or job into individual steps.
3. Identify both actual and potential hazards for each step.
4. Develop appropriate controls and preventative action for each hazard.
5. Review the JHA with experienced workers (and make the necessary revisions based on their feedback)

Upon completion of the JHA, safe work methods, including appropriate hazard controls, will be developed and discussed with the crew at a pre-job meeting prior to commencing work.

The completion of a JHA should be sufficient in most cases to meet the need for written safe work procedures.

Pre-Task Safety Inspection (PSI)

A PSI is required to be completed by a worker or group of workers prior to beginning a task or when circumstances during the completion of a task changes, to allow for the identification of the tasks individual hazard(s) to allow the worker(s) to implement adequate controls to protect them while completing a task. Supervisors will audit, review or inspect the PSI process on site to ensure, enforce and promote the use of the form.

Safe Work Procedures

Completing a JHA will fulfill the need to develop written safe work procedures in most situations. However, it may be necessary to create more detailed written instructions for safe work. One example is confined spaces. A confined space hazard assessment must be completed and then written safe Rescue procedures developed based on the hazard assessment. The JHA format will not suffice for confined spaces.

Other documents previously developed may suffice as written safe work procedures; especially, if the work is routine and/or low risk. Whatever form of written safe work procedures are used, they must:

- Accurately represent the work to be performed.
- Have sufficient information for the work to be performed safely.
- Be available where the work is to be performed.
- Be part of the safety training.



- Be reviewed with the affected personnel prior to work starting.

Daily Crew Safety Talks

Daily crew safety talks must be completed prior to project crews starting work. It will be done:

- At the beginning of each new work assignment/day.
- When new workers are assigned to the task.
- When the information about the work changes (e.g., changed plans, unexpected characteristics of the task are identified such as the configuration of equipment).
- Whenever conditions on the job site change (e.g., weather, availability of tools).

For LCE crews the *Daily Hazard Awareness* Document will be used. Subcontractors may use other acceptable formats provided all of the following are covered:

- All the Activities to be undertaken are identified.
- All Hazards that apply to the Activities are identified.
- The methods for eliminating or controlling hazards are discussed and understood.
- The crew signs off after the briefing to acknowledge their understanding.
- The crew supervisor follows-up during the day to ensure the work is being conducted in a safe manner and in accordance with the established safe procedures.
- A new briefing is conducted when the work changes.

HAZARD REDUCTION AND CONTROL STRATEGIES

The types of hazards present on construction projects and include:

Physical Hazards

- crushing forces (e.g., getting caught in machinery or equipment)
- cuts (e.g., getting cut by saws, abrasive surfaces, etc.)
- falls from heights (e.g., falling from formwork, falsework, ladders, etc.)



- excessive noise (e.g., working near equipment & machinery)
- impact forces (e.g., falling heavy objects)
- heat stress (e.g., working in hot humid weather)
- cold stress (e.g., hypothermia in near zero, wet and/or windy conditions)
- manual materials handling (e.g., excessive bending or unassisted lifting of objects)
- airborne particulate matter (e.g., dusts, particles, etc. that can cause eye injury)

Chemical Hazards

- corrosives (e.g., acids and bases that can burn the skin)
- oxidizers (e.g., compressed oxygen that can add oxygen to a fire)
- skin irritants (e.g., solvents, paints, etc. that dry out the skin)
- lung irritants (e.g., irritant dusts, welding fumes, mists, etc.)
- toxic materials (e.g., poisons that cause illness or death, silica & asbestos)
- reactive materials (e.g., chemicals that explode if shaken or dropped, or give off dangerous products when mixed with other materials)

Biological Hazards

- needles and condoms (e.g., found occasionally on site, may carry an infectious disease, requires special handling procedures)
- body fluids (e.g., when treating injured workers who may have an infectious disease, requires use of universal precautions)

Hazard Controls

Personal protective equipment (PPE) and clothing is often used as the main method for protecting workers from hazards. PPE does an excellent job in protecting personnel and reducing injuries; however, eliminating or controlling the hazard is the preferred action. LCE employees and subcontractors will control and eliminate hazards to reduce the need for the use of PPE. The priority of approach that will be used for hazard control is 1) Engineering and Purchasing Controls, 2) Administrative Controls, and 3) Personal Protective Equipment.



1) Engineering and Purchasing Controls

The first approach to be considered for controlling hazards is **engineering and purchasing controls**. The goal at this level of approach is to eliminate the hazard(s) completely. Common engineering and purchasing control methods include:

- eliminating the hazard by (re)design of the equipment or process
- putting barriers around the hazard (e.g., guarding)
- purchasing equipment or materials that are inherently safe
- replacing equipment or materials with ones that have fewer hazards
- adding safety features to existing equipment such as cut-out or limit switches
- designing and installing general and local ventilation controls
- implementing maintenance programs for equipment and machinery
- substituting with less hazardous materials
- isolating workers from the hazard

2) Administrative Controls

When engineering and purchasing controls are not adequate to control the hazard, or cannot be used, the next priority will be to adopt **administrative controls**. The following administrative control methods to reduce hazard exposure will be used:

- establishing safe methods of performance through written work procedures
- posting signs and using other means to communicate hazards & increase awareness
- changing work practices so that workers are located away from hazards
- establishing rules to prevent the development of hazards
- using correct job placement so employees are not at risk due to physical limitations
- ensuring adequate supervision of hazardous work
- using job rotation to reduce exposure
- determining required skills and knowledge to deal with hazards, and training personnel so that they can adequately deal with the hazards



It may also be necessary to develop other written procedures to help ensure that all work is performed in a safe and efficient manner (as discussed earlier in this Section). Written procedures enable us to:

- identify and communicate hazard information
- organize work processes and tasks in an orderly and efficient manner
- communicate task procedures during training in a clear, efficient and effective manner
- establish the correct methods for conducting tasks and work processes, and
- comply with regulatory requirements

3) Personal Protective Equipment (PPE) and Clothing

Personal protective equipment and clothing will be considered the last line of defense against hazards. All hazards in the workplace cannot be completely eliminated, or the exposure controlled, through engineering and purchasing or administrative controls. In these situations the consistent use of the right type of protective equipment and clothing is essential. Personal protective equipment and clothing will reduce the risk of injury such as:

- cuts, abrasions & burns: by using gloves, coveralls, power saw pants or chaps, etc.
- foot injuries: by wearing protective footwear, e.g., safety toed boots
- falls: by using fall protection devices, e.g., harness & lifeline
- hearing loss: by wearing ear muffs and/or plugs
- respiratory ailments: by using respirators
- skin irritations & disease: by using barrier creams, gloves, coveralls, etc.
- leg/knee contact stress: by using protective knee pads
- eye and face injuries: by using protective eyewear, e.g., approved safety glasses, goggles, face shields, etc.

INSPECTIONS

Inspections are necessary to ensure project hazards are addressed on an on-going basis. The required inspections, who will conduct them, and the frequency of the inspection is summarized as follows:



Operator's Daily Inspections

Pre-use inspections will be conducted by all personnel prior to operating machinery, equipment, and or power tools. Hand tools should also be inspected prior to use. Any defective equipment, tools, etc. will be removed from service until such time as they can be repaired. The person using the tools or equipment is responsible for its safe operating condition.

All inspections of power tools, equipment and machinery contribute to the on-going Maintenance Program. Pre-use inspections will help to ensure tools and equipment are maintained in accordance with applicable standards. These standards include the manufacturer's specifications, standards organizations (CSA, ANSI, etc.), and regulatory requirements.

Mobile Equipment Log Books

Mobile equipment operators (crane, backhoe, excavator, etc.) are required to maintain an equipment log book in accordance with regulatory requirements. It is important that log book entries detail what was inspected and the conditions found, e.g., details of the pre-use check – fluid levels, operating controls, etc. Log books must be kept with the equipment and be readily available should an inspector ask to look at the log book. Defects identified during inspections must be repaired in a timely manner. Unsafe equipment will not be used.

Renting or Leasing Equipment

Equipment suppliers are required to provide the equipment in good (safe) operating condition with adequate instructions to operate the equipment in a safe manner. For all equipment rented or leased by LCE, a representative will check with the supplier to verify that the equipment is provided good operating condition in accordance with the manufacturer's specifications. If there is evidence that the equipment is not in good operating condition, it must not be used until such time that it is in safe operating condition.

Daily Informal Inspections

All project personnel must be constantly aware of the need to correct hazards that may be present. Supervisors will perform daily informal inspections as part of their regular daily activities. All project personnel will help in this on-going process of hazard identification and control.



Daily Informal Inspection Guidelines

The following is provided as guidance for personnel conducting daily informal inspections:

- Know about items that require special attention. This can be done by reviewing the inspection checklist, previous inspection records, and through job knowledge.
- Use your eyes, ears and other senses to identify actual or potential problems as you go about your other daily activities. Correct hazards as you find them whenever you can. Report hazards to your supervisor, both the ones that have been corrected, and the ones still requiring correction.
- Supervisors will record hazard identification and corrections that occur through the informal inspection process. This is in support of good due diligence practices. A short entry in the supervisor's daily logbook will suffice
- Ensure hazards that can be corrected immediately are corrected. Refer any hazards that need further follow-up to the site supervisor, project superintendent and/or LCE H&S Coordinator as may be appropriate for ensuring the hazard is corrected.

Note: Informal daily inspections have significant limitations - they commonly identify only the obvious problems and they do not take a systematic approach. As a result, informal daily inspections cannot replace planned inspections.

Planned Inspections

Planned inspections involve a systematic tour of work areas to identify all hazards, sub-standard conditions and practices, and the necessary corrective actions. On a project they will be as follows:

- Upon project start-up prior to work commencing to document site hazards that must be addressed prior to the work proceeding.
- Weekly commencing at the beginning of the second week of work at a site. The "*Supervisor/Safety Rep Inspection*" form will be used for this weekly inspections.

Planned Inspections will be performed by the site supervisor (unless otherwise delegated) and, where practicable, a worker representative from the work site.



Inspection Guidelines

The following guidelines are provided to assist personnel in conducting planned inspections:

▪ Pre-Inspection

1. Review previous inspection reports for the area to be inspected.
2. Develop a checklist of commonly reported hazards.
3. Identify specific equipment, machinery, jobs, etc. associated with accident trends or severe loss potential.

▪ During Inspection

1. Take copies of previous inspection reports along and note whether the hazards listed were corrected as required.
2. Look for the off-the-floor and out-of-the-way items. Look for things that you think would be missed in the on-going informal inspection process.
3. Systematically cover the whole area. Pay particular attention to specific equipment, machinery, jobs, etc. that have been associated with accident trends or severe loss potential.
4. When unsafe conditions requiring immediate attention are found, corrective action must be undertaken without delay. Defective tools, equipment and machinery must be removed from service until the defect has been corrected. All unsafe conditions and defective items must be recorded describing the items and their locations clearly.
5. Classify items according to their potential for injury or damage. This will lead to a systematic approach toward corrective action and follow-up.
6. Look for **root causes** of sub-standard conditions, practices and procedures - not just the symptoms.

▪ Post-Inspection

1. Complete an LCE Weekly Inspection Report Form.
2. Copy all items from previous reports that have not been remedied, noting initial detection date.
3. Ensure all sections of the Inspection Report are completed and writing is legible.



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4. Forward the Inspection Report to the LCE H&S Coordinator. Keep a copy of the report at the site for future reference as well as for MOL Officer access.

Special Inspections

Special inspections are required if there is a report of a failure or malfunction. These may quickly turn into an investigation if it involved a near miss or injury. This requirement comes from the MOL and *OHS*A. Special Inspections in response to incidents, accidents or mechanical breakdowns will be done by the most qualified person(s) available



SECTION #9 Environmental/Sustainability and Hazardous Materials Protection



ENVIRONMENTAL/SUSTAINABILITY AND HAZARDOUS MATERIALS POLICY
WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM

Purchasing

Inventory

Labeling

Material Safety Data Sheets (MSDS)

Workplace Procedures and Controls

Education

TRANSPORTATION OF DANGEROUS GOODS (TDG)

WASTE MANAGEMENT ACT (WMA)

Contaminated Sites

ENVIRONMENTAL PROTECTION

1. Protecting the Environment (General Provision)
2. Water Quality
3. Air Quality
4. Protection of Soils
5. Noise
6. Fuel and Chemical Storage
7. Protection of Historic and Culture Locations
8. Avoidance of Social Impacts

Spill Kits and Spill Reporting



ENVIRONMENTAL/SUSTAINABILITY AND HAZARDOUS MATERIALS POLICY

Len Corcoran Excavating Ltd. (LCE) is committed to creating and maintaining a sustainable environment for future generations. We maintain a fleet of modern, fuel efficient equipment that meets or exceeds current emission standards while constantly seeking ways to further increase fuel efficiency and reduce emissions by reducing idling and encouraging proper operation of our equipment. LCE has initiated a switch to environmentally friendly lubricants and oils in our equipment wherever possible. The Greenland Corporation products we utilize are deemed to be environmentally safe and are rapidly biodegradable in the event of an unfortunate spill. Additionally, LCE is pursuing ways to reduce the amount of waste materials we create by diverting as much recyclable waste from landfill as possible, a program that we have implemented across our entire operation from the office to the field.

LCE is committed to ensuring all hazardous materials are used, stored and disposed of in compliance with current legislation. In doing so we will ensure there is minimum risk to project personnel and the environment. The three key regulatory requirements are:

- Workplace Hazardous Materials Information System (WHMIS 1988-2015)
- Transportation of Dangerous Goods (TDG), and
- Waste Management

The information provided by suppliers through product labeling and (Material) Safety Data Sheets (M)SDS) will guide our actions. Personnel will be educated about hazard information, and trained in safe handling/use, storage, transportation and/or disposal procedures as may be required.

Supervisory personnel will ensure the required information is readily available on site, and training is provided. Checks must also be made on a regular basis that hazardous materials are labeled and stored correctly.

Everyone is responsible for following procedures and instructions provided for safe use, handling, storage, transport and disposal of hazardous products. This includes reporting situations where containers that are unlabeled, illegibly labeled or incorrectly labeled.

LCE will maintain up-to-date (M)SDS files on site. First aid attendants must be aware of the emergency first aid procedures required for workers who may have been overexposed to hazardous materials at their worksite.

All project work will be in compliance with the environmental protection plan. The focus of this plan is conservation and preservation of the environment and culturally significant locations.

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM



Purchasing

Suppliers will correctly identify hazardous materials and provide the correct labeling before they are brought on site. The purchasing department will not accept for delivery any WHMIS regulated materials that are not correctly labeled and that do not have an MSDS. Copies of the MSDS must be kept on the site where the hazardous material will be used, and a copy will be sent to the office.

Substitution of alternative less hazardous materials must be a key purchasing consideration.

Inventory

An inventory of hazardous materials used by LCE on the project will be maintained. The inventory will be reviewed as often as necessary to ensure that it is maintained up-to-date.

Labeling

Any person ordering hazardous materials is responsible for checking that supplier labels have been provided and applied to hazardous materials containers. Improperly labeled products must not be handled or used except to be held in storage.

Applying workplace labels is an alternative to supplier labels when decanting bulk products from properly labeled containers. Workplace labels will have the product name, safe handling information and a reference to the MSDS.

Material Safety Data Sheets (MSDS)

Copies of MSDS must be made accessible to employees, close to their work areas and available during the work shift. There will be three critical locations for MSDS files – 1) Site Office/Trailer 2) Head Office, and 3) H&S Coordinator.

Work Procedures and Controls

Supervisory personnel are responsible for monitoring storage, handling and use of controlled products. It will be included in the daily and weekly inspections. As needed, additional work procedures for safe handling and use will be developed.

Safe handling and hazard control must consider:



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- engineering controls such as ventilation, process modification or isolation of the hazard source
 - administrative controls such as work procedures, storage arrangements, maintenance and shift scheduling
 - personal protective equipment such as respirators, gloves and protective clothing

Education

Workers that use hazardous materials, or work in proximity, will be current on:

- hazards of the materials they will be exposed to
- procedures for safe use, handling and storage as contained on labels and MSDS
- recognition of symptoms of overexposure
- overexposure emergency response
- responsibilities for reporting injuries, and reporting containers that are unlabeled, illegibly labeled or incorrectly labeled

WHMIS Symbols & Hazards

	<p>Class A – Compressed Gas Hazard: contents under pressure, may explode if heated or punctured Action: protect container from impact, rough handling and heat</p>
	<p>Class B – Flammable and Combustible Materials Hazard: material can catch fire – fire hazard Action: protect from exposure to sparks, keep container sealed, store in "rated" containers</p>
	<p>Class C – Oxidizing Material Hazard: speeds up combustion process, adds oxygen Action: store in "rated" containers and keep separate from incompatible materials</p>
	<p>Class D1 – Immediate & Serious Toxic Effects Hazard: acute exposure causes serious and immediate, possibly fatal, health problems Action: protect yourself from exposure – skin, eyes, inhalation and/or ingestion</p>
	<p>Class D2 – Other Toxic Effects Hazard: causes mild acute health problems, and/or serious illness from long-term exposure Action: protect yourself from exposure – skin, eyes, inhalation and/or ingestion</p>
	<p>Class D3 – Biohazardous Infectious Materials Hazard: causes disease in humans Action: protect yourself from exposure – use "universal precautions"</p>
	<p>Class E – Corrosive Materials Hazard: chemical burns – corrodes skin and metal Action: protect skin and eyes from contact, use properly rated PPE, store correctly</p>
	<p>Class F – Dangerously Reactive Materials Hazard: unstable materials, reacts violently – may be unstable, sensitive to shock, heat or pressure Action: store and handle according to information provided by supplier</p>



Inform your supervisor when labels are missing or can't be read.

Know where to find the Material Safety Data Sheet (MSDS) for more information.

TRANSPORTATION OF DANGEROUS GOODS (TDG)

Transportation of Dangerous Goods (TDG) legislation applies to hazardous materials when they are being transported or offered for transport by road, rail, air or ship. TDG does not apply to hazardous materials when they are used in the workplace (see *WHMIS* in this Section).

TDG controlled materials handled or transported by LCE must be identified and personnel supplied with correct documentation, labeling, placarding and safety markings. Compliance with TDG requirements (TDG Act & Regulations) requires that:

- dangerous goods are correctly classified
- containers are labelled properly



- vehicles are placarded appropriately
- packaging is of the correct type and classification
- proper documentation accompanies every shipment
- accidents involving dangerous goods are reported to the proper authorities
- emergency response plans are in place
- personnel that consign and transport dangerous goods are trained and certified

The TDG Act & Regulations are extensive and somewhat complex. They must be consulted to ensure that the proper requirements are met for each shipment.

The following personnel must be trained in accordance with TDG:

- anyone transporting dangerous goods
- personnel consigning dangerous goods for transport
- personnel receiving dangerous goods

Personnel will ensure they have in their possession a certificate of training when offering for transport, receiving, handling, or transporting dangerous goods.

TDG Products Used in the Workplace and WHMIS

TDG regulated materials that are being transported are not regulated by WHMIS while they are being transported. Similarly, WHMIS regulated materials are not regulated by TDG when they are being used in the workplace. This means materials that are to be:

- used in the workplace, and are marked with TDG labels, need to be checked for compliance with WHMIS requirements
- shipped by road, rail, air or ship, and are classified and labelled under WHMIS, need to be checked for TDG compliance

TDG Classification and WHMIS Cross Reference Table

TDG Label/Placard	TDG Classification and WHMIS Reference
	Class 1 – Explosives Not WHMIS Controlled Product. Regulated under Explosives Act of Canada. Special permits and training required for use and storage.
	Class 2 – Compressed Gas ☠️ WHMIS labeling also required. Compressed gases can be flammable, oxidizing, non-flammable, or poisonous.
	Class 3 – Flammable Liquids ☠️ WHMIS labeling also required.
	Class 4 – Combustible Solids ☠️ WHMIS labeling also required. Can be flammable solid, spontaneously combustible or dangerous when wet.
	Class 5 – Oxidizers ☠️ WHMIS labeling also required.
	Class 6 – Poisonous ☠️ WHMIS labeling also required. Can be poisonous or infectious materials.
	Class 7 – Radioactive Not WHMIS Controlled Product. Regulated by the Atomic Energy Control Act. Special permits and training required for use and storage.
	Class 8 – Corrosives ☠️ WHMIS labeling also required.
	Class 9 – Miscellaneous WHMIS labels <u>may</u> be required. Dangerous waste products are in this class for transportation.



Materials transported under TDG and regulated by WHMIS will require both TDG and WHMIS markings. An MSDS must be located on site before the product is used.



This barrel of corrosive material is TDG Class 8 and WHMIS Class E. A TDG label is required when transporting, and a WHMIS label is required for use on site.

TDG allows for special provisions for tanks containing less than 2000 litres of fuel that are carried in the back of a pick-up truck. The driver must be aware of the hazards, and a TDG placard must be affixed to the tank that is clearly visible.





WASTE MANAGEMENT ACT (WMA)

Hazardous waste materials generated during the project will be identified, stored and disposed of in accordance with applicable legislation. Any product identified as a hazardous material through WHMIS, TDG, or by other legislation, or by MSDS, must be disposed of in accordance with the legislation. Ministry representatives should be consulted for proper disposal of these materials.

Project personnel handling hazardous waste materials must be informed of the hazards and proper precautions to take. Personnel must follow these precautions and use all required protective equipment when handling or working around hazardous wastes.

Contaminated Sites

Sites that may be contaminated with hazardous material(s). LCE personnel will not be assigned to perform work at a contaminated site unless they have:

- received adequate instruction and direction regarding the hazards
- been trained in safe work procedures, and
- been issued with, and use, personal protective equipment appropriate for the hazard

Prior to working at these sites, LCE will seek out and obtain information about the nature of the contamination and risk to project personnel. If site contaminants pose a serious risk to personnel, then site remediation may be required before work can start. LCE will work closely with the “Owner” and Ministry of Environment to determine the need for site remediation and conduct of site remediation if required.

ENVIRONMENTAL PROTECTION

LCE will follow requirements put forth through any environmental impact study and protection plan(s) that have been developed for the “Owner” of the project. Contact the LCE Health and Safety Coordinator for full details on our environmental program.

General Approach to Environmental Protection

In general, LCE’s approach to protecting the environment is as follows:

1. Protecting the Environment (General Provision)



- a. All necessary measures and precautions will be taken to ensure that the execution of the works and all associated operations on the work sites or off site are carried out in conformity with legal and regulatory environmental requirements of location including those established by local governments.
- b. The creation of nuisance or disturbances arising from the execution of the work will be avoided, before these are generated, by taking all necessary measures and precautions.
- c. Any spoil and debris from the work sites deposited on adjacent land will be immediately removed and the affected area will be restored to its original state to the satisfaction of the site owner.

2. Water Quality

To avoid the adverse impacts to water quality the following steps are to be taken:

- a. The supply to, or abstraction from water resource will be prevented from any interference and pollution resulting from the execution of the works. The water used for dust suppression will be free from particulate matter.
- b. Any matter, from the execution of the work, will not be discharged or deposited into water except the permission of LCE Project Management and /or regulatory authorities concerned.
- c. All the existing stream courses drains within and adjacent to the site will be kept safe and free from debris and materials arising from the works.
- d. All the watercourses, waterways, ditches, canals and the lakes will be protected from pollutions, silting, flooding or erosion as the result of the execution of the works.
- e. Solvents, fuels, lubricants, etc. will be placed in approved containers and stored only in designated areas.

3. Air Quality

To avoid adverse impacts to air quality following conditions will be applied:

- a. Open burning will not be allowed.
- b. Solvents and volatile materials will be placed in approved containers and stored only in designated areas.
- c. Dust will be minimized throughout the duration of projects.



- d. Stock piles of materials will be stored within the work site limits, away from sensitive areas. Friable material will be covered. During dry and windy weather, water may be sprayed on the stockpiles. The material may be dampened and will be covered prior to transportation when required.
- e. The vehicle used for transporting dust producing material will have properly fitting side and tailboards. The material will not be loaded to a level higher than the side and tailboard and will be covered with canvas in good condition. The canvas will be properly secured and extend over the edges of the side and tailboards.
- f. To avoid adverse impacts to adjacent residents or site employees in period of adverse weather during construction will be minimize by either discontinuing until favorable conditions are restored, or if required sites may be watered to prevent dust generation.

4. Protection of Soils

When undertaking cut and fill activities the following steps may be taken:

- a. Less erodible material will be used for placement gabions, riprap and good compaction, particularly around bridges and culverts.
- b. Embankment slopes and road cuts will be stabilized, if needed, to reduce erosion.
- c. Discharge zones from drainage structures may be completed with riprap, if needed, to reduce erosion.
- d. Drains/chutes may be lined with riprap masonry or concrete to prevent erosion.
- e. Side slopes may be adjusted in the range based on soil and within a range as determined to reduce erosion potential or, if necessary, cover with riprap or other material to prevent soil erosion.
- f. Embankments greater than six meters may be stepped.
- g. Solvents, fuels, lubricants, etc. will be placed in approved containers and stored only in designated areas.

5. Noise

Following steps will be taken for minimizing the adverse impact due to noise:

- a. To avoid adverse impacts due to noise, equipment conforming to international standard will be used



- b. All necessary steps will be taken to ensure that the operation of all mechanical equipment and construction processes on the site will not cause any unnecessary noise.
- c. The exhaust systems will be maintained in good working order by using intake and exhaust silencers where appropriate.
- d. All necessary measure will be taken to maintain all plant and silencing equipment in good condition so as to minimize the noise emission during construction works.
- e. Operation schedule will coincide with periods when people would least likely be affected.

6. Fuel and Chemical Storage

Following safety measures will be taken to avoid any adverse environmental impact due to improper storage of fuel and chemicals:

- a. All fuel and chemical storage will be stored in a secure adequate area.
- b. The storage area will be located away from any water course or wetlands.
- c. Filling and refueling will be strictly controlled and subject to formal procedures.
- d. The valves will be resistant to unauthorized interference and damage. When not in use the valves will be turned off and locked.
- e. Measurement of the contents in tanks or drums will be taken to ensure that no contaminated discharges enter any drain or water courses.

7. Protection of Historic and Cultural Locations

Following precaution will be taken for protection of historic and cultural locations:

- a. Sites of known antiquities, historic and cultural resources will be protected by the placement of suitable fencing and barriers.
- b. Accepted international practice and all applicable historic and cultural preservation requirements of the Federal, Provincial, and Local Governments will be followed.
- c. In the case of unanticipated discoveries of cultural or historic articles in the course of the work, all necessary measure will be taken to protect the findings. An LCE representative and/or required "Owner", provincial level representative of the Ministry of Tourism, Culture, Archeologist and or Arts will be notified about the findings.



8. Avoidance of Social Impacts

Following precautions will be taken to avoid adverse social impact:

- a. All construction activities will be coordinated with neighboring land uses and the right of local owners will be respected.
- b. Approval of all diversion and accommodation of traffic will be obtained from the concern.
- c. When and where required traffic control persons (TCP), and or public relations personnel will be employed for traffic and pedestrian safety.
- d. Traffic cones and other devices such as barricades and lights will be used if needed.
- e. Where traffic diversions are planned, additional areas will be demined and the diversion clearly defined for travel.

Spill Kits and Spill Reporting

The main environmental risk on project sites are spills of petroleum products such as diesel, gasoline, lubricants, coolants and hydraulic fluids. The following will be required to help ensure the environment is protected from these risks:

1. Fuel, coolants and lubricants will be stored so that leaks are absorbed or contained.
2. Spill kits must be located where there is a spill risk, e.g., where refueling occurs.
3. Spills will be handled and reported as follows:
 - a. Quantities of less than 20 liters:
 - contain without delay
 - remove from the site as soon as possible
 - dispose of at a suitable hazardous waste disposal site in accordance with the Waste Management
 - b. Quantities of 20 liters or more, or any spill into a watercourse:
 - contained immediately
 - LCE H&S Coordinator contacted without delay (613-929-5979)
 - controlled and remediated in accordance with legal requirements.





SECTION #10 Health and Occupational Hygiene



HEALTH AND OCCUPATIONAL HYGIENE POLICY

IDENTIFYING HEALTH HAZARDS

Occupational/Environmental Hygienists

CONTROLLING EXPOSURES

Exposure Control Plans

OCCUPATIONAL HYGIENE INITIATIVES



HEALTH AND OCCUPATIONAL HYGIENE POLICY

Len Corcoran Ltd (LCE) will take all reasonable steps to ensure that project personnel, visitors and the public are protected from health hazards through adequate control measures. These control measures will ensure that exposures do not exceed allowable permissible limits. This will be accomplished by implementing and maintaining an occupational hygiene program as part of the overall H&S Program. The occupational hygiene program will focus primarily on project site hazards that can affect employee health.

IDENTIFYING HEALTH HAZARDS

An occupational hygiene “walk-through survey” may be necessary as the first step in identifying health hazards. A “walk-through survey” will be conducted for sites where there is a potential for over-exposure to harmful substances, or where there may be adverse environmental conditions that can affect health. The walk-through survey will be conducted by a qualified person. It will consider:

- potential for overexposure
- routes of exposure including inhalation, ingestion, and skin contact
- who is at risk

The results of the walk-through survey will be documented to show that it has been done. A reassessment will be performed if work conditions change.

LCE will ensure a qualified person completes the following when it is determined that there is a potential for over-exposure:

- conduct sampling/testing to determine exposure levels
- implement acceptable methods for monitoring of worker exposures if the sampling reveals that exposure levels may approach 50% of permissible exposure limits
- develop an exposure control plan if exposures will exceed 50% of permissible exposure

Occupational/Environmental Hygienists

It may be advantageous for LCE to seek assistance from a certified occupational hygienist (ROH or CIH) if the identified hygiene issues are significant. Hygienists can:

1. assist in the identification of health hazards



2. evaluate hygiene health risks including conducting tests, hazard assessments and monitoring exposures
3. recommend means to control hazards or reduce hazard exposures
4. develop exposure control plans and assist in the implementation process

An occupational hygienist can also provide assistance to ensure that instrumentation used to measure critical levels of atmospheric contaminants are adequate, meet legal requirements, are properly calibrated and regularly tested. Through the use/creation of a Comprehensive Health and Safety Work Plan.

CONTROLLING EXPOSURES

Some of the common approaches to be used to control hygiene hazards on LCE sites include:

- issuing personal protective equipment to workers:
 - respirators for airborne contaminants (respirator fit testing required)
 - chemical goggles and/or face shields for liquid chemical splash
 - impervious gloves, aprons and/or boots for liquid chemical contact
 - barrier creams for skin contact with irritant chemicals
 - disposable coveralls to ensure clothing does not become contaminated
- using extraction methods to remove particulate matter:
 - portable “smoke eaters” (welding fume extraction filters) to controlling welding fume exposure
 - HEPA vacuum extraction systems to control silica dust
- using wet methods when concrete grinding to control silica dust
- enclosing the work process (e.g., lead and asbestos removal and abrasive blasting)
- testing for exposure levels
- using safe procedures as outlined on the MSDS and training workers in safe use procedures
- providing readily available wash facilities to remove contaminant materials
- installing emergency wash facilities for use in case of accidental exposure



- monitoring worker health to determine exposure effects (noise, asbestos, silica)

Exposure Control Plans

An exposure control plan (ECP) is required:

- in general when:
 - exposure monitoring indicates that a worker is or may be exposed to an air contaminant in excess of 50% of its exposure limit
 - measurement is not possible at 50% of the applicable exposure limit
- specifically for possible exposure to:
 - asbestos
 - blood borne pathogens or bio hazardous materials
 - lead
 - silica

The ECP must be written and include the following:

- A statement of purpose and responsibilities for assessing the risks and controlling the exposure(s).
- Details on the identification of the risks, the assessments to be performed and/or that have been performed, and the control measures taken to limit exposure.
- Details on the education and training that are to be provided.
- The written procedures that have been produced (as may be required) to inform personnel about hazards and establish safe work methods.
- Details on the documentation that is required (such as records) to ensure that the issues are addressed as required by regulation and good management practice.
- A review, at least annually, and regular updates as may be necessary. This will be done in consultation with the occupational health and safety committee.

Anyone requiring assistance in developing an exposure control plan should contact the LCE H&S Coordinator.



OCCUPATIONAL HYGIENE INITIATIVES

Certain occupational hygiene health issues will be encountered on a relatively on-going basis during a project, for example, noise exposure. Other health issues may be a rare or a one-time occurrence, for example, working with or around asbestos or environmental contaminants.

Project personnel need to be aware of health concerns and hygiene initiatives. Any occupational hygiene or health concerns not addressed must be noted and the concerns communicated to the LCE H&S Coordinator.

Initial hygiene initiatives have focused on health concerns that are common to the construction industry and those identified through the Project Hazard Assessment process. The hygiene issues currently addressed in this manual are:

- Asbestos
- Hearing Conservation
- Hydrogen Sulfide (H₂S)
- Lead
- Methane
- Musculoskeletal Injury (MSD)
- Respirators
- Silica
- Temperature Extremes – Cold
- Temperature Extremes - Heat

Each of these hygiene issues are addressed in *Section 18 - Safe Work Practices*.



SECTION #11 Violence and Harassment (Bill 168)



VIOLENCE AND HARRASMENT POLICY STATEMENT

ACCOUNTABILITY

APPLICATION AND SCOPE

BILL 168 – DEFINITIONS

Worker

Reprisal

Workplace Harrasment

Workplace Violence

Domestic Violence

Disclosing People with a Violent History

Work Refusals

Violence and Harassment Resolution Process

Other Resources



VIOLENCE AND HARASSMENT POLICY STATEMENT

Len Corcoran Excavating Ltd. (LCE) recognizes that every person possesses basic human rights including the right to respect, dignity, and protection from all forms of harassment, and are entitled to a safe work environment that is free of violence and threatening behaviour. LCE is committed to the prevention of workplace violence and harassment and is responsible for employee health and safety. We will take whatever steps are reasonably necessary to protect our employees, including visitors and the public from workplace violence or harassment.

LCE will adhere to the spirit and intent of all applicable legislation governing workplace violence and harassment including, but not limited to, the Ontario Human Rights Code, the Criminal Code of Canada, and the Occupational Health and Safety Act. Violent or harassing behavior in the workplace is unacceptable from anyone. This policy applies to everyone on LCE work sites and premises of LCE, including visitors and the public. Everyone is expected to uphold this policy and to work together to prevent workplace violence.

Supervisors will adhere to this policy and the supporting program. Supervisors are responsible for ensuring that measures and procedures are followed by employees, and that employees have the information they need to protect themselves.

Employees must work in compliance with this policy and the supporting program. All employees are encouraged to raise any concerns about workplace violence or harassment and to report any incidents or threats. Incidents of violence and harassment should be reported to their Supervisor or Health & Safety (H&S) Coordinator 613-929-5979.

Employees will not suffer negative reprisal for reporting an incident of violence. Management pledges to investigate and deal with all incidents and complaints of workplace violence and harassment in a fair and timely manner, respecting the privacy of all concerned as much as possible. LCE will reassess the risks of workplace violence as often as necessary to ensure that the policy and program continue to protect workers from workplace violence.

This policy outlines the commitment, principles and procedures that LCE will follow with respect to preventing and stopping violence and or harassment in the workplace. Any violation of this policy will be subject to disciplinary action up to, and including dismissal.



ACCOUNTABILITY

LCE will, in accordance with the Occupational Health and Safety Act:

1. Appoints LCE H&S Coordinator 613-929-5979 as Workplace Violence and Harassment Coordinator;
2. Assess the risk of workplace violence that may result from the nature of LCE worksites and the nature and conditions of work performed there; Establish procedures to effectively address alleged instances of workplace harassment;
3. Provide all workers with training and information regarding this policy; Advise the Health and Safety Committee/workers of the results of the risk assessment and provide a copy of any written report;
4. Establish and maintain procedures to control the risks identified in the risk assessment; Monitor the company's compliance with this policy and related procedures;
5. Reassess the risk of workplace violence as often as is necessary; Monitor the company's compliance with this policy and related procedures;
6. Take every reasonable precaution to protect workers from domestic violence that may occur in the workplace and expose workers to physical injury;
7. Establish measures for summoning immediate assistance when workplace violence is threatened, occurs, or is likely to occur;
8. Inform workers on when and how to seek medical assistance should a violent incident occur in the workplace:
9. Establish a reporting procedure for incidents or threats of workplace violence;
10. Establish an investigation procedure for dealing with incidents or allegations of workplace violence or threats of violence;
11. Review this policy annually to ensure that it is current and effective;

All workers are expected to:

1. Familiarize themselves with this policy;
2. Attend any training related to this policy;
3. Ask their supervisor for clarification on this policy if they have questions;
4. Help promote a violence-free and harassment-free workplace;
5. Refrain from workplace violence and harassment as defined in this policy; and



6. Immediately report incidents of, threats of, actual or potential for workplace violence harassment, whether directly experienced or witnessed to the Supervisor/H&S Coordinator.

Responsibilities of management:

1. Foster a violence and harassment-free workplace;
2. Ensure that workers under their supervision receive adequate information and training on this policy;
3. Model respectful behavior in the workplace;
4. Report any incidents or potential for workplace violence harassment to the H&S Coordinator 613-929-5979;
5. Collaborate with LCE H&S Coordinator to investigate all aspects of any reported instances of Violence or harassment in a timely manner;
6. Maintain confidentiality in the investigation process.
7. If a member of management becomes aware or receives knowledge that domestic violence may occur in the workplace that would likely expose any worker to physical injury, they will immediately advise LCE H&S Coordinator who will take all reasonable precautions to see that workers are protected.
8. If a member of management becomes aware that:
 - a. A worker may, in the course of their duties, encounter another worker or other person who has a history of violent behavior, and
 - b. There is a risk of workplace violence that is likely to expose the worker to physical injury, they will immediately advise LCE H&S Coordinator who will provide information, including personal information, to the worker sufficient to protect them from physical injury. LCE H&S Coordinator will not provide any more personal information than is reasonably necessary to protect the worker from physical injury.

APPLICATION AND SCOPE

The policy is applicable whenever a worker:

- Carries out duties or conducts business on behalf of LCE.
- Represents LCE on committees or at work related events/ conferences;
- Attends work-related functions; and/or
- Socializes with other workers



Locations and situations covered by this policy includes, but are not limited to:

- LCE offices and worksites;
- Other buildings or premises under the jurisdiction of LCE;
- Company vehicles;
- Social functions sanctioned by or under the jurisdiction of (Company Name) whether held at company offices or facilities or at other locations approved by the company;
- Work-related travel outside of company facilities;
- Incidents which occur outside the workplace but have negative repercussions at work or adversely affect working relationships;
- Threats of violence which occur by electronic means (e-mail, telephone, voice mail, internet, or fax) or written communication; and
- Any other locations or events where company business, operations, or social functions are carried out.

Bill 168 – DEFINITIONS

While there are many definitions of harassment, traditionally, harassment has been defined as:

Any improper conduct by an individual that is directed at and offensive to another person or persons in the work place and which the individual knew or ought reasonably to have known would cause offence or harm. It comprises any objectionable act, comment or display that demeans, belittles or causes personal humiliation or embarrassment, or any act of intimidation or threat. It includes harassment within the meaning of the Canadian Human Rights Act (CHRA).

Worker:

As used in this policy, the term “worker” includes any full-time, part-time, probationary, temporary and casual worker as well as volunteers and students. It also extends to LCE management.

Please Note: This policy also protects workers from workplace violence by those individuals whom they may contact in the course of their job duties. These include, but are not limited to, customers, clients, members of the public, family, friends and those who have access to the workplace and supply goods and services to LCE.



Reprisal:

Reprisal refers to a negative action or omission against a worker who:

- Invokes this Policy, whether on behalf of oneself or another individual;
- Participates or co-operates in any inquiry under this policy;
- Associates with a person who has invoked this Policy or participated in its procedures; and/or Performs a legitimate role under this Policy

Workplace Harassment

“Workplace harassment” means,

Engaging in a course of vexatious comment or conduct against a worker in a workplace that is known or ought reasonably to be known to be unwelcome. This includes comments or actions in the workplace which negatively affect working relationships or productivity or create a poisoned work environment.

This definition is broader than the existing duty to address harassment under the *Ontario Human Rights Code*. It addresses harassment whether or not it is based on a protected personal characteristic such as sex, race or sexual orientation.

Workplace harassment includes psychological or personal harassment and bullying, as well as comments and conduct prohibited under the grounds stipulated in the *Ontario Human Rights Code*. Harassment may occur as one incident, or a series of incidents, involving unwelcome comments or conduct.

Examples of harassing behavior include but are not limited to:

- Verbal abuse or inappropriate displays of anger;
- Bullying behavior;
- Comments or actions which constitute harassment or discrimination under the *Ontario Human Rights Code* including, but not limited to, sexual harassment and harassment based on race, religion, ethnic background, or disability;
- The display, circulation, or electronic transmission of pornographic, racist or other offensive or derogatory text or pictures;
- Conduct which interferes with a person’s work performance or creates an intimidating, hostile or offensive work environment;



- Unfounded complaints which are made in bad faith, in reprisal, frivolously or with malicious intent;
- Interfering with a workplace violence or harassment investigation; intimidating a complainant, respondent or witness; or influencing a person to give false or misleading information;
- Reprisal as defined in this policy;
- Any other inappropriate, negative, disrespectful, or unprofessional treatment of others; and/or
- Failure of supervisors, in keeping with their authority, to respond in accordance with this policy to interpersonal misconduct or allegations of discrimination or harassment. Such failure may be considered as condoning such behaviour and therefore a violation of this policy.

Note: This policy does not prohibit management staff from carrying out functions which fall within their rights and responsibilities, provided this is done in an appropriate, professional manner which does not constitute an abuse of power. Such functions include, but are not limited to, conducting performance appraisals, addressing

Workplace Violence

“Workplace violence” means,

- a) the exercise of physical force by a person against a worker, in a workplace, that causes or could cause physical injury to the worker;
- b) an attempt to exercise physical force against a worker in a workplace that could cause physical injury to the worker, their personal property, their family, or their friends,
- c) a statement or behavior that it is reasonable for a worker to interpret as a threat to exercise physical force against the worker, in a workplace, that could cause physical injury to the worker.
- d) any such actions which occur outside the workplace but have repercussions in the work environment

Examples of workplace violence include but are not limited to:

- Hitting
- Throwing objects
- Pushing



- Kicking
- Stalking
- Physical restraint
- Arson
- Vandalism
- Sabotage of work or property
- Threatening gestures or remarks
- Physical bullying

This definition focuses on the use or the threatened use, of physical force. It does not capture psychological harm. There is no requirement that the exercise of physical force is intended to injure. This is intended to address the fact that certain individuals with psychological conditions or disabilities may not intend to injure, but may nonetheless exercise physical force against workers. In other words, intentional and unintentional physical force is considered workplace violence.

Domestic Violence

Bill 168 requires:

If an employer becomes aware, or ought reasonably to be aware, that domestic violence that would likely expose a worker to physical injury may occur in the workplace, the employer shall take every precaution reasonable in the circumstances for the protection of the worker.

There is no definition of “domestic violence”. It may include only intimate partner violence (i.e. spouse to spouse or former spouse).

There are a number of challenges posed by this part of Bill 168. For example, the employer’s obligation to take precautions is not triggered by all domestic violence situations; but only those that will likely expose a worker to injury in the workplace.

As well, an employer is required to take precautions if it “ought reasonably to be aware of” a domestic violence situation that will likely spill into the workplace.

Whether the employer ought to have been aware of a situation will depend upon the circumstances. For example, did other workers know about the situation? Was a



former spouse harassing the worker at work by phone calls, showing up at the workplace or waiting in the parking lot on a regular basis?

To address these challenges, the policies/programs/training should clearly stipulate that employees who believe they are at risk of violence in the workplace including domestic violence must advise the employer and the employer should take appropriate steps which may include seeking the assistance of the local police. Supervisors and managers may need to be trained to recognize and handle domestic violence that affects the workplace.

Disclosing People with a Violent History

Employers are required to provide information, including personal information, to workers about a person with a history of violent behavior if:

- a) the worker can be expected to encounter that person in the course of his or her work; and
- b) the risk of workplace violence is likely to expose the worker to physical injury.

The employer is only permitted to disclose the amount of personal information reasonably necessary to protect the workers from physical injury. There should be relatively few circumstances in which an employee acquires a “history of violence” because of a workplace incident without being terminated. This section appears to be directed towards non-employees with whom the worker may interact. Customers who fall within this category may need to be banned from the premises using trespass notices, security and notices to staff. The real challenge will be for employers, such as health care providers and educational institutions, who cannot easily exclude/remove persons who are potentially violent because of an obligation to provide services to these individuals.

Bill 168 does not define “a history of violent behavior”. However, there is no reason why a single incident could not constitute a history of violent behavior.

The more difficult issue may be determining whether there is a likelihood that a worker will be exposed to physical injury in the workplace. Take, for example, a student who gets into fights with other students at a university residence. Does that student pose a likely risk to workers? Or a worker who was convicted of an assault after a bar fight. Is this worker likely to expose another worker to physical injury? Each case will have to be assessed on its own merits.



However, particularly in larger institutions, it will be important that all incidents of violence be reported and recorded in a central record so that, if a history of violence does exist, the institution, as a whole, is aware of it and the employer can put in place reasonable precautions in the circumstances for the protection of workers.

Work Refusals

Bill 168 amends the work refusal sections of the OHS Act to make it clear that employees can refuse to work where “workplace violence is likely to endanger” the worker.

As well, refusing workers are no longer required to remain near his or her work station until the investigation is completed. Workers are now only required to remain “in a safe place that is as near as reasonably possible to his or her work station and available to the employer or supervisor for the purposes of the investigation”.

Historically, certain classifications of employees (eg. hospital workers, fire fighters, police officers, etc.) are not able to refuse to work if the danger is inherent in the work or is a normal condition of employment, or where the refusal to work would directly endanger the life or health and safety of another person. Bill 168 does not change that limitation on the right to refuse to work.

Violence and Harassment Resolution Process

In the event that LCE Supervisor or management becomes or is made aware of workplace Violence and or Harassment. The Supervisor will report information to LCE H&S Coordinator 613-929-5979 for further investigation. Supervisors are encouraged to take a proactive approach when managing a project. Were there may be issues arising between co-workers, the supervisor may get involved by managing the tasks and site personnel. Issues may be avoided simply by separating employees who are at odds with each other. The Supervisor may also choose to involve the H&S Coordinator to defuse issues or situations early in this process.

Note: If it is determined that there is an immediate threat to an individual, the need for contacting the authorities (Police) may be necessary prior to contacting LCE H&S Coordinator.

Through the H&S Coordinator’s Internal Complaint Resolution Process, investigating the circumstances, and speaking to the individual(s) involved, recommendations can be made to further resolve the issue. These investigations will be conducted with discretion keeping all parties in mind. Depending upon these circumstance, resolutions and recommendations may vary, for example; For immediate action where there is an imminent threat, in all cases described throughout this section proper authorities



(Police) may be called. Resolutions involving spouse of family member may require counseling and or leave of absence. Issues involving LCE employees or the public may require disciplinary actions including suspension or termination of employment dependent upon the level of conflict. Workplace violence and harassment

Other Resources

Ontario Ministry of Labor

www.labour.gov.on.ca

- Ministry of Labor's Guideline *Workplace Violence and Harassment: Understanding the Law*

<http://www.labour.gov.on.ca/english/hs/pubs/wpvh/index.php>

- A Toolbox http://www.labour.gov.on.ca/english/hs/pdf/wvps_toolbox.pdf
(Includes Suggested Risk Assessment Template)



SECTION #12 First Aid and Emergency Preparedness



FIRST AID AND EMERGENCY PREPAREDNESS POLICY
SITE EMERGENCY PLANNING
TECHNICAL RESCUE AND EMERGENCY MEDICAL SERVICES
 Critical Information for 911 Calls
SITE EMERGENCIES – GENERAL PROCEDURES
EMERGENCIES INVOLVING THE PUBLIC
FIRST AID AND MEDICAL EMERGENCIES
 First Aid Treatment and Attendant's Authority
 Reporting Injuries to First Aid
 Hospital Locations
POWERLINE CONTACT – ABOVE AND BELOW GROUND
GAS LINE CONTACT, RUPTURE OR LEAK
HAZARDOUS MATERIAL INCIDENT



FIRST AID AND EMERGENCY PREPAREDNESS POLICY

Len Corcoran Excavating Ltd. (LCE) will ensure the right people, supplies, services and support are in place to respond to project emergencies. Adequate first aid services will be readily available at each construction site. First aid services help minimize suffering due to job-related injuries and illnesses, reduce absenteeism, and help maintain productivity.

LCE will ensure site specific emergency procedures are in place. Emergency procedures will include details on emergency response, care of injured workers and reporting requirements. Site specific emergency procedures will be developed and posted on site through the site supervisor with assistance from LCE's H&S Coordinator.

Emergency procedures developed will consider that no job is immune to the possibility of a catastrophe. The procedures will be thoroughly outlined, made known to all site personnel and enforced.

SITE EMERGENCY PLANNING

Site emergency planning is required to ensure procedures are in place before starting work on project sites. The following will be taken into consideration when developing site specific emergency procedures:

1. The types of emergencies possible/likely at the location.
2. A map or plot plan of the work area that shows evacuation routes and head-count location, as well as the location of emergency equipment, first aid services, fire suppression equipment, telephones, alarms, Material Safety Data Sheets, and the location of stations or signs for directing emergency service vehicles.
3. The method for reporting emergencies and sounding the alarm, and the all-clear signal.
4. A list of personnel responsible in emergency situations and how to contact them.
5. LCE/Subcontractor's routine for shutdown of the worksite.
6. Procedures and equipment for treating and transporting injured workers.
7. A list of phone numbers for support services (also posted at telephones).
8. Persons responsible for external communication (e.g., press releases).
9. An evacuation and head-count plan.
10. Designated access route(s) for emergency service vehicles.



11. Designated person(s) to meet and direct emergency service vehicles on site.
12. A routine for notification of workers' emergency contact.
13. Investigation and correction of hazards.
14. Practice drills (no less than twice per year).

The *LCE Jobsite Emergency Preparedness Information* worksheet found in *Section 18 – Forms* can be used for developing the site emergency procedures.

TECHNICAL RESCUE AND EMERGENCY MEDICAL SERVICES

Emergency Services have technical rescue teams trained in:

- High angle rescue
- Confined space rescue
- Hazardous materials incidents
- Trench/excavation rescue

All locations for the Project must also be able to be served by the *Ambulance Service*. So they can provide advanced life support services for critical injuries, and if necessary, provide airlift emergency transport. **All of these agencies can be accessed by calling “911”.**

Coordination with these organizations will be on-going throughout the project in order to ensure prompt effective emergency services are available when needed.

Critical Information for 911 Calls

Anyone making a “911” call must be prepared to provide the following information:

- 1) The nature of the emergency, e.g., serious injury, fire, confined space accident, hazardous materials spill, etc.
- 2) Details of the incident important to emergency services such as gas cloud, smoke, wind, depth of trench, etc.
- 3) The location – be specific.
- 4) How to access the site – including routes through the site.
- 5) Coordination information for guiding emergency services onto the site and to the incident scene – who will meet the emergency services and where.



SITE EMERGENCIES – GENERAL PROCEDURES

These general procedures will be followed for all emergencies:

- 1) Take actions to prevent further danger to self and co-workers.
- 2) Move away from the danger.
- 3) Assess situation from a safe distance
- 4) Call for help. Provide details of the incident.
- 5) Assist in rescue and care for injured, if safe to do so. If it is not safe, wait for qualified help to arrive to make the situation safe.

EMERGENCIES INVOLVING THE PUBLIC

There exists a possibility that LCE personnel could witness or be involved in an emergency involving the public. The most likely scenario is a vehicle accident. Other possible emergencies include:

- Crime (assault, theft, arson)
- Fire or explosion
- Hazardous materials spill or incident

The following guidelines apply to emergencies involving the public:

- 1) Follow established first aid and emergency procedures to protect LCE personnel and the public.
- 2) Take the necessary steps to protect yourself and other LCE personnel.
- 3) Report all crimes immediately to the police by dialing 9-1-1.
- 4) Offer first aid to injured members of the public and call 9-1-1. (They don't have to accept treatment).
- 5) Control traffic to assist emergency vehicles to access the emergency scene.
- 6) Record information applicable to the incident such as time, place, persons, description of incident, circumstances surrounding the incident (background information as required), details on injuries and treatment, description of damages to property and vehicles, etc.
- 7) Take pictures of the incident, if safe to do so.



- 8) Report to the LCE H&S Coordinator any incidents or emergencies that affect project or its personnel.

FIRST AID AND MEDICAL EMERGENCIES

Project first aid services, supplies and equipment will be provided as required by the OHS Regulation. In situations where first aid is not the responsibility of LCE, we will make every effort to ensure that the responsible party makes the aforementioned provisions.

First Aid Treatment and Attendant's Authority

The first aid attendant will be in complete charge of all first aid treatment of injured workers until medical aid is available. They have the authority to decide the best method of transport of injured workers to medical facilities. Supervisory personnel will assist and not attempt to overrule the attendant's decisions relating to first aid or emergency transportation.

Reporting Injuries to First Aid

Anyone who sustains a job-related injury or illness, regardless of seriousness, are required to immediately report it to the first aid attendant for treatment, and must also report the injury to their supervisor. If medical treatment is required, personnel are entitled to choose their own medical practitioner.

A WSIB Form 6 must be completed by any person injured on the job. WSIB Form 6 must be submitted to head office at the earliest opportunity. (See also *Section 13 – Injuries and Return to Work* for more specific details on injury reporting.)

In the event of a serious accident (fatality or accident resulting in a critical condition with a risk of death), nothing must be removed from or changed at the accident location before an MOL representative has given clearance to do so, except where necessary to facilitate rescue operations or to prevent imminent injury. (See also *Section 12 – Incidents-Reporting and Investigating* for more specific details on reporting serious accidents.)

Hospital Locations

The locations of the nearest hospitals must be taken into consideration when planning for first aid services. Map to the nearest Hospital location must be posted in a conspicuous location on LCE sites.



POWERLINE CONTACT – ABOVE AND BELOW GROUND

LCE will endeavor to have power lines in the work area either re-routed or de-energized prior to commencement of work. Maintaining a safe distance from all electrical conductors is the best way to prevent power line accidents.

If contact with an energized conductor occurs:

- 1) When operating mobile equipment - remain inside the cab and don't panic, you're safe.
- 2) Alert other personnel to what has happened. Instruct them to keep their distance – at least **10 meters (33 ft.)** from any machine, load, lines or ground affected by the power lines.
- 3) Try to remove the contact - move the equipment away from the line in the reverse direction to that which caused the contact (for example, if you swung left into the wire, swing right to break the contact).
- 4) If mobile equipment cannot be moved away or disengaged from the contact, remain inside the mobile equipment until the electrical authorities de-energize the circuit and confirm that conditions are safe.

CAUTION: Once an arc has been struck, it can draw out a considerable distance before it breaks. Keep moving away from the line until the arc breaks and then continue moving until you are at least 3 to 4.5 m (10 to 15 ft.) away from the line.

CAUTION: If a crane's ropes appear to be welded to the power line do not move away from the line as it may snap and whip. Stay where you are until help arrives.

- 5) Report every incident involving contact with a live line to your supervisor who will in turn notify the electrical utility so that inspections and repairs can be made to prevent damaged power lines from failing at a later date. **Emergency contact numbers** are:

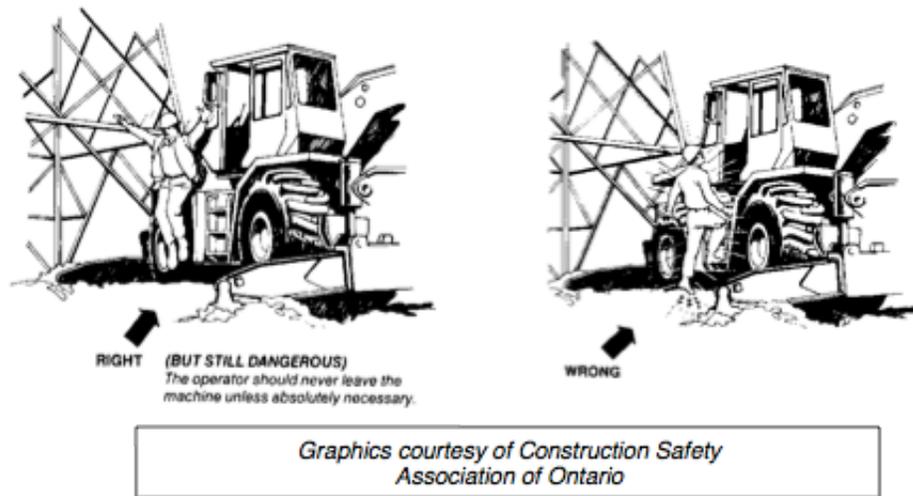
- **LCE H&S Coordinator: 613-929-5979**
- **LCE Office: 613-542-0820 OR 613-548-7604 press 3 for Kevin Mills**
- **LCE General Manager (Steve Clark's cell): 613-561-1119**
- **Utilities Kingston (24 Hour): 613-546-1181**
- **Ontario Hydro: 1-800-434-1235**
- **Union Gas (Ontario One Call): 1-800-400-2255**
- **Bell Canada (Ontario One Call): 1-800-400-2255**

- **Cogeco Cable (24 Hour tech support): 1-866-879-7179**
 - **Ministry of Labor: 613-545-0989 OR 1-800-267-0915**
 - **Ministry of Environment (24 Hour): emergency; 1-800-268-6060**
 - **Kingston Police: emergency; 911/Non-emergency: 613-548-4001**
 - **Kingston Fire Department: emergency; 911/Non-emergency; 613-548-4001**
- 6) If it is necessary for the operator to leave mobile equipment while it is still in contact with the electrical conductor, they must jump clear. They must never step down allowing part of their body to be in contact with the ground while any other part is touching the machine.
- 7) Because of the hazardous voltage differential in the ground the operator should jump with his feet together, maintain balance and shuffle or hop slowly across the affected area. Do not take large steps because it is possible for one foot to be in a high voltage area and the other to be in a lower voltage area. The difference between the two can kill.
- 8) Completely inspect equipment that has contacted a power line for possible damage caused by the electrical contact. Affected sections of wire rope should be replaced if it touched a line since the arc is usually of sufficient power to weld, melt or badly pit the rope.



HIGH VOLTAGE CONTACT will result in electrical current flowing down through the equipment to the ground. The ground will then be energized with a high voltage near the equipment and lower voltage farther away.

Because of the hazardous voltage differential in the ground the operator should jump with his feet together, maintain balance and shuffle or hop slowly across the affected area. Do not take large steps because it is possible for one foot to be in a lower voltage area. The difference the two can kill.



GAS LINE CONTACT, RUPTURE OR LEAK

LCE will take the required steps to prevent gas line contacts. We will locate all gas and other underground services before digging, and will coordinate with the utility (Utilities Kingston (Gas), Union Gas Ontario One Call, etc.) to locate and expose lines to avoid accidental contact.

Gas leaks or other problems will be rare. But the possibility still exists. Utilities Kingston/Union Gas is prepared to respond to gas line emergencies. In some areas they have designed the pipeline system with valves that will shut off the flow of gas (automatically or by remote activation) upstream and downstream from a leak or potential problem.

A gas line leak or rupture can be detected by:

- **Sight** - You may be able to see vapors in the air.
- **Smell** - Mercaptan is added to gas to give it a distinctive rotten egg smell.
- **Sound** - You may be able to hear the hissing sound of gas leaking.

If a gas line rupture or leak is detected:

- 1) Turn off machinery and eliminate all sources of ignition
- 2) Shut off vehicle engines.
- 3) Determine the wind directions and evacuate the area, including buildings, and move to nearest marshaling site upwind from the leak/rupture.



- 4) Make sure everyone is accounted for.
- 5) Prevent vehicles and bystanders from entering the area.
- 6) Call the Fire Department using a 911 call and provide details of the incident, including the exact location. They will want to know if there is a fire, the wind direction, direction that a gas or smoke plume is moving, the best direction to approach the scene, and if there are injuries.
- 7) Call **Utilities Kingston (24 Hour) 1-800-546-1181, or Union Gas at 1-800-400-2255 (Ontario One Call)**. They will require similar details as above.
- 8) Notify the LCE H&S Coordinator at 613-929-5979 cell.
- 9) Avoid contact with any natural gas escaping from the pipeline or smoke if there is a fire.
- 10) Warn people in nearby buildings, as gas might enter through drains if the break or leak is underground.

HAZARDOUS MATERIALS INCIDENT

If the Project is located nearby major road transportation routes, rail-lines and industrial process facilities. There is a risk of a hazardous materials incident occurring from these sources that could affect project personnel. The hazardous materials incident could be a spill, leak, fire

and/or explosion. Evacuating the area and reporting the incident will be the priority in these incidents. Other sources may include service vehicles carrying large quantities of hazardous materials.

In the event of a hazardous materials incident:

- 1) Turn off machinery and eliminate all sources of ignition.
- 2) Shut off vehicle engines.
- 3) Determine the wind direction.
- 4) Evacuate the scene to the nearest marshaling site upwind from the incident.
- 5) Make sure everyone is accounted for.
- 6) Prevent vehicles and bystanders from entering the area.
- 7) Try and observe if there are any Transportation of Dangerous Goods (TDG) placards visible. Be prepared to report this to the Fire Department and CANUTEC. (**See below for example of TDG placards**).

- 8) Call the Fire Department using a 911 call and provide details of the incident, including the exact location. They will want to know if the incident involves a derailment or vehicle accident, if the source of the hazardous material is from an industrial facility, if there is a fire, the wind direction, direction that a gas or smoke plume is moving, the best direction to approach the scene, and if there are injuries.
- 9) Call **CANUTEC at 613-996-6666 or *666 on a cellular phone**. They will require similar details as above.
- 10) Notify the LCE H&S Coordinator at 613-929-5979.
- 11) Avoid contact with the hazardous materials (liquid, gas, vapors, smoke, etc.).

TDG Placards

(See also *Section 8 – Hazardous Materials and Environmental Protection*)







SECTION #13 Incidents-Reporting and Investigating



INCIDENT POLICY

DEFINITIONS

POST-INCIDENT NOTIFICATION PROCEDURES

IMMEDIATE ACTION AFTER AN INCIDENT

REPORTING AND INVESTIGATING

- Incidents to Be Reported and Investigated
- Reporting Serious Accidents to the MOL
- Reporting and Investigating High-Risk Occurrences
- Near Miss Reporting

INVESTIGATION TEAM – SERIOUS INCIDENTS

CONDUCTING INVESTIGATIONS

POST-INCIDENT COMMUNICATION

- Meetings
- Safety Alerts

INVESTIGATIONS BY OUTSIDE AGENCIES

- Ministry of Labor (MOL)
- Police
- Coroner
- Other Agencies

MEDIA RELATIONS AND CRISIS MANAGEMENT



INCIDENT POLICY

Investigating incidents is necessary to prevent similar incidents from happening again. A properly investigated incident provides key information to educate others encountering a similar situation. **The goal of every incident investigation is to prevent a reoccurrence!**

Incidents must be reported and investigated. Primary responsibility for reporting is the Supervisor or most senior person at the scene of an incident. Investigations begin at the earliest practical opportunity and will be **conducted by the supervisor responsible for the work being performed.** Supervisors should be assisted in the investigation by their management. Where practicable, a worker representative should participate in the investigation process with the supervisor.

The investigation will:

- require thorough identification and evaluation of all factors contributing to the incident
- identify the root cause(s) of the incident
- provide realistic corrective action(s) necessary to eliminate the cause(s)
- establish when corrective action(s) will be implemented and by whom

Written *Investigation Reports* are to be submitted by the supervisor to the LCE H&S Coordinator within 24 hours of the incident occurring.

DEFINITIONS

Accident an undesired event that resulted in an injury, occupational illness, and/or damage to property, materials, tools or equipment

high-risk occurrence a condition or action that is likely to result in a serious or fatal injury:

- working in an excavation over four feet deep without adequately supporting or sloping the sides of the excavation, or adopting other safeguards allowed by regulatory requirements such as plans and instructions issued by a Professional Engineer or Geo-Tech
- working within the specified minimum distances from unguarded overhead energized high voltage electrical conductors without complying with regulated protection requirements
- performing repairs or maintenance work on energized equipment that is not locked-out



- exposure to situations or conditions that are immediately dangerous to life or health (IDLH); for example, entry into a confined space without taking proper precautions such as ventilating or gas testing, working at heights over 10 ft. (3 m) without fall protection, working in a contaminated atmosphere without ventilation and/or respiratory protection, etc.
- exposure to conditions that are likely to cause a chronic health effect; for example, uncontrolled exposure to asbestos or silica
- operating mobile equipment on uneven or steep terrain without a Roll-Over Protective Structure (ROPS) installed on the mobile equipment
- failing to install or use seat belts on ROPS equipped mobile equipment or forklift trucks
- failing to fell dangerous trees resulting in a hazard to other persons or the faller

incident an undesired event that is either an accident or near miss

immediate reporting to MOL when responding to an incident the immediate hazards are addressed, first aid and medical treatment are provided, and Ministry of Labor is then notified of the incident by phone

major release of a hazardous substance a major release does not only mean a considerable quantity, or the peculiar nature of the release, such as a gas or volatile liquid, but, more importantly, the seriousness of the risk to the health of workers – factors that determine the seriousness of the risk include the degree of preparedness of the employer to respond to the release, the necessity of working in close proximity to the release, the atmospheric conditions at the time of the release and the nature of the substance

minor accident an undesired event that resulted in an injury, occupational illness and/or damage to property, materials, tools or equipment, but is not required to be immediately reported to MOL

near miss an undesired event that under slightly different circumstances could have resulted in an injury, occupational illness, and/or damage to property, materials, tools or equipment

serious an undesired event that resulted in a serious injury or occupational



<i>accident</i>	illness, and/or damage to property, materials, tools or equipment that must be immediately reported to MOL
<i>serious injury</i>	any injury reasonably expected at the time of the incident to endanger life or cause permanent injury – serious injuries include both traumatic injuries that are life threatening or that result in a loss of consciousness, and incidents such as chemical exposures, heat stress, and cold stress which are likely to result in a life threatening condition or cause permanent injury or significant physical impairment

POST-INCIDENT NOTIFICATION PROCEDURES

Contact the LCE H&S Coordinator for all incidents by phone and/or SMS text at: **613-929-5979**. The alternate incident contact number is: General Manager **613-561-2529**. SMS text messages

used for incident notification must start with “911” followed by an incident site call-back contact name and number, e.g., “911 Fred Smith 613-111-2222”.

LCE has an internal emergency call procedure to contact key LCE personnel after an incident. The LCE H&S Coordinator will initiate this procedure. Emergency contact numbers for notifying external agencies and LCE first aid services are on the LCE *Projects Site Office*.

IMMEDIATE ACTIONS AFTER AN INCIDENT

The immediate actions after an incident are:

- 1) Ensure no further danger. Secure all hazards before initiating rescue and providing first aid.
- 2) Provide aid to the injured and transportation to medical care as required.
- 3) Notify supervisory personnel responsible for the work or site.
- 4) Contact the LCE H&S Coordinator (or alternate) immediately. If it is a serious accident the LCE H&S Coordinator will contact Ministry of Labor.
- 5) Preserve the incident scene. Nothing must be removed from or changed at the incident location until the LCE H&S Coordinator has given the clearance to do so.
- 6) Start an investigation.



REPORTING AND INVESTIGATING

Incidents to Be Reported and Investigated

The following incidents must be reported and investigated:

- serious accidents
- minor accidents
- near miss occurrences
- high-risk occurrences
- utilities contact including:
 - power line
 - gas pipe line
 - communications lines (copper or fiber optic)
 - railroad signal lines or devices
 - water line
 - sanitary sewer line
 - storm sewer line
- damage to railroad property
- unplanned disruptions of rail traffic or contact with a train
- hazardous materials occurrences (road or rail)
- incidents causing disruption of public vehicle traffic
- vehicle/traffic incident involving LCE personnel
- workplace violence incident (threat or actual violence)

All incidents must be reported to the LCE H&S Coordinator (613-929-5979) by phone or text immediately after the incident. Text messages for incident reporting should begin with “911”.

In most cases the LCE Supervisor or H&S Coordinator will determine who must be contacted further and initiate the LCE emergency call list procedures.

Any questions with regards to the requirements for investigating the accident will be answered at this time by the LCE H&S Coordinator.



The H&S Coordinator will provide any necessary resources to assist in the investigation, including an investigation kit if requested.

Reporting Serious Accidents to Ministry of Labor (MOL)

The LCE H&S Coordinator will immediately notify MOL of the following serious accidents:

- a. Any accident that is fatal or results in a serious injury*
- b. A major leak or release of a dangerous substance
- c. A major structural failure or collapse of a structure, equipment, construction support system or excavation
- d. Any blasting accident that results in injury, or unusual event involving explosives
- e. A diving incident that causes death, injury or decompression sickness requiring treatment

***Note:** The following are **examples** of what MOL defines as *serious injury*:

- Major fractures or crush injuries, such as:
 - A fracture of the skull, spine, or pelvis
 - Multiple, open or compound fractures, or fractures to major bones such as the humerus, fibula or tibia, or radius or ulna
 - Crushing injuries to the trunk, head or neck, or multiple crush injuries
- An amputation, at the time of the accident, of an arm or leg or amputation of a major part of a hand (i.e. Thumb) or foot
- Penetrating injuries to eye, head, neck, chest, abdomen, or groin
- An accident that caused significant respiratory compromise, or punctured lung
- Circulatory shock (i.e. internal hemorrhage) or injury to any internal organ
- Lacerations that cause severe hemorrhages
- All burns that meet the rapid transport criteria of the Occupational First Aid Training Manual, including:
 - Third degree burns to more than 2% of the body surface
 - Third degree burns to the face, head, or neck



-
- Burns of any degree with complications
 - An asphyxiation or poisoning resulting in a partial or total loss of physical control (i.e. loss of consciousness of a worker in a confined space) or a respiratory rate of fewer than 10 breaths per minute or severe dyspnea (difficult or labored breathing)
 - Decompression illness, or lung over-pressurization during or after a dive or any incident of near drowning
 - Traumatic injury which is likely to result in a loss of sight, hearing or touch
 - Injuries that require a critical intervention such as CPR, AED, artificial ventilation or control of hemorrhaging or treatment beyond First Aid, such as the intervention of Emergency Health Services personnel (e.g. transportation to further medical attention), a physician and subsequent surgery, or admittance to an intensive care unit should also be considered "serious injuries."

Ministry of Labor is notified so that a MOL Officer can respond to the incident scene and:

- Ensure the integrity of the scene and conduct an investigation of the incident.
- Offer availability of counseling services, as appropriate.
- Undertake an inspection of the workplace to help ensure that workers are protected before work is resumed.
- Help ensure that any post-incident response or cleanup is performed in a safe manner.
- Provide a referral to compensation services.

Failure to immediately notify MOL may result in an administrative penalty (fine).

Important: The requirement to report a serious injury or fatality is separate from the requirement to report injuries for compensation claims purposes. Filing a Form 7 will not satisfy the obligation to immediately report a serious injury or fatality.

Report and Investigating Minor Accidents

All minor accidents must be reported to the site supervisor as they occur. The site supervisor must contact the LCE H&S Coordinator immediately. This includes vehicle incidents and damage to property, materials, tools or equipment where there is no "serious injury". Minor accidents will be investigated to determine cause and the means to prevent a reoccurrence.

Reporting and Investigating High-Risk Occurrences

All high-risk occurrences will be reported as if they were a near-miss incident. The site supervisor must contact the LCE H&S Coordinator immediately. An incident investigation will be completed for all high-risk occurrences to determine cause and the means to prevent a reoccurrence.

Near Miss Reporting

All near miss occurrences will be reported as if they were an accident. The site supervisor must contact the LCE H&S Coordinator. A determination will be made at this time on whether or not an investigation will be conducted. All near miss investigations will determine cause and the means to prevent a reoccurrence

The importance of reporting and investigating near miss incidents cannot be understated. It is a vital accident prevention tool. By investigating near misses it is possible to identify situations that may result in an accident – prior to an actual accident occurring. To demonstrate this point, consider the study from 1969, involving 1,750,000 employees and over 3 billion exposure hours.

During this study it was determined that there is an accident ratio of near misses, property damage, minor injuries, and serious or disabling injuries as follows:



The accident cause for all of these occurrences are the same; identifying accident causes and eliminating near miss occurrences will result in a corresponding reduction in property damage, minor injuries, and serious injuries. That is why near miss reporting is so important

INVESTIGATION TEAM – SERIOUS INCIDENTS

Supervisors may require assistance when investigating serious or complex incidents. In these situations the LCE H&S Coordinator will facilitate any assistance that may be required, and organize an investigation team that is:

- familiar with the work processes involved in the incident



- trained in investigation techniques
- knowledgeable about incident prevention principles

The investigation team can include managers, supervisors and/or workers with knowledge of the work processes, and personnel trained in investigations and incident prevention. The LCE H&S Coordinator is available to provide assistance with incident investigations.

CONDUCTING INVESTIGATIONS

Conducting investigations is a six-part process:

- 1) Preparation
- 2) Responding to the incident
- 3) Preserving the Scene
- 4) Investigating
- 5) Analysis and Recommendations
- 6) Reporting and Follow-up

1. Preparation

The following must be in place before there is a need to conduct an investigation:

- An investigation kit that includes (as a minimum):
 - measuring tape
 - pencils/pens
 - writing paper – preferably waterproof type
 - camera with flash
 - flashlight
 - Incident Report forms

NOTE: The LCE H&S Coordinator can provide an investigation kit.

- Personnel who are qualified to investigate incidents.
- Investigation procedures review to help ensure understanding of what is required.



2. Responding to an Incident

Timely response to the incident scene is critical. Delaying the investigation makes it more difficult find out exactly what happened. Investigations must take place on the same day of the incident.

3. Preserving the Incident Scene

Steps must be taken to preserve the incident scene for two reasons:

- i. Any incident required to be reported by MOL must be preserved until permission has been granted by a MOL Officer to release the scene. They may conduct their own investigation.
- ii. Investigators will want as clear a picture as possible of what happened. Disturbing the scene has the potential to distort the facts.

The scene may be disturbed as may be necessary for rescue work and securing the scene for the prevention of further damage or injury. Photographs and sketches should be taken as soon as possible if the scene is to be disturbed.

4. Investigating

The first obligation of the investigation team is their own safety. Investigators must only enter the incident scene if it is safe to do so. The investigation process begins after the scene is secure.

Incidents have three stages that require consideration as part of the investigation process:

- **Pre-Contact:** What happened prior to the accident? Consider carefully the sequence of events that led up to the accident. The root cause(s) of the accident is most often found here.
- **Contact:** What happened during the accident? Consider how the damage occurred, what protection measures were in place, and how effective or ineffective they were.
- **Post-Contact:** What happened after the accident? Consider factors that minimized or increased the seriousness, such as emergency response times, first aid availability on site, location and condition of emergency equipment, emergency plans, and personal protective equipment worn or unused.



Guidelines for Gathering Information

Guidelines for gathering incident information are:

- a) Go to the incident location. Make yourself thoroughly familiar with the tasks, materials, environment, personnel and site supervision.
- b) Gather the necessary data through photos, measurements, notes, drawings, personnel, etc.
- c) Record the information as required on the *Incident Investigation Report* form. Use additional pages as may be necessary to record all of the information. Ensure that the information includes details on:
 - equipment, machinery, tools and materials
 - site conditions
 - the environmental conditions
 - work practices and/or conditions
 - worksite supervision
 - personnel involved - occupation(s) and experience
 - protective equipment
 - previous incident records and similar occurrences
 - safe work procedures and other supporting documentation
 - emergency procedures
 - first aid services and treatments
- d) Interview personnel who saw the incident and other persons who have details about the incident. Interviews require you to be fair and open minded. Look for facts, NOT someone to blame. During each interview:
 - i. Put the individual at ease.
 - ii. Keep the interview private (interview personnel separately).
 - iii. Advise each individual of the purpose of the interview, e.g., to establish the facts, not to place blame.
 - iv. Obtain the individual's version of how and why the incident occurred. Don't look for confirmation of your own opinion and never argue with the interviewee. Ask open- ended questions that require more than a "yes" or "no" answer.
 - v. Repeat the individual's account once you have heard it. This is a good time to make notes. Attempt to clear up facts that may not be



- clear. Do not make assumptions. Use diplomacy and consideration to determine what occurred.
- vi. Ask each interviewee for corrective action suggestions.
 - vii. Let the individual know by what date the report will be complete.
 - viii. End the interview on a positive note by thanking the person for their assistance.
- e) Gather and review any available written information that pertains to the incident such as safe job procedures, drawings, manufacturers' information, etc.
 - f) Review involved supervisors' and workers' personnel files and incident reports. Investigators should know about their experience, education, training, previous incidents or injuries, etc. which could be connected to the incident cause.

5. Analysis and Recommendations

The most important part of the investigation is the analysis, which will lead to recommendations to prevent a recurrence. The analysis, conclusions about accident cause and recommendations to prevent a recurrence are then presented in a report for circulation, action and follow-up.

Analysis

Review and analyze the information gathered. Start with thorough chronological description of the entire occurrence through the pre-contact, contact, and post-contact stages. All accidents are the result of multiple, simultaneous events coming together resulting in a loss. Look for failures in the systems used to controls hazards, unsafe conditions and unsafe actions. There will be more than one causal factor.

Determine the immediate and the underlying accident causes. Immediate causes are how the accident happened. Underlying (or root) causes are why the accident happened.

Immediate causes are the most obvious and easiest to determine. They are self-evident when examining the physical data, interviews and documentation. Root causes are then revealed through examination of the relationship between the tasks, environment, personnel and management factors. To determine root (underlying) causes find answers for the following questions, then ask "Why?" or "Why not?":

- Task:
 - Was a safe work procedure used?



-
- Had conditions changed to make the normal procedure unsafe?
 - Were the appropriate tools and materials available?
 - Were they used?
 - Were safety devices working properly?
 - Was lockout used when necessary?

 - Material :
 - Was there an equipment failure?
 - What caused it to fail?
 - Was the machinery poorly designed?
 - Were hazardous substances involved?
 - Were they clearly identified?
 - Was a less hazardous alternative substance possible and available?
 - Was the raw material substandard in some way?
 - Should personal protective equipment (PPE) have been used?
 - Was the PPE used?
 - Were users of PPE properly trained?

 - Environment:
 - What were the weather conditions?
 - Was poor housekeeping a problem?
 - Was it too hot or too cold?
 - Was noise a problem?
 - Was there adequate light?
 - Were toxic or hazardous gases, dusts, or fumes present?

 - Personnel:
 - Were workers experienced in the work being done?
 - Had they been adequately trained?
-



- Can they physically do the work?
- What was the status of their health?
- Were they tired?
- Were they under stress (work or personal)?
- Management:
 - Were safety rules communicated to and understood by all employees?
 - Were written procedures and orientation available?
 - Were they being enforced?
 - Was there adequate supervision?
 - Were workers trained to do the work?
 - Had hazards been previously identified?
 - Had procedures been developed to overcome them?
 - Were unsafe conditions corrected?
 - Was regular maintenance of equipment carried out?
 - Were regular safety inspections carried out?

Recommendations

The recommendations to prevent a recurrence must be linked to the root cause(s). Recommendations will employ sound incident prevention principals.

To be effective, recommendations must be tangible and measurable. Tangible means the recommendations are an action or activity that people can identify as being done or not being done. Tangible recommendations are substantial, definite, and may be clearly observed and evaluated. Measurable means that it is possible to determine if the recommendation has been implemented and if it has been effective.

Investigators should prioritize their recommendations for implementation as follows:

- a) Recommendations that will prevent a similar incident from occurring. Remove or change the sequence of events so that the cause(s) of the incident cannot occur again. This is the main focus of the investigation report.
- b) Recommendations to prevent injuries if a similar incident reoccurs. It is not always possible to be 100% certain that a similar incident will not occur. If it does, what steps can be taken to ensure there are no injuries? The main



focus here is usually on equipment, clothing and gear that protects personnel involved in an incident. For example, use of seat belts in a roll-over.

- c) Recommendations to reduce injury severity. The main focus here is on correct and adequate emergency procedures to respond to an incident. Providing proper emergency response services such as first aid will help reduce injury severity.

6. Reporting and Follow-up

Complete the *Incident Investigation Report*. Include all the information that was gathered and used in the analysis to form conclusions and make recommendations. The report then becomes the working document for implementing the recommendations and preventing a reoccurrence. Forward the completed *Incident Investigation Report* to the LCE H&S Coordinator. Further distribution will normally be:

- Joint Occupational Health & Safety Committee
- Local MOL office

The follow-up is critical for ensuring recommendations are implemented. The Joint Occupational Health & Safety Committee's review and comments will help in the follow-up process. Recommendations should be assigned to an individual, or group, for implementation. They must be capable of carrying out the recommendations, i.e., they must have the required skills, qualifications, experience, resources and authority.

POST-INCIDENT COMMUNICATION

It is important that there is timely sharing of information after an incident through meetings and *Safety Alerts*.

Meetings

Immediately after a serious incident, site supervisors will conduct a safety meeting with their crew to:

1. Ensure the correct information is received by workers, and to prevent misinformation and rumors from being circulated.
2. Answer questions and concerns crews might have about the incident.
3. Review pertinent safety information for work to be performed. It is an opportunity to communicate the importance of the hazard identification and control needed to prevent recurrence.



After the completion of an incident investigation the LCE H&S Coordinator will determine how the lessons learned from the incident investigation report will be distributed. These lessons learned should be reviewed with crews by their site supervisor during a special meeting held for this reason or as part of the *Tool-Box Talk* or *Monthly Safety Meeting*.

Safety Alerts

The *Safety Report* is a brief synopsis of an incident and the required corrective measures. It is important that this information be circulated throughout the project. The LCE H&S Coordinator is responsible for reviewing incident reports, and creating and circulating *Safety Alerts* when it is appropriate. *Safety Alerts* must be reviewed by each site crews as part of *Tool-Box Talks*. *Safety Alerts* are to be posted in appropriate locations (i.e., site office and lunch trailers) for review by all workers on the site.

INVESTIGATIONS BY OUTSIDE AGENCIES

Outside agencies such as MOL, police or Coroner's Office may conduct investigations after a serious accident. LCE's investigation results may also be reviewed by these agencies. Copies of MOL accident investigation reports will be released to the police on request. Reports concerning fatalities will be released to Coroner. No other organizations or individuals will receive copies of the reports unless there are extenuating circumstances. The disclosure restrictions are outlined in the Freedom of Information and Protection of Privacy Act.

Ministry of Labor (MOL)

Fatal accidents and most serious accidents are investigated by a MOL Officer. The MOL also reviews LCE's incident investigation reports to check for completeness and compliance with the Workers Compensation Act (WCA) and Occupational Health & Safety Act and Regulation (OHSA). MOL is primarily concerned with prevention of a reoccurrence, but can, and will, take actions that may result in fines, workplace closures and/or prosecution.

Recently MOL has been much more willing to prosecute individuals for failing to comply with the WCA or OHSA. Therefore, the following guidelines will be observed by LCE employees and subcontractors if there is a serious accident or major violation of the WCA or OHSA:

1. Cooperate with MOL personnel and their investigation.



2. Avoid statements of guilt or incrimination. Stick to the facts as you know them. Do not provide statements with conjecture or speculation about what has or has not happened.
3. If it appears that MOL is investigating you with implications of fault or guilt, then the following actions should take place:
 - a) Ask MOL Officer “Is this is a formal investigation into my personal responsibility for the cause of the accident?”.
 - b) If the answer is “Yes”, then ask “May I retain legal counsel before answering any more questions?”.
 - c) If the answer is “No”:
 - tell MOL officer that this fact is being noted
 - write down the date, time, place persons in attendance and the matter in question
 - if possible, get the Officer to sign a statement that they are not allowing Counsel to be present during questioning
 - ask if you may (tape/digital) record the session and if this is denied, note this as well
 - ask to review MOL Officer’s notes afterwards to ensure that the statements that you have provided are correct.
 - d) If the MOL officer is recording the session, make “a formal request” for a copy of the tape.
 - e) Retain Legal Counsel at the earliest opportunity and advise counsel on the events.

Police

The police will conduct an investigation in the event of a fatality and may conduct an investigation after a serious accident. In most cases their investigation will be limited to determining if “foul play” was involved in the accident. Police may also investigate the accident if they determine that personnel directing the work could be criminally negligent. Persons directing work who fail to provide reasonable care in their duties may now be charged under the *Criminal Code of Canada, Section 217.1*:



Duty of persons directing work

Everyone who undertakes, or has the authority, to direct how another person does work or performs a task is under a legal duty to take reasonable steps to prevent bodily harm to that person, or any other person, arising from that work or task.

LCE personnel will cooperate fully in all police investigations. Personnel being investigated by police should retain legal counsel as soon as reasonably possible.

Coroner

The Coroner may order an inquest in the event of a fatal accident. The purpose of which is to prevent reoccurrence of a similar incident. The coroner is concerned with issues concerning the well-being of the general public. Recommendations for prevention of a reoccurrence are the main focus, but the Coroner may also indicate responsibility for allowing the accident to happen. Facts obtained through the Coroner's Inquest may also form the basis for evidence in a legal proceeding, e.g., for criminal negligence.

Other Agencies

Various government agencies are authorized to investigate certain accidents in the workplace. LCE personnel will cooperate in these investigations but will avoid statements of guilt or incrimination.

MEDIA RELATIONS AND CRISIS MANAGEMENT

The media may respond to the scene of a serious accident. If this occurs, the site supervisor is responsible to:

- Notify the LCE Head Office and the H&S Coordinator of the arrival of the media.
- Instruct all other LCE employees to politely direct any media or other inquiries for information to the designated LCE spokesperson.
- Allow only emergency response personnel and appropriate local government agency representatives access to the incident scene.





SECTION #14 Injuries and Return to Work



INJURY REPORTING AND RETURN TO WORK POLICY

INJURY REPORTING

INJURY CLAIMS ADMINISTRATION PROCESS

1. Accompany the worker to Medical Treatment for Injuries
2. Investigate the Injury Occurance
3. Reporting the Injury to the WSIB
4. Check Medical Information
5. Remain in Contact with the Injured Worker
6. Review Progress of Recovery and Return to Work with the WSIB
7. Information the WSIB of the Worker's Return to Work

RETURN TO WORK

CONTESTED CLAIMS

 Appealing Claims Decisions

CLAIMS COST CONTROL



INJURY REPORTING AND RETURN TO WORK POLICY

A disabling injury may happen to any employee. As an employer, LCE has a moral and financial interest in fair administration of the injury claims management process. Our injury claims management program is intended to ensure that:

- all employees are treated equally and fairly in administering the compensation system
- injured employees recover and return to work as soon as possible for their benefit and the benefit of the organization
- employees receive any help required to help them return to work, including modified work and work conditioning programs
- false claims are identified and contested

The overall goal of our injury claims management process is to ensure that each claim for compensation is administered as quickly and fairly as possible, and in doing so helps restore the injured worker to full pre-injury earning capabilities as soon as possible. To achieve this goal LCE will:

- investigate every injury that results in the need for medical attention (see also *Section 12 – Incidents-Reporting and Investigating* in this manual)
- process injury compensation claims application forms in a timely manner
- maintain contact with every worker who is away from work due to injury
- consult with the MOL and medical service providers as to the recovery progress and expected return to work date for every injured employee
- consider the possibility of offering modified duties, additional job training and other early return to work opportunities to injured workers in consultation with the MOL, worker, worker's physician and union representative
- confer with the injured worker when they return to work to ensure that they are fit for work and have clearance from their physician to return to work
- review with the worker the cause of the *injury and:*
 - *provide any remedial training as may be necessary to ensure they have the job skills to prevent a reoccurrence, and*
 - *assign the worker duties that are consistent with any physical limitations and the process of recovery.*



INJURY REPORTING

Project personnel who sustain a job-related injury or illness, regardless of seriousness, are required to immediately report it to a first aid attendant for treatment, and to their immediate supervisor. Personnel must report the following to their supervisor on the same day of injury:

- a loss of consciousness following the injury
- medical treatment received beyond first aid
- intention to seek medical treatment
- inability to return to their usual job function on any day following the day of injury
- an accident that resulted in the breakage of an artificial member, eyeglasses, dentures or a hearing aid

Any injury received at work must be reported before leaving the worksite. Employees who fail to report injuries as required may have their claim for compensation delayed unnecessarily and/or their claim may be contested by LCE.

The first aid attendant will be in complete charge of all first aid treatment of injured workers until medical aid is available. Supervisory personnel assist and not attempt to overrule the attendant's decisions relating to first aid or emergency transportation.

A WSIB Form 6 must be completed by any worker injured on the job, and then submitted to the Head Office, preferably on the same day of the injury, or the following day at the latest. Regardless of whether or not a Form 6 is submitted, the site supervisor must inform the LCE H&S Coordinator on the same day of injury where any of the following conditions occur:

- the worker loses consciousness following the injury
- the worker is transported to or directed to go for medical treatment
- the injury is one that obviously requires medical attention
- the worker states that they intend to seek medical attention
- the worker has received medical treatment for the injury
- the worker is unable or claims to be unable to return to their usual job, as a result of job induced injury, on any work day subsequent to the day of injury



- the accident results in or is claimed to have resulted in the breakage of eye-glasses, dentures, hearing aids or prosthetic devices
- the WSIB or the worker requests that an *Employers Report of Injury or Occupational Disease* (Form 7) be submitted to the Board.

For these occurrences LCE must file WSIB Form 7 with the WSIB no later than 72 hours after the occurrence.

Summary of WSIB Injury Report Forms

The following is a summary of injury reporting using WSBC forms:

<u>Form #</u>	<u>Form Name</u>	<u>Responsibility</u>	<u>Process</u>
6	Application for Compensation & Report of Injury or Occupational Disease	Worker	Sent directly to the injured worker by the WSIB, is completed by the worker and sent directly to the WSIB within 72 hours
6A	Worker's Report of Injury or Occupational Disease to the Employer	Worker	Injured worker completes on day of injury, if physically able, and submits to the employer; or as soon as they have recovered enough to do so, and provides to the employer without delay.
7	Employer's Report of Injury or Occupational Disease	Employer	Completed by the employer and submitted to the WSIB (along with the 6A) within 72 hours of the injury being reported.
8	Physician's First Report	Physician	Completed by attending physician and sent directly to the WSIB.
9	Employer's Statement of Return to Work	Employer	Completed by the employer when the injured worker is reported to be fit to return to work, and is submitted to the WSIB.
11	Physician's Progress Report	Physician	Completed by attending physician and sent directly to the WSIB.

INJURY CLAIMS ADMINISTRATION PROCESS

Following is a detailed instruction on how to properly administer a compensation claim for injury or occupational illness. LCE will use this process.

1. Accompany the Worker to Medical Treatment for Injuries

Injured workers will be accompanied to the medical facility by a representative of LCE. They will provide any needed support, demonstrate concern for the worker, and use this opportunity to determine the seriousness of the injury and anticipated absence from work. The physician or other health care staff who assist the worker may be helpful in this regard. The supervisor may be able to get an initial estimate about the seriousness



of the injury and the length of time the worker may be away from work. Some preliminary estimate on a modified return to work may also be obtained. Regardless, the emphasis throughout should be a demonstrated concern for the employee's welfare and condition, and for getting the employee safely back to work at the earliest date.

2. Investigate the Injury Occurrence

The injury occurrence will be investigated as per the requirements of *Section 12 – Incidents- Reporting and Investigating*. Information obtained in the investigation is important for accurate reporting of information on the *WSIB Form 7 – Employer's Report of Injury or Occupational Disease*. A thorough investigation process sends a positive message to the workforce, i.e., all incidents are treated seriously.

3. Report the Injury to the WSIB

LCE must submit the required forms to the WSIB within 72 hours of the injury being reported. (See *Injury Reporting* on previous pages)

LCE must provide payroll information for injuries that require payment of wage loss benefits by the WSIB. The information is entered on the Form 7. It must be as accurate as possible in order to ensure payment of benefits isn't delayed and that the payment will be correct. It also reduces phone calls from the WSIB to confirm earnings information. If additional earnings information, such as three-year and five-year earnings, are required the WSIB will request this information.

It is important to ensure that the information provided is as accurate as possible. Inaccurate information can delay the claim, result in an over or under payment to the worker, and negatively affect LCE's overall claims costs.

4. Check Medical Information

The medical information that can be obtained is somewhat limited due to doctor/patient confidentiality; however, it is possible to discuss with the treating physician the prognosis for recovery and expected return to work. The WSIB Case Manager will also be able to review the treating physician's reports and you will be able to discuss this with the Case Manager. The purpose is to ensure that, as far as can be reasonably ascertained, the injured worker is getting the right medical care to help in their return to work. Some things that you should check with the physician and WSIB Case Manager are as follows:

- What is the expected return to work date?
- Is the return to work date reasonable given the type of injury and expected work duties?



- Would assessment by an Occupational Physician be beneficial?
- Will there be any work restrictions upon return, i.e., temporary or permanent disability?
- Is physiotherapy being prescribed, when and for what duration?
- Would a work conditioning program be helpful in returning the injured person to work?

5. Remain in Contact with the Injured Worker

Good claims administration does not permit a worker to “disappear” after an injury. There is an obligation on the part of the worker that they will actively take part in a process of recovery and return to work. Before they leave the site for less serious injuries, and upon sufficient recovery after a serious injury, the worker must be informed by their supervisor that they will be required to remain in contact with LCE on a weekly basis until their return to work. Provide them with the appropriate number to call and set a pre-arranged time to call in on a weekly basis, or sooner if the injury is of a minor nature.

There needs to be a genuine interest in the injured employees’ well-being. Ignoring them while they are recovering from an injury does not reflect this interest. LCE will appoint a representative to call or visit injured employees on a regular basis to provide support and encouragement to assist them in a timely return to work. Staying in touch with the worker keeps you informed of potential concerns and lets you plan better for the worker's return to work.

Employees need to be encouraged to return to work as soon as possible, but only after they have sufficiently recovered. Caution must be exercised once the worker returns in order to prevent a re-injury or slowing the recovery process.

6. Review Progress of Recovery and Return to Work with the WSIB

LCE H&S Coordinator will function as the company claims administrator with the responsibility of staying contact with the WSIB Case Manager. This is particularly important for claims with a longer duration. The concern is two-fold. First, is the injured worker getting the treatment they require to aid in a speedy recovery? The longer a worker is away from the jobsite the more difficult it becomes to return to work. Secondly, unnecessary delays in return to work will result in unnecessary claims costs being assessed against LCE.

Wage loss payments are initially based on the worker's earnings at the time of injury. After eight weeks, the WSIB is required to review the wage loss benefits to see if they represent the worker's longer-term earnings pattern. If a worker is likely to be off work for more than eight weeks, ensure that someone is designated to call the adjudicator to



request the WSIB to review the worker's earnings history. If a worker has been with the company for the past year, and the earnings history is stable, this call need not be made, as there will be no change in the worker's wage loss payments. If the earnings history is irregular, an assigned person should contact the WSIB case manager during week five of the wage loss, and provide any available earnings history for previous years. Controversial and doubtful claims require closer attention. In these cases:

- LCE's claims administrator should contact the WSIB Case Manager and make them aware of any concerns.
- One week after submitting the Form 7, LCE's claims administrator should contact the WSIB for the status of the claim. Under some conditions, you may wish to invite the WSIB case manager for a site visit. This should certainly be done if there are questions about such things as the position of the worker relative to the injury source, the exact nature of the work activity or the physical demands of the job.

Try to shorten delays that may keep a worker on a claim longer than necessary. If you know a worker will be returning to work at a certain date, ensure the WSIB claims adjudicator is aware of this so that wage loss payments accurately reflect actual lost days.

7. Inform the WSIB of the Worker's Return to Work

LCE's claims administrator will submit a Form 9 to the WSIB on the day that the injured worker is cleared to return to work. This is regardless of whether the worker actually reported to work. The WSIB injury claim and corresponding claim's costs are only required to be paid until the worker has been cleared to return to work. Any reasons for the worker not returning to work once they have been cleared to return must be discussed with the worker and reported on the *Form 9 – Employer's Statement of Return to Work*. It is important to inform the worker that they are not entitled to wage loss benefits once they have been cleared to return to work by a qualified physician.

RETURN TO WORK

LCE will endeavor to accommodate injured employee's return to work at the earliest possible opportunity. Injured workers that return to work as soon as they can safely do so will have the best recovery from their injury. Long delays in return to work can create complications in a safe return such as reduced levels of work conditioning and proneness towards easy re-injury.

It is important to establish contact with worker as soon as they return to work. When the worker returns to work, let them know you are glad they are back. The recovered



worker, the workers' supervisor and first aid attendant need to discuss the worker's current condition and any work restrictions.

There needs to be a match between the injured worker's physical abilities with either a shorter work day, less strenuous work, or both until the injured employee has recuperated sufficiently to resume normal duties. This allows for the gradual improvement of the worker's physical condition and return to a full work load. Returning to work for a shorter work day or lighter duties means that the worker is back sooner. This preserves the behavioral pattern of getting up in the morning and going to work. Self-esteem also improves with the return to productivity.

Effective early return to work requires the:

- worker's physician to be involved and provide consent to the proposed return to work
- worker not to be placed at risk of further injury
- modified duties proposed do not delay the worker's recovery
- work is meaningful and productive

Early return to work initiatives, successfully implemented, will return injured workers to productive employment faster and with less chance of recurring injury and will substantially reduce wage loss payments. In the case of permanent disabilities, a successful program will ensure that the worker is assessed for a functional disability pension rather than a loss of earnings pension. The difference between a loss of function disability pension and a loss of earnings pension may be hundreds of thousands of dollars.

Some of the options for early return to work to be considered are as follows:

- Modified duties provide an opportunity for the injured worker to be assigned suitable and productive work that is less physically demanding that will not aggravate the existing injury or impede the recovery process. The workers' physician and adjudicator need to be consulted to ensure the proposed work is suitable.
- Graduated return to work that allows the injured worker to gradually return to pre-injury status through shortened work days. This is usually done over a four to six week period with the worker working two hours per day for the first week, four hours the next week, followed by six and then eight hours in the final week.
- On-the-job training that provides the injured worker with an opportunity to learn and develop new skills in an actual workplace. Prior to commencing a training arrangement, LCE will need to negotiate a written statement of the terms and conditions with the WSIB. This statement will normally include the intended



duration of the training on the job, the expectations of hiring the worker at the end, and the level and kind of WSIB support to be provided (generally a 50-50 cost split basis for the first few months and a declining basis thereafter plus costs for necessary modification of equipment, facilities, etc.). The WSIB provides relief of claims costs to employers participating in a retraining program sponsored by the WSIB's Vocational Rehabilitation Department if a worker is re-injured during the re-training. This relief applies to both re-aggravation of an old injury and where an old injury is a significant factor in the occurrence of the new injury.

CONTESTED CLAIMS

There may be times when a claim should be investigated further and contested because it:

1. does not appear to be arising out of the normal course of employment, or
2. is an aggravation of an injury received while working for a previous employer.

Also examine carefully any injury claim where there are discrepancies regarding the how the accident occurred and the injury happened, and any situation where the employee did not immediately report the injury. Review the facts carefully, and if there is good reason to believe that it is an illegitimate claim, it can be contested.

The claim can be contested at two significant junctures in the claims management process:

1. At the time the Form 7 is sent to WSIB: Disagreeing with a worker's claim for compensation cannot interfere with the reporting process. The claim forms must be submitted within the allotted timeframe (72 hours). In these situations the process to contest the claim will be as follows:
 - a. Complete the Form 7 as required with particular attention to details ensuring everything is correct and as reported by the injured personnel.
 - b. Write clearly on the front of the Form 7 in large letters "CONTESTED". Submit a cover letter with the Form 7 with any additional information about the claim and request a "Decision Letter".
2. After the Form 7 has been submitted and claims process has been initiated: A claim Can be contested any time it is active. If new information about the injury claim becomes available that creates doubts about the claim, the course of action will be to:



- a. Call the WSIB and contact a Claims Adjudicator.
- b. Discuss with the Claims Adjudicator the new facts about the injury claim that have caused the doubts. At this time it is helpful to refer to the Claim Number if it is known.
- c. Ask the Adjudicator for the claim to be reviewed and the new facts to be considered in the review.
- d. Follow-up the phone call with a letter with the new information and request that a “Decision Letter” be issued by WSIB.

It is important to deal strictly in facts, and not hearsay. Provide details for the Claims Adjudicator about there are doubts about the claim. For example, if it comes to your attention that the injured person is working at another job while collecting compensation, let the adjudicator know so WSIB can investigate further. If you are going to contest a claim, be sure of the facts, and try to have it resolved sooner rather than later. Keep in mind that in the absence of information provided by the employer, the WSIB will adjudicate based on information provided by the worker.

LCE’s claims administrator will request a site visit by the WSBC claims adjudicator if it is believed that there is a problem with a claim. An adjudicator’s wrong impressions regarding the specifics of an injury occurrence, or of the employer’s work activities, may be able to be cleared up with a site visit. Site visits can also be valuable for demonstrating to an adjudicator the proposed activities for a worker participating in an early return to work opportunity.

Appealing Claims Decisions

A “Decision Letter” will be issued informing LCE and the worker on whether or not the claim is being accepted and why. Either party is entitled to appeal the decision. The WSIB usually encloses with the decision letter their document entitled “Claims appeal guide for employers”.

This information should be consulted if LCE is considering appealing a claim. Advice from the Employer’s Advisors Office should also be obtained. Contact information can be found in the following websites:

CLAIMS COST CONTROLS

LCE will review their claims cost statements and Experience Rating Assessment (ERA) statements on a regular basis to:

- determine the overall costs of injury claims and how these claims costs affect the payroll assessment rate (ERA)



- identify claims that have costs incorrectly assessed against the claim
- identify high cost claims
- review the opportunity to apply for cost relief whenever possible
- compare LCE's claims cost performance to the industry, i.e., discount or surcharge



SECTION #15 Accessibility and Security



Accessibility for Ontarians with Disabilities Act (AODA) Policy

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ARSON AND THEFT PREVENTION



Accessibility for Ontarians with Disabilities Act (AODA) POLICY

Len Corcoran Excavating Ltd. (LCE) is committed to excellence in serving all customers and pedestrians including those with disabilities. We as a company are well known for being compassionate and care about people.

We at LCE will ensure that our staff are trained in communicating with people with disabilities in ways that take into account their disability, and various assistive devices that may be used by while accessing our goods and services, or navigating our projects. We welcome people with disabilities and their service animals on the parts of our premises and projects that are open to the public, and persons with a disability who are accompanied by a support person will be allowed to have that person accompany them.

On all of our work projects we at LCE are committed to providing easy access for the public including those with disabilities. We realize that our projects are very dynamic and constantly changing, and that our accessibility solutions need to be also. We are aware that some of these solutions will need to be thought of and designed based on their individual challenges on the spot while work is continuing. For all of our Projects we at LCE are committed to creating and maintaining a clearly visible 1.5 meter wide, hard surface walkway. Incorporating adequate ramping/sloping when traversing from elevation/level changes, adequate way finding signage and delineation will be used to provide those traveling a clear definition of hazards and direction. Built to allow easy access to all manner of assistive devices from baby strollers to powered assistive scooters. We designate a location to allow assistive transportation to pick up or drop off for those with disability or mobility concerns, as close as safely possible to our site and the locations effected by our work. During working hours Public Relations/Traffic Control Personnel are posted on our sites as needed to answer questions and offer assistance to anyone in need.

LCE provides training to all employees who deal with the public. Customer service and Public relations representatives on site and in the office, Managers and Supervisors will be trained and familiar with AODA and how to best serve those with disabilities.

Supervisors are made aware of the City of Kingston's Facility Accessibility Design Standards

(<https://www.cityofkingston.ca/documents/10180/14513/Facility+Accessibility+Design+Standards/6caff101-b559-40a2-a645-09fca90d11f0>), which are referenced when

designing site access solutions. This training will be conducted and refreshed annually along with our corporate health and safety policy. This training will consist of an overview of the Accessibility for Ontarians with Disabilities Act (AODA), how it is related to the various levels of customer service and how it applies to our projects, how to interact and communicate with people with various types of disabilities, how to interact with people with disabilities who use assistive devices or require the assistance of a service animal or support person, and what to do if a person with a disability is having



difficulty accessing LCE's work sites or services. Staff will also be trained when changes are made to this plan.

In the event that our office at 2212 Sydenham Rd. Elginburg, Ontario has a planned or unexpected disruption to services or facility, LCE will notify customers promptly. This clearly posted notice will include information about the reason for the disruption, its anticipated length of time, and a description of alternate services, such as LCE's website at www.lencorex.com designed to AODA standards. This notice will be placed on the front accessible entrance of the office. Customers that wish to provide feedback can do so by contacting LCE office at 2212 Sydenham rd. in Elginburg Ontario or phone 613-542-0820. All feedback will be handled by the Customer Service Representatives. Customers can expect to hear back within 5 business days.

COMMUNICATION POLICY

LCE is committed to providing an above average level of client satisfaction through safe work practices and a thorough Public Communications Service Plan. This plan will outline how a Project may be contained from the public, proceed from start to end point on a single or multiple streets, maintain access to buildings, and address how stakeholders will be kept current on the ever-changing condition throughout the construction zone(s).

To complete contract(s) and meet all outlined specifications while effectively and efficiently managing public access through projects at all times. This will include, but not be limited to; pedestrian walkways, emergency services, deliveries, garbage and recycling pickup, and detour traffic looking to bypass the project.

LCE Communications Plan General

- *Public meetings*
LCE will attend and participate in any public meetings that are organized to engage concerns, questions and ideas regarding the upcoming work.
- *Information Handout or booklet for stakeholders*
LCE may create an information handout or booklet that will be provided to properties and businesses located within the project limits as identified on the provided drawings. This booklet will detail what to expect from when the first panel of fence is erected on site until the project is completed. Specifically, this will address:
 1. Site construction hours
 2. Typical work procedure



- a) Main line pipe installation
 - b) Hydro and Streetlight installation
 - c) Sidewalk preparation and maintaining site access through temporary
 - d) walkways which may use packed granular, padded mats, temporary bridges and signage
 - e) Final road grading and paving procedure
3. Introduction of site Foreman, H&S Coordinator, Communication personnel (if any) with contact information for those mentioned and the office
 4. Example of similar work performed with photos to illustrate what to expect
- *Weekly meeting with Owner's and or Stakeholders*
LCE may meet weekly with the appointed representatives to address any complaints or issues, and to ensure that the parties are current on all LCE efforts
 1. Ensure all stakeholders are kept current on project status, schedule, service interruptions, etc.
 2. Ensure LCE workforce has a good understanding of all the business needs and stand ready to coordinate and assist with those needs.
 3. Discuss schedules, coordinate servicing requirements, coordinate and assist with all deliveries, garbage/recycle pickup, utility outages etc.

Media Relations Policy

LCE is an established and highly respected company. We have a reputation for providing excellent, professional services and we enjoy strong relationships with our customers as their destination for the services we provide. While providing this service, the news media is frequently interested in LCE. We have a responsibility to be open and responsive to their information requests because the media are among the many ways our customers and business partners build their individual perceptions of LCE and the work we do in the communities we serve.

This policy exists to assure that information disclosed by LCE is timely, accurate, comprehensive, authoritative and relevant to all aspects of LCE. Adherence to this policy is intended to provide an effective and efficient framework to facilitate the timely



dissemination of information. This media policy applies to all employees of LCE concurrent with the Company's Disclosure Policy. This policy covers all external news media including broadcast, electronic and print.

Company Spokesperson

Dan Corcoran is designated as LCE principal media contact and company spokesperson, and has expertise in media relations and weighs each media inquiry to determine the best way to provide information in relationship with other information that is not yet public. To convey the official LCE position on issues of significance or situations that are particularly controversial or sensitive in nature. Increase public awareness and understanding of LCE, the services that we provide our communities and our future prospects for growth.

Depending on the situation, an individual may be asked to be a spokesperson on a particular LCE site due to their knowledge, experience and expertise. The Spokesperson will work with that designated spokesperson to prepare them for the media interview as needed. Refer all media calls/visits to corporate spokesperson or designate. Please do not say you are not allowed to talk to a reporter or have to get permission to do so. Instead, tell the reporter: "LCE's policy is to refer all media inquiries to corporate spokesperson. You can reach them at 613-542-0820."

Internet and Social Media Policy

With the rise of new media and next generation communications tools, the way in which LCE employees can communicate internally and externally continues to evolve. While this creates new opportunities for communication and collaboration, it also creates new responsibilities for LCE employees.

This Internet Postings Policy applies to employees who use the following:

- Multi-media and social networking websites such as Myspace, Facebook, Yahoo! Groups and YouTube
- Blogs and other social media apps
- Wikis such as Wikipedia and any other site where text can be posted
- All of these activities are referred to as "Internet postings" in this Policy



Please be aware that violation of this policy may result in disciplinary action up to and including termination.

Common sense is the best guide if you decide to post information in any way relating to LCE. If you are unsure about any particular posting, please contact the LCE representative for guidance. For instance, if you are writing about LCE business where you have responsibility, you may wish to make sure your manager is comfortable with your taking that action.

Because you are legally responsible for your postings, you may be subject to liability if your posts are found defamatory, harassing, or in violation of any other applicable law. You may also be liable if you make postings which include confidential or copyrighted information (music, videos, text, etc.) belonging to third parties. All of the above mentioned postings are prohibited under this policy.

When posting your point of view, you should neither claim nor imply you are speaking on LCE's behalf, unless you are authorized in writing by your manager to do so. LCE reserves the right to suspend, modify, or withdraw this Internet Postings Policy, and you are responsible for regularly reviewing the terms of this Internet Postings Policy.

Off-Duty Conduct Policy

In general, how workers decide to lead their lives when they're off-duty is a private matter. However, the way in which workers conduct and present themselves off-duty can also have a significant impact on Len Corcoran Excavating Ltd. (LCE), its business, reputation, services, customer relations and workplace environment. Accordingly, while the LCE respects your personal freedoms, it also has a legitimate interest in establishing standards of off-duty conduct and holding workers accountable for following those standards, including through the use of discipline where necessary. The purpose of this Policy is to establish general guidelines on how the Company regulates and imposes discipline for off-duty conduct.

Off-Duty Conduct Subject to Discipline

Off-duty conduct will be considered a work-related matter subject to discipline if it:

- Harms the Company's reputation or services;
- Has consequences that render you unable to perform your job or any part of your job effectively;
- Leads other workers to refuse, be reluctant to or unable to work with you;



- Makes you guilty of a serious breach of the Criminal Code of Canada; and/or
- Makes it difficult for the Company to manage its operations and/or direct its workforce efficiently.

Discipline

Violations of the Company's off-duty standards of conduct that meet the above criteria will be treated like a disciplinary infraction committed on-duty and subject to discipline up to and including termination.

Duty to Report

You must report to your supervisor or the Company's HR department as soon as possible if you are arrested, detained or charged with a violation under the Criminal Code of Canada or other Canadian laws related to your official duties.

SECURITY POLICY

LCE and our subcontractors will take reasonable steps to provide secure project sites. The goal is to prevent damage and theft of equipment and to protect the public from harm. LCE management will ensure there are adequate resources are provided to maintain the security of the project sites. Each site will require a security planning prior to commencing work at the site. All personnel on the on the project site must be briefed on any key aspects of the security planning. Project personnel will observe all security rules and will report suspicious activities they observe to their immediate supervisor.

PUBLIC ACCESS AND CONTROL

The project location is a significant determining factor for planning public access and control. Some LCE projects may be located in known higher-crime areas. In these locations a more sophisticated security system may be required. Public access and control will include the use of fencing, hoarding, gates, signage, lighting, visitor registration and security patrol.

Pedestrian Access

1. Pedestrian traffic shall be maintained at all times on all streets during all phases of construction.
2. Pedestrian access will be set up before construction activities begin in the



- affected area.
3. Access to all main entrances will be maintained at all times. (Unless acceptable alternatives are agreed to)
 4. A clearly delineated pedestrian route shall be established at all times. This route including A “hard surface” temporary sidewalk will be installed and maintained for all pedestrian routes anywhere concrete sidewalk is not available. These temporary sidewalks may utilize a 20mm thick agricultural (paddock) mat. To be installed and maintained in a manner to ensure a safe trip free nonslip
 5. Any temporary bridging shall be a minimum of 1.5 meters wide and ramped to ensure access by wheelchairs, scooters etc.

Fencing and Enclosures (Hoarding)

Fencing and hoarding will be used to:

1. keep unwanted people off the site
2. keep materials and equipment stored inside the site
3. Ensures separation between the construction activities and pedestrians, public etc.

This 1.6 meter high modoloc fencing shall be erected, checked and maintained at all times, including weekends, to ensure site security. Fence gates will be at each end of the fenced in area to allow construction access. Perimeter fencing will be used due to the nature of the project and hazards. It will be used whenever possible to provided laydown area, help minimize third-party liability and protect project assets.

Gates

Areas that are fenced or hoarded must have an identifiable main gate. Whenever possible, the site office or trailer should be located at or very near the main gate and display adequate signage to direct people and traffic. Secondary access gates should be kept closed when not being used and opened only when required for specific deliveries or other authorized entries. All gates must be capable of being secured.

Signs

Highly visible signs must be posted to direct workers, visitors and traffic. Typical signs to be posted at gate entrances include:



- LCE site office
- Identifying pedestrian routes
- Construction area
- Site safety rules
- Detours and or Parking directions
- Visitors to report to site office
- authorized persons only

Site Visitors

All visitors must report to the project site office prior to accessing the site. If there is no site office, they must contact the site supervisor. The proper posting of signs will assist in directing and controlling visitor site access on sites that do not have security staff.

Visiting professionals such as engineers, surveyors, etc. must receive a *Site Specific Safety Orientation*; otherwise, they must be escorted by personnel that have received the orientation training.

After Hours Site Access

An important part of the security program is to control the *after-hours* activity on the project. After-hours is defined as any weekday outside of regular business hours, statutory holiday and weekend day. It must be made clear to all subcontractors returning to the job after-hours or on weekends must be authorized by the project supervisor/superintendent, who will ensure a responsible supervisor or LCE representative is on site at all times when a subcontractor is present and working on site.

Lighting

LCE May be responsible to ensure adequate lighting is installed to illuminate sites to allow visual monitoring by security and/or local police from the perimeter fence line, or to allow visibility for the public when lighting has been removed due to work on the Project. At minimum, security lighting may be installed to illuminate gates, access and storage areas and site trailers as a deterrent to theft, vandalism or arson. Illumination of walkways/roadways used for public travel.

VEHICLE ACCESS TO PROJECTS

On-site parking is not recommended because it may facilitate theft of tools and material from the project and place the vehicles at risk of damage from the construction processes. When on-site parking is deemed appropriate by the Construction Manager, a method of control must be established to separate the vehicles from the active working areas.



Only authorized vehicles should be allowed on site. Staff or LCE supervision must control vehicle entry. Anyone bringing a vehicle on site must be made aware that it is subject to search when leaving the site.

LCE will make an effort to allow and maintain a clear area for temporary drop off parking for Accessibility concerns or deliveries to businesses within the project area.

TOOL AND EQUIPMENT CONTROL

A plan for tool and equipment control will be implemented. This plan will include a tracking system for tools and equipment owned by LCE and tools and equipment that are leased or rented. The following loss prevention measures must be considered:

Supervisors are responsible for controlling tools and equipment issued to their crews.

Tools and equipment should be stored in secure crew service trucks or tool storage trailers/areas when not in use.

Inventories will be conducted periodically by the Service Truck Driver(s), Lead Hand(s) or Safety Representative(s) with all loss reported to the supervisor.

Company tools and equipment (including cords, hoses and cables) must be inventoried.

Mobile equipment parking must be arranged so the equipment cannot be tampered with or inadvertently started. Ignition keys must not be left in the equipment, and ignition safety switches turned off during off hours.

Equipment components that can be dismantled should be stored separately. For example, oxy-acetylene gauges/hoses should be separated from the bottles and cables should be separated from a welding machine.

Fuel and maintenance supplies such as gas, oil and grease must be stored in an area that reduces the potential for unauthorized use or theft. All flammable products must be stored according to the MSDS, ideally in a separate lockable, ventilated storage shed or container.

Orderly tool and equipment storage is also a theft deterrent.

Designated Shipper/Receiver(s)

Each project site must have a specific person or persons made responsible for receiving and shipping materials and equipment. The person assigned primary responsibility for shipping and receiving of material and equipment to site will give all delivery slips to the supervisor to maintain a file system to track all deliveries to and from the site.



Shipper's Responsibilities

The shipper/receiver must be aware of the company procedure for shipping, receiving and control of packing slips. Beware of the following inadequacies:

Partial shipment

Damaged shipment

Inaccurate packing slip

Inaccurate listings of shipments from the project returned to equipment or material suppliers

Key Control

The Supervisor is responsible to designate personnel to be responsible for any key control. Keys that access areas of the site must only be issued to LCE supervision. An inventory and signature system must be set up to control keys (including vehicle, equipment keys, and or any properties). Spare keys must be locked in a secure container, desk drawer or at LCE Head Office.

ARSON AND THEFT PREVENTION

The following guidelines are to be used to reduce the chance of fire and theft in the workplace:

- Where possible, all gates, doors and windows must be properly secured. This will help deter access to other parts of the project sites should an unauthorized person gain access to the site. Ensuring any doors and windows are closed to contain smoke and fire.
- To deter would-be thieves or vandals from gaining access to a site unobserved, adequate lighting may be provided on storage areas and in offices. This will assist police in taking corrective measures and provide increased opportunity for members of the general public to witness and report criminal activities.
- To deter a would-be arsonist an opportunity to start a fire, materials and garbage should be stored away from fence lines.
- When workers on site believe unauthorized persons are on the work site, they are required to report the person(s) to their supervisor.



SECTION #16 Light Vehicle Fleet and Mobile Equipment



VEHICLE AND MOBILE EQUIPMENT POLICY

VEHICLES

- Safe Driving Record
- Training – Vehicles
- Vehicles Operation
- Vehicle Equipment
- Vehicle Incidents on Public Roadways
- Roadside Breakdowns
- Smoking in Company Vehicles

MOBILE EQUIPMENT

MAINTANANCE

- Vehicles
- Mobile Equipment

AMBER BEACON

CELL PHONE USE

- Vehicles
- Mobile Equipment



VEHICLE AND MOBILE EQUIPMENT SAFETY POLICY

All vehicles and mobile equipment used by Len Corcoran Excavating (LCE) and subcontractor personnel must be operated and maintained in compliance with legal and LCE H&S Program requirements. Vehicle and mobile equipment safety can be achieved through the application of good maintenance practices and operator competency.

LCE managers and supervisors are responsible to ensure all employees who drive while employed on company business are instructed on their responsibilities. LCE and subcontractor personnel must hold a valid driver's license if they operate a licensed vehicle as part of their duties for LCE.

Mobile equipment will only be operated by authorized personnel. LCE management will authorize personnel to operate mobile equipment if the operator has achieved competency, or is undergoing training to achieve competency. Subcontractors are expected to apply the same criteria for their operators. Unsafe equipment will not be operated until it is repaired.

VEHICLES

LCE and subcontractor personnel operating motor vehicles for the purpose of conducting project related business must possess a valid driver's license as required by the *Ontario Motor Vehicle Act and Regulations*. The license must be the correct class for the vehicle operated. LCE and subcontractor personnel with a revoked or suspended driver's license will not be permitted to operate a vehicle on projects. Personnel are responsible to disclose to their manager or supervisor whenever their driver's license has expired, or has been revoked or suspended.

Safe Driving Record

A driver's abstract is required for all personnel that drive an LCE issued vehicle or who receive compensation (e.g., vehicle allowance, mileage) for their personal vehicle while employed on LCE business. The driver's abstract will be requested at the time of hire.

The LCE Management will review driver abstracts at the time of hire to establish if personnel have a safe driving record. Any concerns regarding safe vehicle operation will be noted, and if necessary, any or all of the following actions can be taken:

- **Suspended License:** Personnel will not be permitted to drive a company or personal vehicle on the project with a suspended license.
- **Impaired Driving Conviction or Citation:** Personnel that have a Criminal Code Record or road side suspension on their driving abstract will receive counseling from the LCE Management. A determination will be made if the person will be



permitted to be issued an LCE vehicle or allowed to drive as part of their project duties.

- **Speeding Tickets or Other Traffic Violations:** Personnel will receive counseling from the LCE Management. A determination will be made if the person will be permitted to be issued an LCE vehicle or allowed to drive as part of their project duties.

Employees with poor driving records may have their driving privileges revoked or suspended pending a formal review. Remedial driver training may be required to have driving privileges reinstated. A poor driving record, as noted above, may affect employability if driving is considered part of the person's work. Personnel that receive any citations/tickets for traffic violations, impaired driving, or license suspension must report this immediately to their manager. **Failure to report may result in disciplinary action up to and including termination.**

Training – Vehicles

Personnel assigned a company vehicle, or requested to operate a personal vehicle for LCE business, may be required to demonstrate competence through an appropriate evaluation process. LCE may require personnel to undertake additional driver training subsequent to any such evaluation.

Vehicle Operation

The following must be adhered to by project personnel employed on LCE business:

- Operators of vehicles must use seat and shoulder belts in accordance with provincial motor vehicle regulation.
- Drivers of vehicles must observe and adhere to posted speed limits and refrain from driving faster than the road, weather or equipment conditions responsibly allow.
- When there are no speed limits established or posted, drivers are responsible for not exceeding speeds appropriate to the conditions present.
- All tools, equipment and material to be transported in a vehicle are stored or restrained safely so these do not pose a hazard in the event of a sudden stop or vehicle accident. (See "Note" under *Vehicle Equipment*).
- Workers must not get on or off a moving vehicle except in an emergency.
- Drivers must not leave the controls unless the vehicle has been secured against movement by setting parking brakes and transmission, and chocking wheels where necessary.



Vehicle Equipment

Note: Where required, LCE-supplied vehicles will be outfitted with adequate bulkheads, storage compartments and tie-down capabilities so tools, equipment and materials can be properly restrained when transported.

The following will be supplied and maintained in all LCE-issued vehicles:

- A 5lb ABC fire extinguisher
- Emergency roadside reflective triangles (3)
- Tools sufficient to change a flat tire
- A personal first aid kit

Each Department Manager must determine if additional equipment is required to be supplied to the vehicle operator, for example, amber beacon.

Vehicle Incidents on Public Roadways

Project personnel who are involved in a driving incident must report the incident to their respective manager or supervisor as soon as it is safe to do so. The manager or supervisor must then report such events to LCE H&S Coordinator. Provide as many details as possible, such as width of roads, length of skids, presence of traffic signs, vision obstructions, names and addresses of persons involved and witnesses.

Immediately following a vehicle incident:

1. Pull off the road, if possible, to avoid obstructing traffic.
2. Place warning reflectors on the road as necessary.
3. Render first aid to any person who may be injured.
4. Report the accident to your supervisor as soon as possible.
5. Refrain from entering into any argument or dispute with the driver of the other vehicle, pedestrians or bystanders.

As soon as it is safe to do so:

- Share information with other parties that may be involved in vehicular incidents, including obtaining names and contact information of witnesses. This may include regulatory agencies such as the local police, depending on the severity of the incident/accident. Make no admission of liability or offer any settlement of claim.



- Record license plate numbers and driver's license numbers of any other involved persons (including witnesses).
- Take photographs of the incident and damages sustained to their vehicle, the third-party vehicle(s), if feasible and any objects directly involved with or having caused the incident.
- Make arrangements with your supervisor to report the accident to the necessary authorities.
- Complete an LCE Incident Investigation Report.

Roadside Breakdowns

If a vehicle breaks down the driver must get the vehicle off, and away from, the travelled portion of the road if possible. This applies particularly to emergency vehicle routes on the project site. Immediately after the break down occurs:

1. Activate vehicle emergency flashers.
2. Set out reflective triangles supplied with the vehicle. Set reflective triangles 32 m (100 ft.) behind and 32 m (100 ft.) in front of the vehicle.
3. Immediately report all LCE vehicle breakdowns to head office.

Smoking in Company Vehicles

In accordance with the Smoke-Free Ontario Act, LCE is committed to maintaining safe and healthy workplaces for all employees. Tobacco smoke is recognized as a significant health hazard—not only to the employee who smokes, but also to those who may be exposed to second-hand smoke.

Smoking is not allowed by any employee or passenger in any LCE-owned, leased or rented vehicle. Any LCE employee who drives their personal vehicle while on LCE business, must not smoke when any other person is present in the vehicle.

MOBILE EQUIPMENT

Mobile equipment will only be operated by personnel that have been authorized to do so by their employer. All mobile equipment operators will be competent to perform the work they are assigned. The requirements for verifying and documenting operator competency will be enforced in accordance with LCE policies and legal requirements. Reference also LCE H&S Program Manual *Section 4 – Training*, and *Section 17 – Safe Work Practices, Mobile Equipment*.



MAINTENANCE

Vehicles

Personnel who are issued a company-owned, leased or rented vehicle must ensure regular and routine maintenance of the vehicle. Maintenance must follow the vehicle manufacturer's specification/schedule and/or that specified by the LCE Fleet Management Program.

Employees who use their personal vehicle for LCE business must maintain the vehicle in accordance the vehicle manufacturer's specifications for maintenance. Any vehicle used to conduct LCE business that is found to be unsafe to operate must be removed from service pending completion of all required repairs. Basic driver responsibility for vehicle maintenance includes:

- maintaining oil and water levels
- ensuring tires are properly inflated
- servicing the vehicle at required intervals
- keeping the vehicle interior and exterior clean and tidy

Drivers of LCE issued vehicles must maintain a *"Daily Light Vehicle Checklist"* and submit the white copy of the completed checklist to the appropriate manages.

Mobile Equipment

Project personnel that operate mobile equipment must ensure regular and routine maintenance of the equipment. Maintenance must follow the equipment manufacturer's specifications and/or that specified by the LCE Mobile Equipment Maintenance Program.

Mobile Equipment Operators must conduct daily pre-use inspections and maintain a *"Daily Equipment Log Book"*.

AMBER BEACON

Mobile construction equipment must be equipped with a 360o amber warning beacon if they are used under the following conditions:

- entering and exiting lane closures
- entering and exiting work zones beside a public road



- stopping or parking a vehicle in an active work zone in the area immediately beside a public
- performing work in the shoulder area of the road and using the vehicle as a safety/warning barrier

This requirement applies to subcontractor mobile equipment also.

CELL PHONE USE

Vehicles

Cell phone/smart phone use is permitted in a vehicle if a hands-free device is used to place or receive a phone call. Personal discretion is required to determine when it is not appropriate, such as heavy traffic or dangerous road conditions. Using the phone's speaker system is not a hands-free method of using the device.

Note-taking or reading, and/or checking text or email messages while driving is not permitted – even when stopped for traffic signals or traffic control persons. The driver must pull over in a safe location away from traffic if this is necessary, and place the vehicle in park. Any other

electronic devices with headphones, such as iPods and MP3 players, are not permitted to be operated while driving. Two-way radio use is permitted when driving if the transmit device is worn securely on the body, e.g., in the top pocket of a surveyor type vest worn by the driver. Holding a two-way radio while driving is not permitted.

Mobile Equipment

Cell phones/smart phones use is not permitted when operating mobile equipment. The equipment must be stopped, placed in park, attachments lowered, and control safeties engaged prior to using any communications devices – hand-held or hands-free.



SECTION #17 Program Review



PROGRAM REVIEW POLICY
PROGRAM REVIEW FLOW CHART

PROGRAM REVIEW POLICY

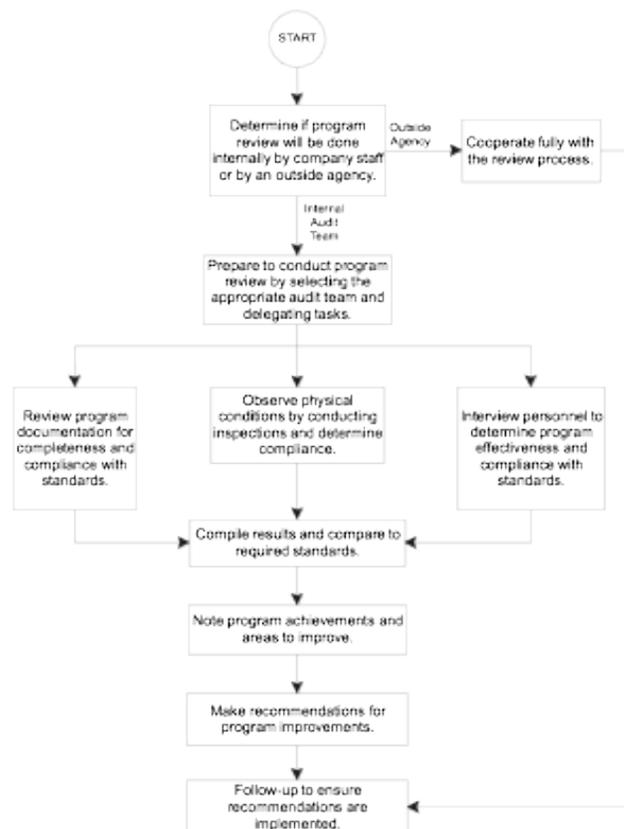
LCE management will monitor the effectiveness of the H&S Program on an ongoing basis, and will ensure an annual review is performed. Personnel involved in the program review will be qualified to do so. The review will examine all the elements of the program to ensure that the program continues to meet OHSA, MOL and company requirements.

The annual review will be based on an acceptable audit format. A written report, including unbiased evaluations, will be produced. Upon completion of the written report, LCE will:

1. Develop an action plan to implement practicable recommended revisions.
2. Monitor the implementation of the action plan.

The flowchart on the following page will be used as a guideline for the review process.

PROGRAM REVIEW FLOW CHART







SECTION #18 SAFE WORK PRACTICES

(Refer to LCE Safe Work Practice document Book 2)





SECTION #19 FORMS



CONFINED SPACE ASSESMENT FORM
CONFINED SPACE ENTRY PERMIT
CONFINED SPACE RESCUE PLAN
DAILY HAZARD AWARENESS DISCUSSION RECORD
DISCIPLINARY ACTION REPORT
JOBSITE EMERGENCY PREPAREDNESS
INCIDENT REPORT
JOINT HEALTH & SAFETY COMMITTEE (JOHSC) MEETING MINUTES
NEW WORKER ORIENTATION
NEW WORKER ON-SITE ORIENTATION
NEAR MISS INVESTIGATION REPORT
PRE-TASK SAFETY INSPECTION
SUPERVISOR/HEALTH & SAFETY REP SITE INSPECTION
SERIOUS INCIDENT INVESTIGATION REPORT
TRAFFIC ACCIDENT REPORT
TRAFFIC CONTROL PRE-JOB CHECKLIST
TEMPORARY TRAFFIC CONTROL PLAN
TRAFFIC CONTROL DAILY CHECKLIST
TRAINING RECORD FORM
WITNESS STATEMENT



CONFINED SPACE ASSESSMENT FORM (Form 001)

1. General Information		
Project/Site Location:		
Assessment for: <input type="checkbox"/> All Work <input type="checkbox"/> Specific Work		
2. Is it a Confined Space?		
<input type="checkbox"/> Yes <input type="checkbox"/> No	Is it fully or partially enclosed?	
<input type="checkbox"/> Yes <input type="checkbox"/> No	Is not BOTH designed & constructed for continuous human occupancy	
<input type="checkbox"/> Yes <input type="checkbox"/> No	In which atmospheric hazards may occur because of its construction, location, or the work that is done in it	
If you answered yes to ALL three questions then this IS a Confined Space		
<input type="checkbox"/> Yes <input type="checkbox"/> No	If this is NOT a confined space but access/egress is restricted or an atmospheric hazard may occur	
If you answered yes to THIS question then the space is a RESTRICTED SPACE and ventilation section of the Construction regulations apply		
3. Description of the Confined Space		
Location:		
4. Potential Hazards		
<u>Due to Location:</u>		
<i>Type of Space:</i>		
<input type="checkbox"/> New Construction Manhole	<input type="checkbox"/> Tank	<input type="checkbox"/> Catchbasin
<input type="checkbox"/> Existing Manhole	<input type="checkbox"/> High-Flow Manhole	<input type="checkbox"/> Vault
<i>Access & Egress:</i>		
<input type="checkbox"/> At Ground Level	<input type="checkbox"/> Below Ground Level	<input type="checkbox"/> Elevated
<input type="checkbox"/> Outdoors	<input type="checkbox"/> Area around space under construction	



Means of Access:

- Ladder Lowered Vertically Raised Vertically
 Stairs Horizontal Other: _____

Due to Contents:

Does the space belong to predominantly one utility?

- Sewer Water Electrical Storm-water Other: _____

Are Atmospheric Hazards Possible?

Oxygen (too high or too low) Possible Sources Include:

- Other gases displacing oxygen Oxygen used by welding or other processes
 Rusting or oxidation Workers exhaling carbon dioxide
 Decomposing or organic matter Leakage from oxygen source (too high)

Toxic Gases, Vapors, Fumes, Mists

- Contents of the space itself Evaporation of cleaning agents
 Grinding/Sanding
 Burning or welding processes Equipment/vehicle exhaust
 Using improper heaters in the space Products of incomplete combustion

Flammable/Explosive Atmospheres

- Contents of the space itself Spark producing/open flame
 Coatings or cleaning solvents Hot equipment
 Leakage from burning/welding equipment Chemical reaction

Are there potential energy sources?

- Electrical Hydraulic Pneumatic Mechanical
 Steam
 Gravity Natural Gas Water Pressure Other None

Are there engulfment, entrapment or drowning hazards?

- Engulfment Source: _____
 Drowning Source: Sewage Water Other
 Entrapment (i.e. Converging walls, wedging, caught-in, storm chambers etc.)

Are there potential biological hazards?

- Sewage Needles Insects Mold Other: _____

Are there hazardous materials?

- Piping or chemical containers Cleaning materials Animal/human sewage



Due to Construction:

- Limited entry/exit Fall from a distance Sharp objects Traffic hazards
- Slippery ladder rungs Rusty surfaces Pedestrian hazards
- Animals/insects Poor lighting Hot piping or equipment
- Vibration Communication interference

Are there ergonomic hazards?

- Cramped or awkward body positions Slippery/Uneven Low ceiling
- Temperature extremes (hot/cold) Tripping hazards

Are there falling objects?

- Kicked or dropped unintentionally Material from the top of sides of space

Due to Work:

Is hot work happening in the space? Yes No
 (if **YES** then Hot Work permit required)

If YES then for what type of work: _____

- Tools Chemical Weather Other:

5. Chemical Information

Substance	Primary Hazards	Route of Entry	MSDS Location

6. Ventilation/Exhausting/Purging Requirements

Ventilation	Exhausting	Purging
Space Volume: <i>Cubic Air required/Minute x 0.34</i>	Contaminant: <i>Requires an additional 100ft³/minute/worker</i>	Substance Used: <i>Water/Steam/Inert Gas Type:</i>

7. Isolation Requirements

Methods	Location #1	Location #2	Location #3	Location #4
Electrical Energy Lock/Tag Out				



Mechanical Energy Lock/Tag Out				
Hydraulic Energy Lock/Tag Out				
Pneumatic Energy Lock/Tag Out				
Supply Piping/Lines Blanked				
Traffic Barricades				

8. Gas Detection Requirements

Oxygen: Fixed Monitor Quad Monitor Continuous Periodic
 Combustible Gas: Fixed Monitor Quad Monitor Continuous Periodic
 Toxic (CO, H2S): Fixed Monitor Quad Monitor Continuous Periodic
 Other: _____

9. Fall protection & Rescue Equipment

Davit System/Tripod System Full-Body harness with 'D-Ring' Lifeline
 Barricades/Guard Rails Personal Alert & Distress Device
 Potential Number of Entrants: _____

Type of Entry:
 Vertical Down Vertical Up Horizontal (**NEED** Horizontal rescue team)
 Combination

Potential Injury Types:
 Minor Injuries Severe Burns Bleeding Respiratory Spinal
 Other: _____

Rescue Team:

11. Communication Equipment

Between Attendant & Entrant:
 Verbal (voice) Radio Personal Comm. Device Other: _____

Emergency Notification:
 Radio Telephone (dial 911 for emergencies) After hours use telephone & radio



12. Personal Protective Equipment

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> Hard Hat | <input type="checkbox"/> Eye Protection | <input type="checkbox"/> Safety Boots | <input type="checkbox"/> Full-Body Harness |
| <input type="checkbox"/> Rubber Gloves | <input type="checkbox"/> Coveralls | <input type="checkbox"/> Face Shield | <input type="checkbox"/> Hearing Protection |
| <input type="checkbox"/> Gloves | <input type="checkbox"/> Personal Lighting | <input type="checkbox"/> Long Sleeves/Jacket | |
- Other: _____

13. Other Special Hazards/ Requirements/ Notes

14. Plan Specific Information

15. Assessment Acknowledgement

Name (please print)	Signature	Date

Supervisor Signature: _____ Date (mm/dd/yy): _____





CONFINED SPACE ENTRY PERMIT (Form 002)

PERMIT INFORMATION		SECTION A			
Date: _____		Permit Start Time: _____			
		Permit End Time: _____			
Description of Confined Space(s):					
Supervisor in Charge of Crew:		Name of Authorized Entrant:			
Name of Attendant:		Name of Rescuer:			
Purpose of entry					
PRE ENTRY CHECKLIST		SECTION B		YES	NO
Has the surrounding area been surveyed and found free from potential hazards?					
Is the work area likely to remain free of atmospheric hazards?					
Have all personnel involved in the confined space entry reviewed the documentation, location of all communications & who to contact in case of emergency?					
Will atmospheric testing be done continuously while someone is inside the confined space?					
Is all rescue equipment required in good condition & proper working order (verified by a competent worker)?					
Has the confined space hazard assessment been completed or reviewed for this space?					
Is the appropriate rescue for this confined space a <i>non-entry rescue</i> ? (i.e. The entrant will not be detaching from the winch OR moving horizontally in the space)					

NOTE: IF ANY OF THE ABOVE QUESTIONS ARE ANSWERED "NO" DO NOT ENTER! CONTACT YOUR SUPERVISOR

ENTRY, ATTENDANT & RESCUE PERSONS		SECTION C		YES	NO
Are all trained in confined space hazard awareness?					
Is one of the attendant or rescuer trained in both first aid & CPR?					
Is this training current?					
Have you ALL:					
Reviewed the confined space entry plan applicable to this space?					
Reviewed the physical hazards of the space and any PPE necessary for control?					
Reviewed the confined space rescue procedures applicable for this confined space?					
Has/Have the:					
Testing equipment been calibrated? By Whom? _____					
Atmosphere in the confined space been tested with a gas detection monitor for:					
1. Potentially toxic atmospheric contaminants					
2. Accumulation of flammable, combustible, or explosive agents					
3. Oxygen level between the range of 19-23%					
Onsite supervisor been notified of the confined space entry?					
Confined space has been barricaded to protect from unauthorized entry and to					



protect the workers from vehicular & construction traffic?			
SAFETY/RESCUE EQUIPMENT			
Required Equipment (NO ENTRY without these items)			
<input type="checkbox"/> Davit/Tripod & winch	<input type="checkbox"/> Full-Body Harness	<input type="checkbox"/> Gas Monitor	
Other Equipment: (check the ones that apply to this entry)			
<input type="checkbox"/> Hard Hat	<input type="checkbox"/> Protective Clothing	<input type="checkbox"/> Radio	<input type="checkbox"/> Safety Glasses
<input type="checkbox"/> Dust Mask	<input type="checkbox"/> Gloves	<input type="checkbox"/> Hearing Protection	<input type="checkbox"/> Safety Boots
		<input type="checkbox"/> Other: _____	
Is there any lock-out/tag-out or other work protection required? (if so attach documentation)		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is there any requirement for ventilation? (see section 8-10 of the Confined Space Plan)		<input type="checkbox"/> Yes	<input type="checkbox"/> No

CONFINED SPACE TEAM PERSONNEL		SECTION D	
Position & Name	Initial	Time of Entry	Time of Exit
Entrant:			
Attendant:			
Rescuer:			
Additional:			
Additional:			
Method of communication with entrant:			
Method of communication to summons rescue:			

We have reviewed the work authorized by this permit including the information contained herein. The related Confined Space Hazard Assessment, Entry Plan & Rescue Plan have been reviewed & are understood.

*Note: Entry **cannot** proceed if any square in Section B is marked "NO" or if a worker is required to move horizontally in a confined space or if the entrant must detach from the winch at any time. If these scenarios are present then an entry-rescue plan must be developed and a special permit filled out.*

	Print name	Signature
Permit Prepared By:		
Approved By: (Supervisor)		
Additional Employees:		





CONFINED SPACE RESCUE PLAN (Form 003)

Prior to entry a review shall be conducted by:

- The Attendant** _____.
- The Rescuer/First Aider** _____.
- The Entrant** _____.
- Supervisor** _____.
- Optional Additional personnel involved** _____.

A review of the Confined Space and work being done in it **shall** occur prior to entry, to determine if a rescue can be facilitated for each Confined Space that will be entered by LCE staff. A non-entry rescue **shall** always be the preferred method of rescue for LCE staff. If it is not possible to conduct a rescue for a Confined Space; LCE **must** contract a certified Confined Space Rescue team to be on site and ready for rescue during entry. Contact LCE Safety Officer (613-929-5979) to help facilitate if needed.

If it is determined that a vertical rescue can be facilitated by those listed above involved in the Confined Space Entry then the following plan **shall** be reviewed and understood by the worker(s) and may be implemented.

1. Prior to removing the lid to any manhole (or other), or an individual enters a Confined Space, the Attendant **shall** test the space for contaminated atmosphere. This is to prevent the ignition of flammable/combustible gasses that may be present. As the removal process may cause an ignition.
2. Prior to entering a Confined Space the LCE Confined Space Assessment (Form 001), Entry Permit (Form 002) and the following (or a designed) Rescue Plan (Form 003) documentation **MUST** be completed by the above individuals. Continuous atmospheric testing/monitoring **MUST** be conducted by the Attendant with a fully functional Gas Detector/Monitor, prior to, and during the entry of the Confined Space as defined by the OHSA.
3. If upon completion of the Confined Space Assessment (Form 001), and Entry Permit (Form 002), it is then determined by the above individuals that there are no circumstance that may cause the following standard vertical rescue to be infeasible, the following Rescue Plan template may be used.
4. Again, Prior to removing the lid to manhole (or other) or any individual enters a Confined Space, the Attendant **shall** test the space for contaminated atmosphere. He/She **shall** further test the atmosphere at maximum of 3ft intervals from top to bottom, and again to the top, to determine if there is a hazard prior to anyone entering the space.
5. The **Entrant shall** then enter the space attached to an approved and inspected harness and a certified mechanical retrieval system



(approved Davit or Tripod system with retractable winch). The **Entrant must** remain attached to this system at all times while within the Confined Space. If the worker/entrant is only going in a vertical direction this retrieval system shall be the means of rescue. Note: LCE training for Confined Space is for vertical entry and exit only. Horizontal entries are to be facilitated by a contracted firm with this training.

6. For the duration of the entry the **Attendant shall** continuously monitor and record (on the Entry Permit, Form 002) the atmosphere at adequate (Maximum 5 min) regular intervals. Maintaining verbal contact with Entrant, and keeping the probe of the gas monitor within 2-3ft of the Entrant at all times.
7. If a problem occurs and the gas monitor alarm sounds, the **Entrant must** exit the space immediately, and the Confined Space **shall** be reassessed for further precaution. A reassessment may require further safety precaution(s)/planning (i.e. ventilation).
8. If the Entrant is unable to exit, a rescue may be necessary. The **Attendant shall** sound the alarm to notify the rescuer and other site personnel of the emergency.
9. The **Attendant must** begin to facilitate a rescue using the mechanical retrieval device immediately to remove the Entrant from the space in a timely manner (5 min or less).
10. During this time that the Attendant is operating the system. The **Rescuer/First Aider** will prepare to safely retrieve and disconnect the entrant from the retrieval system upon reaching the surface.
11. The **First Aider shall** then assess and initiate first aid as needed.
12. If not already done, the **Attendant shall** initiate the emergency response system, and Emergency services **shall** be contacted as necessary (911, MOL). The onsite Supervisor, Safety Representative and the Health & Safety Officer (613-929-5979) **must** be contacted for assistance and further coordination.

If the above plan does not adequately address the circumstances or hazards for a rescue for this Confined Space entry; A further rescue plan or revisions to the above plan **shall** be developed by the above named participants prior to entry occurring. Further additions or revisions to the confined space plan are to be documented on the following template. The Supervisor and or the Safety Officer may be consulted to help develop an adequate plan.

Note: The Gas detector **must** be functioning and bump tested prior to use that day, this will be done through/by the LCE Shop Manager. If there are technical difficulties with the gas detector(s) or probe(s), please contact LCE Shop Manager (613-561-6994) or LCE Safety Officer (613-929-5979) to trouble shoot/resolve the issue. **Do not enter a Confined Space.**

	Supervisor	Attendant	Entrant	Rescuer
Name:	_____	_____	_____	_____
Signature:	_____	_____	_____	_____
We the above have reviewed and understand the above Rescue Plan. Date (mm/dd/yy): _____				





Daily Hazard Awareness Discussion Record (Form 004)

Date:	Topic:	
Key Points:		
1 _____	7 _____	13 _____
2 _____	8 _____	14 _____
3 _____	9 _____	15 _____
4 _____	10 _____	16 _____
5 _____	11 _____	17 _____
6 _____	12 _____	18 _____
Date:	Topic:	
Key Points:		
1 _____	7 _____	13 _____
2 _____	8 _____	14 _____
3 _____	9 _____	15 _____
4 _____	10 _____	16 _____
5 _____	11 _____	17 _____
6 _____	12 _____	18 _____
Date:	Topic:	
Key Points:		



1 _____	7 _____	13 _____
2 _____	8 _____	14 _____
3 _____	9 _____	15 _____
4 _____	10 _____	16 _____
5 _____	11 _____	17 _____
6 _____	12 _____	18 _____

Date: _____	Topic: _____
-------------	--------------

Key Points: _____

1 _____	7 _____	13 _____
2 _____	8 _____	14 _____
3 _____	9 _____	15 _____
4 _____	10 _____	16 _____
5 _____	11 _____	17 _____
6 _____	12 _____	18 _____

Date: _____	Topic: _____
-------------	--------------

Key Points: _____

1 _____	7 _____	13 _____
2 _____	8 _____	14 _____
3 _____	9 _____	15 _____
4 _____	10 _____	16 _____
5 _____	11 _____	17 _____
6 _____	12 _____	18 _____

Notes: _____



DISCIPLINARY ACTION REPORT (Form 005)

(Please print all information)

Crew/Site/Work Location _____

Supervisor's Name _____

Employee Name _____

Location(s) of Occurance _____

Date & Time of Occurrence ____/____/____ : ____ AM ____ PM

Date & Time of Report ____/____/____ : ____ AM ____ PM

REPORT SUMMARY

(include details on date(s) of occurrence(s), locations and nature of violation.)

Verbal Warning: _____ Supervisor's Initials _____ Employee Initials _____

Written Warning: _____ Supervisor's Initials _____ Employee Initials _____

Suspension: _____ Supervisor's Initials _____ Employee Initials _____

Termination: _____ Supervisor's Initials _____ Employee Initials _____

Supervisor Signature _____

I acknowledge receipt of this report (Signature) _____

Date signed (mm/dd/yy): _____





Job Site Emergency Preparedness (Form 006)
(Complete, attach to site sketch or plot plan, and post in conspicuous location)

Project address or location description (to provide to emergency personnel: fire, police, ambulance):

To raise a “first-aid required” alarm: _____

To raise a “general evacuation” alarm: _____

Head-count (Emergency Assembly Point) location for general evacuation: _____

Emergency transportation provisions: _____

Names of emergency/first aid personnel for site: _____



Emergency equipment location:

Site Telephone(s):	Site Foreman Other
First Aid Facility Location:	Site office/Trailer/Service truck(s)
Fire Extinguisher(s) Location:	Site office/Trailer/Service truck(s)
Eye Wash Station(s):	Site office/Trailer/Service truck(s)
Spill Kit(s) Location:	Site office/Trailer/Service truck(s)
Other (please identify):	_____

Head Office Telephone Number: 613-542-0820

Health & Safety Officer Telephone Number: 613-929-5979

General Manager Telephone Number: 613-561-1119

**Ambulance, Police, Fire Department Emergency
911**

Ministry of Labor Telephone Number: 1-800-267-0915 during business hours

Utilities Kingston: 613-546-1181

Ontario Hydro: 1-800-434-1235

Union Gas (Ontario One Call): 1-800-400-2255

Bell Canada (Ontario One Call): 1-800-400-2255

Cogeco Cable (24 hr Tech Support): 1-866-879-7179

CANUTEC (Spills): 613-996-6666 or *666

Ministry of Environment: (24 Hour) emergency call: 1-800-268-6060

Non-emergency call: 613-546-4291 ext. 1226

NOTE:

Supervisory personnel are responsible for ensuring site employees are familiar with site emergency preparedness provisions. Contact with the media should be avoided if possible. If it is not possible, they can be informed that "a management representative will provide comment at the earliest opportunity after the incident has been investigated". Personnel, other than management, are instructed to make no further comments to the media and to make no admissions of liability to any persons. In the event of a serious injury or fatality occurring within our workforce, LCE Management will contact the injured worker's family to inform them of the occurrence.



Map to Nearest Hospital



POWER LINE CONTACT:

- 1) When operating mobile equipment - remain inside the cab and don't panic, you're safe.
- 2) Alert other personnel to what has happened. Instruct them to keep their distance – at least **10 meters (33 ft.)** from any machine, load, lines or ground affected by the power lines.
- 3) Try to remove the contact - move the equipment away from the line in the reverse direction to that which caused the contact (for example, if you swung left into the wire, swing right to break the contact).

CAUTION: Once an arc has been struck, it can draw out a considerable distance before it breaks. Keep moving away from the line until the arc breaks and then continue moving until you are at least 3 to 4.5 m (10 to 15 ft.) away from the line.

CAUTION: If it appears to be welded to the power line do not move away from the line as it may snap and whip. Stay where you are until help arrives.

- 4) If mobile equipment cannot be moved away or disengaged from the contact, remain inside the mobile equipment until the electrical authorities de-energize the circuit and confirm that conditions are safe.
- 5) Report every incident involving contact with a live line to your supervisor who will in turn notify the electrical utility so that inspections and repairs can be made to prevent damaged power lines from failing at a later date. Supervisor will determine if MOL is to be called (electrical contact causing death or critical injury to a member of the public, contact with 750 volts or above.)

Emergency contact numbers are:

- **Utilities Kingston: 613-546-1181**
 - **Ontario Hydro: 1-800-434-1235**
- 6) If it is necessary for the operator to leave mobile equipment while it is still in contact with the electrical conductor, they must jump clear. They must never step down allowing part of their body to be in contact with the ground while any other part is touching the machine.
 - 7) Because of the hazardous voltage differential in the ground the operator should jump with his feet together, maintain balance and shuffle or hop slowly across the affected area. Do not take large steps because it is possible for one foot to be in a high voltage area and the other to be in a lower voltage area. The difference between the two can kill.
 - 8) Completely inspect equipment that has contacted a power line for possible damage caused by the electrical contact. Affected sections of wire rope should be replaced if it touched a line since the arc is usually of sufficient power to weld, melt or badly pit the rope.



GAS LINE CONTACT, RUPTURE OR LEAK

A gas line leak or rupture can be detected by:

- **Sight** - You may be able to see vapor in the air.
 - **Smell** - Mercaptan is added to gas to give it a distinctive rotten egg smell.
 - **Sound** - You may be able to hear the hissing sound of gas leaking.
- 1) Turn off machinery and eliminate all sources of ignition.
 - 2) Shut off vehicle engines.
 - 3) Determine the wind directions and evacuate the area, including buildings, and move to nearest marshaling site upwind from the leak/rupture.
 - 4) Make sure everyone is accounted for.
 - 5) Prevent vehicles and bystanders from entering the area.
 - 6) Call the Fire Department using a 911 call and provide details of the incident, including the exact location. They will want to know if there is a fire, the wind direction, direction that a gas or smoke plume is moving, the best direction to approach the scene, and if there are injuries.
 - 7) Call **Utilities Kingston: 613-546-1181** or **Union Gas (Ontario One Call): 1-800-400-2255**
 - 9) Notify the H&S Coordinator at 613-929-5979 or General Manager 613-561-1119.
 - 10) Avoid contact with any natural gas escaping from the pipeline or smoke if there is a fire.
 - 11) Warn people in nearby buildings, as gas might enter through drains if the break or leak is underground.

HAZARDOUS MATERIALS INCIDENT

- 1) Turn off machinery and eliminate all sources of ignition.
- 2) Shut off vehicle engines.
- 3) Determine the wind direction.
- 4) Evacuate the scene to the nearest marshaling site upwind from the incident.
- 5) Make sure everyone is accounted for.



- 6) Prevent vehicles and bystanders from entering the area.
- 7) Try and observe if there are any Transportation of Dangerous Goods (TDG) placards visible. Be prepared to report this to the Fire Department and CANUTEC. (See below for example of TDG placards).
- 8) Call the Fire Department using a 911 call and provide details of the incident, including the exact location. They will want to know if the incident involves a derailment or vehicle accident, if the source of the hazardous material is from an industrial facility, if there is a fire, the wind direction, direction that a gas or smoke plume is moving, the best direction to approach the scene, and if there are injuries.
- 9) Call CANUTEC at 613-996-6666 or *666 on a cellular phone. They will require similar details as above.
- 10) Notify the H&S Coordinator at 613-929-5979 or General Manager 613-561-1119.
- 11) Avoid contact with the hazardous materials (liquid, gas, vapors, smoke, etc.).



Incident Report (Form 007)

Incident Type: Property Damage Environmental Spill Critical Injury Lost Time Injury
 Medical Aid (911) Vehicle Collision First Aid Other: _____

Name of Employee(s) (Person(s) Involved): _____

Company Name: _____ Supervisor: _____

Incident Date (mm/dd/yy): _____ Time: _____ (am/pm)

Date and Time Reported: _____ To Whom: _____

Incident Location: _____

Type(s) of Equipment Involved: _____ Unit#: _____

Weather Condition(s): _____ Temperature: _____

Incident Description: (Provide details of incident chronological event sequence – attach additional information if required)

Injury/Incident Details (complete all that apply(s))

Area of Injury: <input type="checkbox"/> Left <input type="checkbox"/> Right			Injury Type		Motor Vehicle Incident (Diagram)
<input type="checkbox"/> Head	<input type="checkbox"/> Shoulder	<input type="checkbox"/> Chest	<input type="checkbox"/> Cut/Scratch	<input type="checkbox"/> Fracture	Indicate details: Direction of travel, Streets involved etc.
<input type="checkbox"/> Eye	<input type="checkbox"/> Upper Arm	<input type="checkbox"/> Groin	<input type="checkbox"/> Sprain/Strain	<input type="checkbox"/> Concussion	
<input type="checkbox"/> Neck	<input type="checkbox"/> _____	<input type="checkbox"/> Knee	<input type="checkbox"/> Bruise	<input type="checkbox"/> Dislocation	
<input type="checkbox"/> Face	Elbow/Forearm	<input type="checkbox"/> Hip/Thigh	<input type="checkbox"/> Puncture	<input type="checkbox"/> Reaction/Sting	
<input type="checkbox"/> Finger	<input type="checkbox"/> Upper Back	<input type="checkbox"/> Leg	<input type="checkbox"/> Foreign Body	<input type="checkbox"/> Loss Conscious	
<input type="checkbox"/> Hand	<input type="checkbox"/> Lower Back	<input type="checkbox"/> Ankle/Foot	<input type="checkbox"/> Burn	<input type="checkbox"/> Other	
<input type="checkbox"/> Abdomen					

Name(s) of First Aider(s): _____

Was there any Witness(es): _____

Potential Causes (check all that apply)

<input type="checkbox"/> Training	<input type="checkbox"/> Communication	<input type="checkbox"/> Procedures	<input type="checkbox"/> Actions of Others
<input type="checkbox"/> Supervision	<input type="checkbox"/> House Keeping	<input type="checkbox"/> Skills/Training	<input type="checkbox"/> Design Flaw
<input type="checkbox"/> Weather Condition	<input type="checkbox"/> Maintenance	<input type="checkbox"/> Planning	<input type="checkbox"/> PPE
<input type="checkbox"/> Mechanical	<input type="checkbox"/> Ergonomics	<input type="checkbox"/> Other: _____	<input type="checkbox"/> Equipment Malfunction

Cont. Factors

Due to the seriousness of this incident an investigation is required:
 Yes (Fill out Serious Incident Report LCE Form 008) **No** (Continue form)

Corrective Actions (check all that apply)

<input type="checkbox"/> Communication Change	<input type="checkbox"/> Training/Retraining	<input type="checkbox"/> Workplace Change	<input type="checkbox"/> Other:
<input type="checkbox"/> Develop Procedures	<input type="checkbox"/> Repair/Replace	<input type="checkbox"/> Awareness/Discussion	
<input type="checkbox"/> Planning/Scheduling	<input type="checkbox"/> Equipment/Hardware	<input type="checkbox"/> Provide PPE	

Describe corrective and preventative measures taken:

Name/Position or person completing report: _____ Signature: _____





Joint Health & Safety Committee (JOHSC) Meeting Minutes (Form 008)

AGENDA:

- a. Roll Call
- b. Adopt Previous Meeting Minutes
- c. Discuss Old and Unfinished Business
- d. Discuss Worker Complaints and Suggestions
- e. Review of Accidents/ Investigations/Corrective Actions
- f. Reports on Special Assignments and Inspections
- g. Reports on Status of H&S Program
- h. Discuss New Business
- i. Adjournment

DATE: _____ **CHAIR:** _____

MEMBERS/GUESTS PRESENT:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

MEMBERS MISSING:

_____	_____
_____	_____
_____	_____

ITEMS CONSIDERED AND INITIATION DATE: (use agenda headings (e.g. New Business) and number each item).

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____
- 11. _____
- 12. _____



RECOMMENDATIONS: (number each item with corresponding number from section above)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

PERSON(S) TO TAKE ACTION & FOLLOW-UP: (number each item with corresponding number from section above)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

TARGET DATE(S): (number each item with corresponding number from section above)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

Attach Additional Pages as Necessary



New Worker Orientation (Form 009)

Employee name: _____

LCE Representative: _____ Date: _____

No.	Item	Employee Initials	LCE Rep Initials
1	Determine workers Background/experience		
2	Determine workers medical history and any relevant pre-existing conditions		
3	Confirm safety training employee may have received at previous employer, provide proof or employer contact		
4	Discuss starting time, late procedure (who to call), absentee procedure, call-in number.		
5	Discuss hours for the week, pay routine, payday, timecards, pay rate and applicable deductions		
6	Provide copy of TDI form (to be submitted before first payday) and discuss direct deposit		
7	Discuss appropriate clothing and personal protective equipment requirements		
8	Emergency contact person: name, address and phone number, relation to employee		
9	Review and Provide copy of H&S Policy (if requested)		
10	Discuss emergency procedures and accident reporting procedures		
11	Discuss safety rules, fall protection, trenching working around equipment		



No.	Item	Employee Initials	LCE Rep Initials
12	Discuss general employee duties, scope of work and expectations		
13	Discuss the employee's responsibility as a company representative to the public		



New Worker On-site Orientation (Form 009A)

Employee name: _____

LCE Supervisor: _____

Date: _____

No	Item	Employee Initials	LCE Rep Initials
1	Explanation of project and employee's duties		
2	Location of first aid kit(s), fire extinguishers, eye wash, emergency telephone numbers		
3	Identify onsite first aid attendant(s) and safety representative		
4	Identify job site specific hazards		
5	Location of OHSA, Health & Safety policy, MSDS binder		
6	Location of tool storage areas, and PPE supply, introduce service truck driver		
7	Explain where drinking water is		
8	Discuss washroom and clean-up facilities		
9	Discuss parking arrangements, restrictions		
10	Discuss lunch and coffee breaks (timing and duration) facilities		
11	Site Orientation: Walk around, introduce worker to others		
12	Work instructions: What's expected, general procedures, routines, show and tell		





NEAR MISS INVESTIGATION REPORT (Form 010)

Incident Date (dd/mm/yy): _____ Time: _____ (am/pm)

Date and Time Reported: _____ To Whom: _____

Project: _____

Incident Location: _____

Weather Condition(s): _____ Temperature: _____

Name of Employee(s)/Person(s) Involved: _____

Name of Constructor (General Contractor): _____

Name(s) of Subcontractor(s): _____

Name of Employer: _____

Type(s) of Equipment Involved: _____ Unit#: _____

Name(s) of Person(s) Involved: _____

Injury(s) if Any: _____

Material Damage (if any, include estimated cost): _____

Name(s) & Contact information of Witnesses (Take Statement if necessary) : _____

Description of Near Miss: _____

Causes: _____

Recommendations for Corrective Action: _____

Worker(s) Involved: _____

Signature: _____

Onsite Supervisor: _____

Signature: _____

Health and Safety Rep: _____

Signature: _____







Supervisor/Health & Safety Rep Site Inspection Checklist (Form 012)

Site/Inspection location: _____ Date (mm/dd/yy): _____

Time Started: _____ (am/pm) Weather Condition: _____ Temperature: _____

Description of work/activity: _____

of staff: _____

Subcontractor(s) _____

PLEASE REVIEW WORK AREA USING FOLLOWING CHECKLIST. CIRCLE APPROPRIOT RESPONSE

S=Satisfactory N=Needs Attention (Document corrective action(s))

<p>Required Posted OSHA Material:</p> <p>Notice of Project <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Occupational H&S Act & Regs <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Company H&S Manual <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>MSDS/WHMIS inventory <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Form 82 (poster) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Emergency Procedures <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Emergency Contacts <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Location of Hospital <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Name of Site Safety Rep(s) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Valid cert of on duty First Aid <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Form 1101 (First Aid booklet) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>WSIB poster <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>MOL address/phone # <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>MOL <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>inspection/orders/responses <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>LCE address/phone# <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>On-Site Forms/Documentation:</p> <p>Daily Hazard Discussion(s) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Pre task Safety Inspection(s)(PSI) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Site inspections <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Incident Report <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Near miss Report <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Discipline Form <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Traffic Control Plan <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Utility Locates <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Confined Space Forms <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Emergency Response/Hygiene:</p> <p>First Aid Kit(s) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Eye Wash Station <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Fire Extinguisher(s) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Toilet(s) (1/10) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Wash Facilities <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Emergency Assembly Points <input type="checkbox"/> S <input type="checkbox"/> N</p>	<p>General Site Safety:</p> <p>Public Protection <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Fencing <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Delineation of Hazards <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>House Keeping <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Site/way finding Signage <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>PSI Audit <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Subcontractor Compliance:</p> <p>Hazard Awareness <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Supervision <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Following Proper Procedure(s) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Personal Protective Equipment <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Compliance to LCE site rules <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>PSI Audit <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Traffic Control:</p> <p>Meets MTO Book 7 (TWZ) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Detour <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Signage <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Delineation of Hazards <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Pedestrian Control <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Construction Traffic Control <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Public Traffic Control <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Site Access <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Traffic Control Personnel <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Other: _____ <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Confined Space Entry:</p> <p>Trained Personnel <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Gas Detector <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Rescue Equipment (i.e. Harness etc.) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Required Documentation <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Staff Following Procedure <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Horizontal Rescue Team Req'd <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Other: _____ <input type="checkbox"/> S <input type="checkbox"/> N</p>	<p>Excavation(s):</p> <p>Utility Locates (Reviewed) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Identified with colored paint <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Soil Type Identified (Type 1, 2, 3, 4) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Adequately Sloped <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Scaled of Loose Material <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Free of Water <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>1 meter clear perimeter <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Shoring/Trench Box (inspected) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Access and Egress <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Ladder(s) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Condition of Terrain/House keeping <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Other: _____ <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Tools/Equipment (Condition):</p> <p>Hand Tool(s) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Electronic/Powered Hand Tool(s) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Fuel Powered Hand Tool(s) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>WHMIS material use/storage <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Storage Area(s) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Ladder(s) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Chain(s)/Lifting Devices <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Electrical Cord(s) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Generator(s) (GFCI) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Pump(s) & Hose(s) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Over-all Maintenance <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Other: _____ <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Personal Protective Equipment:</p> <p>Site PPE requirements (i.e. Boots etc.) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Ear Plugs <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Eye Protection <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Dust Masks/Respirator <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Gloves (Rubber/Other Req'd) <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Fall Protection Components <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Staff Use <input type="checkbox"/> S <input type="checkbox"/> N</p> <p>Other: _____ <input type="checkbox"/> S <input type="checkbox"/> N</p>
--	--	---

Notes/Corrective Action(s) _____

Name of person completing report: _____ Time Completed: _____ (am/pm)

(PRINT)

Supervisor

Worker Representative

Name: _____

Name: _____

Signature: _____

Signature: _____





ACCIDENT / INCIDENT INFORMATION SECTION B	
Date and time occurred:	Date and time reported:
Project location where occurred:	
Exact location on project site: _____ _____	
Site Supervisor:	
Category(s): <input type="checkbox"/> Medical <input type="checkbox"/> Lost time <input type="checkbox"/> Minor damage <input type="checkbox"/> Severe damage <input type="checkbox"/> Critical <input type="checkbox"/> Fatal	
Probability of recurrence: Rare <input type="checkbox"/> Occasional <input type="checkbox"/> Frequent <input type="checkbox"/>	
First aid treatment given (if applicable): _____ _____ _____	
First aid attendant:	Employed by:
If employee has been seen, or intends to see a doctor, or transported to Hospital indicate where and when: _____ _____	
Property/Equipment damage incurred (actual or estimate cost): _____ _____ _____	
Job being performed at time of occurrence: _____ _____ _____	
Others involved (and their employer(s): _____ _____ _____	



Name of Person(s) that witnessed what happened and their employer(s), Ask to please file a witness statement (Form 009): _____

**INJURED EMPLOYEE INFORMATION
SECTION C**

Employee's name: _____

Date of Birth: _____ Occupation/Position: _____

Years or Experience: _____ Date Hired: _____ Time on Project: _____

Injuries (if applicable): _____

Has the employee had previous accidents/incidents while in our employ? YES [] NO []
If Yes, provide
Details: _____

ACCIDENT/INCIDENT ANALYSIS (Provide an analysis to determine cause of incident) SECTION D

Factors leading up to incident:

Factor during incident:



Date(s) for implementation:	
Incident follow-up (review) to occur on:	Completed on:
Investigation started:	Completed:
Investigator(s):	

Manager's Signature: _____ Date: _____

Follow-up/implementation comments: _____

ATTACHMENTS (list and attach - photos, statements, etc.)

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.



Traffic Accident Report (Form 014)

What to do at the Scene of The Accident (Form 015A)

In the confusion following an accident, remember to take care of all medical needs first. If you are not seriously injured, the following are ten important things that will help you make sense of a confusing situation and protect yourself and others, after the fact.

Assess the Situation -- Take whatever means are necessary to secure your safety and the safety of your passengers before anything else.

Begin with Immediate Emergencies -- If you and your passengers are safe, then check the driver(s) and passengers of the other car(s) involved.

Call for Help -- If anyone is injured call 9-1-1 and ask for emergency medical attention. If no one is injured, call the local police.

Attend the Injured -- If there are injuries, don't move the injured until medical help arrives. Do your best to make sure they remain conscious and alert.

Prevent Additional Injuries -- Make the roadway safer and prevent additional injuries. Place flares, warning signs, and/or have someone direct traffic away from the scene.

Report the Facts -- When medical help and/or law enforcement arrives, immediately report any injuries or ongoing emergencies. Do not admit fault, and do not share your policy limits with anyone.

Collect Detailed Facts -- Take time to record important information about the accident and those involved at the scene.



Record on attached form:

- 2) Get basic information from all other drivers involved in the accident -- full first and last names, driver's license number, insurance carrier. Offer your information to them.
- 3) Get basic contact information from all Passengers and Witnesses.
- 4) Record detailed information about each vehicle(s). Damage etc.
- 5) Get the first and last name, badge number, and report number (along with a copy of the report, if possible) from the officer in charge at the scene.
- 6) Make a drawing(s) that represents the crash scene
- 7) Take photos to document the scene

Secure Your Vehicle for Transport

Contact Your Employer.

Write a Detailed Account -- As soon as you can after the accident, write a detailed report of what you remember of the event.



Location of Occurrence: _____

Time: _____ Date: _____

Driver(s) Information:

First name:	Middle:	Last:
License #:	Insurance Carrier:	Insurance #:
First name:	Middle:	Last:
License #:	Insurance Carrier:	Insurance #:

Contact Information Driver(s), Passenger(s), Witnesses:

First Name:	Middle:	Last:
Phone #:	Fax:	Address:
First Name:	Middle:	Last:
Phone #:	Fax:	Address:

Witness Statement: _____

Signature of Witness: _____ Date (mm/dd/yy): _____



Vehicle Details:

Make:	Model:	Year:
Color:	Plate #:	Occupants:

Describe Damage: _____

Make:	Model:	Year:
Color:	Plate #:	Occupants:

Describe Damage: _____

Officer in charge:

First name:	Last:
Badge #:	Dispatch (OPP/City/RCMP/MP):
Report #	Did you receive a copy?

Emergency Response:

First name:	Last:	Company or Dispatch (Fire/Ambulance):
First name:	Last:	Company or Dispatch (Fire/Ambulance):

Notes: _____



Drawing/Scetch: _____

Pictures: _____

Description of incident: _____

Name of person completing report (PRINT): _____

Signature: _____ Date (mm/dd/yy): _____





Traffic Control Pre-Job Checklist (Form 015)

Location:

Completed By:

Date:

Ensure Traffic Protection Plan is available		
Approvals or permits obtained from road authority		
Contacted agencies which are effected by construction/maintenance activities		
Road Authority		Electrical Utility
Police		Gas
Fire		Water
Ambulance		Telephone
Transit		Cable
Public informed of the proposed work. Use signage, mail drop, media etc.		
Owners of adjacent properties notified of access limitations		
For short duration work, volume of traffic and posted speed limit known		
Category and duration of work determined		
Hours of work selected to avoid peak periods		
Site evaluation performed to determine:		
• Level of encroachment		
• Stopping sight distance		
• Existing traffic control device		
• Temporary barriers required		
• Pedestrian route/bicycle route/school zone/other (specify)		
• Overhead or underground utility		
• Weather conditions		
• Night operations		
Determine whether pavement markings must be changed (long duration)		
Enforcement and speed restrictions upon by police and road authority		
Site specific emergency/incident response plan developed		
Traffic Control Plan prepared		
Pedestrians/bicycles traffic separated from vehicular/work area traffic		
Using current version of OTM Book 7 or field guide, select layout		
TCPs are trained according to Regulations for Construction Projects		
Choice of layout and signage recorded and signed off		
Sign sizes and quantities determined		
All protective clothing, equipment & devices on site when required		
All protective clothing, equipment & devices inspected and in good condition		
Night time protective clothing and equipment available if required		
Approval obtained for:		
• Construction zone speed limits		
• Temporary traffic control signals		
• Portable traffic signals		



Flashing light boards comply with OTM (office edition) section 3.2	
--	--

Traffic Protection Plan		
Constructor/Employer:	Date:	
Prepared By:		
A	Work Zone [road/ stations/ length/ crossroad/ directions affected]	
	Road Type [<input type="checkbox"/> Freeway [<input type="checkbox"/> Divided [<input type="checkbox"/> Undivided [<input type="checkbox"/> Multi-lane [<input type="checkbox"/> Non-freeway [<input type="checkbox"/> Divided [<input type="checkbox"/> Undivided [<input type="checkbox"/> Multi-lane [<input type="checkbox"/> One lane	
	Posted Speed Limit [] km/hr Volume [<input type="checkbox"/> Low [<input type="checkbox"/> High	
	Duration of work [<input type="checkbox"/> Long [<input type="checkbox"/> Short [<input type="checkbox"/> Very Short [<input type="checkbox"/> Mobile	
	Type of Activity [road closure/ lane closed/ shoulder work/ lane shift/ sidewalk closure]	
B	Typical Layout # []	
	Temporary work zone dimensions table [<input type="checkbox"/> A [<input type="checkbox"/> B [<input type="checkbox"/> C [<input type="checkbox"/> D	
	Operations Typical Layouts: [<input type="checkbox"/> Work Zone Operations [<input type="checkbox"/> Advance Deposit of devices [<input type="checkbox"/> Lane closure set-up [<input type="checkbox"/> Lane closure removal	
C	Traffic Control Devices Types	QTY

Notes: _____



Traffic Protection Planning Form (Cont.)			
D	Site Conditions/ Hazards		Control
	Road Conditions (narrow lanes, scarified)		
	Visibility (curves, hills, cuts)		
	Weather (fog, rain, bright sun)		
	Access/ Egress (from work zone, for public)		
Other (school zone, bus stop, rail crossing)			
E	Traffic Control Persons (TCP)		
	#Required []	Names	Names
	TCP Site Instructions		
F	Set Up and Removal Crew		
	Names		Names
	Site Instructions		



Diagram



Temporary Traffic Control Plan (Form 016)

Date: _____ Supervisor: _____

Job: _____

Day: S M T W T F S (circle) Shift: _____

Temperature: High _____ Low _____

Weather: _____

Direction of closure: Northbound [] Southbound [] Eastbound [] Westbound []

Time: Implemented _____ Cleared: _____

Today's Operations Requiring Traffic Control

Traffic Control Plan(s) Used:	Station-to-Station
Sheet/Drawing _____	Location: _____

Measures/Protection used:	Number	Missing/Damaged
9. Crash _____		
10. Traffic Control Person _____		
11. Const. Signing _____		
12. Barricades _____		
13. Barrels _____		
14. Cones _____		
15. Vertical Panels _____		
16. Arrow Boards _____		
17. Message Board _____		
18. Wall Barrier _____		
19. Other _____		

Maintenance/Correction/Replacements Required: _____

Time Inspected: _____ am _____ pm

Diagram to be attached:





Traffic Control Daily Checklist (Form 017)

Project: _____		Date/Time: _____ (AM) _____ (PM)	
Weather/Lighting Conditions: _____ (AM) _____ (PM)			
Traffic Control Plan Current/Completed (Circle One)			
Detour Route		YES	NO
Drive/Walk Thru Inspection _____ (AM) _____ (PM)			
Devices	Adequate (AM/PM)	Needs Attention (AM/PM)	
Signage			
Traffic light(s)			
Delineation			
Message Board(s)			
Separation			
Placement			
Pedestrian Protection			
Traffic Control Person(s)			
Other:			
Deficiencies (Circle)			
Non-Reflective AM PM	Non-Standard Color AM PM	Non-Standard Size AM PM	
Improperly Located AM PM	Missing AM PM	Dirty AM PM	
Other:			

Corrective Actions: _____

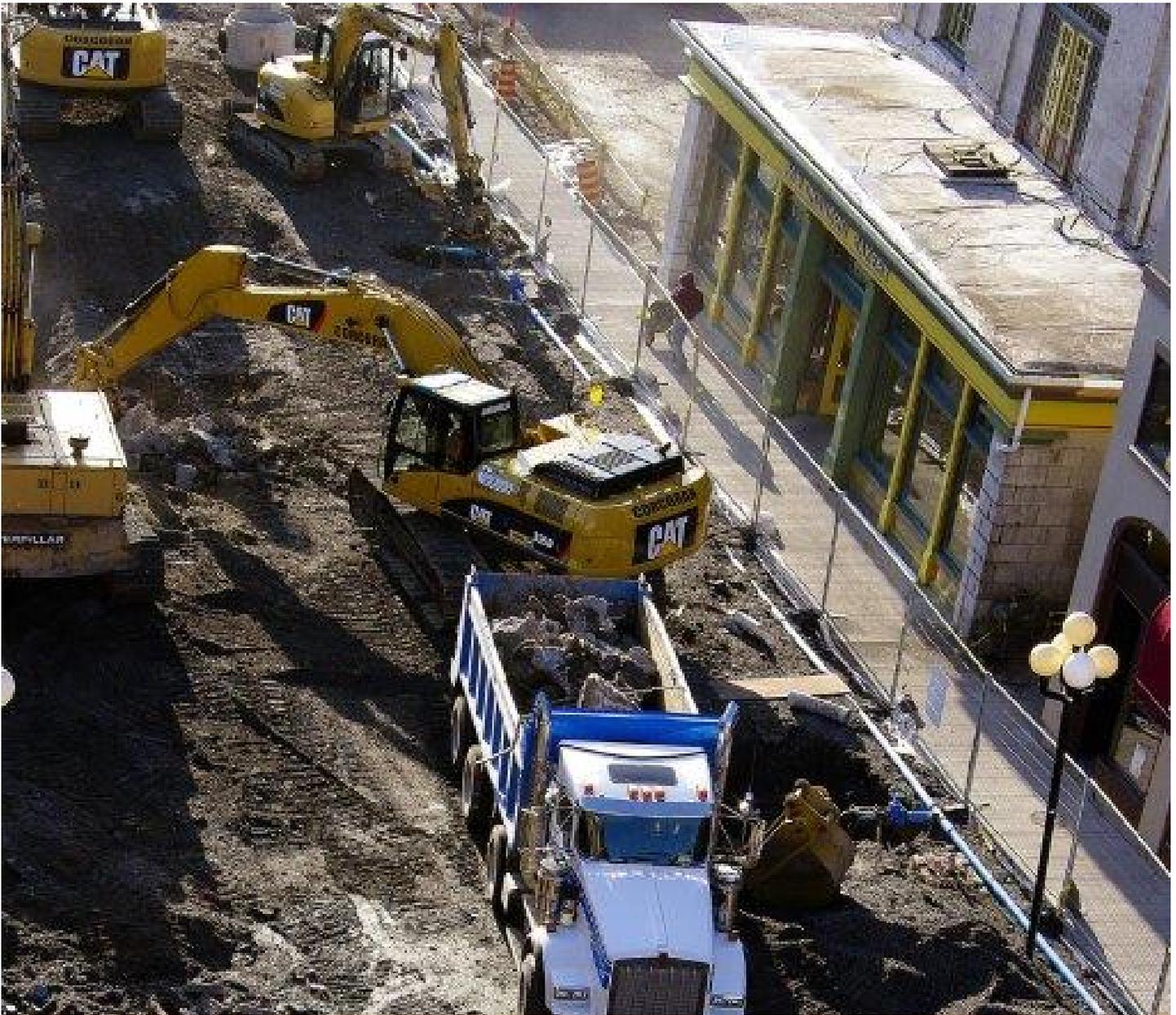
Name of person completing inspection: _____

Position: _____ Signature: _____









SAFE WORK PRACTICES

SECTION #18 Health & Safety Manual



Len Corcoran Excavating Ltd. Safe Work Practices -2018-





SECTION #18 Safe Work Practices



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Access Ramp Installation

Responsibilities

Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

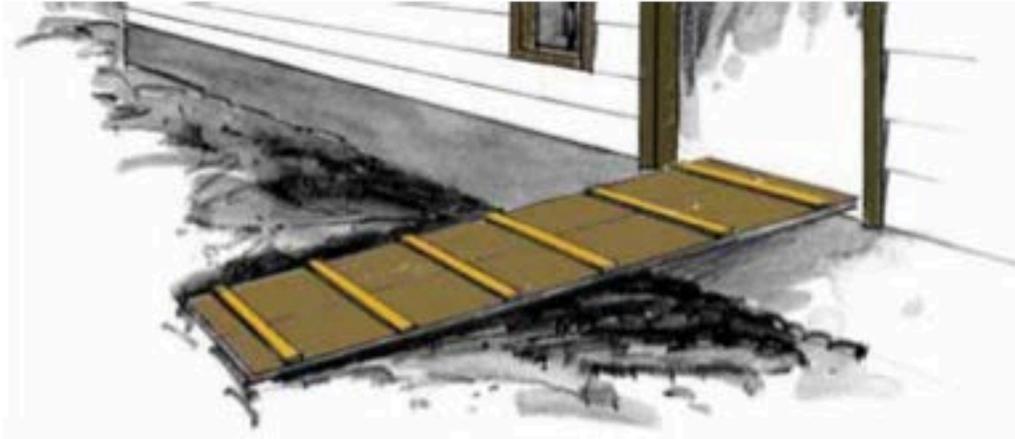
Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required on the project.
2. All workers must use personal protective equipment suitable and necessary for the hazards of the work being performed. (ear plugs, safety glasses, dust mask, etc)

Safe Work Practice

1. Where LCE is working to install access ramps to protect workers and or the public, an adequate reference to use is the City of Kingston Facility Accessibility Design Standards:
<https://www.cityofkingston.ca/documents/10180/14513/Facility+Accessibility+Design+Standards/6caff101-b559-40a2-a645-09fca90d11f0>
2. Install access ramps where Wheel chairs, access vehicles, strollers and rolling loads are required to be moved over two different elevations.
3. Install access ramps, or a temporary stair, where the heights of two different floors cause a hazard to workers or the public having to cross or walk from one higher or lower floor to another.
4. Access ramps must be a minimum of 150cm (1.5m) wide and have a form of foot traction to prevent slips, trips, or falls.
5. Ramps must not exceed a 20% slope.
6. Where access ramps cross over an excavation greater than four feet in depth, the ramp must contain guardrails on both sides to prevent falls.
7. Access ramps must be constructed of materials capable of supporting heavy load such as workers or access.

Access Ramp Installation



The slope of work platforms must not exceed 1 vertical to 5 horizontal. Sloped work platforms must have cleats spaced no more than 400 mm (16 in.) apart or a non-skid surface.



Temporary stairways with handrails.



Asbestos Containing Materials (ACM)

Responsibilities

Employer	The Employer will ensure all equipment, tools, protective clothing, etc. are made available and used in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to ensure personnel they supervise are protected from airborne asbestos fibers, and use safe handling procedures when working with ACM. The Supervisor is responsible to ensure workers have received proper instruction and training in the hazards of asbestos work, and safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility clothing.
2. Disposable work gloves. Respirator (optional)
3. Water (amended) source for wetting ACM material prior to cutting/breaking.
4. Plastic (6 mil or thicker) poly sheets or equivalent disposal bags and duct tape, lined bin for placing ACM. Adequate signage, sticker, decals or tape.
5. Clean water for washing hands, face and or respirator.
7. Non-powered tools for cutting ACM, e.g., Manual chain cutters when decommissioning and removing pipe.
8. Synthetic sling(s) for lifting ACM pipe.

Asbestos Hazards

Asbestos is the generic name for a group of naturally occurring fibrous minerals. Asbestos color may range from white to a pale yellow, green or blue. Asbestos fibers cause lung scarring (asbestosis), lung lining scarring (pleural scarring), cancer of the lung lining (mesothelioma) and/or lung cancer. Time lapse before the disease becomes evident may be 20- 40 years after exposure. Workers who smoke have a 10-15 times greater risk of lung cancer from asbestos exposure than workers who do not smoke.

OHSA, and MOL has set a maximum exposure limit of 0.1 fibers/cc, and lists asbestos as a known human carcinogen. Asbestos is an ALARA substance (exposure to be kept As Low As Reasonably Achievable), which means that no exposure is permitted.



The high strength, flexibility, heat and chemical resistance, and frictional properties of asbestos led to its widespread use in electrical insulation, high strength asbestos cement products, pipe covering, floor tiling and asphalt. The hazard posed by asbestos is its friability - the ease with which it can be crumbled or pulverized. Products with "bound" asbestos do not pose a hazard unless they are cut, sawn, ground or sanded.

New construction materials do not normally contain asbestos. LCE employees and subcontractors are not likely to encounter asbestos unless working on or with construction materials produced before 1980. This is most likely to occur when working with old water/sewer pipe or during demolition work.

Actions if ACM is Suspected

1. If you believe there may be asbestos where you are working (e.g., ACM pipe), alert your supervisor immediately. The supervisor will take immediate actions including:
 - alerting workers in the vicinity to the presence of the material
 - restricting access to the area
 - informing the LCE H&S Coordinating without delay
2. No work will be permitted to continue in the hazard area before the H&S Coordinator has been notified, and workers who may be affected by the presence of asbestos are protected from exposure.
3. Testing will be done on a sample amount of the contacted ACM on the project for due diligence purposes, and to determine if there is any risk to our workers. Work may continue, following this Safe Work Practice while the testing is completed. If the results of the testing determines that there is in fact a risk to the worker(s), crews must STOP WORK and determine a new course of action.

Note: Due to the fact that the ACM we encounter is buried and it is difficult for the "Owner" to determine the type and amount of ACM there will be within a project. They do not/have not issued Designated Substance Reports (DSR) on underground projects, but DSR's are required an ALL other construction to determine risk to workers/contractors.

Risk Levels

LCE employees will not perform any Moderate (type 2) or High Risk (type 3) asbestos work. This type of work will be contracted to a qualified contractor. The definitions of asbestos risk are as follows (MOL, OHSA):

- **Low risk Type 1:** ACM removal, Work activity on/in proximity to non-friable asbestos-containing material, where the material may be disturbed/removed and there is no significant release of asbestos fiber.
- **Moderate risk Type 2:** Work activity involving the handling of asbestos-containing material or working in proximity to friable asbestos-containing material, not otherwise classified as low or high risk work activities.



- **High risk Type 3:** Work activity involving the handling of asbestos-containing material or working in proximity to friable asbestos-containing material, where there is a high level of control necessary to prevent exposure to excessive concentrations of airborne asbestos fiber.

Asbestos Work

Activities where there is low-risk of exposure to airborne asbestos fibers include:

Working in close proximity to material containing asbestos, provided that the asbestos material is not disturbed. Removing non friable asbestos-containing material provided there is minimal dust disturbance (i.e. asbestos cement pipe)

- Removal of manufactured products containing asbestos where sanding, cutting or similar operations are not required. **DO NOT USE POWER TOOLS** to cut or drill which may create dust.
- Transporting or handling materials containing asbestos in sealed containers.
- Removal of mostly intact pipe and any loose pieces that may be broken off that may contain asbestos. Note: if there are any loose pieces of ACM located on the ground where work has taken place not contained by poly, it may be necessary to remove portions of nearby fill as it may be considered contaminated.

An example applicable to work performed as part of projects would be removing and lifting asbestos containing pipe with a synthetic sling.

Crew Safety Briefing

A crew safety briefing must be completed prior to starting work that involves any known asbestos containing material (ACM), or if ACM is suspected. The crew safety briefing must be documented and include the following:

- Type of known or suspected ACM that will/may be encountered so that personnel are able to recognize ACM.
- The hazards of exposure to asbestos fibers and the means to prevent exposure.

This Safe Work Practices is to be used to ensure worker safety, modified as necessary for the specific work to be performed. LCE Pre-Task Planning (PTP) or Daily Toolbox Talk format can be used to inform workers of the process.

Safe Handling Procedure

The following actions will be taken to control low-risk exposure to asbestos:

1. Ensure ACM is not disturbed or damaged in any way that would produce a dust or powder. **DO NOT USE POWER ACTUATED TOOLS.**
2. Restrict access to the designated asbestos work area and only allow persons wearing appropriate protective equipment to enter the work area. (Removable Gloves are required)



4. When **non-powered** hand tools are used to cut, shape or drill ACM, the material will be wetted to minimize release of airborne asbestos fibers. Handle and remove the ACM only if it is in a water saturated condition. Handling ACM dry is not permitted.
 - Using **non-powered** hand tools to saw, shape, drill, grind, or remove non-friable manufactured products containing asbestos, e.g., asbestos cement pipe.
 - Removing an entire piece of equipment or pipe with the asbestos-containing material remaining effectively intact ("wrap and cut" procedure).
 - Tools used for cutting pipe must be cleaned to remove any potential ACM. The material removed from the cutting tool must be disposed of as ACM.
 - Wherever possible separate the pipe at a joint/connection to minimize contact with the material.
5. Place ACM to be disposed in/on a minimum 6 mil poly bag or tarp seal with duct tape, place in lined bin and ensure the ACM is completely sealed inside the poly before transporting.
6. Do not dry-sweep to clean up ACM or use compressed air for any cleaning purposes.
8. Ensure asbestos waste is delivered to an approved dump site that conforms to provincial and municipal requirements. For identification of approved sites contact the Regional Office of the Ontario Ministry of Environment. Transport drivers must be informed of the precautions that must be taken and vehicles may be required to carry signs or placards specifying the nature of the cargo (refer to the *Transport of Dangerous Goods Act*).

The most common asbestos work on LCE sites will be using a non-powered tool such as a pipe-cutter to cut a pipe and remove it from an excavation during decommissioning of sewer or water lines.



Backfilling

Responsibilities

Employers	It will be the responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. Personal Protective Equipment (hardhat, CSA footwear, eye protection and hearing protection when required, gloves, hi-visibility vest)
2. Traffic control devices (paddle, cones, signage) where needed
3. Suitable equipment where required
4. Shovel and Rake

Safe Work Practice

1. All personnel directly associated with this activity are required to wear a high-visibility vest or apparel.
2. Before commencing with this type of operation, all personnel involved must be made aware of the dangers associated with backfilling and notify others on site to remain clear during the operations. A daily hazard discussion, or subcontractor equivalent, may be completed and signed by all involved in the operation.
3. Trained TCPs must direct dump trucks, excavators and other equipment where moving upon streets or other areas where flagging control is required.
4. Designated spotters are required to guide any dump trucks to a specific backfill location.
5. Lower level spotters/swampers must communicate to equipment operators and workers to remain clear of the dumping area while the dumping procedure is taking place. An "all clear" sign should be forwarded to the above spotter once it is safe to proceed.



6. Dump truck operators must only begin to dump after receiving an all clear from the above spotter.
7. No workers or equipment should approach the dumping area while the material is being dumped.



Chop Saw (Miter Saw, Radial Arm Saw)

Read and understand the instruction manual before operating the saw. If you do not know how to operate this piece of equipment obtain training from your supervisor.

Responsibilities

Employer	It will be the responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. Personal Protective Equipment (hardhat, CSA footwear, eye and hearing protection, face shield, gloves when handling material).
2. Chop saw and a stable platform.

Conditions for Safe Use

1. Use the work piece on a stable platform. Holding the work by hand or against your body is unstable. It allows for work to shift, causes binding of the tool and loss of control.
2. Use the correct saw/blade for your application. The correct saw will do the job better and safer at the rate for which it is designed. Do not use the saw for purposes not intended – for example; do not use the saw for slicing meat.
3. Do not use the saw if the switch does not turn it “ON” or “OFF”. Any saw that cannot be controlled with the switch is dangerous.
4. Disconnect a plug from the power source before making any adjustments for changing accessories. Such prevention safety measures reduce the risk of starting the saw accidentally.
5. Keep the saw sharp and clean. Properly maintained saws, with sharp cutting edges, are less likely to bind and easier to control. When mounting saw blades, be certain that the arrow(s)/indicator(s) on the blade matches the direction of the arrow marked on the tool and that the teeth are also pointing in the same direction.



6. Inspect guards before using. Keep guards in place. Check moving parts for binding or any other condition that may affect the normal operation of safety features of the saw. If damaged, have saw serviced before using the saw. Many accidents are caused by poorly maintained saws.
7. Do not alter or misuse saw. Any alteration or modification is a misuse and may result in serious personal injury.
8. The use of any other accessories not specified may create a hazard. Accessories that may be suitable for one type of saw may become hazardous when used on an inappropriate saw.
9. Saw service must be performed only by qualified repair personnel. Service or maintenance performed by unqualified personnel may result in misplacing internal wires and components which could cause serious hazard.
10. When servicing a saw, use only suitable replacement parts. Follow instructions as found in the manual accompanying the saw. Use of unauthorized parts or failure to follow maintenance instructions may create a hazard.
11. Use only the recommended RPM and sizes of blades. Regularly check and tighten the blade and the blade-attachment mechanism.

Safe Work Practice

1. Use clamps or support work piece whenever possible. If supporting the work piece by hand, you must always keep hands outside of the cutting area. Do not use this saw to cut pieces that are too small to be securely clamped. Your hand if placed inside the “No Hand” region can easily slip or be pulled into the blade.
2. Do not reach in back of the saw blade behind the fence with either hand to hold down or support the work piece, or remove wood scraps, or for any other reason. The proximity of the spinning saw blade to your hand may not be obvious and you may be seriously injured.
3. Never cross your hand over intended line of cutting. Supporting the work piece “cross-handed” i.e., holding the left side of the work piece with your right hand is very dangerous.
4. Always disconnect the power cord from the power source before making any adjustments or attaching any accessories. You may unintentionally start the saw, leading to serious personal injury.
5. Miter saws are intended to cut wood or wood like products, they cannot be used with abrasive cut-off wheels for cutting ferrous materials such as bars, rods, studs, etc. However, if cutting materials like aluminum or other non-ferrous metals, use only saw blades specifically recommended for non-ferrous metal cutting. Cutting ferrous materials causes excessive sparking and will damage the lower guard and will overload the motor.
6. Inspect your work piece before cutting. If work piece is bowed or warped, clamp it with the outside bowed face toward the fence. Always make certain that there is no gap between the work piece, fence and table along the line of cut. Bent or warped work pieces can twist



- or rock and may cause binding on the spinning saw blade while cutting. Also, make sure there are no nails or foreign objects in the work piece.
7. Do not use the saw until the table is clear of all saws, wood scraps, etc., except the work piece. Small debris or loose pieces of wood or other objects that contact the revolving blade can be thrown with high speed at the operator.
 8. Do not feed work piece into the blade or cut “freehand” in any way. Work piece must be stationary and clamped or braced by your hand. Saw must be fed through the work piece smoothly and at a rate which will not overload the saw’s motor.
 9. Cut only one piece at a time. Multiple work pieces cannot be adequately clamped or braced and may bind on the blade or shift during cutting.
 10. Be certain the saw is mounted or placed on a level, firm work surface before using. A level and firm work surface reduces the risk of the miter saw becoming unstable.
 11. Plan your work. Provide adequate support accessories such as tables; saw horses, table extensions, etc. for work pieces wider or longer than the table top. Work pieces longer or wider than the miter saw table can tip if not securely supported. If the cut-off piece or work piece tips it can lift the lower guard or be thrown by the spinning blade.
 12. Do not use another person as a substitute for a table extension or as additional support. Unstable support for the work piece can cause the blade to bind or the work piece to shift during the cutting operation pulling you and the helper into the spinning blade.
 13. The cut-off piece must not be jammed against or pressured by any other means against the spinning saw blade. If confined, i.e. using length stops, it could get wedged against the blade and thrown violently.
 14. Always use a clamp or a fixture designed to properly support round material such as dowel rods, or tubing. Rods have a tendency to roll while being cut, causing the blade to “bite” and pull the work with your hand into the blade.
 15. When cutting irregularly shaped work pieces, plan your work so it will not slip and pinch the blade and be torn from your hand. A piece of molding, for example, must lie flat or be held by a fixture or jig that will not let it twist, rock or slip while being cut.
 16. Let the blade reach full speed before contracting the work piece. This will help avoid thrown work pieces.
 17. If the work piece or blade becomes jammed or bogged down, turn miter saw “OFF” by releasing the switch. Wait for all moving parts to stop and unplug the miter saw, then work to free the jammed material. Continued sawing with jammed work piece could cause loss of control or damage to miter saw.
 18. Breaking action of the saw causes the saw head to jerk downward. Be ready for this reaction when making an incomplete cut or releasing the switch before the head is completely in the down position.
 19. After finishing the cut, release the switch, hold the saw arm down and wait for blade to stop before removing work or cut-off piece. If blade does not stop within five (5) seconds, unplug the saw. **REACHING WITH YOUR HAND UNDER A COASTING BLADE IS DANGEROUS!**



-
20. For slide action cutting, first PULL saw head assembly away from the fence, until blade clears the work piece or to its maximum extension if blade cannot clear the work piece. Make certain the clamp does not interfere with the guard and head assembly. Second, turn the saw "ON" and lower the saw to the table. Then PUSH saw through the work piece. Release the switch and wait for the blade to completely stop before raising the head assembly and removing the work piece. Never "PULLCUT" since blade may climb the work piece causing KICKBACK.
 21. For chop action cutting, slide the head assembly to the rear as far as it will go and tighten slide lock knob. Then turn the saw "ON" and lower the head assembly to make the cut. Release the switch and wait for the blade to completely stop before raising the head assembly and removing the work piece. Failure to tighten the slide knob can cause the blade to suddenly climb up on the top of the work piece and force itself toward you.
 22. The lower guard may not automatically open under certain cutting conditions. If this occurs:
 - a. Typically this may occur when trying to cut work pieces that are near the maximum cutting height capacity. Under these conditions, the work piece can stop the lower guard movement before the downward motion of the arm could pre-open the lower guard.
 - b. If this occurs, the work piece must be securely clamped. This frees a hand to raise the guard by the lip just enough to clear the work piece.
 - c. Start the saw and begin your cut.
 - d. Once you have cleared the position where the lower guard may bind, release the guard and it will continue to operate automatically as you cut.
 23. Clean the lower guard frequently to help visibility and movement. Unplug before adjusting or cleaning.
 24. Do not use side of blade for grinding i.e., to remove bur on material.



Circular Saws

Read and understand the instruction manual before operating any circular saw. If you do not know how to operate this piece of equipment obtain advice from your supervisor.

Responsibilities

Employer	It will be the responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel.
Worker	It will be the responsibility of the Worker(s) to take reasonable and practical measures to have site equipment serviced, maintained and operated in a professional and safe manner. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. Personal Protective Equipment (hardhat, CSA footwear, eye and hearing protection, gloves).
2. Circular saw with guards.
3. Power cord.

Personal Safety

1. Stay alert, watch what you are doing and use common sense when operating a power saw. Do not use saw while tired or under the influence of drugs, alcohol, or certain medications.
2. Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts.
3. Avoid accidental starting. Be sure switch is OFF before plugging in. Carrying saws with your finger on the switch or plugging in saws that have the switch ON invites accidents.
4. Remove adjusting keys or wrenches before turning the saw ON. A wrench or a key that is left attached to a rotating part of the saw may result in personal injury.
5. Do not overreach. Keep proper footing and balance at all times. Proper footing and balance enables better control of the saw in unexpected situations.



Safe Work Practice

1. Keep hands away from cutting area behind the saw blade since kickback could cause the saw to jump backwards over your hand. Keep your body positioned to either side of the saw blade.
2. Check lower guard for proper closing before each use. If saw is accidentally dropped, lower guard may be bent. Raise the lower guard only with the Lower Guard Lift Lever. Make sure it moves freely and does not touch the blade or any other part in all angles and depths of cut. Do not operate saw if lower guard does not move freely and close instantly. Never clamp or tie the lower guard into the open position.
3. Disconnect plug from power source. Periodically remove the blade and clean the upper and lower guards. Check operation and condition of the lower guard spring. If it is not operating properly, have it replaced. Should the lower guard operate slowly or sluggishly due to gummy deposits or a build-up of caked up debris, clean the hub area with kerosene and wipe it dry, or blow it clean with compressed air.
4. Always observe that the lower guard is in the blade covering position before placing saw down on the bench or floor. Be aware of the time it takes for the blade to stop after switch is released.
5. Keep your second hand on auxiliary handle, or motor housing, not near the blade. Do not reach underneath the work, or attempt to remove cut material when blade is moving.
6. It is important to support the work properly and to hold the saw firmly to prevent loss of control which could cause personal injury. NEVER hold pieces for cutting in you had or across your leg.
7. Making "Pocket Cuts" into existing walls or other blind areas is dangerous. Protruding blade may cut "live wires" or objects that can cause KICKBACK.
8. When cutting is interrupted, or blade is binding, release the trigger immediately and hold the saw motionless in the material until the blade comes to a complete stop. Never attempt to remove the saw from the work or pull the saw backward while the blade is in motion or KICKBACK may occur.
9. Always use a rip fence or straight edge guide when ripping.
10. Avoid cutting nails. Inspect for and remove all nails from lumber before cutting.
11. Do not run saw while carrying it at your side.
12. Be certain the depth and bevel adjusting locking levers are tight and secure before making cut.
13. Do not use dull or damaged blades. Unsharpened or improperly set blades produce narrow kerf causing excessive friction, blade binding and KICKBACK.
14. Always use blades with correct size diamond arbor holes. Round arbor hole blades do not allow proper vari-torque clutch engagement. Never use defective or incorrect blade washers or bolts.
15. Depending upon use, the switch may not last the life of the saw. If the switch should fail in the "OFF" position, the saw may not start. If it should fail while the saw is running, the saw



- may not shut off. If either occurs, unplug the saw immediately and do not use until repaired.
16. The circular saw should not be mounted to a table and converted to a table saw.
 17. Understand the operation and settings of the VARI-TORQUE clutch. It can reduce the intensity of KICKBACK:
 - a. When the blade is pinched or bound tightly by the kerf closing down, the blade stalls and the motor reaction drives the unit rapidly back toward the operator.
 - b. If the blade becomes twisted or misaligned in the cut, the teeth at the back edge of the blade can dig into the top surface of the wood causing the blade to climb out of the kerf and jump back toward the operator.
 - c. Using a dull blade or improperly supported work will increase the tendency for KICKBACK.
 - d. Using the saw with an excessive depth of cut setting increases loading on the unit and susceptibility to twisting of the blade in the kerf. It also increases the surface area of the blade available for pinching under conditions of the kerf close down.
 - e. Wet lumber, green lumber or pressure treated lumber require special attention during cutting operation to prevent KICKBACK.
 - f. Proper setting of the VARI-TORQUE clutch combined with firm handling of the saw will allow you to control KICKBACK.
 18. To attach the blade:
 - a. Disconnect the plug from power source before making any adjustments or attaching any accessories.
 - b. Press the lock button, if saw comes equipped with one, and turn wrench until lock button engages. Saw shaft is now locked. Continue to depress button, turn wrench clockwise and remove Blade Stud and Outer Washer.
 - c. Retract the lower guard all the way up into the upper guard. While retracting the lower guard, check operation and condition of the Lower Guard spring.
 - d. Make sure saw teeth and arrow on the blade point in the same direction as the arrow on the lower guard.
 - e. Slide blade through slot in the foot and mount it against the Inner washer on the shaft. Be sure the large diameter on the Inner and Outer washers lay flush against the blade.
 - f. Reinstall Outer Washer. First tighten Blade Stud finger tight, then tighten Blade Stud 1/8 turn (45 degrees) with the wrench provided.
 - g. Do not use wrenches with longer handles, since it may lead to over tightening of the Blade Stud.
 - h. VARI-TORQUE CLUTCH – This clutching action is provided by the friction of the Outer Washer against the Blade and permits the blade shaft to turn when the blade



encounters excessive resistance, When the Blade Stud is properly tightened, the blade will slip when it encounters excessive resistance, thus reducing saw's tendency to KICKBACK.

- i. One setting may not be sufficient for cutting all materials. If excessive glade slippage occurs, tighten the Blade Stud a fraction of a turn more (less that 1/8 turn).
OVERTIGHTENING THE BLADE STUD NULLIFIES THE EFFECTIVENESS OF THE CLUTCH.
19. To set the depth adjustment:
 - a. Disconnect plug from power source. Loosen the depth adjustment lever. Hold the foot down with one hand and raise or lower saw by the handle. Tighten lever at the depth setting desired. Check desired depth.
 - b. Not more than one tooth length of the blade should extend below the material to be cut, for minimum splintering.
 20. To check the cutting angle (90 degrees) disconnect plug form power source. Set foot to maximum depth of cut setting. Loosen bevel adjustment lever, set to 0 degrees on quadrant, retighten bevel adjustment lever first, then the depth adjustment lever and check for 90 degree angle between the blade and bottom plane of foot with a square.
 21. To adjust the bevel disconnect plug from power source. The foot can be adjusted up to 45 degrees by loosening the bevel adjustment lever. Align to desired angle on calibrated quadrant. Then tighten bevel adjustment first, then depth adjustment lever. Because of the increased amount of blade engagement in the work and decreased stability of the foot, blade binding may occur. Keep the saw steady and the foot firmly on the work piece.
 22. To use the line guide:
 - a. For a straight 90 degree cut, use the large notch in the foot.
 - b. For a 45 degree bevel cuts, use the small notch.
 - c. The cutting guide notch will give an approximate line of cut. Make sample cuts in scrap lumber to verify actual guide of cut. This will be helpful because of the number of different blade types and thicknesses available.
 - d. To be sure minimum splintering on the good side of the material to be cut, face the good side down.
 23. When making regular cuts:
 - a. Always hold the saw handle with one hand and the auxiliary handle or motor housing with the other. Maintain a firm grip and operate the switch with a decisive action. Never force the saw. Use a light and continuous pressure.
 - b. After a cut, be aware of the necessary time it takes for the blade to come to a complete stop. Do not allow the saw to brush against your leg or side, since the lower guard is retractable, it could catch on your clothing and expose the blade.



Be aware of the necessary blade exposures that exist in both the upper and lower guard areas.

- c. When cutting is interrupted, to resume cutting: squeeze the tripper and allow the blade to reach full speed, re-enter the cut slowly and resume cutting.
 - d. When cutting across grain, the fibers of the wood have a tendency to tear and lift. Advancing the saw slowly minimizes this effect. For a finished cut, a cross cut blade or miter blade is recommended.
24. When cutting masonry or metals, use the following precautions:
- a. Circular saws are not recommended for continuous and general usage with metal or masonry cut-off wheels. If you use you saw for cutting these materials, use the appropriate wheel for the material being cut.
 - b. When cutting masonry, do not cut at a depth of more than 1/4 inch. Make successive passes to achieve desired depth. Apply a light forward pressure. Do not overload motor. Disconnect plug from power source and clean dust from air vents frequently. Metal cutting is done at full depth.
 - c. When cutting masonry materials, the lower guard may become sluggish. Clean guards frequently to assure a rapid return. Wear safety goggles and dust mask.
 - d. The safe speed rating of the wheels must be greater than nameplate RPM rating of the saw. Because of sparks from the wheels, do not use near flammable materials or liquids.
 - e. Do not use water feed attachment with the saw.
25. When making pocket cuts:
- a. Disconnect the plug from the power source before making adjustments. Set the depth adjustment according to material to be cut. Tilt saw foreword, with cutting guide notch lined with the line you've drawn. Raise lower guard, using lift lever and hold the saw by the front and rear handles.
 - b. With the blade just clearing the material to be cut, start the motor. Gradually lower the back end of the saw using the front end of the foot as the hinge point. **WARNING** – As the blade starts cutting the material, release the lower guard immediately. When the foot rests flat on the surface being cut, proceed cutting in forward direction to end of cut. **WARNING** – Allow blade to come to a complete stop before lifting the saw from cut. Also, never pull the saw backward since blade will climb out of the material and **KICKBACK** will occur. Turn saw around and finish the cut in the normal manner, sawing forward. If corners of your pocket cut are not completely cut through, use a jigsaw or hand saw to finish the corners.



26. When cutting large sheets:

- a. Large sheets and long boards sag or bend, depending on support. If you attempt to cut without levelling and properly supporting the piece, the blade will tend to bind, causing KICKBACK and extra load on the motor.
- b. Support the panel or board close to the cut. Be sure to set the depth of the cut so that you cut through the sheet or board only and not the table or work bench. The two-by- fours used to raise and support the work should be positioned so that the broadest sides support the work and rest on the table or bench. Do not support the work with the narrow sides as this is an unsteady arrangement. If the sheet or board to be cut is too large for a table or work bench, use the supporting two-by-fours on the floor and secure.
- c. When ripping large sheets without a rip fence guide, clamp or nail a straight piece of 1' material to the sheet as a guide. Use the right side of the foot against the board guide.

27. Maintenance on circular saws should be as follows:

- a. SERVICE – Preventative maintenance performed by unauthorized personnel may result in misplacing of internal wires and components which could cause serious hazard. All tool service should be performed by an Authorized Service Center.
- b. CLEANING – WARNING -- To avoid accidents, always disconnect the tool from power source before cleaning or performing any maintenance. The tool may be cleaned most effectively with compressed dry air. Always wear safety goggles when cleaning tools with compressed air.
- c. Ventilation opening and switch levers must be kept clean and free of foreign matter. Do not attempt to clean by inserting pointed objects through openings.
- d. CAUTION – Certain cleaning agents and solvents damage plastic parts. Some of these are: gasoline, carbon tetrachloride, chlorinated cleaning solvents, ammonia and household detergents that contain ammonia.

Care of Blades

1. Blades become dull even from cutting regular lumber. If you find yourself forcing the saw forward to cut instead of just guiding it through the cut, chances are the blade is dull or coated with wood pitch.
2. When cleaning gum and wood pitch from blade, unplug the saw and remove the blade.
3. Remember, blades are designed to cut, so handle carefully. Wipe the blade with kerosene or similar solvent to remove the gum and pitch. Unless you are experienced in sharpening blades, we recommend you do not try.



Compressed Air and Compressors

Read and understand the instruction manual before operating any compressed air equipment. If you do not know how to operate compressed air equipment obtain advice from your supervisor.

Responsibilities

Superintendent	It will be the responsibility of the Superintendent to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel.
Worker	It will be the responsibility of the Worker(s) to take reasonable and practical measures to have site equipment serviced, maintained and operated in a professional and safe manner. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. Personal Protective Equipment (hardhat, CSA/ANSI footwear, eye and hearing protection, gloves).
2. Cable tie-backs.

Conditions

1. All pipes, hoses, and fittings must have a rating of the maximum pressure of the compressor. Compressed air pipelines should be identified (psi) as to maximum working pressure.
2. Air supply shutoff valves should be located (as near as possible) at the point-of-operation.
3. Air hoses should be kept free of grease and oil to reduce the possibility of deterioration.
4. Hoses should not be strung across floors or aisles where they are liable to cause personnel to trip and fall. When possible, air supply hoses should be suspended overhead, or otherwise located to afford efficient access and protection against damage.
5. Hoses are to be checked regularly for cuts or bulges.
6. Hose to fitting connections are to be made using proprietary crimped fittings and not screw type adjustable clamps.
7. **Hose ends for any air hose greater than 1/2 inch ID must be secured with tie-backs to prevent whipping if an accidental cut or break occurs.**
8. Pneumatic impact tools, such as riveting guns, should never be pointed at a person.



9. Before a pneumatic tool is disconnected (unless it has quick disconnect plugs), the air supply must be turned off at the control valve and the tool bled.
10. Compressed air must not be used under any circumstances to clean dirt and dust from clothing or off a person's skin. Air under pressure can enter the blood stream through the skin and cause death. Shop air used for cleaning should be regulated to 15 psi unless equipped with diffuser nozzles to provide lessor pressure.
11. Goggles, face shields or other eye protection must be worn by personnel using compressed air for cleaning equipment. Ensure the other workers are away from the operation and fallout area.
12. Static electricity can be generated through the use of pneumatic tools. This type of equipment must be grounded or bonded if it is used where fuel, flammable vapors or explosive atmospheres are present.
13. Compressor air is not be used for in-line breathing apparatus, unless the equipment provides for filtering/purifying.

Safe Work Practice

1. Air receivers:
 - a. The maximum allowable working pressures of air receivers should never be exceeded except when being tested. Only hydrostatically tested and approved tanks shall be used as air receivers.
 - b. Air tanks and receivers should be equipped with inspection openings, and tanks over 36 inches in diameter should have a manhole. Pipeline openings should be provided on tanks with volumes of less than five cubic feet.
 - c. The intake and exhaust pipes of small tanks, similar to those used in garages, should be made removable for interior inspections.
 - d. No tank or receiver should be altered or modified by unauthorized persons.
 - e. Air receivers should be fitted with a drain cock that is located at the bottom of the receiver.
 - f. Receivers should be drained frequently to prevent accumulation of liquid inside the unit. Receivers having automatic drain systems are exempt from this requirement.
 - g. Air tanks should be located so that the entire outside surfaces can be easily inspected. Air tanks should not be buried or placed where they cannot be seen for frequent inspection.
 - h. Each air receiver shall be equipped with at least one pressure gauge and an ASME safety valve of the proper design.
 - i. A safety (spring loaded) release valve shall be installed to prevent the receiver from exceeding the maximum allowable working pressure.
 - j. Only qualified personnel should be permitted to repair air tanks, and all work must be done according to established safety standards.



2. Air Distribution Lines:

- a. Air lines should be made of high quality materials, fitted with secure connections
- b. Only standard fittings should be used on air lines.
- c. Operators should avoid bending or kinking air hoses.
- d. Air hoses should not be placed where they will create tripping hazards.
- e. Hoses should be checked to make sure they are properly connected to pipe outlets before use.
- f. Air lines should be inspected frequently for defects, and any defective equipment repaired or replaced immediately.
- g. Compressed air lines should be identified as to maximum working pressures (psi), by tagging or marking pipeline outlets.

3. Pressure Regulation Devices:

- a. Only qualified personnel should be allowed to repair or adjust pressure regulating equipment.
- a. Valves, gauges and other regulating devices should be installed on compressor equipment in such a way that cannot be made inoperative.
- b. Air tank safety valves should be set no less than 15 psi or 10 percent (whichever is greater) above the operating pressure of the compressor but never higher than the maximum allowable working pressure of the air receiver.
- c. Air lines between the compressor and receiver should usually not be equipped with stop valves. Where stop valves are necessary and authorized, ASME safety valves should be installed between the stop valves and the compressor.
- d. The Safety valves should be set to blow at pressures slightly above those necessary to pop the receiver safety valves.
- e. Blow-off valves should be located on the equipment and shielded so sudden blow-offs will not cause personnel injuries or equipment damage.
- f. Case iron seat or disk safety valves should be ASME approved and stamped for intended service application.
- g. If the design of a safety or a relief valve is such that liquid can collect on the discharge side of the disk, the valve should be equipped with a drain at the lowest point where liquid can collect.
- h. Safety valves exposed to freezing temperatures should be located so water cannot collect in the valves. Frozen valves must be thawed and drained before operating the compressor.



Air Compressor Operation:

- a. Air compressor equipment should be operated only by authorized and trained personnel.
- b. The air intake should be from a clean, outside, fresh air source. Screens or filters can be used to clean the air.
- c. Air compressors should never be operated at speeds faster than the manufacturer's recommendation.
- d. Equipment should not become overheated.
- e. Moving parts, such as compressor flywheels, pulleys, and belts that could be hazardous should be effectively guarded.
- f. Compressors should be equipped with pressure relief valves and pressure gauges.

Compressed Air Equipment Maintenance:

- a. Only authorized and trained personnel should service and maintain air compressor equipment.
- b. Exposed, non-current carrying, metal parts of compressor should be effectively grounded.
- c. Low flash point lubricants should not be used on compressors because of its high operating temperatures that could cause a fire or explosion.
- d. Equipment should not be over lubricated.
- e. Gasoline or diesel fuel powered compressors shall not be used indoors.
- f. Equipment placed outside but near buildings should have the exhausts directed away from doors, windows and fresh air intakes.
- g. Soapy water or lye solutions can be used to clean compressor parts of carbon deposits, but kerosene or other flammable substances should not be used. Frequent cleaning is necessary to keep compressors in good working condition.
- h. The air systems should be completely purged after each cleaning.
- i. During maintenance work, the switches of electrically operated compressors should be locked open and tagged to prevent accidental starting.
- j. Portable electric compressors should be disconnected from the power supply before performing maintenance.



Compressed Gases – Handling and Storage

Applies to fire extinguishers, propane, oxygen, acetylene and self-contained breathing apparatus.

Responsibilities

Employer	It will be the responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site hazards identified and rectified. The Supervisor is responsible to ensure workers have received proper instruction and training as to the safe use and handling of compressed gases.
Worker	It will be the responsibility of the Worker(s) to comply with the requirements set forth within this practice. The Worker will advise the Supervisor of any hazard, in respect of the use, handling and storage of a compressed gas.

Equipment Required

1. Personal Protective Equipment (hardhat, CSA footwear, eye and hearing protection, gloves, hi-visibility vest when near mobile equipment).
2. Crescent wrench.
3. Trolley cart.

Safe Work Practice

1. The following points apply when storing compressed gases cylinders:
 - a. Cylinders shall not be placed where they might become part of an electric circuit or within 1.5 m (5 feet) of an electrical outlet.
 - b. Cylinders shall not be placed near a source of heat (gases expand and over pressure the cylinder).
 - c. Cylinders and any other container of substances under pressure must be protected from excessive heat, sparks, molten metal, electric current, flames and physical damage and should be stored in dry locations to prevent corrosion.
 - d. Cylinders shall not be placed in areas where the corrosive nature of the chemicals may deteriorate the cylinder walls.
 - e. All cylinders shall be clearly identified as to their contents.
 - f. All cylinders shall be stored in an upright position and secured in such a manner as to prevent accidental falling or upset.



- g. Any gas cylinder not anticipated to be used within 24 hours is considered in storage and must be removed from the trolley cart.
 - h. All cylinders that are not in use will have their protective caps in place and securely fastened.
 - i. Propane cylinders in use must not be located near an exit, stairway or an area intended for safe evacuation.
 - j. Gloves and a long-sleeved shirt must always be worn when connecting and disconnecting cylinders.
 - k. There is **no smoking** when connecting, disconnecting or refilling cylinders. I. The storage area is to be fenced or secured in some manner to protect the cylinders from being damaged.
 - m. Cylinders and other containers of pressurized substances may only be modified or repaired in accordance with the manufacturer's instructions.
 - n. Cylinders and other containers of pressurized substances, other than hand-held aerosol spray cans, must be equipped with appropriate pressure relief mechanisms.
 - o. Compressed gas containers that require pressure testing must bear a valid, current indication of testing.
 - p. Compressed gas cylinders must not be hoisted by slings or magnets, dropped, subjected to impact, handled by the regulator, or used as a roller or work support.
 - q. Compressed gas cylinders must be secured (strapped or chained) to prevent falling or rolling during storage, transportation or use and, where practicable, kept in an upright position.
 - r. Cylinders must be prevented from bumping together during transport and must be transported with protective caps in place.
 - s. Empty cylinders and cylinders not in use must have the valve closed. When opening a cylinder valve avoid standing in front of the regulator.
 - t. Compressed gas cylinders must be marked to indicate their pressure rating and contents.
 - u. Empty cylinders must have the pressure regulator removed, the protecting cap put on (unless integral guards are provided) and be marked "empty" or "MT".
 - v. Prior to filling, thoroughly inspect the cylinder for bad dents, damaged foot rings or protective collars, corroded areas, leaks or any other conditions that indicate possible weakness. Remove damaged cylinders from service.
 - w. Cylinders must not be filled beyond their marked capacity.
2. Buildings for permanent storage of cylinders shall be:
- a. Constructed of non-combustible material with a fire rating of at least 30 minutes.
 - b. Ventilated with openings at floor level and highest point in the building.

- c. Openings shall each have a minimum total area of one square foot per thousand cubic feet of room volume.
 - d. Located at least 20 feet from flammable and combustible liquids/materials, sources of ignition or heat sources exceeding 60°C.
 - e. Provided with clearly identified cylinder racks to secure cylinders.
 - f. Identified with signs "FLAMMABLE GAS, "NO OPEN FLAMES" whenever any flammable gases are likely to be stored.
3. Oxygen cylinders in storage will be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum distance of 6 m (20 feet) or by 1.5 m (5 feet) high non-combustible barrier.
 4. When handling or transporting compressed gas cylinders:
 5. Cylinders will not be rolled nor lifted by the valve or valve-cap; a suitable cradle or other device will be used.
 6. Compressed gas cylinders, whether full or empty, will be transported in an upright position and secured so they cannot fall or be upset.
 7. Care will be exercised in handling all compressed gas cylinders. They shall not be dropped, jarred, or exposed to temperature extremes.
 8. Cylinders not having fixed hand wheels will have keys, handles, or nonadjustable wrenches on the valve stems while the cylinders are in service.
 9. Cylinders are not to be hoisted with the use of a sling. Do not hook onto the protective collar around the top of the cylinder. Utilize a hoisting cradle.
 10. When compressed gas cylinders are in use:
 11. Cylinders will be properly secured and always used in a vertical position.
 12. Cylinders will be protected from sparks, flames, and contact with energized electrical equipment.
 13. The recessed top of cylinders must not be used as a place for tools.
 14. All pressure regulator connections shall be of the approved type and shall be tightly secured to threaded cylinder outlet. Connections shall be checked for leaks.
 15. When using an oxygen cylinder:
 16. Oxygen cylinders and their fittings must not come in contact with grease or oil, including that from hands, gloves or clothing.
 17. Oxygen must never be used as a substitute for compressed air.
 18. When an oxygen cylinder is in use, the valve should be opened fully in order to prevent leakage around the valve stem.
 19. When using an acetylene cylinder:
 - a. Acetylene cylinders stored in a horizontal position must stand in a vertical position for at least one hour prior to use.



- b. An acetylene cylinder valve will not be opened more than one and one half turns of the spindle and preferably no more than three fourths of a turn.
 - c. Workers will not use acetylene in a free state at pressures higher than 15 psi.
20. When using propane cylinders and bullets:
- a. All propane used must be of the stented variety, personnel will **not use** a non-stented product.
 - b. Are to be placed on a firm solid base, to prevent tipping.
 - c. Jersey barricades, wooden barricades or barricade tape will be used where mobile equipment may come in contact with a cylinder or a bullet.
 - d. Cylinders and bullets will not be filled over 80%.
 - e. If you smell propane and suspect a leak you should shut off the fuel supply and ventilate the area.
 - f. Propane has a boiling point of 42 degrees Celsius and will flash immediately into vapour upon contact with the atmosphere unless the atmospheric air temperature is colder than -43 degrees Celsius.
21. If you have a propane leak with fire, then:
- a. Use water to cool exposed propane cylinders.
 - b. Do not extinguish fire if the source of the propane cannot be shut-off.
 - c. Evacuate the area if sufficient water is not available.
22. The expansion ratio of liquid propane to vapor is 1:270
23. Cylinders must not be covered with a tarp; in the event of a leak, a build-up of propane may develop under the tarp.
24. No other combustible gas or flammable liquid is to be stored within 6 meters of the propane cylinders.
25. "No Smoking" signs must be prominently displayed.
- a. Cylinders being used must be stored outside, whether they are full or empty.
 - b. When released to the atmosphere, propane vapor will settle in low lying areas.
 - c. Every propane cylinder must have certification plate with a test date on it. Any cylinders without a test date or is damaged must be removed from service.
 - d. Propane is stored as a liquid under pressure at room temperature. A rise in the outside air temperature raises the pressure inside the cylinder.
 - e. Compared with water, propane vapor is lighter.
 - f. If unprotected skin is exposed to liquid propane the affected area should be immersed in lukewarm water and the injured person transported to medical aid.



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- g. Formal training is needed for anyone who handles propane.
26. When using cylinders in a manifold system, the system should be properly configured and operated:
 - a. The area where the system is located should be level, even, and free of obstructions and defects.
 - b. The system should be designed to diminish pinch points and to allow easy access to the components.
 - c. The system should be ergonomically designed for all users.
 - d. There should be hooks or shelves for storing cylinder caps and wrenches.
 - e. There should be adequate space between cylinders to allow for the adjustment of the hose or tubing connections.
 - f. Prior to connecting a component to the system, it should be visually inspected for defects. This includes but is not limited to: pigtailed, flex hoses and fittings.
 27. Leaking cylinder must not be used. It must be taken outdoors away from sources of ignition.
 28. **A flame must never be used to detect gas leaks**, leak testing is to be done with an approved solution. This may include: soap and water, snoop, etc.
 29. Before the regulator is removed from a cylinder, the valve will be closed and all pressure released from the regulator.
 30. All pressure regulator connections shall be of the approved type and shall be tightly secured to threaded cylinder outlet. Connections shall be checked for leaks.
 31. Cylinders will have the valve cap or valve protection device in place at all times, except when in actual use or connected to a welding set.
 32. Workers will never force connections, which do not fit nor will they tamper with the safety relief devices of cylinder valves.





Compressed Gases – Propane

Responsibilities

Superintendent	It will be the responsibility of the Superintendent to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site hazards identified and rectified. The Supervisor is responsible to ensure workers have received proper instruction and training as to the safe handling, storage and use of compressed propane containers prior to commencing with any tasks.
Worker	It will be the responsibility of the Worker(s) to comply with the safe work practices noted herein. The Worker will advise the Supervisor of any hazard, in the respect of the use, handling and storage of propane.

Safe Work Practice

Safe Handling of Cylinders

1. Propane cylinders will be transported, stored and used in an upright position,
2. Liquid propane must never be allowed to come in contact with the cylinder relief valve. This can cause large volumes of gas to be released. Should this occur with a construction heater, the result can be a serious over burn (causing flames to extend many feet beyond the burner tip).
3. When transporting a propane cylinder, fasten cylinders in an upright position using appropriate securing devices (e.g. rope, straps, etc.).
4. Transporting propane cylinders must be done so within compliance with the Transportation of Dangerous Goods Act. /US. D.O.T. regulations.
5. Never transport a propane cylinder in the trunk of an automobile, cab of a vehicle or inside of a closed van.
6. Where ever possible use a cart to move the propane cylinder. Never roll a cylinder.
7. Use a hoisting cradle to move cylinders from one level to another.
8. Never use a sling to move a cylinder.
9. Never hook to the protective collar of the propane cylinder.

Compressed Gases – Propane

1. Propane is heavier than air and will settle in low lying areas. Precautions must be taken when propane is being used near confined spaces, as it will create an explosive atmosphere or displace oxygen (creating an oxygen deficient atmosphere).



2. Propane cylinders should not be stored inside of a building, unless in a specially constructed explosion proof room, which is ventilated and meets all appropriate governmental rules and regulations (e.g. building codes, fire codes, gas codes, etc.).
3. Propane cylinders should be stored in a separate area, out of traffic areas or where they can be struck by falling equipment or moving equipment.
4. Propane cylinders should not be located in stairwells or hallways. Leaking cylinders or a resulting fire can block exits and prevent escape.
5. Propane cylinders should be stored twenty-five feet from the property line.
6. Empty cylinders and full cylinders should not be stored together.
7. When storing cylinders ensure that the cylinders are secured in an upright position and identify if they are full or empty.
8. Only cylinders that are in use should be inside of a building and those that are in use must be monitored. "In use" means that the cylinder is hooked up to a heater or other construction appliance.
9. Keep propane cylinders away from heat sources. Propane will expand as heat is applied causing either the plug to let go or the cylinder to rupture. This may result in an uncontrolled gas release producing a fire or explosion.

Propane and Construction Heaters

1. A competent worker must complete all connections.
2. All components (i.e. burner, controls, hoses and regulators) must be inspected for damage/defects prior to use. If damaged or defective components are found they must be replaced or repaired by licensed personnel.
3. Ensure that all connecting components are free of grease, oil and other debris prior to completing connections.
4. Do not use adjustable wrenches to tighten connections, use the appropriate fitting wrenches.
5. Propane cylinders should be between 10 and 25 feet from a heater.
6. Never place the propane cylinder near the flame end of the heater, nor any other heat source.
7. Have a properly sized fire extinguisher on hand, prior to lighting the heater.
8. Leak test all connections once cylinder valve has been opened (use soapy water, gas monitor, etc.). If a leak is detected, immediately close cylinder valve.
9. Open propane cylinder valves slowly to prevent slugging (liquid entering lines and components). If slugging occurs close the propane cylinder valve, wait for a few minutes for the check valve to open and then reopen the cylinder valve.
10. The propane cylinder and heater must always be in the same room so that the cylinder valve can be shut down quickly if trouble arises.



11. Keep heaters away from flammable or combustible materials, as the heat from a burner produces heat far beyond the tip of the flame.
12. If a pressure drop occurs or a reduced flame efficiency, check to see if the cylinder is low on fuel or if the gas is being drawn out too quickly. If it is a case of low fuel replace with a new cylinder. If it is a case of insufficient gas consider using a manifold system. DO NOT apply heat to the cylinder to increase the flow of gas.
13. Where possible, use only single cylinders for heaters. However should a manifold system be required never use more than three 100 pound cylinders.
14. If other heaters with manifold cylinders are to be used in the same area, the cylinders must be at least 50 feet away or be separated by a firewall.

Safety Devices

Never, **under any circumstances**, attempt to bypass a safety device.

Properties of Propane

1. Propane, especially liquid propane, is cold to the touch. It can cause severe frost-bite if it comes in contact with the skin. Use the appropriate personal protective equipment and Safe Work Practice when handling.
2. Propane will saturate clothing and remain trapped for extended periods of time. If clothing becomes saturated, immediately remove the contaminated clothing and take the clothing outside to air out. DO NOT enter into a building with propane saturated clothing. Ignition sources such as furnaces, smoking, stoves, heaters, etc. may exist.
3. Propane is heavier than air and will collect in low lying areas, such as basements, sewers, septic tanks, etc. Always test for propane prior to entering these areas.
4. Propane requires oxygen to complete the combustion process. Ensure there is an adequate amount of combustion and excess air when using any propane fired equipment or appliance.
5. The combustion process will deplete oxygen in the atmosphere; ensure that steps are taken to bring in fresh replacement air.





Confined Space Awareness/Entry

Information provided here outlines LCE's Confined Space Program. **Safe Confined Space Entry Procedures specific to the confined space are also required for every entry.** Required Assessment, Recue Plan, and Entry Forms are located in the Forms Section -18 of this H&S Program

Responsibilities

Employer	<p>LCE Employment/Management has overall responsibility for the confined space program. They will ensure the:</p> <ul style="list-style-type: none">▪ LCE Supervisors fulfill their responsibilities.▪ Personnel conducting confined space entry are qualified and capable of completing the job in a safe and efficient manner in accordance with all LCE and regulatory requirements.
Supervisor	<p>The LCE Supervisor must ensure that responsibilities for safe confined space entry are met, and that all confined space entry in their area of responsibility is in compliance with LCE Policy and regulatory requirements. The LCE Supervisor is responsible to ensure:</p> <ul style="list-style-type: none">▪ Confined space hazard assessments are completed by a qualified person and safe work procedures are developed before entry into a confined space.▪ Confined space entry personnel are trained and qualified for the work.▪ All required confined space entry equipment is readily available for use <p>The Supervisor has direct responsibility for ensuring all required precautions for safe entry into a confined space are met. They will ensure the Safe Entry Procedures developed in this Safe Work Practice are followed. The Confined Space Entry Supervisor will conduct a pre-entry briefing, review safe procedures, authorize entry through a permit system and close the permit after the entry work has been completed. The Confined Space Entry Supervisor is responsible to ensure the correct equipment is available and used, and to ensure workers have received proper instruction and training in safe confined space entry prior to entering into a confined space.</p>
Entry Personnel	<p>It will be the responsibility of the confined space Entry Personnel to comply with the requirements of the confined space program, the safe entry procedures, and training received on safe confined space entry. The Entry Personnel will advise the Confined Space Entry Supervisor of any concerns or hazards that are not adequately addressed with regards to confined space entry work.</p>



H&S Coordinator	It will be the responsibility of the LCE H&S Coordinator to administer the confined space entry program and make revisions to the written program as required. The H&S Coordinator will provide advice and direction for safe confined space entry.
Management	It will be the responsibility of the LCE Management to assist in confined space entry program requirements by providing access to training resources as required.
Purchasing Management	It will be the responsibility of the Purchasing Management to authorize for purchase any equipment necessary to enable field personnel to conduct safe confined space entry.

Conditions

Work in and around confined spaces requires special consideration. Confined spaces have hazards not normally encountered in the workplace, and can quickly develop hazards that are immediately dangerous to life and health (IDLH). **Accidents in confined spaces are almost always multiple fatalities with half of the fatalities being would-be rescuers.**

MOL has developed stringent regulatory requirements for working in confined spaces which are found in the Occupational Health & Safety Act and Regulation (OHSA). All LCE work involving confined spaces must be in compliance with the regulatory requirements.

Definition of a Confined Space

All of the following criteria must be met in order for the area to be defined as a confined space:

- fully enclosed or partially enclosed. *has limited or restricted means for entry or exit that may complicate the provision of first aid, evacuation, rescue or other emergency response service, **and meet the following criteria.***
- not designed or intended for continuous human occupancy
- in which atmospheric hazards may occur because of its construction, location or contents or because of work that is done in it;

Confined Spaces to be Entered

The group/type of typical confined spaces that may be entered as part of LCE Projects are storm and sewer manholes. Confined space entry work may involve tie-ins to existing systems. Entry into other types of confined spaces may also be required.

Hazard Assessments and Safe Work Procedures

Confined Space Hazard Assessments and Safe Entry Procedures will be developed by a **Qualified Person** and those involved in the entry. Safe work procedures will be developed in consultation with the Supervisor, or the worker health and safety representative, in accordance with regulatory requirements.



No confined space will be entered unless there is a completed Hazard assessment, Entry permit and Rescue procedures form (located in H&S Manual Forms section-18).

Confined Spaces Training

LCE will provide training for all employees that are involved in the confined space entry process prior to work in confined spaces.

The training will include as a minimum:

- Certified Confined Space Entry training through Infrastructure Health and Safety Association (IHSA), annual refresher training
- specific confined space hazards associated with the facility, location or operation
- how to use and calibrate the instrumentation, how to sample and exposure limits such as 8- hour, 15-minute STEL and Ceiling
- proper use and limitations of protective equipment & clothing and other safety equipment required for entry into confined spaces
- permit entry requirements and other procedural requirements for conducting a confined space entry
- conditions that would prohibit entry
- emergency Safe Work Practice
- duties and responsibilities of the confined space entry team
- how to recognize symptoms of overexposure to probable air contaminants
- method(s) for alerting standby personnel

Training for standby personnel will also include:

- Safe work procedure for summoning rescue or other emergency services
- use of communication equipment for communicating with entry and emergency/rescue personnel

Training for emergency response personnel will also include:

- rescue plan and safe work procedure for each type of confined space
- use of emergency rescue equipment
- first aid and CPR
- work location and confined space configuration in order to minimize response time

Subcontractors must operate to the same standard of training for their personnel for confined space work they perform for LCE.

Confined Spaces

Isolation of Hazards

Before LCE personnel are allowed to enter a confined space it must be isolated so that no hazardous materials will enter the space. This will be accomplished through a combination of the following as may be appropriate:



- closing valves and locking in the closed position using a double block & bleed
- blinding and blanking lines
- disconnecting lines
- locking-out all switches and controls for motors and pumps
- blocking or restraining moving parts
- de-energizing equipment

See also *Lockout* in this section. **Special safe work procedures must be implemented if hazards cannot be isolated.**

Pre-Entry Testing and Continual Monitoring

Thorough atmospheric testing will be done prior to entry into any confined space, and will be checked/monitored continuously during entry. Atmospheric testing will generally be required for:

- oxygen content
- flammable/explosive gases and vapors
- toxic air contaminants

All gas monitoring in a Confined Space shall be done with a calibrated gas monitor.

Gas monitors shall be outside of the confined space in the control of the Attendant, the probe attachment shall be lowered with the Entrant at chest level. At any time that an alarm sounds the Attendant shall raise and the Entrant shall leave the confined space immediately. In areas of high noise, alarm adapters or other solutions shall be used to ensure workers are able to hear the alarm.

Unless otherwise indicated, all gas monitors shall be set at 10% LEL, the allowable limit for cold work. If there is a chance you will be conducting hot work, it will be the responsibility of the supervisor to ensure that a competent person changes the settings on the gas monitor to 5% LEL (the allowable limits for hot work)

The activities required for compliant atmospheric gas testing and monitoring include:

- calibrating and pre-testing gas testing instruments according to the manufacturer's instructions (Note: A "bump test" will be required prior to each use)
- testing for atmospheric hazards prior to entry
- testing in all areas of the confined space
 - light gases, such as methane, will accumulate at the top of the space
 - heavy gases, like H₂S, will accumulate at the bottom
 - gases will also tend to accumulate near or in pipes and ducts leading into or out of the space
- recording testing and monitoring results
- monitoring for atmospheric and other hazards regularly during entry into the confined space



The four most common toxic gases that can be expected to be found in confined spaces are:

- hydrogen sulphide (H₂S)
- carbon monoxide (CO)
- carbon dioxide (CO₂)
- sulphur dioxide (SO₂)

Confined Spaces

The confined spaces encountered on project(s) will most likely have:

- hydrogen sulphide (H₂S)
- methane

The atmosphere of a confined space will be considered within acceptable limits (safe) whenever the following conditions are maintained:

- oxygen - 19.5% to 23.5%
- flammability - less than 20% of the Lower Explosive Limit (LEL)
- toxicity - less than 50% of the exposure limits as listed in the OHSA

Access Control

Access to the confined spaces will be controlled through physically securing access points, and through the entry permit system.

All confined space entry on Projects will require an Entry Permit.

The entry permit system:

- specifies the means, procedures, and practices for safe entry in accordance with the hazard assessment and safe work procedures established
- verifies that all protective measures required have been reviewed with the entry personnel
- provides authorization and approval for:
 - location and date of entry
 - type of work to be conducted inside the confined space

The following conditions will be met before each re-entry into the confined space:

1. Atmospheric testing will be conducted and re-entry permitted only if the results are within acceptable (safe) limits. If atmospheric test results are not within acceptable limits, precautions to protect entrants against the hazards need to be addressed on the permit and put into place prior to re-entry.



2. The confined entry supervisor must verify that all precautions and other measures called for on the permit are still in effect.
3. Only operations or work originally approved on the permit will be conducted in the confined space.

Confined Spaces

Entry Equipment

The following equipment may be required for entry into confined spaces:

- rescue and retrieval equipment including:
 - tripod or Davit system and hoist
 - life line
 - full body harness
 - first aid equipment
 - fire extinguisher(s)
 - equipment for purging and ventilating the space (as required) including:
 - ventilation fan
 - collapsible hose
 - power source or power cable
- gas detection equipment including:
 - gas detector
 - calibration tools, equipment & gases
 - required sensors for gases expected
 - extension hoses/tubing and wands
 - intake filters
- communications equipment (intrinsically safe when required)
- personal protective equipment and clothing as may be required for the hazards:
 - respirators
 - gloves
 - hard hat
 - hi-visibility clothing/vest
 - fall arrest or restraint equipment
 - eye protection
 - safety footwear
 - hearing protection
- special tools as required, e.g., non-sparking, intrinsically safe



- other safety equipment as may be required such as:
 - lockout devices to ensure isolation
 - barriers or guardrails around openings
 - Ground Fault Circuit Interrupters (GFCI) used for all electrical equipment inside a confined space

Confined Spaces

Ventilation

Confined spaces where an atmospheric hazard will be continually ventilated during entry. The following important points for ventilating a confined space will be adhered to:

- ventilation must ensure that there is a minimum of 85 m³/hr. (50 cfm) of clean respirable air is supplied for each worker inside a confined space
- if tests are not within allowable limits, the confined space will be purged with fresh air before entry (Note: purging and ventilating does not remove the need to test and monitor)
- test the atmosphere again after purging and prior to entry
- cleaning, purging and/or venting is required to ensure that there is clean respirable air in the confined space
- hang hose vertically with end about two feet off the floor
- situate the blower away from traffic or other contamination
- locate blower at least five feet away from confined space opening to avoid recirculating air
- take care to ensure vehicle exhaust or exhaust from a gas powered blower is not blown into confined space

Ventilation Exceptions

In most situations LCE personnel will not need to use mechanical ventilation to ensure a safe respirable atmosphere. Continuous ventilation is not required in a confined space has a low hazard atmosphere:

- the atmosphere is continuously monitored, recorded and shown to contain clean respirable air, **and** the space:
 - has an internal volume suitable occupant
 - record of atmosphere during entry every 15 minutes, and
 - the work inside the space generates no contaminants other than exhaled air

Natural ventilation can be used to control of airborne contaminants in a confined space only if the rate of airflow through the space is monitored and determined to be sufficient to maintain concentrations of airborne contaminants below the applicable exposure limits. Natural ventilation cannot be used to ventilate a confined space that has a high hazard atmosphere, or if the natural ventilation could draw air other than clean respirable air into the confined space.



Emergency Rescue

Prior to entering a confined space. The parties involved must evaluate and design a rescue plan to be carried out for that specific entry in the event of an emergency. All of those involved in the entry shall be aware of this plan and the roles to which they may play in such a rescue. A copy of the Rescue Plan form is located in the Forms Section-18 of this H&S Program

The primary method of rescue for confined space entry on LCE projects will be by remote retrieval using the tripod/davit and hoisting apparatus. Confined Space Entry rescue services are available through the City of Kingston Fire Departments. Availability of rescue services and notification of entry into confined spaces must be managed as part of the Permit system.

Note: LCE staff are not permitted to conduct any horizontal confined space entry, nor horizontal rescue.

Records

A Entry Permit must be completed every time a confined space entry is occurring. In the following situations the original permit will need to be readdressed, updated or redone:

- The foreperson or acting sub foreperson changes
- The conditions in or of the confined space change
- During the course of work a person becomes concerned about the safety of the workers or the general public because of factors not considered in the original permit

At any point in time that a new crew member is added to the confined space work, the permit shall be reviewed with the new member and the person who verified the permit.

All Entry Permits shall be submitted to and stored by the Supervisor or Health & Safety Coordinator at the Office upon completion of work. The permits shall be kept for 1 year or the 2 most recent records for each category of Confined Space whichever comes first.



Confined Space Checklist

Confined spaces are identified, and access points secured against entry.

- Safe work procedures are in place, and based on the hazard assessment prepared by a qualified person.
- A qualified supervisor is assigned responsibility for supervising entry and issuing entry permits.
- Personnel with confined space entry duties are trained in hazards and safe procedures.
- Procedures used when entering a confined space are consistent with written safe work procedures.
- A pre-entry meeting is conducted.
- Permits are used to authorize entry when there is a high hazard atmosphere, isolation procedures required, and/or engulfment/entrapment hazards.
- All persons affected by changes to permits are informed of the changes.
- Hazardous energy & contaminant sources are identified & isolated prior to entry into the confined space.
- Pre-entry testing and inspecting are conducted prior to persons entering the space.
- Periodic testing and/or continuous monitoring is conducted while personnel are inside the confined space.
- Appropriate cleaning, purging and venting takes place that will ensure clean respirable air.
- Flammable gases and vapors are maintained at least 20% below their explosive limit.
- A standby person monitors the well-being of the person(s) inside the space at acceptable intervals.
- Standby personnel are adequately trained and have suitable means to summon assistance.
- Personal protective equipment & clothing suited to the hazards are worn/used by personnel.
- There is provision for rescue of persons inside a confined space, personnel are trained and equipped.
- A harness & lifeline are used for entry, & appropriate lifting equipment is in place to permit remote rescue.
- Steps are taken to ensure multiple lifelines do not become entangled.
- Welding torches, hoses, etc. are removed from the space when not in use & when space is vacated.
- Compressed gas cylinders are kept outside of the confined space.
- Electrical tools used inside the space are of the right type and design (double insulated, grounded).
- Only non-sparking tools are used in spaces containing flammable or explosive gases, vapors, or liquids.





Cranes and Hoisting Operations

LCE will take all reasonable measures to ensure that crane and hoisting operations are conducted safely with no incidents. This requires a systematic approach to identify the potential for incidents, and actions necessary to prevent incidents from occurring. Cranes and hoisting operations have an element of risk not normally encountered in other aspects of construction, and therefore requires good planning and execution of work. All personnel will comply with this Safe Work Practice and legal requirements.

Application

This safe work practice applies to all mobile cranes, truck mounted cranes, self-erecting mini tower cranes and boom trucks with a capacity of 2,000 kg or more used on projects by LCE and subcontractors.

Responsibilities

Note: A person may be designated as more than one of the roles below depending upon the type of work being performed and its level of complexity.

Construction Manager	<p>The Construction Manager has the ultimate responsibility for all crane and hoisting operations on the construction site. The Construction Manager will ensure the:</p> <ul style="list-style-type: none">• General Superintendent fulfills their responsibilities.• Crane end user is aware of their responsibility for using only certified crane equipment and qualified personnel capable of completing the job in a safe and efficient manner in accordance with all LCE and regulatory requirements. <p>The Construction Manager is responsible for reviewing and signing-off on the <i>Lift Plan</i>, or ensuring the LCE Manager responsible for the work reviews and signs-off on the <i>Lift Plan</i>.</p>
Crane Owner	<p>The Crane Owner is responsible to ensure cranes and hoisting equipment used on site are serviced, maintained and operated by qualified personnel. The Crane Owner may be asked to provide the required engineering inspection reports to LCE before cranes can be brought on site. The Crane Owner must ensure the Crane Operator has required <i>certificates of training</i> before a crane can be operated.</p>
General Superintendent	<p>The General Superintendent must ensure that Crane Owner and Crane/Rigging Superintendent responsibilities are met, and that all crane and hoisting operations in their area of responsibility are in compliance with LCE and regulatory requirements. The General Superintendent is responsible to ensure:</p>



- Crane end user is aware of the relationship between the load, the rigging and crane risks as it relates to the specific job site and the individual craning and rigging responsibilities.
- Stability of ground area is communicated to the crane end user.
- Crane Operator, Crane/Rigging Superintendent, Lift Engineer/Rigging Specialist, Rigger and Signal person meet their responsibilities.

The General Superintendent is responsible to ensure that only certified personnel baskets (suspended work platforms) are allowed to be used to perform work in a suspended hoisting operation.

Lift Engineer/
Rigging
Specialist

The primary duty of the Lift Engineer/Rigging Specialist is to provide technical support and resources for any *Engineered Lifts*. The Lift Engineer/Rigging Specialist is responsible for conducting *Engineer Lift Studies* and developing *Lift Plans*. The Lift Engineer/Rigging Specialist is responsible for working in consultation with the Crane/Rigging Superintendent in the lift planning process, and communicating lift planning information to all personnel affected by the *Lift Plan*.

Crane/Rigging
Superintendent

The Crane/Rigging Superintendent is responsible for providing a well prepared working area for the crane before it arrives on site that includes

- Access roads are prepared.
- Operating locations are graded, level and compacted.
- Room is available to erect/extend the boom.
- Blocking is used to support the boom during assembly or disassembly.
- Operating locations are far enough away from power lines, excavations or buried utilities.

The Crane/Rigging Superintendent is responsible for:

- Determining the correct load weight and radius, and informing the Crane Operator and supervising the rigging crew.
- Ensuring the Signal Person and Rigger are competent and the signal person is knowledgeable of the international hand signals.
- Designating Riggers and Signal Person to the Crane Operator and ensuring all involved personnel in the operation understand their jobs and responsibilities.
- Approving all *Lift Plans* and procedures.
- Determining work methods and plans for rigging operations and for the safe execution of the work



The Crane/Rigging Superintendent will ensure that the required equipment, materials, and qualified craft personnel are available for completion of all lifts, and proper barricades are placed around the swing radius of cranes or other

The Crane/Rigging Superintendent is responsible for identifying loads/lifts that are not *Routine Lifts* and initializing planning for *Engineered Lifts*. The Crane/Rigging Superintendent will conduct the *Pre-lift Meetings* for *Engineered Lifts*.

Rigging
Supervisor

The Rigging Supervisor is responsible to ensure Riggers, Signal Persons and Crane Guides have received proper instruction and training in the operation and safety measures associated with cranes and rigging. The Rigging Supervisor must ensure that all loads are rigged correctly, and all rigging used such as spreader bars and other lifting devices are built and certified according to the *ASME B30.20-1993 Below the Hook Lifting Device*. The Rigging Supervisor is responsible for identifying loads/lifts that are not *Routine Lifts* and reporting them to the Crane/Rigging Superintendent.

Crane
Operator

Note: Crane Operators must be trained and authorized to operate tower or Operator mobile cranes and be certified as required by MOL *Occupational Health & Safety Act & Regulation (OHSA)*, Cranes shall not be operated by non-certified operators.

The Crane Operator is responsible for:

- Ensuring the safety of the crane operation. If there is a reason to believe that the lift might be dangerous or unsafe the Crane Operator must refuse the lift until the hazard has been rectified and the safety conditions assured.
- Being competent to operate such equipment and having the current certifications/qualification cards while operating the equipment.
- Operating the equipment within lift procedures, the designed specifications and in compliance with all LCE and regulatory requirements.
- Being totally familiar with the crane's operating manual and load chart. The Crane Operator must understand the correct meaning of all notes and be capable of calculating the crane's net capacity under all possible conditions.
- Inspecting and maintaining hoisting equipment including proper lubrication of the ropes and moving parts.
- Informing the Crane/Rigging Superintendent of any maintenance required for the crane. This shall be done in writing in an inspection report.



Rigger	<ul style="list-style-type: none">• Finding the load weight and rigging weight. The Crane Operator is not responsible for determining the weights, but they must know what they are.• Maintaining communication with the Signal Person.• Receiving signals from only one Signal Person at a time. The hoist/lift shall be stopped by the Crane Operator if there is confusion or uncertainty regarding the movement of the load or crane.• Remaining in the crane at all times when the load is in the air.• Shutting down and securing the machine when it is not operating. <p>The Rigger is responsible for the safe rigging of loads to be hoisted. They must be competent in all aspects of rigging including, cranes, rigging equipment and application of wire rope slings. The Rigger is responsible for:</p> <ul style="list-style-type: none">• Discussing pre-lift requirements with designated Signal Person and the Crane Operator.• Assisting in the set-up of the crane as directed by the Crane Operator.• Ensuring proper size and type of rigging is used to lift the load and using
Signal Person	<p>The Signal Person is responsible for knowing and understanding the signals used at the worksite, and must be competent in using these signals. The Signal Person is responsible for understanding the operations and limitations of the equipment, including the crane dynamics involved in swinging, raising, lowering and stopping loads and in boom deflection from hoisting loads. The Signal Person may also be Rigger depending on the type of work.</p>
<i>Certified Crane Operator</i>	<p>A person who has been instructed to operate the equipment, has demonstrated competency, including familiarity with the operating instructions for the crane or hoist and the code of signals for hoisting operations, and has a valid Crane Operator's certificate issued by a person/organization.</p>
Definitions	
<i>Crane Operator</i>	<p>The person who is in control of the crane and responsible for its movement.</p>
<i>Crane Owner</i>	<p>The owner or supplier of the crane.</p>
<i>Critical Lift</i>	<p>All of the following are <i>critical lifts</i>:</p>



- A lift by a mobile crane or boom truck that exceeds 90% of its rated capacity while it is lifting the load at a load radius of more than 50% of its maximum permitted load radius, taking into account its position and configuration during the lift.
- A tandem lift involving the simultaneous use of more than two cranes, hoists or other pieces of powered lifting equipment.
- A lift of a person in a work platform suspended from or attached to a crane or hoist.
- A lift in which the center of gravity of the load changes during the lift.
- A lift in which the length of one or more sling legs changes during a lift.
- A lift by a crane, boom truck or hoist, supported on a floating base, that exceeds 90% of rated capacity for the lifting system.
- A lift of a load over or between energized high voltage electrical conductors, or that may (by intent or mishap) encroach on the *safe limits of approach*.
- A lift of a submerged load

Design Factor

The theoretical reserve capability of a product, usually determined by dividing the breaking strength by the working load limit.

Engineered Lift

A lift that is not a *Routine Lift* and the lift has any of the following conditions:

- Any lift by a mobile crane or boom truck that exceeds 85% of its rated load chart capacity.
- A tandem lift involving the simultaneous use of more than two cranes, hoists or other pieces of powered lifting equipment.
- A lift of a person in a work platform suspended from or attached to a crane or hoist.
- A lift in which the center of gravity of the load changes during the lift.
- A lift in which the length of one or more sling legs changes during a lift.
- lift of a load over or between energized high voltage electrical conductors, or that may (by intent or mishap) encroach on the *safe limits of approach*.
- A lift of a submerged load.
- Lifting over or, in close proximity to, equipment, processes or



areas deemed to be critical to the construction progress, could cause a release of hazardous materials, or cause a major

disruption of a road or rail transportation route in the event of a lift related contact or failure.

- Any "pick and carry" operation with a rough terrain crane or crawler that: is not on stable level ground, is not a short distance carry, the load is not stable or has the potential to become unstable, and/or the pick is outside of the load chart specifications for the crane.
- Any load that must be rigged using non-standard rigging devices.
- Any lift where outriggers are not fully extended and there is no load chart for the outrigger positioning.
- The stability of soil/ground conditions can adversely affect the safety of the lift, for example lifts above underground utilities or voids, beside open excavations, and on top of or adjacent to backfilled materials.

Engineer Lift Study

The study process used by a qualified engineer to determine all factors involved for a safe lift and to develop a written *Lift Plan*. The *Engineer Lift Study* must consider all required information such as the crane configuration, the capacity of the crane, load information, clearances between the lifted object and the obstructions, collision-free trajectory for the lifted object, base stability, radius of lift, rigging equipment, etc. The *Engineer Lift Study* aims to answer whether and how the load can be lifted safely.

Lift Plan

A written plan that is prepared by a lift engineer after an *Engineer Lift Study* for every *Engineered Lift*. It must be prepared prior to the lift and be available at the worksite during the lift. As a minimum the written *Lift Plan* will include the following:

- rigging details
- wind speed limitations
- maximum hoist line speed
- maximum crane travel speed, if applicable
- load distribution
- the need for and position of Crane Signalers.

*Lift Engineer/
Rigging Specialist*

A person who is a qualified professional engineer and deemed by the Construction Manager to be appropriately trained in the preparation and development of *Lift Studies* and *Lift Plans*.

Proof Test

A test applied to a product to determine material or



	manufacturing defects.
<i>Crane/Rigging Superintendent</i>	The supervisor designated by the Crane Owner that is responsible for the safe lift by the crane, and who is knowledgeable of the work,
	the hazards involved and the means to control the hazards, by reason of education, training, experience or a combination thereof.
<i>Rigger</i>	A person qualified and competent to rig loads to be hoisted who is familiar with the rigging to be used, and with the code of signals authorized by Regulations for controlling hoisting operations.
<i>Rigging</i>	Fiber ropes, wire ropes, chains, slings, attachments, connecting fittings and associated components.
<i>Routine Lift</i>	All lifts that are not classified as an <i>Engineered Lift</i> . These are lifts less than 85% of the manufacturer's crane capacity lift chart.
<i>Safe Working Load</i>	The load a crane or hoist may safely lift in a particular situation taking into account such factors as wind load, extremes of temperature and load sail area, and may be equal to or less than the rated capacity or rated load.
<i>Signal Person (qualified signaler)</i>	A person that has a clear and unobstructed view of the boom, jib, load line, load hook and load throughout the whole range of the hoisting operation that provides directions to the Crane Operator. (Qualified means knowledgeable of hoisting, rigging and crane signaling, the hazards involved, and the means to control the hazards, by reason of education, training and/or experience.)
<i>Suspended Basket</i>	A suspended work platform specifically built for hoisting personnel with a crane. (Also referred to as a "Manbasket".) The suspended basket must be constructed and used in accordance with the following standards:
<i>Tandem Lift</i>	A lift using more than one crane or one hoist, or a crane or hoist and another piece of powered lifting equipment.
<i>Unattended Crane</i>	The Crane Operator is not at the controls. (Note: A load must not be left suspended from or supported by a crane or hoist when a Crane Operator is not at the controls.)
<i>WLL</i>	"Working Load Limit" means the maximum load which a product is authorized by the manufacturer to support in a particular service. (The WLL incorporates the Design Factor to determine the WLL).

Standards and Regulatory Compliance

All cranes, hoisting and rigging will comply with the MOL *Occupational Health & Safety Act & Regulation (OHSA)*, in particular *Cranes and Hoisting* and *Rigging*. All applicable Standards will be adhered to, including the following:



- Cranes and hoists must be designed, constructed, erected, disassembled, inspected, maintained and operated as specified by the manufacturer or a professional engineer, and meet the requirements of the applicable standard.
- Mobile cranes, telescoping or articulating boom trucks or sign trucks must meet the requirements of:
 - *CSA Standard Z150-1998, Safety Code for Mobile Cranes,*
 - *ANSI Standard ANSI/ASME B30.5-2004, Mobile and Locomotive Cranes*
 - *ANSI Standard ANSI/ASME B30.22-2005, Articulating Boom Cranes*
- Tower, hammerhead cranes or self-erecting tower cranes must meet the requirements of *CSA Standard Z248-2004, Code for Tower Cranes.*
- Portal, tower or pillar cranes must meet the requirements of *ANSI Standard ASME B30.4-2003, Portal, Tower, and Pillar Cranes.*
- Crane and hoists of a type not covered by the standards specified above must meet good engineering practice and be able to safely perform its function.
- Wire rope, alloy steel chain, metal mesh, synthetic fiber rope, synthetic round slings and synthetic fiber web slings must meet the requirements of *Slings.*
- Spreader bars and other specialized below-the-hook lifting devices must be constructed, inspected, installed, tested, maintained and operated according to the requirements of *ASME B30.20-1993 Below-the-Hook Lifting Devices.*

General Guidelines for Hoisting Equipment

Cranes and hoisting equipment shall be inspected daily by the Crane Operator and recorded in a *Daily Inspection Log*. All defects and repairs shall be recorded on the *Crane Log Book*. Deficiencies that compromise the safety of the crane shall be corrected prior to use.

Shackles and other positive locking devices must be used to fasten rigging. The weight of the hook, spreader bar, load block and other material to be lifted must be included when calculating the total weight of a load.

General Requirements for Crawler, Truck and Hydraulic Cranes are as follows:

1. Only authorized personnel shall enter the crane cab or operate the crane.
2. All cranes must be equipped with a load-measuring device such as a Load Moment Indicator (LMI), weigh load indicator or other suitable means to accurately measure the weight of the load lifted. The equipment must be proved accurate prior to use on the project.
3. All boom cranes must be equipped with a functioning anti-two blocking device to prevent accidental contact between the load block and head sheaves, which can cause breakage of the wire rope.
4. On pneumatic-tired cranes, tires must be in good condition and properly inflated.
5. Cables, blocks and rigging must be in good condition.

6. Pads or mats will always be used under outriggers when setting up a crane on unstable ground or in areas where the strength of the slab/roadway is not known. The use of crane mats will be determined by the Crane/Rigging Superintendent.
7. Weather conditions and wind speed should always be considered before handling a load. Wind speed gauges will be provided by the Crane Owner. The maximum allowable wind velocities indicated on the *Engineer Lift Study* will be adhered to at all times for all *Engineered Lifts*. When wind speeds are in excess of 25 km/h (15 mph), the Crane/Rigging Superintendent will determine the requirements for all lifts. No lifts will be permitted if wind speeds exceed 50 km/h (30 mph).
8. All cranes must have either mechanical or computer actuated boom angle indicator installed and in proper working order.
9. All cranes must have a load chart that can easily be read by the Crane Operator from their operating station. This chart must be permanently placed beside the Crane Operator and cannot be removed for any reason. Crane capacity must be shown for loads on outriggers, on rubber, and while walking with a load.
10. Hoisting operations shall be suspended when the temperature reaches -40°C (-40°F) except in case of an emergency. The crane shall be de-rated to 50% of lifting capacity when the temperature reaches -25°C (-13°F), or as per the original crane manufacturer's or rigging manufacturer's specifications.
11. The Crane Operator must make sure all other personnel are clear of the crane before starting and/or moving the crane. There must be a Crane Walker when moving/transporting lifts.
12. Close cooperation between the Crane Operator and Signal Person must be exercised. The Crane Operator shall not make any move unless signals are clearly understood.
13. Hoisting operations shall be suspended when an electrical storm is imminent.
14. Sudden starts and stops are to be avoided.
15. Swing speed must be controlled so that the load does not swing out beyond the radius at which it can safely be handled.
16. All cranes must have an Operator's Manual specific to the crane readily available for a quick reference regarding the operation of the crane.
17. The boom tip should always be positioned directly above the load being hoisted. A crane boom should never be used for dragging loads sideways.
18. The load should never be allowed to strike the boom, outriggers, or crane body, and the boom should never hit the structures. Anti-two blocks shall be used at all times.
19. Hoisting of loads over personnel is not permitted.
20. The Crane Operator must not leave the controls position while a load is freely suspended.
21. Hoisting operations performed during hours of darkness or limited visibility shall have adequate lighting and signaling arrangements.
22. All cranes must have a daily pre-operation check recorded in the *Crane Log Book* by the Crane Operator prior to hoisting.



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23. The Crane Operator must know the total weight of the load being lifted, as well as the operating radius for the lift. (i.e., the operating radius is the distance from the crane center of rotation to the center of gravity of the load). The Crane Operator must apply the information to lift the load within the load capacity of the crane. All radius checks are to be confirmed with a measuring tape or other legal measuring device.
 24. Cranes left unattended shall be tied down with brakes and dogs in the locked position. If this is not practical, then the boom shall be lowered to 70° or lower from the horizontal and positioned with winds coming from the rear of the crane.
 25. Loads must be determined by one of the following methods:
 - a) Certified scale weight during transportation
 - b) Load Moment Indicator (LMI)
 - c) Calibrated Weight Load Indicator
 - d) Calculated weight verified independently by two different sources
 - e) Weight supplied from original vendor drawings, with allowances for internal components, access platforms, insulation, piping etc.
 26. The following information must be known for all lifts:
 - a) Total weight of the item to be lifted
 - b) Total weight of the rigging required for the lift
 - c) Weight of the load block and hook or headache ball and hook plus the weight of the load line
 - d) Effective weight of auxiliary items attached to the crane but not in use such as stowed job, headache ball, rooster sheave, etc.
 - e) Boom length
 - f) Boom angle and maximum radius
 - g) Percent (%) of rated capacity while in operation
 - h) Proximity to other structures or lines
 - i) Soil conditions
 - j) Wind velocity and temperature extremes
 - k) Level of crane or hoist
 27. All loads must be freely suspended and clear to lift, avoiding any possible shock or impact load, as well as any obstructions or boom clearance concerns. Loads shall not pass over personnel.
 28. Crane Operators shall only take signals from a designated Crane Signaler. The Crane Signaler will be identified to the Crane Operator before the lift. Signaling can be with hand signals or two-way radio and must be established before the lift.
 29. During normal crane operation, the Crane Operator must remain in control of the load. The Crane Operator must ensure tag lines are in place and are manned to assist in



- controlling the load. If taglines are not practical, then a short line of suitable length shall be coiled and attached to allow the worker to catch the load.
30. The crane must be installed on a proper foundation when hoisting. The ground under the crane must be compacted or proven stable to the Crane Operator's satisfaction. A crane on outriggers will use pads of blocking underneath to spread the bearing loads. This would also include crane installations placed over underground piping, sewer lines, etc. The maximum applied ground bearing pressure between the crane and the ground shall not exceed 238 kilopascals (5,000 pounds per square foot). Should this limit be exceeded, suitable crane support (e.g., wooden matting, fill, steel plate, etc.) must be engineered by a professional engineer registered in BC.
 31. All lifts require pre-lift communication with all involved parties to discuss the lift. Designate a crane Signal Person, Rigger, and personnel to control tag lines. Lifting procedure should be discussed as well as wind, weather constraints, and adjacent hazards. All non-involved personnel must be kept clear of the lifting area. Where required an *Engineer Lift Study* must be completed and a *Lift Plan* developed and communicated before the lift.
 32. Crane Operators shall not exert horizontal pull, at any angle, to the boom or jib.
 33. The Crane/Rigging Superintendent will ensure that procedures are developed to prevent collisions if two (2) or more lifting devices are used and there is a potential for a collision between them or their loads or component parts, in accordance with regulatory requirements and FTGC Safe Work Practices.

Crane Inspection and Maintenance

It is the responsibility of the Crane Owner (or supplier of a mobile crane) to ensure the crane is inspected daily, weekly and monthly or at intervals recommended by the original equipment manufacturer. In the absence of specific intervals, the crane must be inspected in accordance with the requirements of *CSA Standard Z150-1998- Safety Code for Mobile Cranes*.

Crane Operator Training and Certification

All operators of mobile cranes, tower cranes and boom trucks must have a valid Crane Operator's certificate issued by a person acceptable to MOL

Crane Operators of all other types of cranes and hoisting apparatus must be qualified to do so and have received instruction on operating the equipment. The Crane Operator must have demonstrated competency, including familiarity with the operating instructions for the crane or hoist and the code of signals for hoisting operations before operating the equipment.

Rigging Requirements

For purposes of this procedure, rigging includes but is not limited to: wire rope, nylon and chain slings, as well as chainfalls, shackles, hooks, spreader bars and other load bearing hoisting attachments.

1. Rebar bundles must be securely rigged to prevent loose rebar falling out of the bundle. Bundle wire slings must NOT be used for hoisting rebar. All slings must meet the ASME Standard *B30.9-2006 Slings*, and must be appropriate for the weight and load configuration.



2. All slings must be designed, maintained and used in accordance with *ANSI B30.9 Slings*.
3. All previously used slings must be inspected, proof load test certified and tagged prior to use on site. The proof load test for all types of slings shall be two times the rated vertical load for the sling in accordance with *ANSI B30.9*. New slings purchased for use on the project do not require proof load testing, but must be tagged. The tag shall contain information on the size, length and rated vertical capacity of the sling.
4. All shackles shall be new or have a magnetic particle inspection completed prior to use on site and annually thereafter.
5. All rigging shall be visually inspected prior to each use. Defective rigging shall not be used.
6. All rigging components shall be designed in accordance with *ANSI B30.20 Below the Hook Lifting Devices*. The equipment shall be either designed by a recognized manufacturer or designed by a Professional Engineer registered in BC. The components shall come with an engineer-approved chart clearly showing the lifting capacities of the equipment. Working loads on rigging shall not exceed the safe limits established by the manufacturer. Any rigging shall not exceed the safe limits established by the manufacturer. Any rigging fabricated by an employer such as spreader bars, links, and lifting beams must be designed and certified by a professional engineer. All spreader bars, lifting beams, links and other rigging components, designed and certified by a professional engineer and fabricated by an employer shall be magnetic particle inspected prior to initial use on the project.
7. All rigging shall be clearly labeled to show the Working Load Limit (WLL). The WLL of rigging is based on a 4 to 1 design factor for alloy steel chain slings and chain fittings, 5 to 1 design factor for wire and synthetic slings and fittings, and 10 to 1 for any rigging components used for hoisting personnel.
8. When slings are applied to sharp edge loads, the sharp edges must be protected with softeners to prevent damage to the slings.
9. Shackles shall be used with the pin to the eye of the sling or lifting lug. Pins shall not be in contact with the running part of any sling. Shackles shall have the pins secured if there is potential for them to turn. This is mandatory when shackles are used as a component for hoisting personnel.
10. All hooks shall have functioning safety latches. Hooks and other rigging components shall be attached in a secure manner. Open hooks shall only be used when attaching or disconnecting the hook and would place a worker in a dangerous position. Job Hazard Assessment must be used to establish the hazards and methods to protect against those hazards involved in the use of open hooks.
11. Hooks and other lifting attachments on the buckets of front end loaders and backhoes are prohibited from use unless designed and certified by a professional engineer.
12. Plate and beam clamps shall not be used for hoisting unless they cannot be practically replaced with another acceptable rigging component. If beam or plate clamps are used they must:
 - a) Be locking or designed so that slackening of the hoist cable does not release the



clamp.

- b) Have manufacturer's or engineer's specification on capacity, sizes and methods of inspection.
- c) Receive approval for use on the project.

13. Chainfalls used shall:

- a) Have the capacity identified.
- b) Have all components, including the hook, rated in consideration of the required safety factors of a sufficient capacity for the hoist.
- c) Not be used with the chain wrapped around the load for hoisting.
- d) Have load limiters, if so equipped, set at or below the Working Load Limit (WLL).
- e) Shall not be used as a stand-alone rigging attachment for hoisting with cranes.
- f) When used to balance loads with a crane, have a secondary safety line used as a backup. The backup sling should be of sufficient strength to accommodate the full capacity of the load should the device fail.

14. All rigging components shall be inspected quarterly and colour-coded. Inspectors will be designated by the General Superintendent and must have a minimum of journeyman qualifications and rigging experience.

The following is the criteria for the testing and inspection of rigging prior to the initial use on the project. The conditions for removal from service will apply to all subsequent inspections.

Wire rope shall be removed from service if there is:

- 3 or more broken wires in one lay between end connectors.
- More than one broken wire at an end connector.
- Any evidence of exposure to extreme heat or electrical arcing.
- Any damage or distortion due to corrosion, kinking or bird caging.

Nylon Belt Slings shall be removed from service if there is:

- Evidence of exposure to heat (hard smooth sections).
- Cuts or frays.
- Any internal wear indicators visible.

Shackles shall be removed from service if there is:

- No permanent indication of capacity from the manufacturer.
- Any cracks detected through magnetic particle examination or visual inspection.
- Any distortion to its shape.
- A failure of the pin to properly fit into the body of the shackle.
- Wear exceeding 10 percent of original dimension.



Hooks shall be removed from service if there is:

- Any cracks detected through magnetic particle examination or visual inspection.
- Wear exceeding 10 percent of original dimension.
- A bend or twist exceeding 10 degrees from the place of the unbent hook.
- Increase in throat opening exceeding 15 percent of original dimension.
- Missing or improperly functioning safety latch.

Plate and Beam Clamps shall be inspected and proof tested prior to initial use on the project by a third party agency, and be certified to be in safe working order and of such a design that slack in the hoist cable will not release the load. **Plate clamps** shall be removed from service if there is:

- Any failure of malfunction.
- Any evidence of cracks or damage or other defects.

Chainfalls shall be inspected for internal wear and be proof tested to 1.5 times their load limit as specified by the manufacturer prior to use on the project.

General Items

- The number of personnel working in the manbasket shall not exceed rated capacity and shall not be more people than the number required for the work being performed.
- The rigger/user shall inspect slings daily and only use properly rated slings.
- Position the hand so it cannot be caught between the load and adjacent objects when guiding a load. Tag lines, never slings, should be attached to guide loads.
- Natural or synthetic ropes should never be used on hot loads or where exposed to open flames, sparks, or slag.
- Softeners shall be used to protect slings/wire ropes from being cut on sharp edges.
- Rigging equipment damaged to the extent to compromise the rated capacity shall be destroyed.
- Slings should be double wrapped in a choke application.

Tag Lines

Tag lines will be used in accordance with the LCE *Safe Work Practice – Tag Lines*.

Signaler and Signals

See *Safe Work Practice – Crane Safety (General)*.



Rigger Training and Competency

Rigging and slinging work must be done by, or under the direct supervision, of qualified workers familiar with the rigging to be used and with the code of signals authorized for controlling hoisting operations.

Riggers must be qualified and have received instruction on safe rigging. Riggers must have demonstrated competency, including familiarity with the rigging types and capacities, and the code of signals for hoisting operations

Crane Setups and Rigging Accessories

1. All mobile cranes in the project site are to be set up for lifting on firm level ground. Any deviations require the approval of the Crane/Rigging Superintendent.
2. All lift beams and spreader bars used must be certified for use by a Professional Engineer. Detailed fabrication drawings and design calculations approved by the project field engineer must be kept on file for all lift beams and spreader bars.
3. **Important:** The boom tip shall be checked prior to and during the lift to be sure that the center of gravity of the load remains directly in line with the boom. As the load is lifted, the boom deflection will result in a misalignment that could cause the load to swing away from the crane. The increased radius and inertia of the swinging load could result in injury or an overloaded crane situation.

Engineer Lift Study, Lift Plan and Pre-Lift Meeting

1. An *Engineer Lift Study* is required for all *Engineered Lifts*. It is the process for gathering and organizing all information necessary for ensuring a safe lift. The information is used to create a written *Lift Plan*. The *Engineer Lift Study* must include the following:
 - a) Investigating and understanding the nature of the lift in regards to:
 - What is to be lifted, size, weight, center of gravity, special conditions, etc.
 - What the initial and final position, orientation, elevation, etc., of the load to be lifted.
 - Any special weather/climate conditions or concerns.
 - Special ground, or area conditions, or concerns. Soil compaction, matting requirements to ensure stable ground conditions for the crane.
 - Pre-determined equipment requirements and availability.
 - b) Planning how to make the lift:
 - Identify the optimum location for the cranes for capacity and clearance from obstacles.
 - Identify crane(s) travel or swing.
 - Size the crane(s) to suit the requirements, both primary and secondary as may be required. Crane capacity must be calculated through each phase of the lift.
 - Calculate the point loading on all cranes involved in the lift, e.g., tracks and outriggers.
 - Size, design and/or detail the rigging hardware to suit the lift.



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- Prepare drawings, plans and specifications as required.
 - Consider the potential for induced voltage.
 - Calculate the sail effect of the load and boom on lifts where wind may be a consideration, and determine the maximum wind velocity and wind direction allowable.
 - Verify all “Below the Hook Lifting Devices” are built and certified according to the standards laid out in *ASME B30.20-1993*.
- c) Communicating the lift details:
- Issue drawings, plans and specifications to the people who will make the lift.
 - Review, discuss and revise as required with the people who will make the lift.
- d) Planning the lift:
- Review drawings and/or site information to verify access and clearances; identify obstructions; and eliminate interference with respect to the lift.
 - Verify lift lug information, both head and tail if required.
 - Verify crane charts, boom length, and accessories required.
- e) Designing the lift:
- Plan how the crane(s) will physically make the lift.
 - Specify the rigging, sling diameter, length and quantity.
 - Select shackle size, clearance and quantity.
 - Select and detail any new items required.
 - Prepare sketches/drawings.
2. The *Lift Plan* is used to record and communicate the information gathered in the *Engineer Lift Study*. The *Lift Plan* form provided can be used for this purpose.
 3. *Lift Plans* will be signed-off by the Lift Engineer/Rigging Specialist. The completed *Lift Plan* signed-off by the Lift Engineer/Rigging Specialist will be reviewed and signed off by the Construction Manager before the Pre-Lift Meeting.
 4. A Pre-Lift Meeting will be conducted before any *Engineered Lift*. The *Lift Plan* must be clearly understood by the personnel involved in the lift.

Pre-Lift Meetings (Crew Briefing)

A Pre-Lift Meeting (Crew Briefing) must be held after the *Lift Plan* has been completed and prior to the lift. Guidelines for conducting the Pre-Lift Meeting are as follows:

1. Ensure that a copy of the *Lift Plan* is readily available.
2. Ensure the Pre-Task Plan (PTP) is readily available.
3. Assemble all personnel involved with the lift (supervisor(s), operators, riggers, etc.).
4. The Crane/Rigging Superintendent is to review the *Critical Lift Plan* with all personnel involved to conduct a discussion and explanation of the following points:

- a) What is to be lifted and how?
- b) Where the load is to be placed?
5. Where the crane(s) are to be set up?
6. How the load is to be rigged?
7. Determine the rigging needed.
8. Who is responsible for what?
 - a) Who is in charge of the lift?
 - b) Which Crane Operators will be operating which cranes?
 - c) Who is responsible for rigging the load?
 - d) Who will help in the rigging?
 - e) Who will be the designated Signal Person?
9. Explain:
 - a) The path the load will take.
 - b) How the load will be placed.
10. Examine the site for:
 - a) Proper set up of the crane(s).
 - b) Necessary equipment in place.
 - c) Any obstructions, hazards, or other factors that may interfere.
11. Ask all personnel:
 - a) "Do you understand what is required for the lift?"
 - b) "Do you have any questions or points that need to be clarified?"
 - c) "Do you have any concerns regarding the lift?"
12. If there are any concerns or problems at this stage then the concerns and problems will be addressed and the review process repeated.
13. The lift will be postponed until all factors are discussed and concerns have been addressed and all personnel involved are confident and prepared to make the lift.





Cut-Off Saw (Abrasive Saw, Metal Chop Saw)

Read and understand the instruction manual before operating the saw. If you do not know how to operate this piece of equipment obtain training from your supervisor.

Responsibilities

Employer	It will be the responsibility of the Superintendent to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. Personal Protective Equipment (hardhat, CSA/ANSI footwear, eye and hearing protection, face shield, gloves when handling material).
2. Chop saw.
3. Fire Extinguisher.

Conditions

1. Ensure that the machine is properly set up prior to using it. This includes:
 - a. Oil and gas are at the required levels
 - b. The correct saw blade has been chosen for the material being cut – ensure that the RPM rating is appropriate for the saw
 - c. The saw blade is firmly secured
 - d. All protective guards are in place on the tool and are fully functioning to provide maximum coverage
2. Ensure that the engine is stopped and allowed to cool down prior to refueling and wipe off any spilled fuel.



Safe Work Practice

1. Before using the Cut-Off Saw you must:
 - a. Ensure that you have and use suitable eye and face protection before proceeding with the cut.
 - b. Ensure that you are familiar with the cut off saw operations prior to using it.
 - c. Do not wear loose clothing and tie back long hair while operating the cut off saw.
 - d. Ensure that the immediate work area is clear of tripping and slipping hazards.
 - e. Know the location of the machine shut off switch.
 - f. As operating the cut off saw exposes the operator to a continuous vibrating motion, whenever possible rotate the work task between workers.
 - g. **WARNING!** When cutting metal, a cut off saw generates sparks, which can ignite clothing and combustible material in the immediate area.
 - h. Do not use damaged blades!

2. When making a cut:
 - a. Do not twist or force the blade, just guide the blade as the cut is made.
 - b. Ensure that the engine does not labour when cutting.
 - c. Be aware of the hazard of kickback when cutting materials and understand how to prevent such hazards (not forcing the blade into the material, using water when cutting concrete, etc.).
 - d. Use water as a lubricant when cutting concrete. Doing this not only assists with a smooth cut but also lengthens the life of the saw blade and reduces the amount of dust generated by the cut.
 - e. Hold the saw firmly with both hands and position your body to the side of the saw – Do not work directly over top of the saw.
 - f. Do not use the side of the abrasive blade to grind.
 - g. If the saw stalls, remove it from the cut before attempting to restart.
 - h. Always reduce the pressure being applied as you near the end of the cut.
 - i. Limit the use the cut off saw inside a trench or in enclosed areas to reduce the amount of accumulated exhaust fumes which could affect workers. If cut off saw use cannot be limited inside a trench, ensure that there is adequate ventilation to remove the exhaust fumes from the work area.



Drilling – Rock Drilling Caution:

LCE commonly does not drill using LCE equipment or personnel. This is subcontracted out to other professional subcontractors while LCE would handle site preparations and traffic control

Hard rock drilling will generate rock dust that contains silica. Compliance with LCE's Exposure Control Plan for Silica is mandatory for all hard rock drilling.

Responsibilities

Employer	It will be the responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications. To review qualifications of subcontractors hired to complete this work.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site hazards identified and rectified. The Supervisor is responsible to ensure workers have received proper instruction and training prior to commencing with any tasks.
Worker	It will be the responsibility of the Worker(s) to comply with the safe work practices noted herein. The Worker will advise the Supervisor of any hazards.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are mandatory.
2. Dry drilling operations may require the use of a half-face elastomeric respiratory with P100 filter and disposal coveralls.
3. Eye protection is mandatory for drilling operations.

Safe Work Practice

Operation of Drilling equipment will be operated by subcontractor employees. LCE personnel are to assist with operations where possible and LCE training will allow.

1. All services within the area of construction are to be located prior to drilling. See *Safe Work Practices – Mechanical Excavation of Buried Utilities, and Locating Underground Services*.
2. Site is to be excavated for drilling as per engineer instructions.
3. Carefully mark out locations including overburden to be drilled (note: pitch calculator should always be used to determine run and rise of drill angle).
4. Ensure site access for equipment operation and assist with material placement and/or removal



5. Assist with any traffic control on the site to ensure smooth operation of the drill procedures
6. Provide necessary help and/or equipment where LCE is able to do so.



Electrical Safety – General Application

This Safe Work Practice applies to persons working with electricity or on “energized equipment” below seven hundred and fifty (750) volts. It is not intended to apply to the more complex and advanced phases of electrical technology that deal with generation, distribution and transmission of high voltage electricity. This document provides an overview of basic safety considerations developed to minimize employee exposure to hazardous low voltages. No employee shall perform work on any electrical equipment, as defined in the Electrical Safety Act and/or Regulations unless they are certified under the provisions of that Act.

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer’s specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training regarding electrical safety prior to commencing with any related tasks.
Worker	It will be the responsibility of the Worker(s) to take reasonable and practical measures to have site equipment serviced, maintained and operated in a professional and safe manner. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA approved safety footwear and approved safety headgear are required on all projects. Hi-visibility vests shall be used when working around mobile equipment or in other traffic situations.
2. All workers should use personal protective equipment suitable and necessary for the hazards of the work being performed.
3. Cotton or wool fabrics are recommended for clothing worn by personnel working with electricity.

Electrical Safety

1. All electrical equipment, acquired or used within our organization shall be approved in accordance with the provisions of Part 1 of the Canadian Electrical Code, (Standard C22.1- 1982), and certified for use by the Canadian Standards Association (CSA), or other acceptable testing agency. UL (Underwriters Laboratories).



2. All temporary wiring must be installed and maintained in accordance with the applicable codes.
3. Flammable material shall not be stored or placed in proximity to electrical equipment.
4. All electrical distribution switched and controls shall be clearly marked to indicate the machinery or equipment which they serve.
5. Metal ladders, or wire-reinforced wooden ladders, shall not be used when working around electrical sources.
6. The requirements for lock-out of energized electrical equipment shall be followed whenever such equipment is to be worked on or around depending on voltage and hazard.
7. Only electricians or authorized employees shall perform electrical repair or maintenance on electrical tools, machinery or equipment, or replace electrical fuses.
8. Electrical equipment shall be de-energized before work is done on such equipment. Switches shall be locked out and other measures taken which shall prevent the equipment from being energized without the knowledge of the individuals working on it. Such locks and preventative devices shall be removed only by the persons who installed them or by authorized personnel. The Lockout procedure is available from your supervisor.
9. All electrical tools and equipment must be grounded or double insulated.
10. Extension cords should only be used for temporary service and should be maintained in good condition at all times. They should be routinely inspected for frayed, torn or split cords and damaged plugs or connectors. All damaged cords must be repaired or replaced immediately.
11. Place temporary electrical cords so as to minimize tripping hazards.
12. Never replace a blown fuse with a larger capacity fuse.
13. Cover plates should be in place on all switches and outlets.
14. Jacketed electrical cords should be used with portable electric tools and with extension lamps in boilers, tanks or other grounded enclosures.
15. Energized wiring in junction boxes, circuit breaker panels, etc. must be protected from accidental contact whenever it is left unattended.
16. Damaged electrical cords will be removed from service.
17. Non-conductive material should be used to form the handles on portable hand lamps and there should be no metallic connectors between the lamp guard and the socket shell.
18. Always make certain that plug connector configurations match as they are intentionally designed that way to prevent hazardous, or even fatal, electrical connections.
19. Avoid using electrical tools and equipment in or around damp or wet areas.



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20. Fire extinguishers or type “BC” (carbon dioxide) or “ABC” (multipurpose dry chemical) should be readily available in the event of an electrical fire. Type “A” (pressurized water) shall not be used on electrical fires. Halon type extinguishers are acceptable, but are no longer manufactured.
 21. Synthetic fiber type clothing can be readily ignited and melted by an electrical flash. Flame retardant garments made of either cotton or wool fabrics are recommended for employees working with electricity.
 22. Defective electrical equipment must be reported to your Supervisor immediately and removed from service.
 23. Do not work on any circuits when standing on metal or in water.
 24. Temporary lighting lamps that are broken or burned out must be replaced as soon as possible. Do not remove bulbs from other areas to provide lighting.

First Aid

In the event that someone is electrocuted, immediately de-energize the equipment before touching the individual. Immediately call for first aid or emergency assistance.

Lockout

The electrical and mechanical superintendents will review the Scope of Work and determine where and when “Lockout” will be required and documented. A Site Specific Lockout Procedures will be developed prior to supervisors and workers working on live electrical and mechanical systems.

- Workers must review the lockout procedures prior to working on electrical systems or mechanical systems (i.e. pressurized systems) where lockout is required and abide strictly with these practices and procedures developed for this project. Superintendents and foremen will provide this training as needed.
- A formal system of lockout must be implemented and include personal locks and tags for each worker affected by the lockout protocols.

Supervisors, foremen or workers not abiding by the lockout program will be disciplined accordingly which may lead to immediate termination of employment dependent upon the circumstances and discretion of the General Superintendent and/or Construction Manager.





Electrical Safety – GFCI Protection

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to ensure the equipment is maintained.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. Personal Protective Equipment (hardhat, CSA/ANSI footwear, gloves, hearing protection, safety glasses)
2. Continuity and polarity test meter.

Conditions

Ground-Fault Circuit Interrupters (GFCI) work well in dry conditions, i.e., they do not trip the circuit frequently, permitting uninterrupted work. However, GFCI will trip often in wet conditions if electrical equipment, and in particular extension cords, are not maintained in good condition. Therefore, to support the use of GFCI and the level of safety it provides, LCE will also implement an assured grounding program.

Electrical work on Projects will use power distribution panels and generators installed with GFCI receptacles. An assured grounding program is no longer accepted for providing electrical safety in a wet or damp environment. GFCI must be used.

Electrical Equipment

Portable electrical equipment: Includes extension cords and power tools that are used on 120 volt systems at 20 amps or less and are not hard-wired to a permanent electrical system.

Ground Fault Circuit Interrupters (GFCI): Is a device that detects current leakage in an electrical circuit and trips the circuit when the leakage current is greater than 5 mA. When used out doors or in a wet or damp location, portable electrical equipment, including temporary lighting and chop saws, must be protected by an approved Class A ground fault circuit interrupter. The interrupter must be installed at the receptacle or on the circuit at the panel.

Three types of GFCIs can be used:

- A GFCI receptacle can be used in place of a standard receptacle.



- A portable GFCI, when plugged into a standard receptacle, converts a standard receptacle into a GFCI receptacle.
- A GFCI circuit breaker combines leakage current detection with the function of a circuit breaker.

Safe Work Practice

1. The following Safe Work Practice will be used to prevent nuisance tripping of GFCI:
 - a. Mount GFCI receptacles and GFCI circuit breakers in dry locations. If this is not possible, use portable GFCI that are rated as “rainproof”.
 - b. Connect only one power tool to each GFCI.
 - c. Cover power tools to protect them from the rain when they are not in use.
 - d. Store power tools and extension cords in a dry location.
 - e. Maintain extension cords and power tools in good condition.
 - f. Use extension cords that are rated for hard usage or better.
 - g. Do not use extension cords longer than 45 meters (150 feet).
2. Assured grounding ensures that the black wires (hot), white wires (neutral), and, in particular, green wires (ground) of extension cords and power tool cords are properly connected.
3. Extension cords and power tools will be tested when first put into service, following repairs, and every three months.
4. A continuity and polarity test will be completed every three months by a qualified worker. (A qualified worker is a person who has been authorized by a supervisor to perform the task and who has received appropriate training.)
5. Extension cords and power tools that have been tested for continuity and polarity will be marked with a colored band about 10 centimeters (4 inches) from the male plug as follows:
6. Extension cords and power tools will be checked daily for damage by the persons who will be using them. Any damage found must be repaired before the cord or tool is used.
7. Damaged extension cords and power cords of tools must not be spliced. The cords can either be replaced or shortened to remove the damaged portion.



Excavations and Trenching Responsibilities

Employer	The Employer is responsible for ensuring personnel comply with LCE H&S Program and regulatory requirements for safe excavations and trenching. It will be the responsibility of the Employer to take reasonable and practical measures to have the required equipment and materials for safe excavations and trenching available and maintained in accordance with the applicable regulations and manufacturer's specifications. The Employer is responsible to ensure that Supervisors fulfill their responsibilities.
Supervisor	LCE Supervisor must ensure that personnel working under their responsibility comply with safe practices/procedures and regulatory requirements for safe excavations and trenching. The Supervisor is responsible for the work plan process identifying activities where precautions must be taken to ensure the sides of excavations and trenches are stable and safe. It will be the responsibility of the Supervisor to implement the required safety precautions for safe excavations and trenching. They have direct responsibility to ensure no one enters an unsloped/unsupported excavation or trench over 1.2 meters (4 ft.) in depth. They are responsible for ensuring all shoring equipment and materials are serviced, maintained, and installed in accordance with the manufacturer's specifications and regulatory requirements. The Supervisor is responsible to ensure workers have received proper instruction and training prior to conducting this type of work
Workers/ Operators	It will be the responsibility of Workers to comply with the safe work requirements set forth within this practice. Workers will immediately notify their Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.
Equipment Manager	The LCE Equipment Manager is responsible for ensuring shoring cages provided by suppliers are of the right type, safe for use at time of delivery, and are provided with a maintenance record and manufacturer's specifications.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel.
2. All workers should use personal protective equipment suitable and necessary for the hazards of the work being performed.
3. Equipment and materials required to ensure excavations/trenches are secured against collapse.

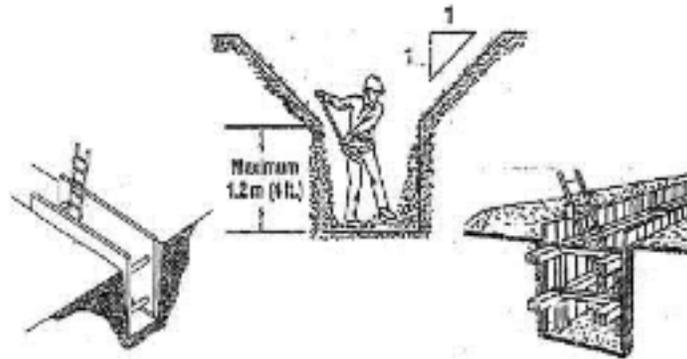
Safe Work Practice

1. No worker shall enter any excavation (including trenches) greater than 1.22 m (4 feet) in depth unless the trench or excavation has been made safe through sloping, shoring or engineering suitable for the soil type, length and depth of the excavation.



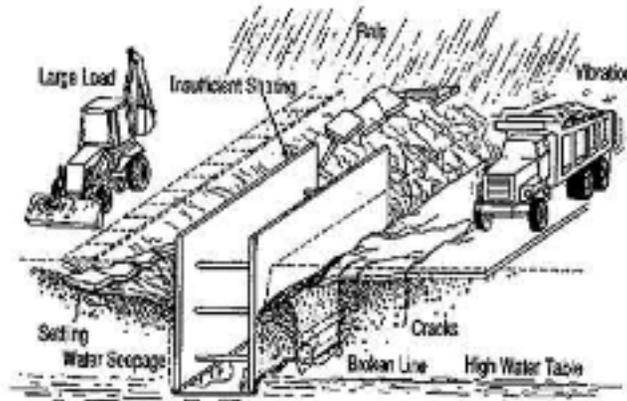
Excavations and Trenching

2. Written instructions of a qualified professional are required for any:
 - a. excavation that is more than 6 m (20 ft.) deep
 - b. improvement or structure that is adjacent to the excavation
 - c. excavation that is subject to vibration or hydrostatic pressure likely to result in ground movement hazardous to workers
 - d. excavation where the ground slopes away from the edge of the excavation at an angle steeper than a ratio of 3 horizontal to 1 vertical
3. Adequate signage, barricades and/or road closures must be put into place to ensure the safety of crews, motorists and the public for excavation projects on or adjacent to roadways or alleys.
4. A clear area, of at least 1 meter in width, must be maintained on the sides of the excavation. Spoil piles must not encroach on this 1 meter clear area.
5. Excavated material must be kept back a minimum distance of 1 meter from the edge of the trench and 1 meter from any other excavation.
6. Trees, poles, or any other objects, which may be undermined, or made unstable by the excavation process must be removed, supported, or otherwise protected from the excavation process.
7. Crews are reminded to always “LOOK UP” at excavation sites to ensure that equipment related to the excavation site is not in close proximity to overhead power lines or other hazards.
8. Utilities must be located prior to starting an excavation in any area likely to have underground utility services (e.g., gas, steam, water, sewer or electrical lines). The location and alignment of these services are to be marked in the work area.
9. Underground hazards, such as utilities or similar hazards must be assessed and exposed prior to excavation of the ground with powered equipment. Refer to drawings, as-built drawings, surveys, etc., or call the proper authority to have these services located.
10. All work shall be done with hand tools when working within 1 meter to the proximity of underground services. Probing with sharp, or pointed tools, to determine the location of underground services, such as gas or electrical, is not permitted.
11. All excavations, other than those which are sloped to a safe angle, the side walls shall be “trimmed” or “scaled” to remove any loose materials, rocks, or other objects, which might endanger workers.



12. In pits, quarries and similar excavations the height of unstable faces must not exceed the maximum safe reach of the excavating equipment being used.
13. Heavy equipment (e.g., excavators, backhoes, dump trucks, vac-trucks, etc.) must not be placed close to the edge of an excavation unless additional bracing has been installed or where permitted as per a professional engineer's certification.
14. A ladder or stair scaffold shall be provided in the immediate area where workers are employed in excavations greater than 1.22 m (4 feet) in depth. Ladders must extend from the bottom of the excavation to at least 1 m (3 feet) above the ground level.
15. Open sides of access routes into excavations used by mobile equipment must have a curb.
16. **HARMFUL ATMOSPHERES.** Prior to entering any excavation, be alert to the possibility that the atmosphere in the excavation may be hazardous due to large amounts of dust, vapors, or gases, or a reduction of oxygen in the excavation. Harmful atmospheres (methane, H₂S) should be expected on a Project for any location at or near:
 - a. bog, swamp or marsh, including cranberry fields
 - b. landfill or contaminated sites
17. If, at any point, it is felt that a harmful atmosphere may exist in an excavation, DO NOT ENTER, or immediately exit the excavation and contact the Supervisor or LCE's H&S Coordinator.
18. In any excavation work adjacent to roadways, or other locations where vehicle traffic may be a factor, a determination as to whether the traffic may constitute a vibration hazard must be made. If it is determined that vibration could be a factor, the excavation must be reviewed and certified by a professional engineer.
19. When determining requirements for excavation safety, the following factors must be taken into account:

- a. soil cracks
- b. water saturation
- c. vibration
- d. weather
- e. previous excavations
- f. soil type



- 20. Water must not be allowed to accumulate in excavations where it may affect the excavation's stability or endanger workers.
- 21. Frozen soil cannot be used as reasons for heavier loading or reduced shoring.
- 22. Trench support systems must be inspected daily and maintained in fully effective condition.
- 23. Excavations will be guarded to prevent persons from falling into the excavation. This will be done by using guardrails or steel modular fencing.
- 24. Walkways across excavations must be at least 1.5m wide, and if crossing an excavation over 1.2 m (4 ft.) deep, be equipped with guardrails. Walkways must be secured to prevent dislodgement.
- 25. Powered machines excavating banks will be positioned so that the operator is on the side away from the bank and with the boom positioned closest to the side of the excavation.
- 26. Sloping and shoring must be as follows:
 - a. Sloping of the sides of excavations may be done instead of shoring only where workers have protection equivalent to that provided by shoring. In no case may a slope be steeper than 3/4 horizontal to 1 vertical.
 - b. Shoring uprights, and the edge of pre-engineered shoring cages, must extend from at least 30 cm (1 ft.) above ground level to within 60 cm (2 ft.) from the bottom of the trench, except where roadway covers are utilized.
 - c. The work Safe Practice for installation or removal of shoring, must ensure that workers are not exposed to undue risk. In general, shoring must be installed from the top down and removed in reverse order.



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- d. Soil Types must be determined as a preliminary step in determining sloping/shoring requirements unless it is designed by a professional engineer. Soil types are as follows:
 - e. Table(s) provided in the OHSA (Referred to in Sec 238) can be used for a combination of supporting and sloping, the selection of shoring elements must be based on the overall depth of the excavation, and the arrangement must conform to Table in OHSA.
 - f. Cross braces and trench jacks must be installed in a horizontal position and must be secured against dislodgement.
 - g. The minimum number of cross braces at each cross bracing location is determined by the trench depth as follows:
 - h. Throughout Section 238 in the OHSA there is a description of how to organize and build shoring for supporting the sides of an excavation. Sizes and description of materials to be used and measurements to be used to build.

Excavation Checklist

The following checklist is provided help ensure compliance with excavation requirements:

Local underground utilities are located before digging or drilling and:

- excavation or drilling work conducted in accordance with the owner of underground services requirements and applicable regulations
- pointed tools are not used to probe for underground gas or power lines
- power equipment does not endanger personnel or damage services

The area around the excavation is made safe by securing or removing objects as may be necessary, including trimming and scaling when required.

The excavation is sloped, shored or determined to be safe prior to any person entering into the excavation and:

- the sloping/shoring design is in accordance with the OHSA or designed by a professional engineer
- the sloping/shoring meets the design specifications and is consistent with the requirements of the OHSA.

There is a means to allow workers to safely enter and exit the excavation.

Shoring materials used are inspected, maintained, and repaired in accordance with the manufacturer's specifications or those of a professional engineer.

Safe shoring procedures have been established and includes:

- shoring materials installed from the top down
- workers do not enter excavation if conditions have deteriorated
- installation of prefabricated support systems that ensures no voids and firm contact with the sides of the excavation



- Adequate measures are taken to ensure spoil piles do not increase the hazard.
- Excavations that are a hazard to workers must be covered or guarded.
- Walkways crossing an excavation have appropriate fall protection.
- Horizontal shoring is protected when removing materials from excavations.
- The height of unstable faces does not exceed the maximum safe reach of the excavation equipment being used.
- Excavating power equipment is position safely (operator on side away from bank & boom positioned closest to the side of the excavation whenever possible).
- Water is not allowed to accumulate that might affect soil stability or create erosion problems that could affect worker safety.



Excavations – Sloping for Soil Types

Responsibilities

Employer	The Employer is responsible for ensuring personnel comply with LCE H&S Program and regulatory requirements for safe excavations and trenching. The Employer is responsible to ensure that Supervisor fulfill their responsibilities.
Supervisor	It will be the responsibility of the Supervisor to implement the required safety precautions for safe excavations and trenching. They have direct responsibility to ensure no one enters an unsloped/unsloped excavation or trench over 1.2 meters (4 ft.) in depth. They are responsible for ensuring all shoring equipment and materials are serviced, maintained, and installed in accordance with the manufacturer's specifications and regulatory requirements. The Supervisor is responsible to ensure workers have received proper instruction and training prior to conducting this type of work.
Workers/ Operators	It will be the responsibility of Workers to comply with the safe work requirements set forth within this practice. Workers will immediately notify their Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel.
2. All workers should use personal protective equipment suitable and necessary for the hazards of the work being performed.
3. Equipment and materials required to ensure excavations/trenches are secured against collapse.

Safe Work Practice

This Safe Work Practice applies to LCE and our subcontractors when performing excavation and trenching work up to a **maximum of 20 ft. (6 m) deep**. They have been developed to provide guidance and direction on how to apply sloping requirements to

Excavations – Sloping for Soil Types

The base document for this Safe Work Practice is the *OSHA Regulations for Construction*. Basing our Safe Work Practice on this source of information provides LCE with a defensible reason why we do what we do to ensure adequate sloping for varied soil conditions. **Contact a Geo-Technical Engineer if you have any doubt about the adequacy of this Safe Work Practice for the excavation work you are performing**

NOTE: Excavations deeper than 20 ft. (6 m) must be done in accordance with written instructions of a qualified registered professional engineer or geoscientist.



Definitions

<i>actual slope</i>	The slope to which an excavation face is excavated. The <i>actual slope</i> cannot be steeper than the <i>maximum allowable slope</i> .
<i>cemented soil</i>	Soil in which the particles are held together by a chemical agent, such as calcium carbonate, such that a hand-size sample cannot be crushed into powder or individual soil particles by finger pressure.
<i>cohesive soil</i>	Clay (fine grained soil), or soil with a high clay content, which has cohesive strength. Cohesive soil does not crumble, can be excavated with vertical side slopes, and is plastic when moist. Cohesive soil is hard to break up when dry, and exhibits significant cohesion when submerged. Cohesive soils include clayey silt, sandy clay, silty clay, clay and organic clay.
<i>Distress</i>	The soil is in a condition where a cave-in is imminent or is likely to occur. It is evidenced by development of fissures in the face of or adjacent to an open excavation, the subsidence of the edge of an excavation, the slumping of material from the face or the bulging or heaving of material from the bottom of an excavation, the spalling of material from the face of an excavation, and raveling (small amounts of material such as pebbles or little clumps of material suddenly separating from the face of an excavation and trickling or rolling down into the excavation).
<i>dry soil</i>	Soil that does not exhibit visible signs of moisture content.
<i>Fissured</i>	Soil material that has a tendency to break along definite planes of fracture with little resistance, or a material that exhibits open cracks, such as tension cracks, in an exposed surface.
<i>granular soil</i>	Gravel, sand, or silt (coarse grained soil) with little or no clay content. Granular soil has no cohesive strength. Some moist granular soils exhibit apparent cohesion. Granular soil cannot be molded when moist and crumbles easily when dry.
<i>layered system</i>	Two or more distinctly different soil or rock types arranged in layers. Micaceous (consisting of, containing, or resembling mica) seams or weakened planes in rock or shale are considered layered.
<i>maximum allowable slope</i>	The steepest incline of an excavation face that is acceptable for the most favorable site conditions as protection against cave-ins, and is expressed as the ratio of horizontal distance to vertical rise (H:V).
<i>moist soil</i>	A condition in which a soil looks and feels damp. Moist cohesive soil can easily be shaped into a ball and rolled into small diameter threads before crumbling. Moist granular soil that contains some cohesive material will exhibit signs of cohesion between particles.
<i>plastic</i>	A property of a soil which allows the soil to be deformed or molded without cracking, or appreciable volume change.



<i>saturated soil</i>	A soil in which the voids are filled with water. Saturation does not require flow. Saturation, or near saturation, is necessary for the proper use of instruments such as a pocket penetrometer or sheer vane.
<i>soil classification system</i>	A method of categorizing soil and rock deposits in a hierarchy of Stable Rock, Type 1, Type 2, and Type 3, Type 4, in decreasing order of stability. The categories are determined based on an analysis of the properties and performance characteristics of the deposits and the characteristics of the deposits and the environmental conditions of exposure.
<i>stable rock</i>	Natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.
<i>submerged soil</i>	Soil which is underwater or is free seeping.
<i>unconfined compressive strength</i>	The load per unit area at which a soil will fail in compression. It can be determined by laboratory testing, or estimated in the field using a pocket penetrometer, by thumb penetration tests, and other methods.
<i>wet soil</i>	Soil that contains significantly more moisture than moist soil, but in such a range of values that cohesive material will slump or begin to flow when vibrated. Granular material that would exhibit cohesive properties when moist will lose those cohesive properties when wet.

Determining Soil Type

The first part of determining sloping requirements for excavations is establishing the soil type. Several field tests can be used to make the determination. It is recommended that at least one visual and at least one manual analysis be completed to determine soil type.

If it is determined that the soil is a layered system it should be classified in accordance with its weakest layer. However, each layer may be classified individually where a more stable layer lies under a less stable layer.

Caution: Conditions may change after the initial determination, e.g., saturation of the soil after a heavy rain. In these situations a reassessment must be completed to ensure the soil type is correctly identified and the corresponding safety provided by sloping is adequate.

Visual Tests

A visual analysis is used to determine information about the excavation site in general, the soil adjacent to the excavation, the soil forming the sides of the open excavation, and the soil taken as samples from excavated material. To conduct a visual test, observe:

- **Samples of soil that are excavated and soil in the sides of the excavation:** Estimate the range of particle sizes and the relative amounts of the particle sizes. Soil that is primarily composed of fine-grained material is cohesive material. Soil composed primarily of coarse-grained sand or gravel is granular material.
- **Soil as it is excavated:** Soil that remains in clumps when excavated is cohesive. Soil that breaks up easily and does not stay in clumps is granular.



- **The side of the opened excavation and the surface area adjacent to the excavation:** Crack-like openings such as tension cracks could indicate fissured material. If chunks of soil spall off a vertical side, the soil could be fissured. Small spalls are evidence of moving ground and are indications of potentially hazardous situations.
- **The opened side of the excavation to identify layered systems:** Examine layered systems to identify if the layers slope toward the excavation. Estimate the degree of slope of the layers.
- **The area adjacent to the excavation and:**
 - The sides of the opened excavation for evidence of surface water, water seeping from the sides of the excavation, or the location of the level of the water table.
 - The area within the excavation for sources of vibration that may affect the stability of the excavation face.
 - The excavation itself for evidence of existing utility and other underground structures, and to identify previously disturbed soil.

Manual Tests

Manual analysis of soil samples should be done to in addition to the visual tests to more positively classify the soil type. Any of the five manual tests could be used:

1. **Plasticity:** Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as 1/8-inch in diameter. Cohesive material can be successfully rolled into threads without crumbling. For example, if at least a two inch (50 mm) length of 1/8-inch thread can be held on one end without tearing, the soil is cohesive.
2. **Dry strength:** If the soil is dry and crumbles on its own or with moderate pressure into individual grains or fine powder, it is granular (any combination of gravel, sand, or silt). If the soil is dry and falls into clumps which break up into smaller clumps, but the smaller clumps can only be broken up with difficulty, it may be clay in any combination with gravel, sand or silt. If the dry soil breaks into clumps which do not break up into small clumps and which can only be broken with difficulty, and there is no visual indication the soil is fissured, the soil may be considered unfissured.
3. **Thumb penetration:** The thumb penetration test can be used to estimate the unconfined compressive strength of cohesive soils. This test is based on the thumb penetration test described in American Society for Testing and Materials (*ASTM Standard Designation D2488 - Standard Recommended Practice for Description of Soils, Visual - Manual Procedure*). Type 1 soils with an unconfined compressive strength of 1.5 tsf can be readily indented by the thumb; however, they can be penetrated by the thumb only with very great effort. Type 3 soils with an unconfined compressive strength of 0.5 tsf can be easily penetrated several inches by the thumb, and can be molded by light finger pressure. This test should be conducted on an undisturbed soil sample, such as a large clump of spoil, as soon as practicable after excavation to keep to a minimum the effects of exposure to drying influences. If the excavation is later exposed to wetting influences (rain, flooding), the classification of the soil must be changed accordingly.



4. **Other strength tests:** Estimates of unconfined compressive strength of soils can also be obtained by use of a pocket penetrometer or by using a hand-operated shear-vane.
5. **Drying test:** The basic purpose of the drying test is to differentiate between cohesive material with fissures, unfissured cohesive material, and granular material. The procedure for the drying test involves drying a sample of soil that is approximately one inch thick (2.54 cm) and six inches (15.24 cm) in diameter until it is thoroughly dry:
 - If the sample develops cracks as it dries, significant fissures are indicated.
 - Samples that dry without cracking are to be broken by hand. If considerable force is necessary to break a sample, the soil has significant cohesive material content. The soil can be classified as an unfissured cohesive material and the unconfined compressive strength should be determined.
 - If a sample breaks easily by hand, it is either a fissured cohesive material or a granular material. To distinguish between the two, pulverize the dried clumps of the sample by hand or by stepping on them. If the clumps do not pulverize easily, the material is cohesive with fissures. If they pulverize easily into very small fragments, the material is granular.

Sloping Requirements

The sloping requirements are based on the determination of the soil type. Keep in mind that the slope angle should be increased if conditions require a greater level of safety. Two specific conditions where this applies are:

- **Signs of distress:** The *actual slope* must be less than the *maximum allowable slope*. In these situations the slope will be cut back to an *actual slope* which is at least 1/2 horizontal to one vertical (1/2H:1V) less steep than the *maximum allowable slope*.
- **Additional loading:** The *actual slope* must be reduced below the *maximum allowable slope* when loading from stored material or equipment, operating equipment, or traffic are present.





Fall Protection – Excavation Slopes

Responsibilities

Employer	<p>It is the responsibility of the Employer to ensure that:</p> <ul style="list-style-type: none">• A Plan is developed for sites that require Fall Protection to protect workers or the public under supervision.• All workers on all sites that require a Fall Protection Plan are trained in proper execution of the plan.• Adequate fall protection measures are implemented for all sites whether they require a Fall Protection Plan or not.
Supervisor	<p>It will be the responsibility of the Supervisor to take reasonable and practical measures to implement adequate fall protection on sites they supervise. Supervisors must ensure site equipment is serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in fall protection as required.</p>
Worker	<p>It will be the responsibility of the Worker(s) to take reasonable and practical measures to comply with fall protection requirements, and to have site equipment serviced, maintained and operated in a professional and safe manner. Workers receive training in, and adhere to, fall protection procedures and plans, including using fall protection equipment as required. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.</p>
Subcontractor	<p>Subcontractor Supervisors will ensure all workers under their authority receive fall protection training from a qualified individual. Training documentation may be made available to LCE upon request. Subcontractors must ensure that the required safety equipment is available, it is regularly inspected and maintained, and used.</p>

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility vests are mandatory.
2. All workers should use personal protective equipment suitable and necessary for the hazards of the work being performed.
3. Details of required fall protection equipment is referred to throughout this Safe Work Practice.



Safe Work Practice

This Safe Work Practice applies to LCE and our subcontractors when performing excavation and trenching work. They have been developed to provide guidance and direction on how to apply fall protection requirements to excavations. This Safe Work Practice is necessary because there are no prescriptive regulatory requirements that would provide clear direction for when fall protection is required, and how the regulatory requirements are to be applied to the sloped sides of excavations.

The fall protection hierarchy detailed in this Safe Work Practice provides two key pieces of information for applying fall protection requirements. First, it describes the order that must be used when choosing the best fall protection methods. Guardrails are always the most desirable, but may not be practicable, so the next method listed is the next most desirable method. Secondly, the fall protection hierarchy is a list of acceptable methods. For example, if control zone is not listed, it cannot be used.

Scenario 1

Conditions:

- Slope is no steeper than 1:1 (45°)
- Slope terminates on to a flat surface
- There are no hazards on the flat surface, e.g., exposed/unprotected rebar, sharp objects, rocks/boulders, traffic, etc.

Fall Protection:

- No fall protection is required to work above or on the slope

Scenario 2

Conditions:

- Slope is steeper than 1:1 (45°)
- Slope terminates on to a flat surface

Fall Protection:

- Fall protection is required for work closer than 13 ft. (4m) to top edge of slope
 - Fall protection hierarchy:
 1. Guardrails
 2. Fall restraint
 3. Fall arrest
 4. Control zone
 5. Control zone with monitor
 6. Safety nets



- Fall protection is required if the work is at an elevation that is more than 10 ft. (3m) from the bottom surface or less than 10 feet if there are hazards such as exposed/unprotected rebar, sharp objects, rocks/boulders, traffic, etc.
 - Fall protection hierarchy:
 1. Guardrails
 2. Fall restraint
 3. Fall arrest
 4. Safety nets

Scenario 3

Conditions:

- Slope is **more than 8:12 (34°)**
- Bottom edge has a fall hazard of more than 10 ft. (3m) or less than 10 feet if there are hazards such as exposed/unprotected rebar, sharp objects, rocks/boulders, traffic, etc.
- **Note:** *Height of fall hazard must take include the drop at the edge and the vertical height of the work position on the slope.*

Fall Protection:

- Fall protection is required if working within 13 ft. (4 m) of the top edge
 - Fall protection hierarchy:
 1. Guardrails
 2. Fall restraint
 3. Fall arrest
 4. Control zone
 5. Control zone with monitor
 6. Safety nets

Personal Fall Protection required for all work on slope

- Fall protection hierarchy:
 1. Fall restraint
 2. Fall arrest
 3. Safety nets

Scenario 4

Conditions:

- Slope is greater than 4:12 (18.5°) and less than 8:12 (34°)
- Bottom edge has a fall hazard of more than 10 ft. (3m) or less than 10 feet if there are hazards such as exposed/unprotected rebar, sharp objects, rocks/boulders, traffic, etc.
- **Note:** *Height of fall hazard must take include the drop at the edge and the vertical height of the work position on the slope.*



Fall Protection:

- Fall protection is required if working within 13 ft. (4 m) of the top edge
 - Fall protection hierarchy:
 1. Guardrails
 2. Fall restraint
 3. Fall arrest
 4. Control zone
 5. Control zone with monitor
 6. Safety nets

Fall protection required for all work on slope

- Fall protection hierarchy:
 1. Guardrails
 2. Fall restraint
 3. Fall arrest
 4. Safety nets

Scenario 5

Conditions:

- Slope is less than 4:12 (18.5°)
- Bottom edge has a fall hazard of more than 10 ft. (3m) or less than 10 feet if there are hazards such as exposed/unprotected rebar, sharp objects, rocks/boulders, traffic, etc.

Fall Protection:

- Fall protection is required if working closer than 13 ft. (4m) to bottom edge
 - Fall protection hierarchy:
 1. Guardrails
 2. Fall restraint
 3. Fall arrest
 4. Control zone
 5. Control zone with monitor
 6. Safety nets



Fall Protection – Working at Heights

Responsibilities

Employer	<p>It is the responsibility of the Employer to ensure that:</p> <ul style="list-style-type: none">A Fall Protection Plan is developed for all sites under his supervision and that require a Fall Protection Plan.All workers on all sites that require a Fall Protection Plan are trained in proper execution of the plan.Adequate fall protection measures are implemented for all sites whether they require a Fall Protection Plan or not.
Supervisor	<p>It will be the responsibility of the Supervisor to take reasonable and practical measures to implement adequate fall protection on sites they supervise. Supervisors must ensure site equipment is serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in fall protection as required.</p>
Worker	<p>It will be the responsibility of the Worker(s) to take reasonable and practical measures to comply with fall protection requirements, and to have site equipment serviced, maintained and operated in a professional and safe manner. Workers receive training in, and adhere to, fall protection procedures and plans, including using fall protection equipment as required. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.</p>
Subcontractor	<p>Subcontractor Supervisors will ensure all workers under their authority receive fall protection training from a qualified individual. Training documentation will be kept on site and made available to FTG Constructors upon request. Subcontractors must ensure that the required safety equipment is available, it is regularly inspected and maintained, and used.</p>

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility vests are mandatory.
2. All workers should use personal protective equipment suitable and necessary for the hazards of the work being performed.
3. Details of required fall protection equipment is referred to throughout this Safe Work Practice.



Conditions

Fall protection is required whenever there is a hazard of a fall from 3 m (10 feet) or more, or a fall hazard from a lesser height which involves an unusual risk of injury. The **fall hazard area** extends 2 meters (6 feet 6 inches) back from any unprotected edge plus the height of any elevated work platform such as a ladder. For example, a worker five feet up a ladder is in the fall hazard area if within 11'6" from a slab edge. Any worker within the fall hazard area must use fall protection such as guardrails, fall restraint or fall arrest equipment, or a safety monitor.

A **Fall Protection Plan** is required if:

- a fall of 7.5 m (25 feet) or more may occur and there are not permanent guardrails to protect workers
- a safety monitor and control zone or other work procedures to protect workers are used,
- OHSA directs that a Fall Protection Plan is required.

The **Fall Protection Plan** will include (and the risks assessed for) the following:

- fall hazards expected
- fall protection systems to be used
- assembly, maintenance, inspection, use and disassembly procedures for fall protection system
- rescue procedures

A Fall Protection Plan document is provided in this Section and will be used to develop site specific fall protection plans.

Safe Work Practice

1. The **locations** that will require fall protection include but are not limited to the following examples:
 - Falls from a height of 10 feet (3 meters) or more, or when a lesser height involves unusual risk of injury.
 - If you may fall a vertical drop onto an active traffic area.
 - Floor openings during construction of structures.
 - Activities atop of equipment or operating machinery.
 - Work from ladders, scaffolds and elevating work platforms.
2. The **hierarchy of choice** for fall protection will be as follows:
 - a. Eliminate the need to work at heights by design or work planning.
 - b. Use guardrails.
 - c. Fall restraint.
 - d. Fall arrest.
 - e. Other methods acceptable to OHSA such as safety nets, or control zones and safety monitor.



3. Guardrails will be constructed in accordance with the following guidelines:

- a. Top rails will be 102 cm to 112 cm (40 in to 44 in) in height above the work surface.
 - b. Mid rails will be placed approximately midway between the underside of the top rail and the top of the toe-board.
 - c. Toe-boards will be installed to protect workers from tools, materials, equipment or debris falling off the edge of the work surface, and the danger of slipping off the work surface due to the environmental conditions or work practices.
 - d. Uprights are to be at 2.4 meters (8 feet) maximum centers, except a scaffold where 3 meters (10 feet) maximum spacing is allowed.
 - e. Guardrails must be designed to withstand a horizontal load to the rail of 550N (125lbs) and a downward load of 1.5Kn per meter (100lbs. per foot).
 - f. Wooden top rails must be at least 38mm x 89 mm (2" x 4" nominal) for 2.4 meters (8 feet) centers and 38mm x 140mm (2" x 6" nominal) for 3 meters (10 feet) centers.
 - g. Wooden uprights must be installed with the narrow dimension facing the open edge.
 - h. Top rails and mid rails will be attached to inside of upright supports.
4. Workers installing guardrails must be protected from falling.
 5. Guardrails or other fall protection systems must be installed for work over water if a drowning hazard exists.
 6. Where guardrails have to be removed for work to proceed, permission to remove them must be obtained from the site supervisor. When fall prevention devices are temporarily removed, workers must be protected by other fall restraint or fall arrest devices.
 7. Guardrails and barricades that are temporarily removed must be replaced at the earliest opportunity. Areas unguarded as a result of such removal are not to be left unattended.
 8. Daily inspection of guardrails or fall prevention systems will be completed by the Supervisor.
 9. Ensure when building a deck that the guardrails are installed immediately after the joisting plywood or Q-decking are set. Guardrail protection must be increased to allow for any raised work platform in the danger area.
 10. Materials and tools being stored must be 10 feet back from the edge except for tools being used and working amounts of materials. Proper lift ropes and containers are to be used for hoisting tools and equipment.
 11. The danger zone beneath overhead workers shall be barricaded off to protect other workers and the public from the possibility of falling tools or equipment. If it is not feasible to barricade as above, a watchman will be posted.
 12. In situations where guardrails are impracticable a **fall restraint system** must be used.
 13. **Fall restraint systems** or **work positioning systems** prevent workers from falling from the position they are working in or prevent them from travelling to an edge from which they could fall. They include safety belts or harnesses, lanyards, lifelines and any other connecting equipment used to secure a worker to an individual anchor or horizontal lifeline system.
 14. Equipment used for fall restraint will comply with the following requirements:



- a. Fall restraint equipment will be CSA approved and will not allow the worker to reach the point of fall.
 - b. A fall protection harness will be worn with a non-shock-absorbing lanyard.
 - c. Lanyards must be attached to an anchor point which will withstand a loaded force of not less than **3.5 ken (800 lbs.)**.
15. Where it is not feasible to use Fall Restraint equipment (e.g., danger area such as work on the unguarded edge, properly constructed scaffolding should be used.
16. When **fall restraint devices** are temporarily removed or are impracticable, workers must be protected by **fall arrest equipment**.
17. **Fall arrest systems** stop a worker in mid-fall before striking a lower surface. They include personnel nets or full body harnesses with lanyards, shock absorbers, lifelines (vertical or horizontal) and other connecting equipment used to secure the worker to an anchor.
18. Independently anchored lifelines and safety harnesses are required for all workers **on swing stages** which are 3 meters (10 feet) or more above a floor or grade. (This does not apply where a boatswain's chair is suspended by a block and tackle system, acceptable to the OHS, which is manually operated by the worker in the chair.)
19. **Fall arrest equipment** shall be CSA approved to support **22 ken (5,000lbs)** and not allow the worker to fall more than 4 feet. One worker per lanyard or safety line.
20. **Anchors** for fall protection must meet the following general requirements:
- a. A lifeline, or a lanyard used without a lifeline, must be secured to an anchor.
 - b. An anchor plate with multiple attachment points designed to support combinations of suspension lines, tie-back lines and lifelines must be certified in writing by a professional engineer.
 - c. A temporary anchor must be removed upon completion of the work.
21. **Anchors** used in a **fall arrest** system, an anchor for a **vertical lifeline or for a lanyard used without a lifeline** must:
- a. Have an ultimate load capacity of at least **22 ken (5,000 lbs.)**, in any direction required to resist a fall, and;
 - b. When permanent, be certified in writing by a professional engineer as having the required load capacity.
22. Unless designed and certified by an engineer, **vertical lifeline and lanyard fall arrest** combinations must:
- a. meet the requirements of *Canadian Standards Association Standard Z259.2-N1979, Fall Arresting Devices, Personnel Lowering Devices, and Lifelines*
 - b. have a breaking strength of not less than 26.7 ken (6,000 pounds)
 - c. extend to within 1.2 meters (4 feet) of a safe working level
 - d. not exceed 91 meters (300 feet) in length
 - e. be installed and used in a manner that minimizes swing
 - f. only be used by one worker at a time (unless the vertical lifeline is part of a ladder safety device)



-
- g. be secured to an independent point of anchorage for each vertical lifeline
 - h. be protected from abrasion, at points of attachment and elsewhere, as necessary to prevent chafing or abrasion caused by contact with sharp rough edges
 - i. be free of knots and splices except at the termination point
 - j. be made of wire rope when a tool is used that could sever, abrade or burn a lifeline
 - k. **not be made of wire rope** if working near an energized electrical conductor or in another work area where a conductive lifeline cannot be safely used
23. **Termination knots or splice** must not reduce the breaking strength of a **vertical lifeline** to less than 22 ken (5,000 lbs.).
24. A wire rope **vertical lifeline** must not be used when there is potential for contact with energized electrical conductors.
25. The **swing-fall** hazard in a **vertical fall arrest** system must be addressed and meet the following requirements:
- a. A vertical lifeline must be installed and used so swing-fall hazard is minimized.
 - b. A “thumb rule” is for every 10’ of longitudinal distance, 4’ of perpendicular distance is permitted, thus keeping the swing fall angle within 22 degrees.
26. **Permanent horizontal lifeline systems** must be certified by a professional engineer.
27. **Temporary horizontal lifeline** systems used for **fall arrest** must meet the following requirements:
- a. the horizontal lifeline must be a minimum 12 mm (1/2 inch) diameter wire rope with a minimum breaking strength of 89 ken (20,000 pounds)
 - b. the lifeline must be free of splices except for end terminations
 - c. the span must be at least 6 meters (20 feet) and not more than 18 meters (60 feet)
 - d. end anchors and connecting hardware (e.g., shackles and turnbuckles) must have an ultimate load capacity of at least 71 ken (16,000 pounds)
 - e. the lifeline must have an unloaded sag of approximately the span length divided by 60
 - f. the elevation of the line at any point must be at least 1 meter (39 inches) above the work surface
 - g. the worker's free fall distance must be limited to 1.2 meters (4 feet)
 - h. a minimum of 3.5 meters (12 feet) of unobstructed clearance must be available below the work surface
 - i. no more than three workers may be attached to a horizontal lifeline
 - j. the horizontal lifeline must be installed so that it does not impede the safe movement of workers
28. The **free fall limits** in a **fall arrest** system must meet the following requirements:
- a. A personal fall arrest system without a shock absorber must limit the free fall of a worker to 1.2 meters (4 feet).

-
- b. A personal fall arrest system with a shock absorber can allow free fall of up to 2 meters (6.5 feet), or the limit specified in the manufacturer's instructions, whichever is less.
29. A **lifeline** used as part of a **ladder safety device** must meet the requirements of *American National Standards Institute Standard A14.3-1984 - For Ladders-Fixed-Safety Requirements*, or other standards acceptable to the Board.
27. A **double line system**, where the lifeline and equipment suspension line are rigged through a common control descent device, must not be used unless the system and Safe Work Practice of its use are acceptable to WSBC.
28. Safety belts, harnesses, lanyards, lifelines, connecting hardware anchors and other similar devices must be:
- a. Inspected by a qualified person before use on a work shift.
 - b. Kept free from substances and conditions that could contribute to their deterioration, and
 - c. Maintained in good working order.
29. A device or part that is defective must be removed from service.
30. After a fall arrest system has arrested the fall of worker, it must be removed from service and re-certified by the manufacturer or its authorized agent or by a professional engineer.
31. When fall arrest systems are not practicable or will result in hazards that are greater than if the system were not used, a **safety monitor/control zone system** or other Safe Work Practice may be used upon approval by the F Constructors Manager H&S.
32. **Control zones** are not permitted as a fall protection system when:
- a. the working surface has a slope that exceeds 4 vertical in 12 horizontal
 - b. working on skeletal structure work
 - c. erecting or dismantling scaffold
33. The width of the **Control Zone** must be at least 2 meters (6 1/2 feet), and additional distance must be added to the minimum width of a control zone when the:
- a. working surface is slippery or sloped
 - b. work is carried out at an elevation relative to the unguarded edge
 - c. risk is increased by the use of equipment near the control zone
34. When workers will at all times remain further from the unguarded edge than the width of the control zone, no other fall protection system need be used.
35. If a worker will be working within 2 meters (6 1/2 feet) of the control zone, the line defining the control zone must be established by a raised warning line 36" high or other equally effective means at all times during such work.



36. The duty of the **Safety Monitor** is to ensure that the work activity in the **control zone** is performed in accordance with the fall protection plan and in a manner that minimizes the potential for a worker to fall.
37. A safety monitor must:
 - a. Be experienced in the work overseen and trained in the role of safety monitor.
 - b. Be present at all times when a worker is in the control zone.
 - c. Have complete authority over the work as it relates to the prevention of falls.
 - d. Engage in no other duties while acting as the safety monitor.
 - e. Be located so as to have a clear view of the work.
 - f. Be able to have normal voice communication with the workers being protected.
 - g. Be instantly distinguishable from other workers.
38. Only workers directly required for the work at hand may be inside the control zone.
39. A safety monitor may monitor a maximum of eight workers.
40. The safety monitor's name and a copy of his training records must be supplied to the LCE Site Superintendent prior to work commencing in the Control Zone.
41. **Floor openings and pits** must always be barricaded or covered with adequate planking securely fastened in place. All temporary covers for floor openings must be marked to indicate their purpose. The standard symbol for marking covers for floor openings is a large circle with an "X" through it marked in red or orange paint.

The following checklist is provided help ensure compliance with fall protection requirements:

All situations where fall protection is required have been identified, i.e., work over 3.0 m (10 feet) or when special hazards exist.

A written fall protection plan is in place before work begins for all work above 7.5 m (25 feet) and includes as a minimum:

- identification of fall hazards
- details on fall protection systems to be used in each area
- rescue Safe Work Practice

Workers are instructed in fall protection before entering work areas where fall hazards exist.

Guardrails are used whenever possible, and are of the right type & construction.

Harnesses, safety belts, lanyards, and safety nets used are of the right type, are used when required, are maintained and:

- snap hooks on lanyards are self-locking
- shock absorbers are used on lanyards as required by regulation
- carabineers, links & rings (when used) meet the standard as required by regulation

Anchor points are the right type and strength for the system in use (fall restraint & fall arrest).

Certification in writing by a professional engineer is obtained for:

- anchor points & plates
- permanent horizontal lifeline systems (if not designed in accordance with OHSR)



Sections 26(6), 141)

- structures used to support a safety net

Vertical lifelines are of the correct type and installation, and meet the regulatory requirement.

Horizontal lifeline systems used are of the correct type and installation, and meet the requirements of the regulation.

All fall protection equipment is inspected and maintained, and defective equipment removed from service.

Control zones:

- are not used for sloped surfaces exceeding 4 to 12 ratio, on skeletal structure work, or scaffold erection & removal
- are of appropriate width (at least 2.0 m plus additional distance for slope, slip hazards, unguarded edges, and risk created by equipment)
- include the use of raised warning lines meeting the regulatory standards “qualified safety monitor” is used as required by regulation



Len Corcoran Excavating - Site Specific Fall Protection Plan
Add Additional Pages as Necessary

Site Identification: _____

Project: _____

Supervisor: _____

This Plan must be completed by the Supervisor for **each** work site location where:

- work will be done while workers are not protected by permanent guardrails, and from which a fall of 7.5 meters (25 feet) or more may occur, or
 - a safety monitor & control zone system has been selected as the means of fall protection, or
 - the Occupational Health and Safety Act and Regulations has determined that a fall may result in an unusual risk of injury.
-

IDENTIFICATION OF FALL HAZARDS

Please put a check mark in the box by the corresponding hazard(s) and provide a description of the exact location(s).

- EXCAVATION CONFINED SPACE ENTRY ROOF TOP
 SHAFT SCAFFOLD WORK PLATFORM FLOOR OPENING
 OTHER (describe) _____

Description of exact location(s) of Fall Hazard(s) _____

IDENTIFICATION OF FALL PROTECTION

Please put a check mark in the box by the corresponding system(s).

- GUARDRAIL FALL ARREST BARRIER CONTROL ZONE
 FALL RESTRAINT SAFETY MONITOR COVER
 OTHER (Identify) _____

Fall Protection System Assembly / Disassembly instructions: _____



Instructions for use: _____

Maintenance instructions: _____

Inspection instructions: _____

Rescue Procedures: _____

Name of Safety Monitor (if used): _____

.....
Have you reviewed the *Working at Heights Supplementary Instructions* and this completed Plan with all affected crew members? YES _____ NO _____

Plan Completed By (Name) _____ **Date:** _____

Please forward one copy to Len Corcoran Excavating Head Office, and post one copy at the project.



Falling Object Prevention

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to provide direction on prevention of falling objects.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to implement effective falling object prevention. The Supervisor is responsible to ensure workers have received proper instruction and training for falling object prevention.
Worker	It will be the responsibility of the Worker(s) to take reasonable and practical measures to work in accordance to the falling object prevention Safe Work Practice.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required on LCE projects.
2. All workers must use personal protective equipment suitable and necessary for the hazards of the work being performed.

Safe Work Practice

1. Ensure that all guardrails, midrails and toe boards are in place as required. Where required, assess the possibility of using a combination cable guardrail system which includes mesh or fencing as a protective barrier to prevent materials or debris from falling.
2. Always pre-plan items such as guard rail placement and replacement as well as site cleanup. This will help to eliminate the confusion often surrounding these issues and greatly reduce the possibility of accidents from falling objects.
3. Ensure that all entrances to the jobsite, where workers are required to work or travel under overhead hazards, are adequately covered or protected. This is a requirement.
4. Ensure that procedures for slab stripping near the perimeter edge include methods of preventing materials from falling to the ground.
5. Ensure that all workers on the job are aware of overhead hazards on the site.
6. Ensure that a procedure is in place regarding the movement of materials over areas where workers are situated and that the procedure includes the audible warning of workers that a load is moving overhead in proximity to them.
7. Install debris nets to the project perimeter as a means of catching materials or debris that may inadvertently fall during the formwork process.





Fire Prevention – Construction Sites

Responsibilities

Employer	The Employer will take reasonable measures to have site equipment and materials available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	Supervisors will take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training on this Safe Work Practice and related activities.
Worker	Worker(s) will take reasonable measures to have site equipment serviced, maintained and operated in a professional and safe manner. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. Personal Protective Equipment (hardhat, CSA footwear, eye and hearing protection where required, gloves, fire resistant clothing where required).
2. Fire extinguishers (dry chemical (ABC) or water type) – Dependent upon the types of fire hazards on the project.

Local Fire Departments

Most LCE projects are serviced by **Kingston and Emergency Services**. They can be contacted by calling 911. Report fires immediately.

Conditions

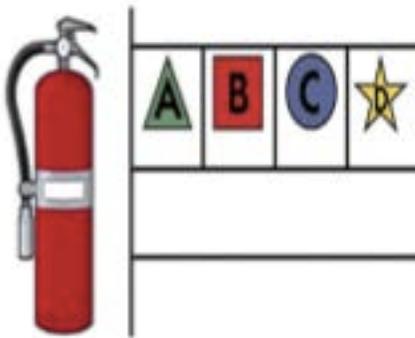
Every LCE employee and subcontractor is responsible for the prevention of fires at the work site. Prevention is the priority. Each site on the project will be equipped with basic fire suppression equipment to fight small fires. Do not attempt to fight fires if there is a risk to life or limb. Call 9-1-1 and let the fire department deal with the fire.

Emergency contact information and marshalling point locations will be posted on each site.

Safe Work Practice

1. The best means of fighting fires is to prevent them. All project personnel are responsible for taking appropriate actions to prevent fires.
2. Project personnel that observe a potential fire hazard must report it and/or address the hazard. Report fire hazards to the Supervisor so that the hazard can be eliminated or fire suppression equipment can be issued and maintained at the hazard location.

3. Fire watch, fire extinguishers and wetting dry areas must be taken for all hot work.
4. Fire prevention measures will be communicated to work crews at regular intervals.
5. No open fires or burning is permitted.
6. Fuels and combustible products will be stored in a manner that reduces fire risk.
7. If a fire occurs, try to extinguish it, summon assistance of fellow workers. If unable to extinguish the fire, raise an alarm and evacuate. Call 911 and report the fire.
8. The worker who first reported the fire must inform his immediate supervisor of the circumstances of the fire.
9. Fire suppression equipment must be readily accessible and in working condition.
10. Tampering with fire suppression equipment is a serious offense and is prohibited.
11. Be aware of the locations and types of fire extinguishers in your work area. There are four general classes of fires, and each requires a particular type of extinguishing agent. Portable fire extinguishers are labeled as to the types or classes of fires they should be used on.



CLASS "A" FIRES occur in materials such as rags, paper, wood and trash.

CLASS "B" FIRES arise from the vapor-air mixtures found with flammable liquids such as gasoline, oil, grease, paints and thinners.

CLASS "C" FIRES are electrical fires, or fires occurring in or near electrical equipment, thereby presenting the additional hazard of electrical shock.

CLASS "D" FIRES involve combustible metals (e.g.: sodium or magnesium).

How to Use a Portable Fire Extinguisher

Pull the pin.

Aim extinguisher nozzle at base of flame.

Squeeze the trigger while holding extinguisher upright.

Sweep the extinguisher from side to side, covering the area at the base of the flame.

REMEMBER: Should your path of escape be threatened... Should the extinguisher run out of agent...Should the extinguisher prove to be ineffective...Should you no longer be able to safely fight the fire...THEN RAISE THE ALARM AND LEAVE THE AREA IMMEDIATELY.



Flagging and Barricades

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to ensure materials are available and in proper order.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required on projects.
2. All workers must use personal protective equipment suitable and necessary for the hazards of the work being performed.

Conditions

There are two types of flagging tape in use and they are:

RED TAPE Immediate Danger- *Do not enter without authorization.*

YELLOW TAPE Caution- *Be aware of potential hazards within the area.*

Safe Work Practice

1. Prior to entering an area that has been **red flagged**, **all personnel** must contact the supervisor/foreman that has put the flagging in place and request permission to enter. No entry is allowed until permission has been granted. This may include but is not limited to areas where:
 - a. Rigging and lifting is occurring
 - b. Entrance into a confined space is required
 - c. There is imminent danger to life and safety of personnel
2. Prior to entering an area that has been **yellow flagged**, **all personnel** must take time to identify potential hazards, either listed on the tagging flag or otherwise identified. Once aware of the potential dangers, personnel may then enter the area. It is a good work practice to identify your intentions in the flagged area, to the personnel who initially erected the flagging.

3. Your task in yellow-flagged areas may conflict or add additional hazards to the area which the originating personnel may not be aware of. This may include but is not limited to areas where:
 - a. A piece of process equipment has been removed
 - b. Non-hazardous/low hazardous equipment is being drained
 - c. Maintenance work is being conducted
 - d. There is potential for injury or work occurring that is not a normal occurring activity
 - e. Swing paths of cranes, backhoes, graders, etc.
4. Flagging tape must be installed to completely encompass the work area containing the potential hazard. When the task has been completed or the potential hazards have been removed, the flagging tape must be removed and placed back into storage or placed in the appropriate disposal containment.
5. When flagging off a work area, the flagging tape shall be of a uniform colour.
6. A “Flagging Tag” must be attached to the flagging tape with the following information filled out:
 - Department
 - Contact person
 - Phone/radio channel
 - Reason for flagging (hazard identification)
 - Date that flagging was installed
7. The “Flagging Tag” is to be completed by person installing the tape.
8. Barricades are to be used to reduce or eliminate potential risks or hazards by limiting access. Barricades may be made from metal, wood or concrete.
9. Examples of areas requiring barricades are:
 - Excavations
 - Fuel tanks
 - Propane tanks
 - Heaters
 - Open holes
 - Temporary hoses/piping crossing a road
10. **ALL FLAGGING/BARRICADES MUST BE REMOVED WHEN HAZARDS NO LONGER EXIST!**



Flammable & Combustible Liquids

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to direct that flammable and combustible materials be stored and used in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to ensure flammable and combustible materials on site are stored and used by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in safe storage and use of flammable and combustible materials.
Worker	It will be the responsibility of the Worker(s) to take reasonable and practical measures to store and use flammable and combustible materials safely. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. Personal Protective Equipment (hardhat, CSA footwear, eye and hearing protection where required, gloves, fire resistant clothing where required).
2. Fire Extinguisher.
3. Approved fuel containers.

Safe Work Practice

1. Flammable & combustible liquids must be stored in designated storage areas, away from sources of ignition and the direct sun.
2. Containers with flammable & combustible liquids must be kept tightly closed to prevent hazardous vapor loss when not in use.
3. Only approved safety containers (CSA, ULC, FM, etc.) are to be used to store flammable & combustible liquids.
4. Equipment fuel tanks must not be filled:
 - while the engine is running
 - while anyone is smoking in or around the vehicle
 - while there is any known source of ignition in the immediate area, **including cell phones**
5. Volatile or flammable materials must not be carried in or on a vehicle transporting workers unless such materials are carried in an:



-
- isolated compartment accessible only from the outside
 - inside compartment separated from all persons by a firewall
 - in approved containers
6. Gasoline and other flammable liquids may only be transferred from one container to another if steps to prevent static electricity accumulation have been implemented. Static electricity may be controlled through the use of container contact or grounding. Glass, plastic or other non-conductive containers with a capacity of 23 liters or more that are used to transfer a flammable liquid must have static electricity controlled by:
 - limiting flow to less than one meter per second (200 fpm),
 - using a nozzle extending to the bottom of the container,
 - using anti-static additives, or other effective means.
 7. Gasoline dispensing from storage containers by means of an approved pump or gravity feed, must be done by utilizing hoses and fittings approved for that purpose.
 8. Gasoline must not be used to start fires.
 9. If flammable liquids are dispensed or transferred inside a flammable liquid storage room, the room must be adequately ventilated (1cfm/sq. ft.) to the outdoors, makeup air ducts must be equipped with fire dampers and the door to the room must be self-closing.
 10. Except for packaging used to contain flammable/combustible liquids, combustible shelves, racks, and other materials are not permitted inside a flammable/combustible liquids storage room/cabinet unless required as part of the fire separation.
 11. Keep fuel off clothing and promptly remove clothing that has been soaked with a flammable liquid.
 12. **Vehicles are never to be refueled under high-voltage power-lines.**



Hand Tools Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to ensure the correct hand tools are provided for the work to be completed. The hands tools must be maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to ensure hand tools are serviced, maintained and used by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of hand tools and use all required personal protective equipment.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. Personal Protective Equipment (hardhat, CSA footwear, safety eyewear – glasses, face shield, hearing protection, gloves, respiratory protection)
2. Miscellaneous hand tools.

Safe Work Practice

1. Inspection requirements for use of hand tools are as follows:

- a. All hand tools supplied by the Employer or employees will be maintained in safe working order.
- b. Hand tools shall be inspected regularly and before using. Tools or handles that are cracked, broken or deformed shall be removed from service. Impact tools such as wedges, pins and chisels shall be kept free of mushroomed heads.
- c. Employees, while working from heights, shall place tools, supplies and materials in a safe location so that these are not knocked off, or caused to slide off due to vibration, or they shall guard the danger area below. All loose parts, scrap, tools and supplies shall be removed from these elevated work areas when the repair or inspection is complete.
- d. Employees using hand tools are to be provided with Personal Protective Equipment (PPE) when exposed to falling, flying, abrasive and splashing object, or harmful dusts, fumes, vapors, or gases.
- e. The PPE should be matched against the particular hazard to provide the required level of protection. See Personal Protective Equipment SWP for details on matching PPE against the particular hazard.



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2. General requirements for safe use of hand tools are as follows:
 - a. Do not use tools for jobs they are not intended for.
 - b. Do not apply excessive pressure on tools.
 - c. Carry sharp or pointed tools in a heavy belt or apron rather than pockets, and hang tools at your sides, not behind your back.
 - d. Carry tools in a manner that does not interfere with using both hands when climbing a ladder or a structure.
 - e. Wear appropriate personal protective equipment (safety glasses, gloves, etc.).
 - f. Maintain tools carefully, keep them clean and dry, and store them properly after use.
 - g. Inspect tools for defects prior to use.
 - h. Replace cracked and broken handles on files, hammers, sledges and screwdrivers.
 - i. Re-dress burred or mushroomed heads of tools such as chisels.
 - j. Exercise extreme caution when using tools near live electrical circuits. Do not use cushion grip handles as a replacement for insulated handles.
 - k. Pull on wrenches and pliers. Never push unless you are using an open hand.
 - l. Face adjustable wrenches forward and turn the wrench so that pressure is against the permanent jaw.
 - m. Do not increase leverage by adding sleeves to increase tool length.
 - n. Do not cut or chip towards yourself when using cutting tools or chisels.
 - o. Do not re-dress, grind, weld or heat-treat hammer heads.
 - p. Do not use one hammer to strike another.
 - q. Do not use a dull chisel. Re-dress heat-treated tools with a whetstone rather than a grinder.

Metal-Cutting Hand Tools

Chisels

1. Factors determining the selection of a cold chisel are the materials to be cut, the size and shape of the tool, and the depth of the cut to be made.
2. The chisel should be made heavy enough so that it will not buckle or spring when struck.
3. A proper sized chisel should be selected so that the blade is used rather than the point of corner. Also, a hammer heavy enough to do the job should be used.
4. Employees shall wear safety goggles when using a chisel and should set up a shield or screen to prevent injury to other workers from flying chips. If a shield does not afford positive protection to all exposed employees, then glasses with side protection should be worn.



Hack Saws

1. Hack-saws should be adjusted in the frame to prevent buckling and breaking, but should not be tight enough to break off the pins that support the blade. Install blade with teeth pointing forward.
2. Pressure should be applied on the forward stroke not on the back stroke. If the blade is twisted or too much pressure is applied, the blade may break and cause injury to the hands or arms of the user.

Files

1. Selection of the right kind of file for the job will prevent injuries and lengthen the life of the file.
2. The extremely hard and brittle steel of the file chips easily, the file should never be cleaned by striking it against a vise or other metal object. A file-cleaning card or brush should be used.
3. For the same reason, a file is not to be hammered or used as a pry. Such abuse frequently results in the file's chipping or breaking causing injury to the user. A file should not be made into a center punch, chisel, or any other type of tool because the hardened steel may fracture in use.
4. A file is never to be used without a smooth, crack-free handle; if the file should bind, the tang may puncture the palm of the hand, the wrist, or other part of the body. Under some conditions, a clamp-on raised offset handle may be useful to give extra clearance for the hands. Files are not to be used on lathe stock turning at high speed (faster than three turns per file stroke) because the end of the file may strike the chuck, dog, or face plate and throw the file (or metal chip) back at the operator hard enough to inflict serious injury.

WOOD-CUTTING TOOLS

Edge tools are to be used so that if a slip should occur, the direction of force will be away from the body. For efficient and safe work, edge tools are to be kept sharp and ground to the proper angle. A dull tool does a poor job and may stick or bind.

Wood Chisels

1. Inexperienced employees shall be instructed in the proper method of holding and using chisels.
2. Handles are to be free of splinters.
3. The wood handle of a chisel struck by a mallet is to be protected by a metal or leather cap to prevent it from splitting.
4. The work to be cut must be free of nails to avoid damage to the blade or cause a chip to fly into the user's face or eye.



Saws

1. Saws should be carefully selected for the work they are to do. For crosscut work on green wood, a coarse saw (four to five points per inch) is to be used.
2. A fine saw is better for smooth, accurate cutting in dry wood. Saws are to be kept sharp and well set to prevent binding.

TORSION TOOLS

Socket wrenches are safer to use than adjustable or open-end wrenches.

Open-End or Box Wrenches

1. Open-end or box wrenches shall be inspected to make sure that they fit properly and are never to be used if jaws are sprung or cracked.
2. When defective, they shall be taken out of service until repaired.

Adjustable Wrenches

1. Adjustable wrenches are used for many purposes. They are not intended, however, to take the place of standard open-end, box or socket wrenches.
2. They are used mainly for nuts and bolts that do not fit a standard wrench. Pressure is always applied to the fixed jaw.

Pipe Wrenches

1. Pipe wrenches, both straight and chain tong, shall have sharp jaws and be kept clean to prevent slipping.
2. The adjusting nut of the wrench is to be inspected frequently. If it is cracked, the wrench shall be taken out of service. A cracked nut may break under strain, causing complete failure of the wrench and possible injury to the user.
3. A piece of pipe "cheater" slipped over the handle shall not be used to give added leverage because this can strain a pipe wrench to the breaking point. The handle of every wrench is designed to be long enough for the maximum allowable safe pressure.
4. A pipe wrench should never be used on nuts or bolts because the corners will break the teeth of the wrench making it unsafe to use on pipe and fittings. Also, a pipe wrench, when used on nuts and bolts, damages their heads. A pipe wrench shall not be used on valves, struck with a hammer, nor used as a hammer.

Pliers

1. Side-cutting pliers sometimes cause injuries when short ends of wires are cut. A guard over the cutting edge and the use of safety glasses will help prevent eye injuries.



2. The handles of electricians' pliers are to be insulated. In addition, the electricians shall wear the proper electrical rated gloves if they are to work on energized lines.
3. Pliers shall not be used as a substitute for a wrench.

Screwdrivers

1. The practice of using screwdrivers for punches, wedges, pinch bars, or pries shall not be allowed.
2. The tip of a screwdriver must be kept clean and sharp to permit a good grip on the head of the screw.
3. The part to be worked on must never be held in the hands; it should be laid on a bench or flat surface or held in a vise. Always use the correct type and size of screwdriver for the job.
4. No screwdriver used for electrical work shall have the blade or rivet extending through the handle. Both blade and handle shall be insulated except at the tip.

SHOCK TOOLS *Hammers*

1. A hammer is to have a securely wedged handle suited to the type of head used. The handle shall be smooth, without cracks or splinters, free of oil, shaped to fit the hand, and of the specified size and length.
2. Employees shall be warned against using a steel hammer on hardened steel surfaces. Instead, a softhead hammer or one with a plastic, wood, or rawhide head should be used. Safety goggles or safety glasses shall be worn to protect against flying chips, nails, or scale.

Carpenters or Claw Hammer

1. The faces shall be kept well-dressed at all times to reduce the hazard of flying nails while they are being started into a piece of wood. A checker-faced head is sometimes used to reduce this hazard.
2. Eye protection is advisable for all personnel working with or adjacent to hammer operations.





Hearing Conservation Program

Responsibilities

Employer	It will be the responsibility of the Employer to ensure that noise level testing is conducted in their area of responsibility. They are responsible to ensure hearing protection education materials, and hearing protection devices are available to workers that may be affected by high noise levels. The Employer is responsible to ensure personnel receive annual hearing tests.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to ensure hearing protection is readily available and used. The Supervisor is responsible to ensure workers have received proper instruction and training in hearing conservation.
Workers	It will be the responsibility of Workers to use hearing protection in high noise level environments, review hearing education materials, and to maintain their annual hearing test. Workers will advise the Supervisor of any noise hazards that have not been previously identified, and when they need to renew their annual hearing test.
H&S Coordinator	The H&S Coordinator is responsible for providing the resources that will ensure an effective hearing conservation program. This includes conducting noise level surveys, providing hearing conservation education materials, ordering hearing protection, and arranging for hearing test services if needed.

Why a Hearing Conservation Program is Required

Excessive noise above the allowable exposure limits results in permanent hearing loss.

Maximum eight hour noise exposure is 85 dBA, and a (one-time) peak noise level of 140 dBC. Noise is generated by mobile equipment, power tools, hand tools, machinery, impacts and movement of materials. Personnel without hearing protection in these situations experience hearing loss. There are limited opportunities to control noise hazards in the construction industry; therefore, LCE will implement a hearing conservation program as follows:

- Identify noise hazard areas and post warning signs where appropriate
- Provide hearing conservation educational materials
- Discuss noise hazards and hearing conservation during Toolbox Talks
- Promote annual hearing tests to identify hearing loss
- Review the hearing conservation program on an annual basis to ensure its on-going effectiveness

Hearing Loss

Noise is the most common hazard in the construction industry. Hearing loss can occur gradually and is therefore difficult to recognize at the early stages. **Noise induced hearing loss is permanent!**



Excessive noise damages tiny sensory cells deep inside your ears. The first danger sign of occupational hearing loss is the inability to hear high-pitched sounds. As the damage continues, the loss will affect the ability to understand speech. Noise can also cause ringing in the ears.

Hearing Protection Devices

Hearing protection devices (HPDs) reduce the level of noise reaching the ear. The two main types are earplugs and earmuffs.

Earplugs work by blocking the ear canal. Personnel must be instructed in how to insert earplugs. Instruction is best done at the time of the annual hearing test. Partial insertion results in poor noise reduction, poor retention, and discomfort. When plugs are properly inserted, there will be a slight sensation of pressure, and the wearer's voice will sound louder and more resonant. There will also be some resistance when the user pulls gently on the earplug. Supervisors should be able to recognize the appearance of an improperly seated plug and how to counsel the worker on the correct way to insert it.

Compressible earplugs are usually made of compressible foam. The plugs are rolled between the fingers to compress them, and then inserted into the ear canal where the foam expands to fill the canal. For proper insertion, the ear canal must be first straightened by pulling on the outer ear with your other hand; if this is not done, the plug will stick out too much and will not be effective. One size fits most workers; however, if ear canals are too small for a comfortable fit, the plug won't stay in place. Some compressible plugs come in several sizes. Alternatively, reusable or custom-molded plugs could be selected.

Reusable plugs are generally made of plastic with single, double, or triple ridges that help seal the ear canal. Many brands come in different sizes. These plugs are suitable for workers whose hands may become soiled at work since the ear canal portion of the plug need not be touched. (Compressible plugs rolled between the fingers can become dirty.)

For proper plug insertion, the ear canal must be straightened and the plug inserted with a slight twisting motion. When properly inserted, the plug should not fall out. Some resistance should be felt when the plug is gently tugged. The wearer should not be able to pull it out easily.

Canal caps are held in place by a headband worn either over the head, behind the head, or under the chin, depending on the manufacturer. The cap or "pod" does not insert into the ear, but fits over the opening of the ear canal. The size of the ear canal is not as important in fitting these devices. Canal caps are widely used by workers with intermittent or interrupted exposure to noise.

Earmuffs have four parts:

- **Domes** (ear cups) deflect noise. The deeper and heavier the dome, the greater the noise reduction. Domes are usually made of plastic.
- **Dome Liners** are made of foam and/or ear "down". Liners reduce noise reverberation inside the dome.
- **Cuffs** (ear cushions) may be foam, liquid, or combination foam/liquid filled. The liquid-filled cuffs reduce more low-frequency sound and make the wearing of safety glasses more comfortable. Foam cuffs are lighter weight.
- **Headband Assembly** may be made of plastic, metal, or a combination of both.



Depending on their design, earmuff headbands may be worn over the head, behind the head, under the chin, or the muffs may be mounted on a hard hat. Hard hat mounted earmuffs have less pressure exerted against the side of the head, and are more comfortable than muffs with headbands. The attachment for a hard hat may be fitted into slots on the hard hat, or clipped onto the brim with an adapter. The proper size adapter must be selected, and may vary according to the brand of hard hat.

Some earmuffs are manufactured for one and two-way radio or speech communication. The sound transmitted to the ear from these communication devices should not be able to exceed 85 dBA. If the devices transmit sound above 85 dBA, they become a potential noise hazard.

Workers are not permitted to wear hearing protection designed or modified to accept AM/FM music transmission, or other such systems.

The effectiveness of an earmuff is determined by the headband tension and fit of the domes over the ears. If headband tension decreases either by routine usage or by deliberate modification by the wearer, noise reduction decreases.

The domes must fit over the entire external ear to provide a proper seal. Modification to domes, such as drilling holes, is not permitted. Wearing safety glasses, caps, or facial hair may interfere with the seal of the dome. Hair should be pushed behind the ears or pinned up out of the way. Thin frames for glasses are preferred to thick ones. Temple pads are available to improve the seal and decrease discomfort caused by the pressure of the dome against glasses. Wearing thick cloth caps should not be permitted if the headband of the earmuffs must fit over the cap. Using earmuffs with a swiveling band will help with this problem.

Jaw size and head shape may also pose a fitting problem - some muffs may not fit properly against the side of the head. Workers should try earplugs in such cases. Some earmuffs are made to be worn a certain way to obtain a proper fit. There may be a top and bottom designated, either by the shape of the muffs, or by the manufacturer's instructions.

As with earplugs, individual fitting of muffs at the time of the annual hearing test will help ensure the worker is properly instructed in earmuff use. Workers should bring their hearing protection to their annual hearing re-test so that the fit can be assessed yearly.

The wearing of earmuffs is easy to monitor by supervisors, but supervisors should watch out for improperly worn muffs, particularly the hard hat mounted one in the "snap-out" position. This position reduces the pressure of the cuff on the ear, and is designed for use for very short periods of time only.

Choosing Hearing Protection

Selecting appropriate hearing protection is not difficult. The class of protection should be based on the worker's eight-hour noise exposure, not a spot measurement of noise in a given area or near a particular machine. For example, an equipment operator's machine may produce noise levels of 99 dBA, but a typical operator's eight hour noise exposure (Leq) is 91 dBA because the Worker does not have the equipment running for eight hours continuously. There will be breaks for lunch, coffee, walking outside the machine, and so forth.

The class of hearing protection (A, B or C) is based on the attenuation (noise reduction) provided by the protector at certain pitches or frequencies. Earplugs and earmuffs alike may be classed as A, B or C. Class A provides roughly 30 dB of attenuation, class B 20 dB and class C 10 dB. The attenuation figures are supplied by the manufacturer.



For noise exposures less than 85 dBA averaged over 8 hours, no protection is required. Above 85 dBA, the recommended class of hearing protection increases with noise level. For example, Class C protection is recommended for driving a heavy truck (89 dBA). Class A is recommended for operating a pile driver (104 dBA). For extremely high noise levels, wearing double protection (earplugs and earmuffs) is recommended.

Choosing Hearing Protection Devices

The effectiveness of a hearing protector is not determined by its noise-reducing ability alone. If a protector is uncomfortable, or if a worker cannot communicate with co-workers, the protector is more likely to be removed by the wearer. Class A protectors are not "the best", they simply have the most attenuation. Class A protection is not recommended for workers whose noise exposure is less than 95 dBA. Hearing-impaired workers in particular resist wearing Class A protection because it makes them unable to hear warning signals or speech. For such workers, Class B protection is often more acceptable and, therefore, more likely to be consistently worn.

Workers with normal or near normal hearing can wear any class of protector. Hearing impaired workers may find hearing protection that greatly reduces noise levels unacceptable. Reduced ability to hear warning sounds, equipment sounds, or verbal instructions may make it difficult for these workers to perform their jobs efficiently or safely.

Where verbal communication is frequently required, hearing protection that greatly reduces noise levels is undesirable, because it will make speech hard to understand.

Many workers who must wear hearing protection also wear other personal protective devices. The resulting combination of protective equipment must be comfortable for the worker. For example, workers wearing respirators, hard hats, and safety glasses may prefer earplugs to earmuffs.

Some workers may have ear canals that are too small for earplugs or ears that are too large for earmuffs. Workers with chronic external ear infections should wear earmuffs, those with skin problems such as dermatitis or eczema surrounding the ear should wear earplugs.

For workers who must do a lot of bending over and straightening, or maneuvering in small places, earplugs may be better than earmuffs. The choice of an all-plastic earmuff or earplug may be necessary where possible contact with an electrical hazard is present.

Maintaining Hearing Protection

Maintain hearing protection as follows:

- Compressible earplugs can be washed and reused when dry, although usually they are discarded at the end of the day.
- Reusable, custom molded plugs and canal caps should be washed at least once a week to remove wax build-up, which may reduce attenuation. Washing should be done at the end of the workday to allow complete drying. Use hand soap and warm water for washing. Do not use harsh solvents or alcohol - they will damage the plug. Reusable plugs should last six months to one year and custom molded plugs should last two to five years.
- The hard plastic domes of earmuffs generally need no more than wiping with a damp cloth. The domes should last approximately two years. Skin oil, perspiration, and some hair preparations have adverse effects on the cuffs. After continual use, the soft and



compliant cuffs become hard and can even shrink. Ozone emissions from generators and some welding operations can cause the foam material in the domes to disintegrate and can also harden the seals. Most earmuffs have replaceable cuffs available. Cuff replacement is recommended every six months. Liquid-filled cuffs should be checked often to see if the liquid is still present. Cuffs that have leaked should be replaced. The liner material inside the dome should be kept clean. If the liner is discoloured, hardened, extremely soiled or mildewed, it should be replaced. Earmuffs must be sufficiently tight to form a good seal. Headbands should be adjusted or replaced as required to maintain adequate pressure.

- When stored, earmuffs should be hung up by the headband on a hook in a well-ventilated area. They should not be thrown into a tool box or truck bed where the domes can crack, cuffs can rip, and headbands can bend. Earmuffs should not be left outdoors. Bees, wasps, and spiders may make homes inside earmuff domes. Earmuffs mounted on a hard hat should not be stored with the cuffs pressing against the hat. This constant pressure on the cuffs leads to rapid flattening of the cuffs. Instead, the earmuffs should be kept raised off the hat, or snapped out when not in use.

Hearing Testing

The only way to ensure that the hearing conservation program is effective is by periodically measuring the hearing of workers. Hearing tests are vital because they identify the beginning of noise induced hearing loss long before workers notice it. As part of the test, workers are individually counseled about the results, the follow-up required, and when a repeat test will occur. Workers are also counseled about the type of hearing protection to use. Hearing tests are will conducted annually to effectively monitor the hearing of noise-exposed workers. The hearing test, including counseling, takes approximately 15 to 20 minutes.

As part of the hearing test, workers are counseled about the necessity, use, maintenance, and replacement of hearing protection. Hearing testing and counseling must be performed by authorized technicians. The first hearing test a worker has is called the baseline test. The results are categorized as:

- **Normal** - test is normal or near normal
- **Early Warning** - test shows the start of noise-induced hearing loss
- **Abnormal** - test shows significant hearing loss requiring medical follow-up

Repeat tests are called periodic tests. They are categorized as:

- **Normal Change** - test shows no significant change from previous test; hearing has remained stable.
- **Early Warning Change** - test shows there has been a high-frequency deterioration in hearing, likely due to noise exposure.
- **Abnormal Change** - test shows significant change from the previous test requiring medical follow-up.

The technician is not qualified to determine the cause of abnormal or abnormal changes.





Hotwork – Welding, Cutting, Burning

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to ensure hot work is done in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to ensure hot work done on site is done by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in hot work, and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required on the SFPR project.
2. Eye protection is required for chipping. Welder's helmet is required for arc welding and tinted goggles for gas welding.
3. Class ABC fire extinguisher (4A:60BC)

Safe Work Practice

1. Only authorized and qualified persons are permitted to use acetylene or propane fired devices.
2. Inspect equipment prior to use. Alert your supervisor if the equipment requires repair or removal from service.
3. Never weld, cut or do other hot work on drums, tanks, barrels or other containers until you are absolutely certain that all materials which, when subjected to heat may produce hazardous (poisonous, explosive, flammable, etc.) vapors, have been removed.
4. A Class ABC fire extinguisher of adequate size must be kept nearby, ready for use when welding, cutting, brazing or burning.
5. Always wear appropriate, approved eye protection when welding, cutting, brazing or burning to protect against sparks, debris and ultraviolet rays.
6. Gases and metal fumes present a health hazard to welders. Good ventilation and/or respiratory protective equipment must be present or employed to minimize the hazard.
7. All welding operations must be screened effectively to eliminate the possibility of exposure to coworkers or the public from welding flash. Twelve meters (40 feet) is the



recommended minimum distance from which the arc flash should be seen with the naked eye.

8. No welding, cutting or burning is to be conducted from above without warning others of the impending hazards associated with same. The area below must be flagged off to keep workers or others from entering the area.
9. If an arc welding machine is wet, thoroughly dry and test it prior to use.
10. Spread coiled welding cables out and attach the ground lead securely to the work.
11. Never coil welding cables around your body when welding.
12. Wear non-combustible clothing and fasten collars and sleeve cuffs. Never wear cuffed pants or overalls or open footwear when welding, brazing, burning, etc.
13. Combustible products in the area must be removed or the tasks conducted elsewhere to eliminate the potential for fire. Hot work should be identified as such, with a fire watch attendant monitoring the area when warranted.
14. All associated equipment must be maintained in good condition as per the manufacturer specifications. Oxy-fuel systems must be equipped with flash arresters to eliminate the possibility of reverse flow within the system.
15. All compressed tanks (e.g., oxygen, acetylene, etc.) carrying a controlled product must be transported upright and secured against movement. Products that are not compatible with one another, such as grease around oxygen must be stored separately from one another. Refer to the MSDS data sheet prior to using any “controlled product”.
16. All containers when not in use must contain the protective caps to prevent accidental dislodgment of the valve stem. Containers that are emptied should be marked “MT”.
17. Tasks associated with cutting, welding and burning may emit harmful fumes, and as such the user is required to wear respiratory protection.
18. Close all cylinder valves and bleed the lines when work is finished. Hoses with leaks, burns or worn areas must be replaced or repaired.



Housekeeping

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Tools and Materials Required

1. Brooms and shovels.
2. Spill kits and waste containers.
3. Personal Protective Equipment (hardhat, CSA footwear, eye and hearing protection when required, gloves, hi-visibility apparel).

Safe Work Practice

In order to minimize physical environmental hazards to LCE Project personnel, the following sound practices shall be followed:

1. The best way to minimize housekeeping hazards is to control the hazard at the source. That is to say each worker must be responsible to keep their work area clean and tidy.
2. All personnel must help to keep work sites clean and free of tripping/slipping hazards by depositing refuse in designated containers.
3. Scrap materials must be collected and disposed of in a timely manner. Daily clean-up will be conducted by each and every worker or more often if conditions are warranted.
4. Construction debris must not be allowed to accumulate within access/egress routes where it will pose a slipping/tripping hazard.
5. Construction debris such as scrap lumber or oily rags poses a serious fire hazard if left to accumulate. Such debris of this or similar nature must be cleaned up on a regular basis.



6. All surplus construction materials must be returned to their designate storage area at the end of each shift.
7. Oily rags must be kept within approved metal containers and the containers 212abeled as such.
8. Work areas must be maintained free of debris and obstructions at all times. Tools, loose object, oil, grease, power cords and other materials left lying around are hazards.
9. Materials, tools and equipment must not be stored in stairways, corridors, catwalks, ramps, passageways, and exits. Materials stored overhead must be protected against falling into work areas.
10. All materials must be stacked or stored in a manner that permits safe access to and egress from a work area.
11. To prevent slipping, falling or collapse, all materials must be properly stacked and stored. Pipe, conduit or tubing should be stacked within pipe racks or stacked and blocked to prevent movement. Lumber must be stacked properly to prevent shifting and/or collapse.
12. Power cords must not be left lying in obvious access/egress areas as they pose a serious tripping hazard. Position cords away from designated routes or support them overhead where practical.
13. Broken glass or other sharp objects must be disposed of in containers other than standard garbage cans. Sharps must be disposed of within containers supplied to LCE Constructors by the safety supplier. These are referenced as “sharps containers”.
14. Salvage lumber must have protruding nails removed immediately and stacked in a safe manner in a designated storage location.
15. Any spill of toxic, flammable or corrosive materials must be cleaned up immediately using the method described in the appropriate Material Safety Data Sheet (MSDS) or on the container label. Spills over 20 liters, or any spill into a water course, must be reported to the LCE H&S Coordinator immediately at 604-842-1020.
16. Chemical waste must not be dumped into sewage systems or the like.
17. Tidy your work area at the end of your shift, immediately after finishing a job, and as necessary.



Jack Hammer

Read and understand the instruction manual before operating jack hammer. If you do not know how to operate this piece of equipment obtain advice from your supervisor.

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required on LCE projects.
2. Suitable protective equipment must be worn, including protective eyewear, hearing protection and foot protectors.
3. Respiratory protection as needed.

Safe Work Practice

Before Using the Hammer

1. Read the operator's instruction manual before using the tool.
2. Be sure electric models with a three-wire system are properly grounded, to reduce the risk of fire and electric shock. This is not necessarily for double insulated models. Use a ground fault interrupter (GFI) for maximum safety protection.
3. Be sure the extension cord for electric models is a size large enough for the distance from the receptacle to the tool.
4. Always wear proper protective equipment. Safety glasses or shield, safety helmet, hearing protection, safety shoes, breathing protection, sturdy long pants, and long-sleeved shirt are essential.
5. Check all bits to see that they are sharp. If not, sharpen according to the manufacturers recommendations. Always use eye protection when operating a grinder.



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6. Where chipping into floors or other concrete assemblies, be certain to verify that no electrical or other utility hazards exist within. X-raying of the floor may be required prior to beginning related activities.

Operating the Jackhammer

1. Always disconnect the electric power before inserting or removing tools.
2. Be sure all tools are properly locked into the unit before operating.
3. Keep all bystanders, children, and pets out of the work area.
4. Prevent back injuries by using your leg muscles to lift the machine into operating position.
5. Allow the tool to do the work by using a grip light enough to maintain control.
6. Take rest breaks as needed.
7. If stopping work for a short period of time or for the day, unplug the electricity.



Ladders – Portable

Read and understand the instruction before using portable ladders. If you do not know how to operate this piece of equipment obtain advice from your supervisor.

Portable ladders must meet CSA, ANSI, or other standards acceptable to the OHSA.

Portable ladders purchased and used by LCE will be rated CSA “Grade 1” or ANSI “Type I” (Heavy Use). Subcontractors are encouraged to adopt the same policy. Ladders must be rated as non-conductive when used in proximity to energized electrical equipment or power lines.

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer’s specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required.
2. All workers must use personal protective equipment suitable and necessary for the hazards of the work being performed.

Safe Work Practice

This safe work procedure relates to portable ladders only and not fixed ladders.

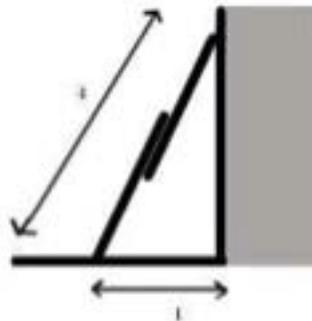
Common Causes of Ladder Accidents

1. Over-reaching from ladders rather than moving them.
2. Standing ladders on boxes, etc. to gain additional height.
3. Using too much haste in climbing or descending.
4. Climbing one-handed while carrying something in the other hand.

5. Standing at the very top of a short ladder, rather than getting one long enough for the job.
6. Hanging tools from ladder rungs, or leaving tools on the top of the stepladder.
7. Throwing tools to a fellow worker on a ladder.
8. Placing the ladder at an improper angle.
9. Using metal ladders in locations where contact with electrical wires is possible.
10. Using worn or damaged ladders.
11. Failing to secure or tie the ladder in place.

Proper Ladder Use

1. Ladders must be inspected for defects prior to use. Ladders with broken rungs, split rails, worn or broken safety feet, frayed or damaged ropes must be taken out of service and reported to your immediate supervisor.
2. The ladder must be long enough for the job. Ladders used for ascending or descending from one level to another must extend at least 1 meter (3 feet) above the upper landing except where there is restricted clearance and the ladder is adequately secured.
3. Wooden ladders should not be painted, since this may hide serious defects that may develop. A wood preservative or clear finish should be used to protect the ladder.
4. Ladders must not be coated with paint or other coating that impairs the process of inspecting the condition of the ladder.
5. Metal ladders or wires reinforced wooden ladders must not be used near energized electrical equipment unless permitted by manufacturers' specifications.
6. Place the ladder on a solid, firm, flat surface. The feet of extension or stepladders should be level. A board may be necessary to ensure that it's level or to prevent it from sinking into soft ground. Keep the area around the base of the ladder uncluttered.
7. When you use a stepladder, make certain that it's fully open and that its spreader is locked securely. Both railings of the top section of a straight ladder must be resting on a firm support. NEVER use a stepladder as a fixed ladder.
8. Use the '4 to 1' rule with straight ladders. This simply means that the ladder should be placed one foot away from the base for every four feet in height to the place where the top of the ladder rests.



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9. Always make sure that a ladder is not placed in front of a door that opens toward the ladder unless the door is blocked, locked or guarded.
 10. Ladders used in locations where they may be struck by workers or equipment in the area must have a watcher stationed at the bottom. Ladders must not be left standing in such a location when not in use.
 11. Ladders used in corridors, stairwells or aisles must be barricaded.
 12. Do NOT place ladders against panes of glass.
 13. When using a ladder for access to high places, always securely “tie-off” the ladder to prevent it from slipping.
 14. Obtain assistance when handling a heavy or long ladder.
 15. NEVER stand on the top two rungs of any ladder and NEVER stand on the top step or platform of a ladder.
 16. NEVER place a ladder against an unstable surface.
 17. Make sure that the locking device is fully secured on extension ladders before using them.
 18. Unless a ladder is designed for additional weight, only one person should be on the ladder. Ladders are to be used by one person at a time unless on opposite halves of a gang ladder.
 19. Go up and down a ladder facing the ladder, taking only one step at a time. Hold the side rails with both hands when climbing up or down a ladder. Do not hold on to the rungs when going up or down a ladder.
 20. NEVER climb a ladder “one-handed” while carrying something in the other hand. Use a hand line to raise or lower large objects, tools, etc.
 21. Workers on ladders must use suitable hoisting equipment to lift or lower heavy or bulky items.
 22. Keep your body centered between the rails of the ladder and NEVER over-reach when working on ladders.
 23. Do not attempt to reach too high as you may lose your balance.
 24. Do not use step-ladders or straight ladders horizontally for platforms or scaffolds.
 25. Transport ladders with the feet to the rear and the top of the ladder higher than anyone in front of you. Wet wood ladders conduct electricity and should not be used when working on, with or around electrical equipment or electrical power sources.
 26. NEVER use ladders during strong winds or storms except in emergencies, and then only when they are securely “tied-off”.
 27. Do not use ladders in a horizontal position as components of runways or scaffolds unless they are part of an engineered or pre-manufactured system.

Job-Built Ladders

1. Job-built ladders must have:

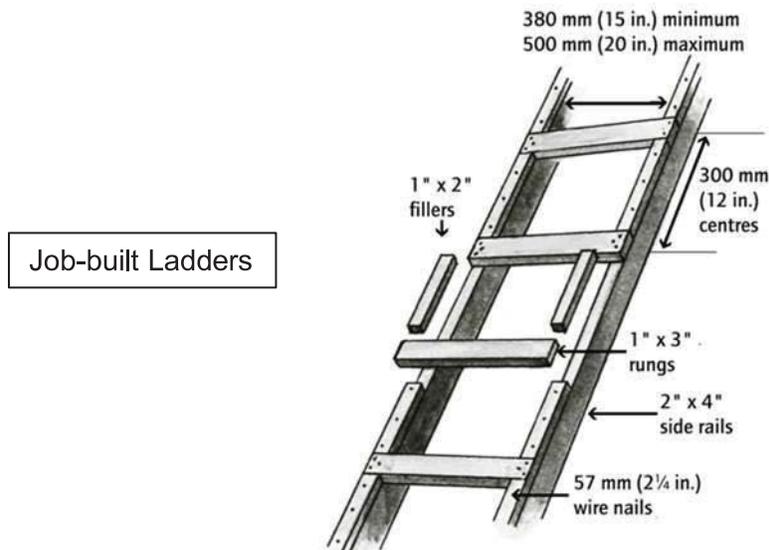
- a. Side rails constructed from #2 - Grade or better 4cm x 9cm (2" x 4" nominal) dimensions for ladders up to 5 meters (16 feet) in length, and from #2 - Grade or better 4cm x 13.5cm (2" x 6" nominal) dimensions for ladders between 5 meters (16 feet) and 7.3 meters (24 feet) in length.
- b. Cleats and spacers no less than 2cm x 6cm (1" x 3" nominal) dimensions for ladders up to 5 meters (16 feet) and 2cm x 9 cm (1" x 4" nominal) dimensions for ladders between 5 meters (16 feet) and 7.3 meters (24 feet).

2. Side rails of job constructed ladders must not be notched, dapped, tapered or spliced.

Ladder Maintenance

1. Ladders should be inspected once every three months and a record of said inspections should be kept on file for future reference.
2. Untreated wooden ladders should be stored in dry areas to prevent moisture or water absorption.
3. When transported on a vehicle, ladders should be properly secured and supported.
4. Ladders constructed from fiberglass should be cleaned and sprayed lightly with a clear or pigmented lacquer or paste wax once every three months.
5. Check all ladder hardware, nuts, bolts, spreaders, etc. for tightness and good repair. Examine and replace worn or frayed ropes on extension ladders.
6. Do not attempt to straighten, or allow remaining in use, a bent or bowed ladder.

Job-built Ladders





Lifting – Manual Materials Handling

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to communicate safe lifting requirements.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site personnel use correct lifting Safe Work Practice, provide training and ensure use of protective equipment.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required.
2. All workers must use personal protective equipment suitable and necessary for the hazards of the work being performed.

Conditions

The purpose of this safe work practice is to establish guidelines for the protection and safety of project personnel who are required to lift or carry items. This safe work practice provides guidelines for the safe lifting and handling of objects and materials and affects any project personnel who, as a result of their job duties is exposed to the hazards of lifting and handling materials.

The key to safe lifting is to keep your back in balance. If you bend at your waist and extend your upper body to lift an object, for example, you upset your back's normal alignment and your center of balance. This forces your spine to support the weight of your body and the weight of the object. This situation is called "overload."

You can avoid overloading your back by bending your knees and keeping the load as close to your body as possible. This keeps your back in proper alignment and lets the stronger muscles in your legs do the actual lifting. You also do not have to extend your upper body, which helps you to maintain your balance.

Safe Work Practice

To protect yourself from a painful and potentially disabling injury, remember to practice the following lifting techniques:

1. **Test the load** – Prior to lifting an object, test the weight of the object by lifting a corner. If the object is too heavy or bulky, get help from a fellow worker or use a mechanical device, such as a hoist or cart. You should also inspect the object for any splinters, nails, sharp edges, or slippery conditions.

2. **Plan the move** – Check your path of travel to make sure that it's clear of any obstacles and there are no hazards in your path of travel, such as spilled water or oil. Remove any obstacles or hazards before picking up the object.
3. **Use a wide, balanced stance with one foot ahead of the other** – A solid base of support reduces the likelihood of slipping and jerking movements.
4. **Grip the load firmly** – This prevents the object from suddenly slipping out of your hands. You may need to use gloves or lifting handles if the load is too difficult to grasp.
5. **Bend your knees** – This is the single most important rule to follow. When you bend your knees instead of at your waist, the forces on your back are more evenly distributed. This also lets the strong muscles in your thighs do the lifting.
6. **Bring the object as close to your body as possible** – Keeping the load close to your body reduces the force it exerts on your back.
7. **Tighten your stomach muscles as the lift begins** – This allows your stomach muscles to help support your back as you lift.
8. **Keep your head and shoulders upright** – This helps to keep the normal inward curve in your lower back.
9. **Lift with your legs** – Using the strength of your legs to lift the object decreases the stress on your lower back.
10. **Set the load down carefully** – Slowly lower the object by bending your knees and keeping your back upright. Don't let go of the object suddenly.

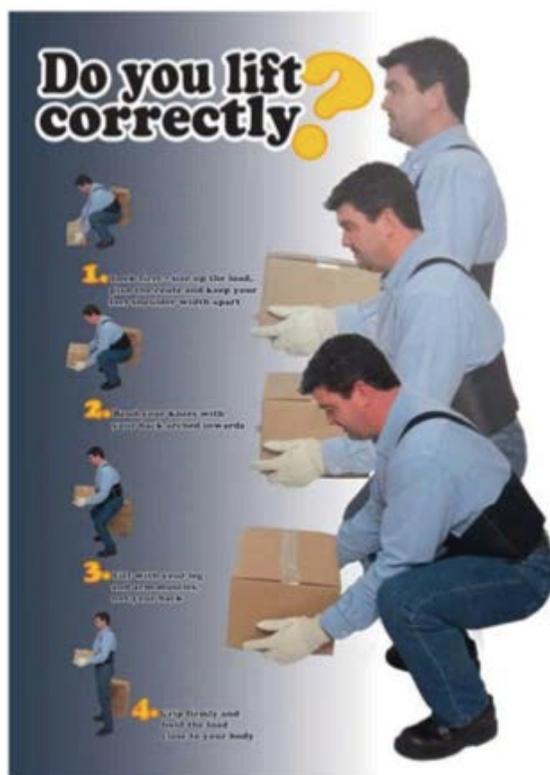
Hard to Reach Loads

Reaching into a bin or a container to lift an object makes the standard ten-step lifting procedure next to impossible. In these situations, you should practice the following techniques:

1. Stand with your feet at least shoulder distance apart.
2. Slightly bend your knees.
3. Start to squat, bending your hips and knees, not your waist. This movement is the same one you make when you lower yourself into a chair.
4. Slide the load as close to your body as possible and raise yourself using your leg and hip muscles.
5. Tighten your stomach muscles as you lift, and, if possible, brace your knees against the side of the bin or container for additional support.
6. Get help if the load is more than moderately heavy.
7. Loads that are above shoulder height can also be difficult to lift. If you must lift an object that's above shoulder level, use a step stool or ladder to avoid over-reaching. Test the weight of the object by pushing up on the load. If the object is manageable, slide it towards you and hug the load close to your body as you descend. If possible, hand the object down to a co-worker before descending the ladder or stool.

Tips to Remember

1. Whenever possible, use the standard ten-step procedure to lift an object.
2. Avoid extending your upper body over the load.
3. Lift with your legs, not your back.
4. Keep your elbows as close to your body as possible.
5. If a load is too heavy or awkward to lift, use a mechanical device or get help from a co-worker.
6. Always push (rather than pull) the load.
7. Change awkward or static posture positions, such as kneeling, standing, or sitting for a prolonged time, to reduce the pressure on your back.
8. Never twist your body while lifting. Move or pivot your feet to change direction.
9. Strengthen your back and abdominal muscles by performing back exercises.







Loading/Unloading Dump Trucks

Responsibilities

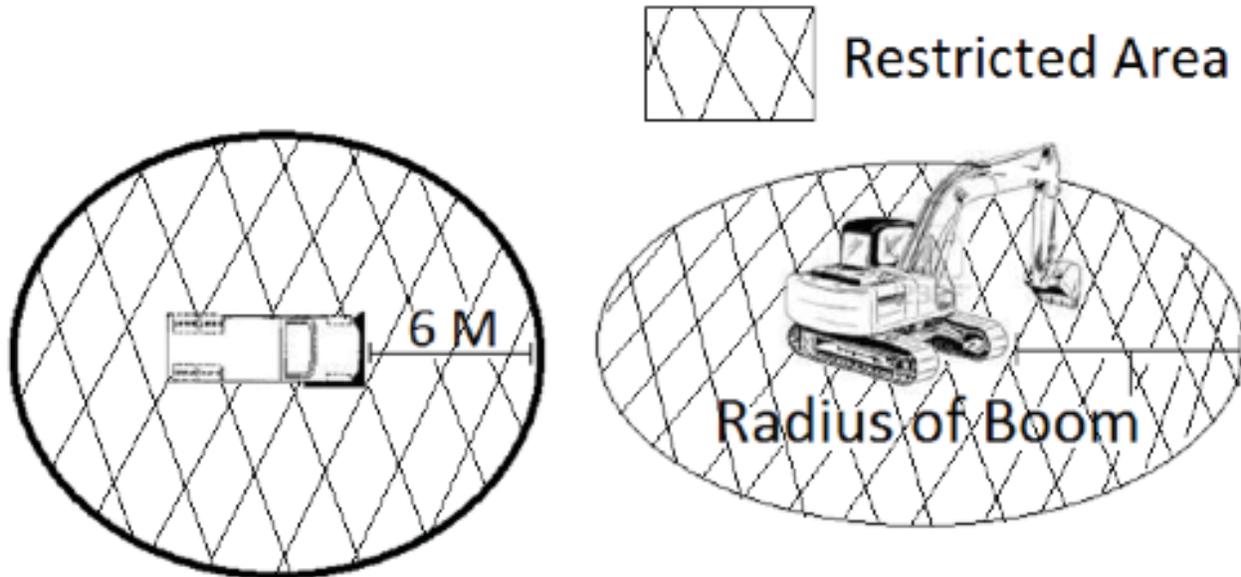
Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required.
2. All dump trucks must be equipped with an audible backup alarm.

Safe Work Practice

1. Truck drivers must be alert to workers, moving equipment and materials being transported when entering and traveling on the project site.
2. Truck drivers must wear a hard hat, safety-toed boots and high visibility apparel (vests) whenever they leave the cab of their truck on a project site.
3. Truck drivers are to remain in the truck while awaiting their turn to be loaded and during the loading procedure.
4. The excavator/loader operator will position trucks by means of communicating to the driver with hand signals and the excavator horn. Trucks should be spotted in a position so that the loading machine does not swing over the truck cab.
5. Persons other than the truck operator must stand well clear of loading operations. The restricted area extends from 6 m (20 ft.) in front of the front bumper of the truck back to and including the complete length of the hitch if the truck is towing a pony. The restricted area also includes the complete swing radius of the excavator counterweight and the bucket and also extends 6 m (20 ft.) out past the far side of the dump truck.



6. Truck drivers and other operators of equipment must wait until equipment is stationary before driving into the swing radius of cranes, excavators or shovels when such equipment is in operation.
7. Truck drivers may leave the loading position only once they have received the signal to do so from the excavator operator and visually confirmed that it is clear and safe to proceed.
8. Truck drivers must travel at appropriate speeds at all times. The project speed limits are as follows:
 - a. 15 km/h when passing work crews
 - b. 30 km/h when traveling on sub base gravels
 - c. 60 km/h when driving in optimum conditions
9. Whenever possible, work on site will be organized so that the need to back trucks is minimized, and if possible eliminated.
10. Staging areas to conduct transfers will be established in a safe location to minimize the risk of truck drivers being hit by the movement of trucks and/or equipment.
11. Anyone who is required to approach the truck being loaded will:
 - a. Make eye contact with both the excavator/loader operator and the truck driver.
 - b. Wait for the excavator/loader operator to stop loading operations before entering the restricted area (have operator ground bucket and lock out controls) and never go between the machine and the slope.
 - c. Never go beneath a suspended boom/bucket.
 - d. Leave the restricted area in full view of the truck driver and the excavator/loader operator. Loading may only restart once the person has left the restricted area.
12. Trucks may only be driven with the box raised in the following situations and after a visual inspection has confirmed that no overhead hazards exist.



- a. When it is necessary to loosen a load by rocking the truck with the box raised
 - b. When fly spreading gravel with the box raised.
 - c. When moving the truck requires added traction by way of raising the box.
13. Never position yourself under the raised box of a truck unless it is safely blocked up from the frame of the truck by a heavy timber or other safety device.
 14. Truck drivers present in the morning will attend the Tool Box Talks or Pre-Task Plans being conducted.

Ground Personnel and Spotters

1. Ground personnel must maintain a minimum distance of 1.5 times the length of the truck box while loads are being dumped due to tip-over hazard.
2. Workers must wear a hard hat, safety toed boots, high visibility apparel (vests, arm and leg bands for night work) when their regular duties are spotting/guiding trucks at a dump site.
3. Air horns will be used to alert truck drivers to possible contact with the spotter, ground personnel or /other equipment.
4. All operations in the area must stop if air horn is sounded until it is confirmed that it is safe to continue working.
5. Truck drivers must maintain visual contact with Spotter(s) and ground personnel, and will stop immediately if visual contact is lost. Movement may only resume once it has been determined that the Spotter and ground personnel are in a safe position.
6. Spotters and ground personnel will communicate with truck drivers must be through driver's side window only unless there is a hazard on the driver side that puts the spotter and ground personnel at risk.
7. Truck drivers must follow the Spotter's instructions and never assume they are clear to proceed.
8. Spotters must be positioned on the driver's side of trucks and must never turn their back to on-coming trucks. Alternatively, if there is a hazard there on the driver side that puts the spotter at risk, the Spotter will perform their duties in clear view of the driver on the passenger side of the vehicle.
9. Spotters will walk in areas where the driver is able to observe the Spotter, and will not walk in between the truck and pup.
10. Spotters must never walk behind a reversing truck. If a spotter needs to move with the truck they must do so while following the front of the cab in sight of the driver.
11. The use of cell phones is not permitted by anyone operating a truck or any ground personnel involved in loading/dumping operations.





Locating Underground Utilities

Responsibilities

Note: All references to the *Ground Disturbance Checklist* apply only when the *Ground Disturbance Checklist* is required, as defined on the *Ground Disturbance Checklist*.

Employer	Employer will take reasonable and practical measures to ensure underground utilities are located before any ground disturbance. This includes ensuring the <i>Work Plan</i> is complete with <i>Ontario One Call</i> information and the utilities in the work area are marked. The Employer is responsible to ensure the crew supervisor and crews conducting utilities work have information on site about underground utilities in their work areas. The Employer will ensure that all underground utilities affected by ground disturbance work are positively located (alignment and depth) before any ground disturbance activities begin. The Employer is responsible for ensuring all <i>Ontario One Call</i> information, and on-site utility markings are current and accurate. The Employer must approve all <i>Ground Disturbance Checklists</i> where there is a “No” response to the conditions listed on the document when applicable.
Supervisor	The Supervisor is responsible for implementing the required safety precautions on-site for any ground disturbance activity, they are also responsible for initiating the <i>Ontario One Call</i> and providing the information on locations (as-builts, etc.) of underground utilities, and ensuring a <i>Work Plan</i> is followed. They have direct responsibility to ensure the underground utilities are marked and positively located (alignment and depth), and all persons involved in ground disturbance activities know this information. The Crew Supervisor must conduct a crew safety briefing prior to the start of any ground disturbance work, and ensure their crew knows where the underground utilities are located and the safe work procedures to be used. The Crew Supervisor must incorporate a site work hazard assessment into the crew safety briefing. The Crew Supervisor is responsible to ensure workers have received proper instruction and training prior to conducting this type of work, which includes ensuring that equipment operators have a documented <i>Operator Competency</i> for the equipment they are operating on file. Crew Supervisors are responsible to Sign-off on the <i>Ground Disturbance Checklist</i> prior to starting ground disturbance activities when required.
Field Engineer	The Field Engineer may also be responsible for initiating the <i>Ontario One Call</i> and providing the information on locations (as-builts, etc.) of underground utilities. The Field Engineer is responsible for assisting with work planning, and will ensure all necessary information is transferred from the office to the field for use by crews conducting the work. The Field Engineer also



manages the transfer of information from the field to the office. The Field Engineer is responsible to liaise with utility owners to obtain as-built utilities information. The Field Engineer will support the field works and Supervisor as required.

Workers

It will be the responsibility of Workers to comply with the safe work requirements set forth within this practice. Workers will immediately notify their Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials. All crew members must sign-off on the *Daily Hazard Awareness Discussion* prior to start of ground disturbance activity when applicable.

Equipment Operator

Equipment Operators must have a documented *Operator Competency* on file for the equipment they are operating. Equipment Operators must ensure they do not excavate any closer than safely permitted by the utility owner and as specified in the *OHSA*. Equipment Operators will NOT dig unless they have been briefed on the location (alignment and depth) of underground utilities. Equipment Operators are responsible to operate mobile equipment in a safe and responsible manner, in keeping with manufacturer recommendations. Operators must sign-off on the *Daily Hazard Awareness Discussion* prior to start of ground disturbance activity when required.

Operators will complete a daily equipment checklist prior to the operation of the equipment. Any defects noted on the checklist must be communicated to the supervisor prior to the equipment being engaged in any work activities. Any equipment or rigging that is not safe to operate, or is to undergo mechanical maintenance of any kind, is to be removed from service, locked out (where applicable) and clearly marked with an 'out of service' or 'do not operate' tag.

Anytime the Operator leaves the equipment or if ground personnel approach the equipment, the Operator will lower all ground engaging equipment, set the park or emergency brake, and engage any safety lock out controls. Operators must ensure the unit is secure from movement. The Equipment Operator will immediately obey all stop signals given by the Spotter or other personnel.

Spotter

The Spotter is responsible to assist the equipment operator to prevent accidental contact with overhead and underground utilities. Spotters will actively look for movement (e.g., utility contact), soil inconsistency, foreign objects identifying underground utilities, and encroachment on the *hand dig only zone*. The Spotter will stop the Equipment Operator immediately if they suspect there may be a problem such as digging too close to a utility.



Personal Protective Equipment

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required.
2. CSA approved safety glasses with approved side shields or over the top safety glasses required for archeology and structures work.

Work Practice

1. Determine if work activities will involve ground disturbance. Ground disturbance includes, but is not limited to, the following:
 - a. Mechanical digging (excavating/trenching)
 - b. Horizontal or vertical drilling, boring and auguring
 - c. Installing soil anchors
 - d. Pile driving
 - e. Extreme ground loading such as cranes
 - f. Soil densification
2. Place a call to *Ontario One Call* minimum of 5 days before the anticipated work start date (Emergency short notice less than five days requests may only be placed via phone. The *Ontario One Call* contact numbers are: 1-800-400-2255 or request on line at on1call.com. Provide the following information to the *Ontario One Call* center:
 - a. Who you are
 - b. What company you are working for
 - c. Whether or not the information is for planning/engineering or for excavation (or other ground disturbance activities)
 - d. Request “as-built” drawings and standard plate-map information
 - e. Where and when the ground disturbance will occur
 - f. Depth of ground disturbance
 - g. Whether or not the ground disturbance is on public or private property.
3. Obtain the as-built drawings for the area where ground disturbance activities will occur. The *Ontario One Call* can contact the following utility owners associated with the project for as-built drawings:
 - Hydro
 - Natural Gas
 - Telephone and Cable
 - Fiber Optics



A complete list of Ontario One Call members can be found on line at:

on1call.com

4. Contact other underground utility owners that are not covered by *Ontario One Call* and obtain as-built drawings.
5. Obtain and review design drawings for relatively up-to-date information obtained from as-built drawings and surveys.
6. Obtain and review as-built drawings for recently completed project work.
7. Conduct a site survey to compare information obtained through *Ontario One Call*, contact with utility owners and design drawings. If there are any discrepancies with the information received and/or site conditions the supervisor must advise the utility owner. The supervisor will then work with the utility owner to accurately identify, mark, and locate the utility. Document the information provided by the utility owner.
8. Determine if further site investigation is required to identify, accurately mark and locate underground utilities. This will be required when *Ontario One Call* and/or other accurate information such as-built drawings are not readily available. **Detailed site investigation and extra efforts to locate underground utilities will be required for abandoned residential and industrial sites, and for new construction.**
9. Identify the location of the underground utilities on site using any or all of the following techniques as may be appropriate for the conditions:
 - a. Site investigation and survey noting evidence of existing, or pre-existing, utility services above ground and how they may be tied in to underground utility services.
 - b. Electronic devices such as line tracer (Scope) and Ground Penetrating Radar (GPR).
 - c. Line-locate services.
 - d. Hydro-vac services.
 - e. Municipal, utility company or site owner personnel, and their knowledge of the site.
 - f. *Ontario One Call*, municipality, and/or owner(s) of adjacent properties to locate utility services that tie-in to or run through the site.
10. Use the following techniques to locate **underground street lighting conduit** as Ontario One Call does not indicate locations of this utility:
 - a. Determine if street light poles are within the area of the ground disturbance.
 - b. Identify poles and junction boxes in area, and make an initial assessment of likely locations where the lines are placed in the ground.
 - c. Use a line locator to trace the line. Mark the trace as indicated in 13. below.
 - d. Positively locate the depth and alignment of the electrical conduit by hand digging and/or hydro vac. Street light conduit is typically buried between 0.5 and 1.0 meters below the surface.
11. Notify the utility owner if access into utility manholes is required for locating existing underground utilities. Hydro representatives are the **only** personnel allowed to enter a Hydro manhole due to liability issues. Drawings of all of Hydro's facilities can be arranged by calling 1-888-664-9376 (province wide) or 613-546-0000 (City of Kingston). For more information reference www.hydroone.com and www.kingstonhydro.com

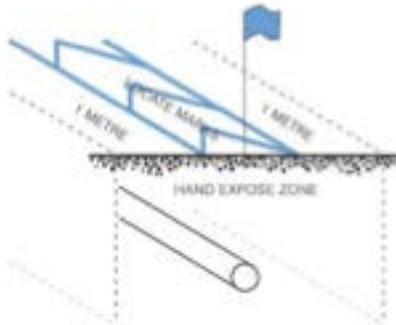
12. Use a gas detector and respirator (if required), and strictly adhere to Confined Space Safe Entry Procedures if removal of a utilities manhole lid is required to check the information received from the utility owner.
13. Mark the location of the underground utility alignments/locations using survey stakes, flags and/or spray painting the ground. Use the correct colour coding for identifying the type of utility (Table 1). An off-set method of marking may be used, but this must be explained to all persons involved in the work.

Colour codes for marking underground utility lines (universal standards)	
Electrical power lines, cables, conduits and ducts, or lighting wires and cables	Red
Gas, oil, petroleum, steam, or gaseous material	Yellow
Telephone, communications, cable TV, alarm or signal lines, wires, cable, conduits, or ducts	Orange
Water lines or pipes	Blue
Sanitary sewer, storm sewer, culvert, or drain lines	Green
Temporary survey markings	Pink
Limits of proposed excavation	White
Irrigation, reclaimed water, or slurry lines or pipes	Purple

Table 1

14. Mark all utilities located by hydro-vac with a painted stake that indicates depth of the underground utility. Photo-log the details of the hydro-vac exposed utility. Record depth of the utility, the type, diameter, etc. If the hole must be back-filled pending future work, and a painted stake is not practical to mark the site (e.g., a road surface or driveway), an accurate survey of the hydro-vac location must be taken and recorded. Whenever possible, the stake marking the depth should be cut-off and buried in the hole. Accurate GPS recording of the location and depth is another preferred method.
15. Determine if ground disturbance activities will occur within 40 meters of any underground utility on site. If so, further actions may be required to avoid contact with an underground utility as outlined in the subsequent points. If not, no further actions are required and ground disturbance activities can proceed.
16. Obtain *Permits* as required by the utility owners before starting any ground disturbance activities
17. Incorporate the *Ontario One Call*, as-built drawings, utility owner's, site survey and Permit information into the *Work Plan*.
18. Determine if the ground disturbance activity requires a *Ground Disturbance Checklist* to be completed and signed-off prior to starting the ground disturbance activities. A *Ground Disturbance Checklist* is required for all of the following:
 - a. "High Risk" work, which is any ground disturbance within 10m or a buried utility that is electrical, gas, fiber optic, or a high-pressure force main of any kind.
 - b. All utilities work on or near 400 Hwy's
 - c. Any ground disturbance on Major Road Ways
19. Notify the utility owner before the start of any on site work as required by permit or utility owner directions.

20. Brief the crew on all utilities information applicable to their work as detailed in the *Work Plan*. Crews must have access on site to all utility locate information and applicable drawings. Complete a pre-task hazard assessment and crew briefing daily, and before starting any ground disturbance work. **A re-assessment and additional briefing(s) will be required if conditions or information changes.** The crew briefing must include, and document, details on the following:
 - a. *Ground Disturbance Checklist* when required to be used.
 - b. Location of utilities in the work area including alignment and expected depth.
 - c. How the utilities are marked on the surface.
 - d. Physical features of the buried utility, e.g., yellow 60 mm HDPE gas line, black 2 inch PVC electrical conduit, etc.
 - e. The one meter *hand expose zone* around the utility, and where mechanical excavation is not permitted until the utility has been exposed and positively located.
 - f. Equipment positioning.
 - g. Limits of mechanical excavation around the utility (including breaking the ground surface by mechanical means).
 - h. Duties of the spotter.
 - i. Excavation safety (sloping/shoring for excavations over 4 feet (1.2 meters) deep).
 - j. Overhead power line safety and safe limits of approach.
 - k. Personal protective equipment requirements.
 - l. Emergency procedures and contact numbers.
21. Establish a one meter “hand-dig only” zone around the underground utility until such time as the underground utility is exposed and positively located through hand-digging or hydro-vac.



22. Use mechanical equipment to break/remove a hard surface such as asphalt or compacted earth to a depth of no more than 0.3 meters.
23. Follow best practice expose and positively locate the position of the underground utility (alignment and depth) using acceptable methods, such as hydro-vac or hand digging, whenever mechanical ground disturbance will occur within three (3) meters of an underground utility.
 - a. **Hydro-Vac:** Use the hydro-vac to “pot-hole” and expose the underground utility. Mark the utility as described in point #13 (above).



- b. **Excavator and Hand-Digging:** Remove the hard surface using mechanical means to a depth of no greater than 0.3 meters. Hand-dig (pot-hole) to expose the utility. The excavator may be used to remove soils above the hand-dug hole, but only to a depth less than the hand dug hole. The hole will be dug until the utility is located.

The utility must be located at sufficient intervals so that the location (horizontal and vertical) of the utility at any point is known. The Supervisor must identify and plan to expose the utility on the Pre-Task Planning or Work Sketches. It may be necessary to do additional locates on the utility, depending on the information obtained through the initial locate program, in order to determine locations where the utility alignment changes.

24. DO NOT assume the utility is not there if it cannot be found in the location marked during the initial locate process. Also, if an underground utility is found nearby where it is expected to be, DO NOT assume it is the utility that you were looking for. Contact the utility owner and determine why the utility is not in the expected location.
25. Use a spotter during mechanical excavation in the area adjacent to the one meter *hand expose zone*. The spotter must actively look for movement (e.g., utility contact), soil consistency, foreign objects identifying underground utilities, and encroachment on the one meter *hand expose zone*. **The spotter and equipment operator must be vigilant for signs of previous ground disturbance that might indicate an underground utility such as a trench patch, variations in soil types, and/or back-fill/bedding materials.**
26. DO NOT use mechanical excavation any closer than 0.5 meters* from a utility. Mechanically excavating this close to any utility is only permitted once the utility has been positively located (depth and alignment) as described above. Hand dig only within 0.5 meters from the utility; unless, another distance is specified in the written *Job Hazard Assessment (JHA)*, or other written instructions, issued and signed off by the Project Owner, Employer, and or Supervisor. Extra-caution is required when mechanically excavating close to underground utilities as some lines, in particular gas lines, can have risers or plugged ends of connections that protrude from the line. ***Note:** Some utility owners specify the no mechanical excavation zone around their utility.
27. DO NOT assume abandoned lines are de-energized or unpressurized. Contact the utility owner immediately if unmarked and/or abandoned lines are discovered.
28. Use a bucket with a flat edge when digging with a back-hoe or excavator whenever possible. Avoid using a bucket with teeth.
29. Use sloping or shoring appropriate for the work and soil conditions to protect workers entering a trench or excavation. (See *Safe Work Practice – Excavations and Trenching*).
30. Support exposed utilities to prevent damage. (See *Safe Work Practice – Supporting Excavated Utilities*).
31. Report all utility contacts immediately to the H&S Coordinator at 613-929-5979 and the utility owner. The contact numbers are as follows:
 - a. Ontario Hydro 1-800-434-1235
 - b. Utilities Kingston 613-546-1181
 - c. Union Gas (Ontario One Call) 1-800-400-2255
 - d. Bell Canada (Ontario One Call) 1-800-400-2255
 - e. Cogeco Cable (24hr tech support) 1-866-879-7179





Lockout – De-energizing Equipment

Many serious injuries occur because lockout procedures are not used. These injuries can be prevented. De-energization and lockout procedures will be used during all projects by all project personnel whenever maintenance, cleaning, repair or installation work is performed on any machinery or equipment.

LCE will use training and safe procedures to ensure that no worker is injured because of the inadvertent start-up of equipment or machinery or the unexpected release of energy.

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	Supervisors are responsible for issuing locks to all personnel that may be required to lockout. These locks must be tagged or numbered in such a manner in which to identify the owner and to indicate whose lock is in use. Only two keys will be issued for each lock. The worker will have one key and the Supervisor will have the other.
Worker	It is the responsibility of each worker to ensure the equipment they are working on is locked-out, locks are installed prior to commencing work on the equipment, and locks are removed upon completion of the work. It is important to remember that after applying the lockout the equipment should again be checked to see if it can be started.

Equipment Required

1. Personal Protective Equipment (hard hat, CSA footwear, eye and hearing protection when required, gloves).
2. Lockout devices (scissor clips, locks, valve locks, blanks, chains, tags, etc.)

Definitions

Most people associate lockout with locking an electrical panel using a lock and key. Lockout also includes isolating equipment by blanking (using a physical barrier), closing and locking valves, or blocking (using a physical support).

The following definitions are provided to clarify key terms used when discussing lockout:

- **BLANKING:** placing a physical barrier in the path of a hazard, such as disconnecting a pipe and placing a cover over it between the hazard and the work area, and securing it in place.
- **BLEEDING:** means to remove any pressures in the system, e.g., pneumatic or hydraulic.



- **BLOCKING:** placing a physical support or brace to prevent machinery, parts, or equipment from moving; e.g., putting jack stands under the axles of a vehicle when it is elevated by a hydraulic jack, and personnel are working underneath the vehicle.
- **CLOSING VALVES:** to the off/closed position, and locking them in that position, which is not a suitable isolation method in itself in some cases such as confined space entry.
- **CONTROL OF HAZARDOUS ENERGY:** means stopping and securing the machine, process or system to protect workers from danger. It must eliminate or control the danger to the safety and health of workers from unexpected start-up of the machine or the release of hazardous energy or substances.
- **DE-ENERGIZATION:** rendering the equipment in a condition that isolates any potential energy transfer from the person working on the equipment.
- **DISCONNECTING:** turning off switches and/or breakers and locking them in the off position.
- **ENERGY ISOLATING DEVICE (CONTROL DEVICE):** means the device controlling the flow of power to the machinery or equipment and includes, but is not limited to, switches, circuit breakers, valves and clutches. In the case of electrical controls it means the device controlling the flow of current to the branch circuit which supplies the power to the machinery or equipment. Individual control buttons or switches in control circuits are excluded.
- **HAZARDOUS ENERGY:** can be any energy source (electric, compressed gas, hydraulic, tensioned spring, mechanical or elevated object) which could release or move and injure or endanger a worker.
- **LOCKOUT:** use of a lock or locks to render machinery or equipment inoperable or to isolate an energy source in accordance with a written procedure.
- **MAINTENANCE:** means any and all work done to keep a machine in efficient operating condition and includes repairing, servicing, adjusting, changing, cleaning, lubricating and the clearing of obstructions to the normal flow of material.
- **RESTRAINING:** means to attach a device to prevent parts from moving inadvertently e.g., pinning a carriage in place that may move if pneumatic pressure is reduced.

Safe Work Practice

IMPORTANT: This generic Safe Work Practice should be supplemented by specific written lockout procedures for each piece of equipment or machinery to be locked out. Only authorized persons (i.e., those trained in lockout procedures) are to work on machinery or equipment requiring the use of lockout procedures.

1. The Supervisor responsible for the work will authorize the lockout, then inform the workers affected by the lockout of the extent and duration of the lockout procedure.
2. All possible sources of contact with energy sources, mechanical hazards, or chemical materials will be identified before lockout procedures commence.



3. Once the possible energy sources, mechanical hazards, or chemical materials have been identified, steps will be taken to isolate them from the area to be worked on.
 - a. Pneumatic:
 - Where the machine/equipment is supplied with COMPRESSED AIR from a compressed air system, locate the main shut-off valve to the machine, turn it off, and secure it in the closed position. Gate or ball valve lock adapters may be used for this purpose.
 - You may have to secure certain parts of the machine with chains, blocks, slings, or pins to prevent movement once the air pressure is bleed off.
 - Bleed any air tanks or remaining air in the system.
 - b. Hydraulic:
 - Where the machine/equipment is supplied hydraulic power, or has its own built in hydraulic system, press the start/stop button for the hydraulics.
 - Bleed off any other energy storing devices such as accumulators. Find the disconnect switch, breaker and control power.
 - Turn them off and lock them out. Press the start/stop button to check that the machine will not start. Check also that there is no hydraulic pressure on the gauge.
4. Once all the sources of hazard have been isolated from the work area as described above, means must be taken to prevent that isolation procedure from being removed or deactivated by someone else. This can be accomplished by placing a key operated lock (no combination locks) securing the isolation device or process. Using a lock is particularly suited for locking electrical junction boxes and valves, but is not practical for most blocking, and blanking applications.
5. After applying your locks, test the effectiveness of the lockout. Make certain everyone stands clear, then have the controls (push buttons, switches, etc.) operated to ensure that the machine/equipment will not move. Ensure the **equipment controls are returned to the off or neutral position** immediately after the test.
6. Relieve or restrain any residual or stored energy, and ground electrical energy stored in capacitors. Test with appropriate test equipment and/or visually check to determine energy sources have been neutralized.
7. **IMPORTANT - Steps must be taken to ensure that the lockout:**
 - a) **procedures cannot be circumvented and/or bypassed (accomplished by the use of locks), and**
 - b) **will prevent the machinery or equipment from being started, re-engaged or moved while work is in progress.**
8. When more than one person is involved in the installation, repair or maintenance process on equipment or machinery that is locked-out by means of a lock, each person must place their own personal lock at every point of lockout that is being used. A multiple lock hasp is to be used for this purpose. In the event that a previously locked-out switch or panel does not have a multiple lock hasp, contact the person whose name appears on the lock. Both



workers will together apply a multiple lock hasp and then (re)apply their personal locks to the hasp.

9. Only the person who has placed the lockout device at the point of lockout is allowed to remove it. When a worker is unable to remove their own lockout device, the Supervisor may remove it, but only after every effort has been made to contact the worker. The Supervisor then takes full responsibility for the removal of the lockout device. **This task may not be delegated.**
10. A clearly visible tag must be affixed which indicates that the machinery or equipment is being locked-out. The tag will state that there is danger to the personnel who are working on the machinery or equipment if it is restarted, re-engaged or moved.
11. All locks and tags are to remain on the equipment or machinery while it is being worked on. As personnel finish their work, they are to remove their own lock and tag.
12. When all work has been completed ensure:
 - a. that all tools and repair equipment are removed from the process before reactivating the equipment or machinery
 - b. any defective guards or safety devices are repaired or replaced
 - c. all components are properly installed including guards and safety devices
 - d. the equipment or process is free of incomplete work, obstructions and other unnecessary items
 - e. you know the sequence for lock removal and start-up, particularly if you are the employee removing the last lock(s) and,
 - f. everyone is clear and remains clear of danger during start-up.
13. On completion of the work, remove your personal lock, (and multiple lock hasp where applicable) and restore power to the machine or equipment.
14. In the instance where work is discontinued overnight or on weekends, and no one else is to continue the work, locks should be left in place. When work is to be carried on by a second shift, the oncoming shift must install their locks before the outgoing shift removes theirs. Alternatively the Supervisor may install a lock of their own for the duration of the shift change.
15. Removal of a lock will be the sole responsibility of the worker to whom the lock belongs. A Supervisor may remove a lock only if every reasonable measure has been made to contact the worker, and where the supervisor has fully ensured that it is safe to do so.

Lockout Exceptions

It may be necessary for some work that part or all of the equipment to be energized or in operation during the work process. Whenever this is necessary, written work Procedure will be developed and followed. In addition to the written work Safe Work Practice, these general rules will be adhered to:

1. Only that part of the equipment that is vital to the process will be energized. All other parts are to be de-energized, restrained, etc. and securely locked-out.



2. Workers engaged in such operations will be fully trained in the safe work procedures, and authorized to carry out the work.

Note: Other methods/practices may be used to ensure workers are protected from energy sources provided prior approval is received from the MOL/ESA. In these instances it will be the responsibility of the Supervisor to arrange for MOL/ESA approval through consultations with the local MOL/ESA Officer.

Lockout Checklist

The following checklist is provided to assist in ensuring compliance with lockout requirements:

- Lockout Safe Work Practice has been developed and is accessible on site.
- Site specific written lockout procedures have been developed and are onsite.
- Lockout procedures are posted where electrical, mechanical, hydraulic, pneumatic, thermal or other energy sources are to be isolated.
- Project personnel have been trained in the lockout procedure for each particular job.
- Locks have been issued to personnel with responsibilities for lockout.
- Materials on conveyances that may pose a hazard to workers are removed as part of the lockout process.
- A system is in place to notify personnel about changes in lockout Safe Work Practice and procedures.
- Locks are issued to personnel and each lock is marked to identify the owner.
- Only assigned locks are used for lockout.
- All energy sources are isolated prior to work commencing.
- Every person working on the isolated equipment has placed their own locks on the lockout point(s).
- Lockout is performed in accordance with Safe Work Practice and procedure and the OHSA.
- There is an orderly and planned transfer of lock out between in-coming and out-going personnel at shift change.

Supervisors only remove locks if the provisions outlined in the Safe Work Practice, procedures and the OHSA Regulation are met.





Mobile Equipment

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. Personal Protective Equipment (hardhat, CSA footwear, hi-visibility vest or apparel, hearing protection, eye protection where required, gloves).
2. Correct equipment attachment(s).
3. ABC Fire Extinguisher.

Conditions

Work with and around mobile equipment is a significant safety concern. During the movement of mobile equipment there are numerous opportunities for personal injury and property damage if proper procedures and caution are not used. This Safe Work Practice applies to all mobile equipment.

Safe Work Practice

1. Project personnel operating vehicles, haulage equipment and mobile equipment must maintain a valid driver license with the correct classification for the vehicle/equipment operated.
2. Personnel must not operate mobile equipment unless they have been adequately instructed in the safe use of the equipment and have demonstrated to a supervisor that they are competent to operate the equipment. This rule does not apply when a trainee is operating the equipment under the supervision of an authorized instructor.
3. Unauthorized personnel must stay off powered mobile equipment while the equipment is in motion.



4. Operators of Project mobile equipment or vehicles are responsible for the safe operation of the equipment. They must maintain full control of the equipment, and must comply with all laws and rules regarding the operation of the equipment.
5. The operator must inspect the equipment before the start of their shift and thereafter as required to be sure the safe operating condition of the equipment. Any defects or conditions affecting the safe operation of the mobile equipment shall be reported to the supervisor with any maintenance or repairs necessary for the safe operation of the equipment be made before the equipment is used. As a minimum the pre-use inspection will include:
 - a. Fluid levels
 - b. Steering
 - c. Braking
 - d. Lights
 - e. Horn
 - f. Brakes
 - g. Tires
 - h. Attachments
 - i. Leaks
 - j. Warning Beacon (if so equipped)
 - k. Backup Warning Alarm
 - l. Windshield
 - m. Fire Extinguisher
6. A *Mobile Equipment Logbook* will be kept for each machine to record details of inspection and maintenance.
7. If an operator has reason to believe that the equipment or a load is hazardous they must report it to their supervisor.
8. Mobile equipment should be shut down while servicing is done unless continued operation is essential and alternate safety measures are taken.
9. Service and maintenance must be done by qualified and authorized personnel.
10. Operating controls must be clearly marked as to their function.
11. Windshields, side and rear windows, and rear-vision mirrors must be maintained to provide clear vision to the operator.
12. Mobile equipment must have a mirror or mirrors providing the operator with an undistorted reflected view to the rear of the mobile equipment.
13. Mobile equipment must be equipped with a Falling Object Protection System (FOPS) if the mobile equipment could be struck by falling, flying or intruding objects or material. All mobile equipment on the project engaged in clearing, and all forklift trucks, including all-terrain forklift trucks and zoom booms, will be equipped with FOPS.
14. Mobile equipment operating on rough or uneven terrain must be equipped with a Roll-Over Protective Structures (ROPS). All ROPS equipped mobile equipment will have seat-belts, and seat-belts will be worn by the operator when operating the equipment. All mobile equipment used on the SFPR will be so equipped.



15. Steep edges of travel routes and dumps must be guarded (curbed) to prevent mobile equipment from going over the edge. The minimum height of the curb is 1/4 the outside tire diameter for the tires of the largest machine regularly using the area. Curbs should be of substantial construction, and while it may be impracticable to contain large machines, a well-constructed curb of the recommended height will provide warning to the operator that the machine is near the edge.
16. A worker other than the operator may ride on mobile equipment with a ROPS for the purpose of training or maintenance if the equipment is operated in an area with no significant risk of rollover.
17. Exposed moving parts on mobile equipment which are a hazard to the operator or to other workers must be guarded according to a standard acceptable to the MOL/OHSA, and if a part must be exposed for proper function it must be guarded as much as is practicable consistent with the intended function of the component.
18. Ensure that workers are clear of the mobile equipment before operating it. If the operator's view of the work area is obstructed, the operator must not move the equipment until precautions have been taken to protect the operator and any other worker, including:
 - a. immediately before the movement, the inspection by the operator on foot of the area into which the equipment will be moved,
 - b. direction by a signaler stationed in a safe position in continuous view of the operator and having an unobstructed view of the area into which the equipment will move, or
 - c. direction by a traffic control or warning system.
19. Establish a "safety clear zone" directly downhill when excavating and there is possibility of rocks or other objects rolling downhill. Access to the "safety clear zone" must be controlled to prevent personnel or equipment from being hit by rolling objects.
20. When operating mobile equipment, carry the load no higher than necessary to avoid limiting your vision.
21. Before starting work, ensure that you are aware of all mobile equipment operating in and around the site.
22. Do not take shortcuts across areas where mobile equipment is working.
23. Immediately before putting mobile equipment in motion, the operator will check loads for condition of blockings, hold-downs, lashings and clearance signals
24. Project personnel who drive vehicles, or operate equipment shall not allow unauthorized persons to drive, operate, or ride on these vehicles or equipment.
25. Project personnel shall properly use steps, handrails, and/or grab irons, and face the equipment when mounting or dismounting from vehicles or equipment.
26. The driver or operator of a vehicle or equipment is responsible for the safety of all passengers.
27. The mobile equipment operator is the only worker allowed to ride the equipment, unless seats or other safe facilities for other workers are provided and used. Workers must not ride with any part of their bodies outside the vehicle or equipment, or stand in or on any



vehicle or equipment unless protected against being thrown off balance. Riders must wear seatbelts.

28. Vehicles and equipment shall not be operated at a speed which will endanger any person or property. The driver or operator must keep their equipment under control at all times and always drive according to conditions, slowing down ahead of curves, on wet roads, steep ramps, for heavy traffic, or poor visibility.
29. Operators must not leave the controls unless the equipment or vehicle has been secured against movement by setting parking brakes and transmission locks, lowering any blades, buckets or forks to the ground and chocking wheels where necessary.
30. Operators must obey all signs governing the movement, operation or parking of vehicles on any work site or public or private road.
31. When an operator is present, riders shall notify and secure their permission before getting on or off the vehicle or equipment.
32. Persons shall not get on or off moving vehicles or moving equipment, except in an emergency.
33. Vehicles and mobile equipment shall be kept in gear or appropriate drive range at all times when moving, and shall be put in the proper designated gear or range before starting downgrade. Free-wheeling or coasting downgrade in neutral is prohibited.
34. Equipment must be positioned so that no swinging portion can come within 60cm (2ft) of any obstruction in any area accessible to workers. If this is not possible, entry into such areas must be prevented by barriers or other effective means.
35. Lights, flares, or other warning devices shall be posted when parked or disabled vehicles, or equipment or road conditions create a hazard to vehicle or equipment traffic.
36. Drivers shall be certain that all persons are clear before starting or moving mobile equipment.
37. Vehicles and mobile equipment shall be brought to a full stop and the horn sounded before they are driven into a building entrance.
38. Vehicles and mobile equipment operator's cabs shall be kept in a neat and tidy condition. The possession of reading material other than the Operator's Manual in the cab of vehicles or mobile equipment is prohibited.
39. Portable music devices and radios, are not allowed on Projects.
40. Vehicles and equipment shall follow at a safe distance. Passing shall be limited to areas of adequate clearance and visibility. Passing on a downgrade is prohibited except that slow moving or working equipment may be passed in areas of adequate clearance and visibility.
41. In the event a vehicle or mobile equipment catches fire, the driver or operator shall stop the vehicle, turn off the engine, set the parking brake, and if possible, block the vehicle or equipment wheels on the downgrade side to protect other workers and equipment. Activate the fire suppression system, or use portable extinguisher, and call for help as soon as possible.



42. Supplies, materials and tools, other than small hand tools, shall not be transported with project personnel in vehicles or mobile equipment unless such vehicles or mobile equipment are specifically designed to safely and securely transport supplies, materials and tools. Aerosol cans shall not be transported in cabs.
43. Tools and equipment carried in any part of a vehicle or piece of mobile equipment where workers are riding must be placed or secured to prevent injury to workers.
44. Operators must keep the cab, floor or deck of mobile equipment free of materials, tools or other objects that could create a tripping hazard, interfere with the operation of controls or interfere with exiting the vehicle.
45. Project personnel must not operate vehicles or mobile equipment while impaired by alcohol, fatigue, sickness or drugs (prescription or recreational).
46. All trucks, front-end loaders, graders, and dozers that are operated at night shall have lights on both ends as required for safe operation.
47. Operators must use running lamps or illuminated headlamps during daytime hours.
48. Mobile equipment being operated 1/2 hour before sunrise or 1/2 hour after sunset must have and use lights that adequately illuminate the direction of travel, the work area, and the cab instruments.
49. All mobile equipment employed on the Project will be equipped with an audible back-up warning device. The automatic audible warning device will activate whenever the equipment controls are positioned to move the equipment in reverse, and will be audible above the ambient noise level.
50. Wheeled mobile equipment that depends on engine power for steering, and power failure will result in loss of adequate directional control, a supplementary system must be provided to enable the operator to steer to a controlled stop.
51. Buckets, forks, booms, hoists and other load handling attachments installed on mobile equipment must be of a type specified by the equipment manufacturer or certified by a professional engineer.
52. Mobile equipment used for lifting or hoisting must be operated within the safe working load limits. Requirements include:
 - a. Mobile equipment designed for lifting, hoisting or similar operations must have a permanently attached placard, visible to the operator displaying the rated load limits of the equipment.
 - b. A load chart must be displayed if the rated load varies with the reach of the equipment and if the equipment is modified the employer must ensure that the rated load and the load chart reflect the new load ratings.
 - c. Hydraulic Excavators used for lifting or hoisting will:
 - NOT be used to lift, lower, or move personnel in the bucket or suspended from the boom or bucket of the excavator.
 - Have load charts applicable for the excavator and available in the cab.
 - Be operated by an excavator operator qualified to make the lift.
 - Require the load to be by a qualified rigger.



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- Not exceed the rated capacity to lift the load safely.
 - Require manufacturers lifting points or engineered attachment for the purpose of attaching slings, rated for the full capacity of the excavator.
 - Be level and on stable ground.
 - Require work Procedures that minimize the risk to workers near the boom or bucket.
- d. Hydraulic excavators will NOT be used to lift, lower, or move a slung load when:
- Lifting or lowering in close proximity to workers there is a possibility of the worker being struck.
 - Using open hooks and it may cause a hazard to workers.
 - Lifting loads without calculating weights or making test lifts.
 - Travelling with a slung load unless the manufacturer has addressed it.
 - Performing a single lift with two excavators without first informing all the workers involved and the supervision of a qualified supervisor.
53. Cell phone use is not permitted while operating mobile equipment, including hands free devices. Operators that must use a cell phone will stop the mobile equipment, lower all attachments, and lock the operating controls. Extra precautions should be taken to ensure the workers and public are not placed at additional risk due to the work stoppage.
54. Personnel working around mobile equipment are not permitted to use a cell phone. All calls must be taken on breaks and away from the active work area.



Musculoskeletal Injury (MSI) Prevention

Responsibilities

Employer	It will be the responsibility of the Employer to ensure that an MSI Risk Assessment is conducted when required
Supervisor	It will be the responsibility of the Supervisor to identify potential risk of MSI and implement practical preventative measures. The Supervisor is responsible to ensure workers trained in safe practices & procedures.
Workers	It will be the responsibility of Workers to follow safe work practices and procedures to prevent MSI.
H&S Coordinator	The H&S Coordinator is responsible for conducting a MSI Risk Assessment upon request and providing guidance on MSI prevention.

MSI Prevention

Chances are that every employee will, at work and at home, be involved in activities that involve lifting or moving heavy objects, stretching to reach an out of the way item, crawling to reach something at floor level, using a tool while in an awkward position, or repeating the same motions dozens of times an hour. These types of activities may lead to strains and sprains collectively known as Musculoskeletal Injuries (MSI). MSI can be prevented if personnel:

- practice good housekeeping
- pre-plan procedures to ensure the proper tools, equipment and number of personnel are available
- minimize the distance materials have to be moved – plan storage and movements properly
- store materials at or above hip height to minimize unnecessary bending
- break or divide heavy or large loads into smaller loads for easier transport
- use personal protective equipment such as knee pads, and gloves
- get help when lifting heavy or bulky objects
- don't swing and throw heavy loads
- lend a hand to workmates when necessary
- use dollies, hoists, forklifts and other equipment to do a job more efficiently
- use correct postures and avoid overexertion - use the squat technique for lifting, bend at the knees with back straight and head up, reduce twisting, keep loads in front of you; turn using your feet not your body
- use extended handles on tools to reduce the need for crawling when doing floor level tasks
- alternate activities
- take part in a fitness program that will build muscle strength and flexibility
- do some stretches and warm ups before any heavy or repetitive lifting jobs
- take short breaks between stages of strenuous jobs



Construction Project MSI Risk Identification & Assessment Checklist

This checklist is intended to assist in meeting WSBC regulatory requirements for identification and assessment of ergonomic injury risks. It is to be completed with assistance from the H&S Department as needed. Assessment may be required if work on the project generates significant numbers of soft tissue injuries.

Location _____ **Identification:** _____
Date: _____
Supervisor Name: _____

Worker Name: _____

Signature (Person Completing Checklist): _____
.....

A. Materials Handling

1. What heavy materials or equipment (e.g., drywall, rebar, power generator) are being manually handled on site? What are their maximum weights?
2. Do workers have to lift more than 50 pounds at one time without help? Yes / No
If "yes", what practicable suggestions, if any, do you have to minimize this occurrence?
3. Do workers have to lift more than 30 pounds often? Yes / No
If "yes", what practicable suggestions, if any, do you have to minimize this occurrence?
4. Are there handles for materials that must be carried? Yes / No
If „yes", are the handles easy to use and comfortable? Yes / No
5. Are workers encouraged to get someone's help to lift heavy materials? Yes / No
6. Are carts and other equipment readily available for moving materials? Yes / No
If "yes", is the equipment being used? Yes / No

If "no", why not?

Is the site clear enough to permit the use of carts? Yes / No
7. Are materials delivered close to where they will be used? Yes / No
If "no", what practicable suggestions, if any, do you have for improvement?
8. On what jobs do workers have to lift overhead? How could this lifting be avoided?
9. Are materials stored at floor or ground level? Yes / No
If yes, do workers have to bend down to lift materials? Yes / No
Could the materials be stored at waist height? Yes / No
10. On which tasks do workers have to reach far to pick up or lift materials?

Could the materials be moved closer? Yes / No



B. Tools

1. Are tools maintained in good condition? Yes / No
2. Which tools are very heavy?
3. Which tools vibrate excessively?
4. Which tools must be used while in difficult positions?
5. Which tools have poor handle design?
6. Which tools have grips that are too big or too small?
7. Do gloves make it hard to grip tools? Yes / No
8. Are alternative tools available with a better design? Yes / No If yes, what are they?

Do you recommend replacement of any existing tools? Yes / No If “yes”, which should be replaced?

C. Repetitive work

1. Which jobs require the same motions dozens of times an hour for more than one (1) hour per day?

What are the motions?

Can motion repetitions be reduced by job rotation / rest breaks? Yes / No

D. Awkward postures

1. Which jobs require overhead work postures more than one (1) hour per day?

Can scaffolds or other equipment reduce overhead postures? Yes / No

If “yes”, what equipment?

2. Which jobs require work at floor level or workers to be on their knees for more than one (1) hour a day?

Are knee pads or cushions available? Yes / No

Are they used? Yes / No

Is there equipment that can be used to reduce kneeling? Yes / No

If “yes”, what equipment?

3. Which jobs require workers to stay in awkward postures for a long time?

Can rotation or rest breaks be used to reduce time in these postures? Yes / No

4. Which jobs require a lot of twisting, turning or bending? How can the need for twisting or bending be reduced?

E. Standing

1. Which jobs require workers to stand all day, especially on concrete floors?

Would the use of anti-fatigue matting be practicable? Yes / No

Would adjustable stools for periodic rest breaks be practicable? Yes / No

What other practicable suggestions, if any, do you have for improvement?

F. Surfaces for walking and working

1. As far as is practicable, are working and walking surfaces kept dry? Yes / No

2. Are the surfaces unobstructed? Yes / No

3. As far as is practicable, are the surfaces even? Yes / No

G. Seating

1. Which jobs require sitting all day?

2. Are seats well-designed and comfortable? Yes / No
If "no", what practicable suggestions, if any, do you have for improvement?

3. Do workers have to lean forward in their seats to see/do their work? Yes / No
If "yes", what practicable suggestions, if any, do you have for improvement?

4. Does the seating in any heavy equipment vibrate a lot? Yes / No
If "yes", what practicable suggestions, if any, do you have for improvement?

H. Weather

1. Is there adequate worker protection from heat, cold, rain, wind, or sun? Yes / No
If "no", what practicable suggestions, if any, do you have for improvement?

I. Lighting

1. Are work areas well lit to prevent tripping and falling? Yes / No
If "no", what practicable suggestions, if any, do you have for improvement?



- 2. Is there enough light to do the work? Yes / No If “no”, what practicable suggestions do you have for improvement?

J. Production pressures

- 1. Are supervisors or workers under production pressures that could lead to shortcuts and injuries? Yes / No

If “yes”, what practicable suggestions, if any, do you have for improvement?

K. Training

- 1. What training have workers had on recognizing/preventing ergonomic injury hazards and symptoms?
- 2. What training have supervisors had in recognizing/preventing ergonomic hazards?

L. Musculoskeletal Symptoms

- 1. Do workers feel free to report symptoms to first aid? Yes / No

- 2. Have any workers been reporting muscle pain? Yes / No

If “yes”, which muscles? (Please circle all that apply)

- | | | | | |
|--------------------------------|------|----------|--|-------|
| Back | Neck | Shoulder | Arm (including elbow) | Wrist |
| Hand (including finger, thumb) | | | Leg (including thigh, knee, calf, ankle) | |
| Foot (including toe) | | | Other (please identify)_____ | |

- 3. Which jobs create the most problems?

What may be the main cause(s)? (Please check all that apply)

- | | | |
|------------------------------|------------------|---------------|
| Repetitive motion | Awkward postures | Heavy lifting |
| Other (please identify)_____ | | |

- 4. Do workers often appear exhausted at the end of the day? Yes / No

If “yes”, what practicable suggestions, if any, do you have for improvement?



M. IDENTIFY WHAT YOU BELIEVE ARE THE MOST HAZARDOUS JOBS ON SITE FOR MSI

- 1.
- 2.
- 3.
- 4.
- 5.

N. WHAT HAS BEEN DONE TO GET WORKER IDEAS TO REDUCE MSI ON THESE JOBS?

- 1.
- 2.
- 3.
- 4.
- 5.

O. WHAT ARE THE MOST PRACTICABLE (EFFECTIVE, EASIEST TO IMPLEMENT AND LEAST EXPENSIVE) SOLUTIONS THAT CAN BE ACHIEVED THROUGH COOPERATION BETWEEN MANAGEMENT AND LABOUR WORKING TOGETHER TO REDUCE THESE INJURY HAZARDS?

- 1.
- 2.
- 3.
- 4.
- 5.



Obstructed Vision and Back-up Alarms

When a vehicle or equipment operator's vision is obstructed, the unit will not be moved until suitable precautions have been taken to protect the operator and any other workers from possible injury.

Responsibilities

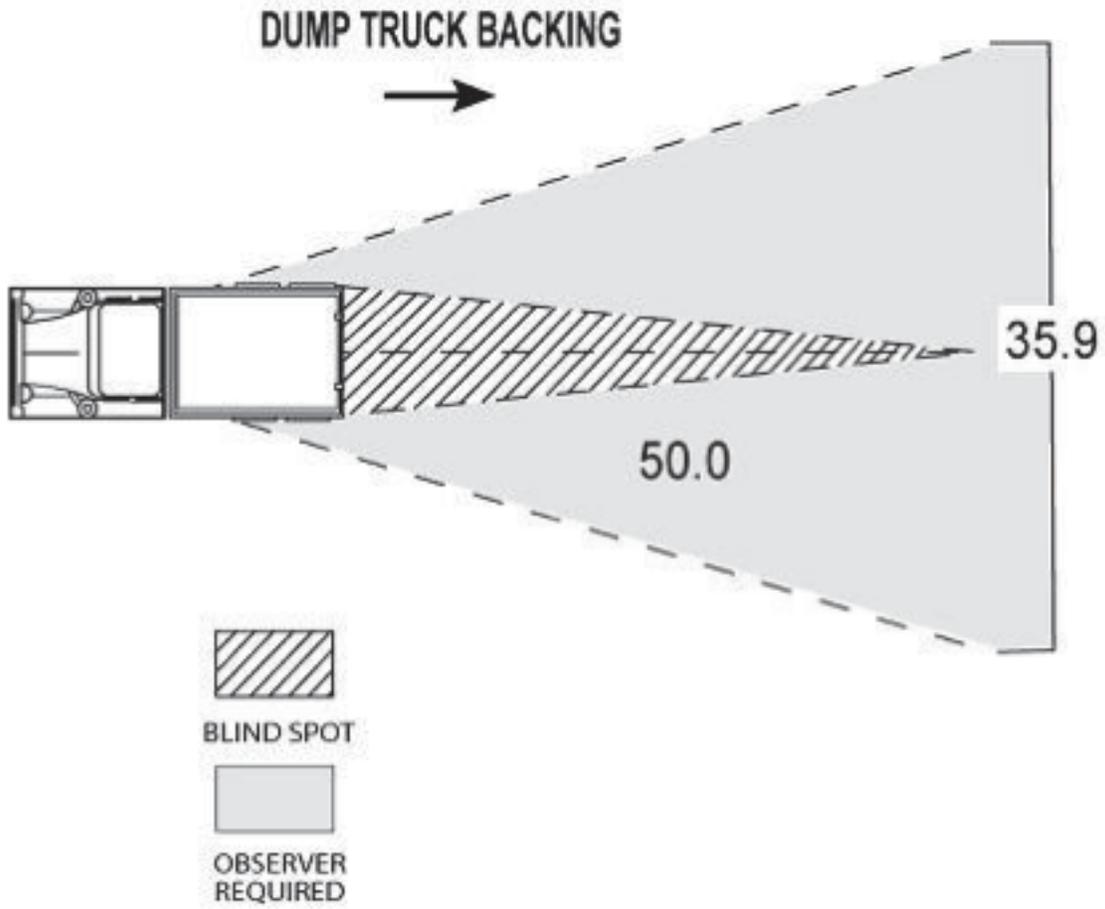
Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required.
2. All workers must use personal protective equipment suitable and necessary for the hazards of the work being performed.

Safe Work Practice

1. The following action will be taken prior to moving whenever a vehicle or mobile equipment operator's view is obscured:
 - a. an inspection, on foot, of the area into which the equipment will be moved, or
 - b. direction by a signal person wearing a high visibility vest and stationed in a safe position in continuous view of the operator and having an unobstructed view of the area into which the equipment will move, or
 - c. direction by a traffic control person or warning system.
2. Risk of hitting pedestrians and co-workers will be reduced by using audible warning devices. Mobile equipment will be equipped with a back-up warning device, and vehicle operators should sound their horn before backing.





Overhead Power Lines

It is the intent of LCE to provide a safe working environment for all employees and subcontractors. The objective of this Safe Work Practice is to provide the minimum set of guidelines which must be adhered to in order to ensure that safety related concerns are adequately and effectively addressed.

This Overhead Power Lines Safe Work Practice will be followed whenever personnel or mobile equipment will be working around or passing underneath overhead power lines. This Safe Work Practice is applicable to any equipment that has the potential to reach the arc area around an overhead power line, either intentionally or due to mishap. This includes but is not limited to the following equipment: excavators, Dump trucks, hydrovac units, cranes, high loads on deck trucks, etc.

Responsibilities

Employer	It is the responsibility of the Employer to implement and assure adherence to the LCE H&S Program. The Employer will ensure that the appropriate manpower, materials, tools and equipment are available to the work site.
Supervisor	It is the responsibility of the Supervisor to ensure that prior to the commencement of work activities that a phase or activity specific Job Hazard Assessment (JHA) has been completed. It is also the Supervisor's responsibility to ensure that the JHA and this Safe Work Practice (SWP) have been reviewed by the crew performing the task that the crew follows the requirements contained within.
Workers	<p>It is the responsibility of all personnel to work in a safe manner in accordance with regulatory and LCE H&S Program and OHS requirements.</p> <ul style="list-style-type: none">• All personnel are responsible to report to work fit-for-duty.• Personnel must adhere to the requirements of their phase or task specific JHA and SWP.• Personnel not only have the right, they have the responsibility to refuse unsafe work. If you feel the task or activity you have been assigned to perform is not safe, STOP and speak with your immediate Supervisor or Foreman immediately.• All incidents, including but not limited to, any injury (regardless how minor it may seem at the time), damage, near miss or environmental impact, must be reported to your crew Foreman immediately.



- All personnel will attend, participate in and sign onto the Daily Hazard Awareness Discussion attendance record.

Personal Protective Equipment

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required.
2. CSA approved safety glasses or over the top safety glasses as required.
3. CSA approved hearing protection may be required. >85db requires ear muff style protection.
4. Gloves as required, of appropriate type for task.

Tools and Equipment

1. Support poles to elevate line.
2. Power line warning signs “Danger Due to Overhead Wire”.
3. Flags placed on lines.

Planning and Communication

1. If working within the safe Limits of Approach distances you must ensure that any required permit has been received from the Utility Owner and that any requirements are understood by the crew.
2. In advance of working in the vicinity of power lines and/or in advance of passing underneath a power line, a site specific Daily Hazard Discussion must be completed by the personnel intent on carrying out the work. This Daily Hazard Discussion hazard assessment must identify any site specific hazards and provide for plans to eliminate or control those identified hazards.
3. Night work activities around power lines introduce unique hazards and as such a crossing specific hazard assessment must be completed by the crew. Due to this increased risk, permission must be granted in advance from the Construction Management
4. Immediately prior to carrying out any power line crossing activity or engaging in any task in Close Proximity* to power lines, the equipment operator and the designated spotter MUST stop and discuss the steps outlined in this safe work practice, any other safety related hazard controls required and shall reaffirm their method of communication to be implemented.

* If the equipment you are operating, including its boom or any attachment, has the capability to encroach or reach to within seven (7) meters of the power line, then you are considered to be in “Close Proximity”. Seven meters is to be measured at ground level, from directly beneath the closest overhead power line.



Setting-up Warning Signs and Barriers

Warning signs are to be placed a minimum on the poles, on both sides of the right of way and in plain view of those traveling in either direction under the lines.

Note: Warning signs shall be approximately 50 cm x 70 cm (20" x 28") and be of standard design.

18" flagging ribbons are to be placed on the overhead power lines. Flagging shall have high visibility markings or be orange in color.

Note: Signs and support posts must be in place before the job begins, and must remain in place until the job is completed, or unless otherwise specified by a utility representative.

Safe Work Practice

1. No worker shall approach and no equipment shall be operated within 7 meters of a live overhead power line unless:
 - The worker is, or the operation is directed by, a competent utility employee within the meaning of the Electrical Utility Regulations.

OR

- At least the following clearances, as set out in the following table, are maintained between the worker or the equipment and the overhead power line conductors:

Limits of Approach		
Voltage: Phase to Phase	Minimum Distance	
	Metres	Feet
Below 750 V	1	3
Over 750 V to 75 kV	3	10
Over 75 kV to 250 kV	4.5	15
Over 250 kV to 550 kV	6	20

2. The utility representative must be contacted to determine the voltage of the power line that is to be worked around or passed under if operations will encroach on the seven (7) meters minimum Limits of Approach.
3. If the safe Limits of Approach (as noted above) from overhead power lines cannot be maintained, a competent utility representative must be on site and directing operations. In this case a site specific Job Hazard Assessment must be completed prior to work activities taking place, by the personnel intent on carrying out the work and the crew Foreman.
4. Work around power lines should only be done during daylight hours or with sufficient and adequate artificial lighting (light towers, light plants) in place.
5. Be advised of the potential hazard that exists when excavating or performing any earthwork in close proximity to the base of a power pole. "Guy wires" or their anchors may become damaged or undermined, resulting in the instability of the power pole.



6. The preferred manner by which equipment shall be walked under a power line shall be in the forward position. Only under circumstances of having been discussed by the crew and documented on a PTP, shall reverse direction be used.

Safe Work Practice – Power Line Crossing Activity

1. It is mandatory that regulated safe Limit of Approach distances are maintained for people and equipment.
2. The Spotter must wear high visibility apparel unique in colour to the rest of the crew. This give warning to the operator if the equipment begins to encroach on the safe Limits of Approach.
3. In cold weather the signal (air) horn must be tested prior to commencing activities so as to ensure that it is in working order.
4. The Spotter shall only signal for one piece of equipment at a time. Only one piece of equipment at a time shall be allowed to pass under the goal posts and power line.
5. The Spotter and the operator shall discuss and verify their plan prior to commencing activities.
6. The Spotter is in charge of providing direction to the operator in order that the equipment may be advanced safely underneath and beyond the overhead power line. At no time shall an equipment operator proceed under or encroach on a set of „goal post“ markers (or overhead power line) until instructed to do so by the assigned Spotter.
7. The operator shall lower, curl or otherwise lower the boom and any attachments to a height which will allow the equipment to safely pass underneath the „goal posts“ and shall keep the equipment attachments in such a position until the equipment has passed safely underneath the power line and the opposing „goal posts“.
8. The Spotter shall remain within view of the operator at all times while equipment is working around or passing underneath a power line.
9. The Spotter must at all times remain outside of the goal post area and must be in a position to reasonably assess how close the equipment, it's boom and any attachments are getting to the „goal post“ rope and the power line.
10. Any worker in the vicinity may give the signal to STOP should the need arise. 11. The Spotter shall remain in his position until the equipment has passed under the power line and has proceeded beyond the far set of „goal posts“ to a safe distance.
12. If equipment comes in contact with a power line, the operator must stay in the machine until the equipment is either clear of the power line or the current is shut off. Ground personnel/Spotters as well as other equipment must NOT approach!
13. Be aware that many electrical lines have breakers in them that will stop the flow of electrical current in the event of contact. These breakers may be set with timers which can re- energize the line unexpectedly!
14. If the machine must be exited (due to fire or some other emergency), jump off, don't step off. If you step off, part of your body (either a foot or a hand) would be in contact with the machine when the other foot touches the ground. This would give the electricity a path to



flow through the body. Shuffle away from the equipment until you are at least 50 feet away. Avoid jumping onto damp ground.

Note: Anytime the minimum distance is not maintained the Spotter will signal the operator to back away from the line. AT NO TIME DURING THIS PROCEDURE WILL AN OPERATOR LEAVE HIS MACHINE NOR SHALL ANY GROUND WORKER COME WITHIN SEVEN (7) METERS OF THE MACHINE, ITS BOOM OR ANY ATTACHMENTS.





Personal Protective Equipment and Clothing

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to identify PPE requirements for the work to be performed.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to ensure PPE required for the work and hazards to be serviced, maintained and used by personnel on site. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of personal protective equipment prior to performing work.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker use and maintain PPE in accordance with the directions and training received.

Survey

A survey of PPE needs has been conducted for LCE Projects and PPE requirements established. A summary of the requirements are as follows:

1. The following must be worn on the LCE Projects:
 - a. hard hat
 - b. construction grade work boots (CSA green triangle)
 - c. hi-visibility vest or apparel that is Type 1 or 2.
2. Eye protection must be used when a hazard to the eye is present, such as when chipping, cutting or grinding or welding.
3. Hearing protection will be used when there is a noise hazard present.
4. Fall protection equipment in accordance with LCE's fall protection program will be used.
5. Respirators will be used in accordance with LCE's respiratory protection program.
6. Coveralls will be worn when required for protection from contaminants such as asbestos or silica.
7. Buoyancy equipment will be used if working adjacent to or over water.

Selection

Selection of protective equipment and clothing will consider:

1. The PPE that best suits the hazard(s).
2. Advice on proper selection from suppliers, the LCE H&S Coordinator, and field personnel.



3. Workplace trials for different types of equipment as may be appropriate.
4. The users' physical comfort when using required PPE.
5. The cost considerations of PPE in balance the need to obtain user acceptance.
6. If the PPE meets required standards, e.g. OHSA, CSA, etc.

Personal Protective Equipment and Clothing

Fit Testing

All PPE issued will be fit tested before asking LCE project personnel to use it. Improperly fitting PPE may cause it to be ineffective and project personnel will be unwilling to use it.

Maintenance

1. LCE employees are required to maintain in good condition all PPE and clothing that is issued to them.
2. PPE and clothing will wear-out and need to be replaced; however, good maintenance practices will extend the life of the PPE and clothing.
3. Proper PPE maintenance practices will consist of:
 - a. storing in a clean, dry, well ventilated place when not in use
 - b. inspecting the before use for damage and replacing when required
 - c. cleaning after each use, particularly respirators
 - d. repairing or replacing broken or damaged PPE

Training

Supervisors are responsible for ensuring that LCE personnel are properly trained to use PPE and clothing. This will include:

- superintendents being informed about how to properly use and care for PPE
- employees knowing why, when and how to use and care for PPE
- superintendents verifying that the PPE is being used properly

Management and Supervisors are responsible to **set a good example** by properly wearing and maintaining their own PPE and clothing.

Program Review

The PPE requirements shall be reviewed at least annually as part of the program review process. Deficiencies will be noted and corrections implemented to ensure the PPE Program remains effective.



Head Protection

1. CSA approved hardhats must be worn at all times while working on site. No exceptions!
2. Hardhats will not be altered in any way, which may compromise the integrity of the headgear, such as drilling holes into the equipment or wearing the headgear contrary to the manufacturer's instructions.
3. Hardhats must not be painted as this may hide defects to the surface of the headgear.
4. Decals pasted to the headgear shell must be kept to a minimum to reduce the potential for hiding damage or defects to the hardhat surface.
5. The replacement of headgear is highly recommended every five years and the suspension system once per year.
6. Any hardhat subjected to an impact must be replaced immediately.

Foot Protection

1. CSA grade footwear must be worn at all times while working upon LCE projects. No exceptions! This type of footwear can be identified by the green triangle stitched to the outer or inner portions of the footwear.
2. Footwear must be maintained in good condition. Footwear showing signs of excessive fatigue such as the steel toecaps showing must be replaced.
3. Footwear of an appropriate manner, such as rubber boots or equivalent must be used when handling solvents or chemicals that may endanger the worker or condition where leather footwear is worn.

Eye/Face Protection

1. Where the possibility of injury exists to the face or eyes, workers shall wear appropriate protection that meets CSA standards.
2. Safety eyewear must be equipped with side shield protection. This includes prescription eyewear that must also comply with applicable standards.
3. Workers engaged in the operation of grinders or sanders must wear a face shield over the safety eyewear.
4. When handling chemical products that may splash up or into the workers face and potentially causing serious injury, tight fitting safety goggles shall be worn. Face shields may also have to be worn dependent upon the product and recommendations as contained within the MSDS data sheet.

Hearing Protection

1. All workers engaged in construction activities are required to have an annual hearing test and carry a current hearing test card at all times.



2. Hearing protection appropriate to the exposure of noise levels affecting workers on site shall be worn at all times which includes continual exposures over 85 dBA. Examples of noise levels confronting workers on Industrial projects are:
 - Chain Saw Operator – 95-100 dBA
 - Heavy Equipment Operator – 91 dBA
 - Pneumatic Drill – 105 dBA
3. Foam fitting ear protection must be properly inserted into the ear canal. Improper insertion may cause inner ear damage.
4. Earmuffs must be worn over other types of hearing protection, such as foam plugs where the continuous noise exposure exceeds 110 dBA.
5. Hearing protection must be maintained in good condition and cleaned on a regular basis.

Respiratory Protection

1. Workers exposed to respiratory irritants such as dust, mist or vapors must wear respirators appropriate to the condition or as specified within the applicable MSDS data sheet.
2. Each worker must ensure he/she has received a respirator appropriate to the hazard. Example: A paper dust mask does not provide adequate protection when the work generates silica dust, such as from rock drilling, hammering or grinding.
3. Respirators once issued must be inspected regularly and maintained in good and sanitary condition as per the manufacturer's specifications.
4. Workers must ensure they are clean-shaven where the respirator contacts the skin.
5. Workers must ensure they have received proper instruction and training on the respirator prior to performing any tasks. Only workers who have received proper instruction and training shall wear respirators.
6. All workers utilizing half mask respiratory protection or greater shall ensure they have been fit tested prior to performing the tasks. This fit test is required once per year.
7. Respirators and filters must be stored separately when not in use, each kept in a sealed container.

Protective Clothing

1. Gloves appropriate to the conditions must be worn to prevent injury or long-term ailments such as dermatitis. Examples are:
 - Leather gloves -when handling materials to prevent lacerations and/or slivers.
 - Rubber gloves -when handling chemical product to prevent burns or long-term skin related disorders.
2. Protective coveralls, such as cotton or Tyvex, must be worn when handling products or chemicals that may cause scrapes, lacerations or burns.



3. Rain suits shall be worn when climatic conditions exist or when handling various types of acids and/or solvents.

Last Word on PPE and Clothing

Personal protective equipment and clothing (PPE) will be considered the **last line of defense** against injuries and occupational illnesses on the SFPR Project. Since all hazards cannot be completely controlled by engineering and administrative controls, the consistent use of PPE is imperative to minimize exposure to these hazards. Using PPE will reduce the risk of injury, it will not prevent accidents!





Pneumatic Tools

Read and understand the instruction manual before operating any pneumatic tool. If you do not know how to operate this piece of equipment obtain advice from your supervisor.

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required.
2. All workers must use personal protective equipment suitable and necessary for the hazards of the work being performed.
3. Hearing and eye protection is required.

Safe Work Practice

1. Only authorized, experienced and trained workers may use pneumatic tools.
2. Inspect the tool before connecting to the air supply. Ensure screws and caps are securely tightened. Check hoses for cuts or bulges, and replace if defective.
3. Pneumatic tools must be held against the work surface before pulling the trigger.
4. Safety features must not be disengaged or overridden.
5. Operating triggers must never be held in the "on" position while moving between work positions.
6. Operating triggers must never be secured in the "on" position under any circumstances.



7. The air supply must be disconnected before adjustments or repairs are made to the tool.
8. The manufacturer-specified air pressure for tools, hoses and fittings must never be exceeded.
9. Safety “whip-checks” must be attached at all air hose connections.
10. Do not use compressed air to blow debris or clean dust from clothes.
11. Where practicable, avoid laying hoses across pedestrian and vehicular access routes.



Portable Power Tools

Power tools improve employee efficiency in job performance. The safety objective with these tools is to protect users from inflicting harm on themselves and others. Proper selection, use, care, and supervision of portable power tools can prevent abuse of these tools and eliminate or reduce employee injuries. Power hand tools must meet standards (CSA, ULC, etc.) acceptable to OHSA.

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required.
2. All workers must use personal protective equipment suitable and necessary for the hazards of the work being performed.
3. Hearing and eye protection is required.

Pre-Use Inspection

1. All portable power tools supplied by the employer or employees will be maintained in safe working order.
2. Portable power tools shall be inspected regularly and before using.
3. Tools with missing or broken guards, nicked or frayed electrical cords, broken plugs, broken switches, damaged equipment housing, or missing or broken tool retainer shall not be used and shall be tagged and removed from service.



4. Inspect tools, power cords and electrical fittings for damage prior to each use. Repair or remove from service and replace damaged equipment.
5. Ensure all belt and pinch point guards are in place and functioning.

Safe Work Practice

1. **Electrical tools** include drills, circular saws, reciprocating saws, miter-box and shop saws, stationary band saws, jig/sabre saws, rotary die grinders, soldering irons, percussion tools, grinding wheels, buffers, wire brushes, sanders, and routers. Employees must recognize and protect themselves from shock, noise, cuts, burns, and other potential hazards by using proper guards and safety equipment and devices.
2. **Air-powered tools** include air hoses, grinders, and pneumatic-impact tools. Workers should ensure hoses do not present tripping hazards, avoid using hoses as cleaners, and prevent accidental disconnection of hoses from the tools. Air-powered grinders require the same type of guarding as electrical grinders.
3. **Pneumatic-impact tools** require two safety devices: an automatically closing valve and a retaining device to hold the tool in place to prevent it from being fired accidentally. Additionally, employees must use safety eye wear to protect against flying debris.
4. **Gasoline-powered tools** are commonly used in construction activities. Gasoline-powered tools present serious hazards and must be operated only by trained personnel and adequately guarded to prevent fires and injuries.
5. Portable power tools are designed for particular tasks and if used for other purposes other hazards may be created. Additionally, the extreme mobility of these tools and their power sources creates significant hazards.
6. Vibration minimization is usually a tool design function. If extreme vibration of the tool is a problem to the employee, using isolation pads within the machine or between the handles and operator may be an option.
7. Tool guards should be provided where possible. Tools such as circular saws, belt sanders, and abrasive wheel grinders should be equipped with guards that effectively prevent the hands and fingers of the operator from coming into contact with blades and nip points.
8. Guarding may not be possible on some equipment such as chain saws. In those cases, other safety features should be in place (e.g. blade brake, anti-kickback design, etc.).
9. Safeguarding energy sources must be practiced with all power tools. Electrical safeguards, controls for handling gasoline and other flammable liquids, and controls for air and fluids under pressure must all be in place.
10. Employees using power tools are to be provided with Personal Protective Equipment (PPE) when exposed to falling, flying, abrasive and splashing objects, or harmful dusts, fumes, vapors, or gases.
11. The PPE should be matched against the particular hazard to provide the required level of protection.
12. Do not wear gloves, loose clothing or jewelry while using revolving/rotating power tools.

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13. Switch tools off before connecting them to a power supply.
 14. Do not use electric tools in wet or damp locations without a Ground Fault Circuit Interrupter.
 15. Ensure tools are properly grounded (3-prong plug) or are double insulated.
 16. Keep power cords clear of tools during use.
 17. Suspend power cords over aisles or work areas, when possible, to minimize stumbling or tripping hazards and prevent damage to the cords
 18. Do not carry electrical tools by the power cord.
 19. Avoid octopus (overloaded) connections.
 20. Wear approved safety glasses or goggles when using power tools for grinding, cutting and sanding operations.
 21. Prior to drilling walls or the ground, accurately determine and mark the location of utilities.

Electric Tools

1. Protection from electric shock while using portable power tools has been described as 'depending upon third wire protective grounding'. "Double insulated" tools provide more reliable shock protection without third wire grounding. Tools in this category are permanently marked by the words "double insulation" or "double insulated."
2. All electric power tools shall be effectively grounded. The exceptions are double insulated and cordless type tools.
3. Electric cords shall be inspected periodically and kept in good condition. Heavy-duty plugs that clamp to the cord should be used to prevent strain on the current-carrying parts if the cord is accidentally pulled.
4. Electric saws are usually well guarded by the manufacturer, but employees must be trained to use the guard as intended. The guard should be checked frequently to be sure that it operates freely and encloses the teeth completely when it is not cutting and encloses the unused portion of the blade when it is cutting.
5. Circular saws shall not be jammed or crowded into the work. The saw is to be started and stopped outside the work.

Abrasive Wheels and Tools

1. All grinding machines shall be supplied with sufficient power to maintain the spindle speed at safe levels under all conditions of normal operation.
2. Grinding machines must be equipped with safety guards in conformance with the requirements of Canadian Standards Association (CSA), for the use, care, and protection of abrasive wheels.
3. Cup-type wheels used for external grinding shall be protected by either a revolving-cup guard or a band-type guard. All other portable abrasive wheels used for external grinding shall be provided with safety guards, except as follows:

4. When the work location makes it impossible, a wheel equipped with safety flanges shall be used.
5. When wheels two inches or less in diameter which are securely mounted on the end of a steel mandrel are used.
6. When safety guards are required, they shall be so mounted to maintain proper alignment with the wheel, and the guard and its fastenings shall be of sufficient strength to retain fragments of the wheel in case of accidental breakage.
7. When safety flanges are required, they shall be used only with wheels designed to fit the flanges. Only use safety flanges of a type and design and properly assembled so as to ensure that the pieces of the wheel will be retained in case of accidental breakage.
8. All abrasive wheels shall be closely inspected and ring-tested before mounting to ensure that they are free from cracks and defects.
9. Grinding wheels shall fit freely on the spindle and shall not be forced into place. The spindle nut shall be tightened only enough to hold the wheel in place.
10. All employees using abrasive wheels shall be protected by eye protection equipment.

Pneumatic Power Tools

1. The operating trigger on portable hand-operated equipment shall be located to minimize the possibility of its accidental operation and shall be arranged to close the air inlet valve automatically when the pressure of the operator's hand is removed.
2. Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tools from becoming accidentally disconnected.
3. All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 psi pressure at the tool, shall have a safety device on the muzzle to prevent the tool from ejecting fasteners, unless the muzzle is in contact with the work surface.
4. Compressed air shall not be used for cleaning purposes except with an air blowgun limited to 30 psi static pressure at the outlet nozzle and then only with effective chip guard and PPE.
5. The manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings shall not be exceeded.
6. All hoses exceeding 1/2 inch inside diameter shall have a safety device at the source of supply or line to reduce pressure in case of hose failure.

Gasoline-Powered Tools

1. All gasoline-powered tools shall be stopped while being refueled, serviced, or maintained, and fuel shall be transported, handled, and stored in approved safety cans. All cans shall be properly labelled.
2. When gasoline-powered tools are used in enclosed spaces, the applicable requirement for concentrations of toxic gases and use of (PPE) Personal Protective Equipment shall apply.



Power Line Safety (General)

Any work near power lines will require a plan to prevent contact, arcing within the limits of approach, inductive currents and re-energization after a contact. Information is available through the Electrical Safety Act.

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to plan for safe work around power lines.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to implement safe work Safe Work Practice for work near power lines. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe work Safe Work Practice and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required.
2. All workers must use personal protective equipment suitable and necessary for the hazards of the work being performed.
3. Warning signs to that indicate location of power lines.
4. Barricades as necessary to prevent entry into hazardous or restricted areas.

Conditions

Personnel working near power lines face serious hazards from contact with power lines and related equipment such as transformers. Risks include:

- Direct contact with an energized line.
- Tools, equipment or other conductive material contacting the power lines resulting in an indirect contact.
- Arc-flash over from high voltage power lines.
- Inductive currents.

Power Line Safety (General)

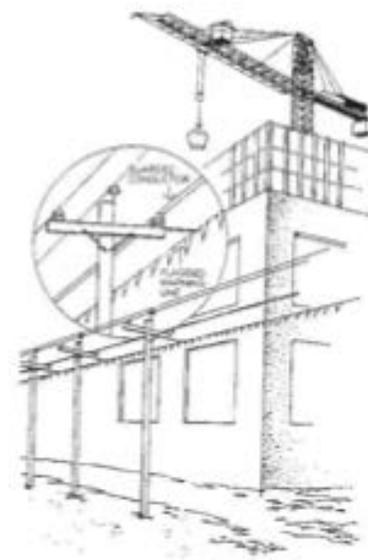
Electrical current passing through the body can cause third degree burns, irregular heart action or stoppage, or the stoppage in breathing. Arc flash-over will result in severe thermal or flash burns. Inductive currents and stored charges on metal objects beneath a power line can result in a shock or spark that could ignite fuel during refueling.

Safe Work Practice

1. Inspect the work site prior starting work or positioning equipment to locate and identify overhead power lines, underground power lines, and electrical equipment.
2. Determine the voltage of the power lines and then determine the safe limits of approach using the following Table:

Limits of Approach		
Voltage: Phase to Phase	Minimum Distance	
	Metres	Feet
Below 750 V	1	3
Over 750 V to 75 kV	3	10
Over 75 kV to 250 kV	4.5	15
Over 250 kV to 550 kV	6	20

3. Determine if the work will result in any equipment, object or person being closer than the Limits of Approach. Take into account situation where the Limits of Approach could be compromised intentionally as identified in the work planning, or unintentionally through an unplanned occurrence or accident.
4. The minimum distances apply to all objects, including scaffolding, hand tools, ladders, mobile equipment, etc.
5. If it is determined that the Limits of Approach could be compromised, Refer to Electrical Safety Act.
6. Implement safety measures to prevent power line contact or arcing. These measures can include, but are not limited to, the following:
 - a. De-energizing the power lines
 - b. Effectively guarding, e.g., by using flagged warning lines
 - c. Power lines displaced or re- routed
 - d. Placing warning signs indicating overhead line location and voltage
 - e. Grounding equipment to reduce/eliminate inductive currents
 - f. Using a qualified Hydro Safety Watcher
7. Communicate with all persons in the area where people, tools or equipment when moved or stored, can come within the Limits of Approach.





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9. When energized electrical conductors are guarded the following precautions must be taken:
 - A qualified safety watcher must be posted and positioned so that the equipment, the load and the equipment operator can be seen.
 - The safety watcher must signal stop to the equipment operator whenever the equipment or load is likely to contact the flagged line.
 - Workers, equipment and loads must not touch or handle the flagged lines.
 - Only persons qualified to work with high voltage electricity are allowed to touch or handle the electrical guarding.
 10. LCE personnel need to consider all electrical wires and equipment as “live” until they are shown to be otherwise.
 11. Only a licensed electrician should connect, maintain or modify electrical equipment or installations.
 12. Movement of dump trucks, backhoes, cranes and similar equipment near power lines will require the use of a signaler. This person will warn the operator when any part of the equipment, or load, approaches the minimum allowable distances.
 13. It is also important to remember to check for overhead wires before moving ladders, rolling scaffolds and elevating work platforms.
 14. Sufficient **distance must be added** to the Limits of Approach to prevent unplanned or accidental movements of workers, tools, equipment or material within the specified distance.
 15. The Limits of Approach applies to all parts of the equipment, including booms, hoisting cables and any part of the load being raised. Distances must be increased to provide for any change in boom angle, swing of the hoisting cable and the load while it is being raised, lowered or moved laterally, to ensure that safe distance is maintained at all times. Operators must give consideration to the probability of hazard from switching surges, altitude, humidity, line configuration, etc.





Propane Torch

Read and understand the instruction manual before operating the torch. If you do not know how to operate this piece of equipment obtain advice from your supervisor.

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required.
2. All workers must use personal protective equipment suitable and necessary for the hazards of the work being performed.

CAUTION: Propane is heavier than air, which causes it to accumulate in low areas. Be certain all areas are well ventilated. Propane has a distinct odor. If you smell it, immediately discontinue work, extinguish all flames, find the leak and correct it.

WARNING: Use extreme caution at all times. You are using an intense open flame. Disregard of safe practices can result in severe fire damage, serious personal injury or death.

Daily Equipment Check List

1. Be sure you have a fire extinguisher (type ABC) on the job, easily accessible to each worker.

2. Check LPG cylinders for dents, damage to collar, damage to valve or corroded foot ring. Never hoist a cylinder by the valve. Secure cylinders in an upright position. Know whether you are using LIQUID or VAPOUR WITHDRAWAL.
3. Visually inspect all parts for damage and wear.
4. Using soapy water, check all connections and fittings for leaks. DO NOT use a match or open flame.
5. Ignite torch. Check operation of valve and other adjustable parts.

Safe Work Practice

1. DO NOT use torches on or near combustible materials,
2. Inspect equipment daily.
3. Secure cylinders in a level, upright position. DO NOT invert or lay cylinders on their sides.
4. Use only vapor equipment on cylinders equipped with vapor withdrawal valves. Use only liquid equipment on cylinders designed for liquid withdrawal. DO NOT invert vapor cylinders to dispense liquid.
5. DO NOT apply flame to cylinders to increase pressure.
6. DO NOT operate torches or any equipment if the odor of LPG (butane/propane) is evident. Immediately shut off all valves and, using soapy water, check all equipment for leaks.
7. LPG (butane/propane) is heavier than air which causes it to accumulate in low areas. Check low areas for accumulation and ventilate. Be certain all work areas are well ventilated.
8. Keep torches, open flame, and sources of ignition away from cylinders, regulators, and hose.
9. Cylinder valves must be protected. DO NOT hoist cylinder by the valve.
10. Gloves should be used at all times. Long sleeves, long pants, and boots are recommended.
11. Never leave a lighted torch unattended.
12. For more detailed information, consult your local LPG dealer, NPGA, NRCA, or NFPA Pamphlet 58. This information is provided as a general guide for safe LP – Gas use and in no way constitutes a complete safety program.

Safety Notes

1. When extinguishing a torch, shut off cylinder valve and allow gas to burn out of lines.
2. Be certain to comply with all safety guidelines and local ordinances regarding the use of an open flame.
3. Please contact your local LP Gas dealer or fire officials if you have questions regarding proper operating Safe Work Practice and safety guidelines.



Respiratory Protection Program

Responsibilities

Employer	It will be the responsibility of the Employer to ensure that respiratory protection is available to workers that may be affected by airborne respirable contaminants. The Employer is responsible to ensure personnel receive annual respirator fit tests.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to ensure respiratory protection is readily available and used. The Supervisor is responsible to ensure workers have received proper instruction and training in respiratory protection.
Workers	It will be the responsibility of Workers to use respiratory protection when required to prevent exposure to airborne contaminants. Workers will advise their Supervisor of any airborne hazards that have not been previously identified, and when they need to renew their annual respirator fit test.
H&S Coordinator	H&S Coordinator is responsible for providing the resources that will ensure an effective respiratory protection program. This includes conducting air sampling, providing respiratory protection education materials, ordering respiratory protection, and providing respirator fit tests upon request.

Why Respirators are Necessary

Respirators have an important role in construction for the prevention of respiratory illnesses. Often protective equipment is the only means to protect workers from workplace hazards. Construction sites, due to the ever-changing conditions on the worksite, do not provide many opportunities to apply engineering (hazard) controls. Construction workers can be exposed to:

- silica dust (concrete grinding/cutting)
- asbestos (present in some building materials)
- lead (found in industrial paints and coatings)
- organic solvents (cleaning agents/solvents)
- irritant mists (acid wash)
- welding fume, etc.

Respirators will likely be needed to be used in each of these situations. For this reason, FTGC has implemented a Respiratory Protection Program. Subcontractors are expected to have a program that is equal to or better than FTGC's Respiratory Protection Program.



Management/Supervisor Responsibility

Management and supervisory personnel are responsible for administering the Respiratory Protection Program. Specific duties include:

- consulting with outside sources to maintain a current, practical program
- ensuring the preparation and implementation of written procedures for the Respiratory Protection Program
- ensuring that supervisory personnel are provided with a copy of this document
- instructing supervisory personnel to keep a copy of this document available for all employees required to wear respirators
- ensuring that all persons are made aware of their responsibilities, as defined in this document
- ensuring that workers properly use and maintain equipment
- evaluating the effectiveness of this program annually.

Employee Responsibility

Employees are responsible for:

- using the respirator provided in accordance with the most current instructions and training received
- taking all reasonable precautions to prevent damage to the respirator
- reporting any respirator malfunction or damage to the immediate supervisor or person in charge

Hazard Identification

Respiratory hazards at the work site must be identified and evaluated to determine where personnel protection is required and which type is appropriate.

Immediately Dangerous to Life and Health (IDLH) situations must be assessed by a competent person. Do not attempt to determine the hazard level or protection required on your own. Assume that each of the following are IDLH environments:

- oxygen deficiency
- a confined space
- contaminants at or above explosive limit
- firefighting situations

Changes in process operation, air movement, and temperature must be considered as factors in hazard assessment.

Respirator Selection

Respirators protect against different hazards, at varying levels and with assorted limitations. Use only the appropriate NIOSH and MSHA approved respirators. In most circumstances the nature of the work performed by LCE will require only one type of respirator.



Using a Respirator

Evaluate the following before choosing a respirator:

- the nature of the hazard
- who can wear a respirator
- the respirator approval and limitations
- what is happening in the surrounding area

Once the hazard is identified and assessed a decision can be made on which of the following three major respirator types is required.

- **Air Purifying Respirators:** These respirators filter the air but do not supply it - ensure the oxygen level in the work area is greater than 19.5%. Select the required filter designed for the hazard and check its protection capabilities. Certain substances lack adequate warning properties or cannot be filtered from the air with this type of respirator. When working in high concentrations of asbestos a power assisted purifying respirator (PAPR) will be used in accordance with WSBC regulatory requirements.
- **Supplied Air Respirators:** These provide a remote source of breathing air from a compressor or cylinder and connect to the user by means of an airline. Compressed breathing air must meet the purity requirements of CSA Standard Z180.1, Compressed Breathing Air. This respirator allows work in environments where air purifying respirators are inadequate but does not include IDLH conditions as an airline could kink or break.
- **Self-Contained Breathing Apparatus:** These provide breathing air from a cylinder worn on the back. It protects from toxic hazards and oxygen deficiency. The SCBA limitations include the cylinder weight which adds stress to the wearer and the protection time, which is limited by the amount of air stored in the cylinder.

Daily Check

Workers must inspect their own respirators on a daily basis for correct operation and fit as follows:

- Inspect respirator to ensure all valves are in place, correct filters are attached and there are no damaged parts.
- Don respirator and adjust straps.
- Block off filter inlets with hands, breathe in and ensure the respirator collapses.

Respirator Facial Fit

The degree of protection provided by a respirator requiring a close facial seal depends on several factors including:

- the effectiveness of the seal to the facial skin
- the efficiency and capacity of the air-purifying filter or air-supplying equipment
- the inward leakage through respirator components



An acceptable fit test determines the ability of each respirator wearer to obtain a satisfactory fit. A fit test must not be used to evaluate the air-purifying components in a respirator. The efficiency and capacity of respirators is determined by the manufacturer – their instructions must be followed. Under no circumstances shall a person wear a respirator for which a satisfactory facial fit has not been obtained.

Fit Test Procedure

All respirators must be qualitatively fit tested when first issued and annually thereafter. Fit test as follows:

1. Attach cartridge filters.
2. Ensure that wearer is able to detect the banana oil odor without a respirator on. Failure to be able to detect the banana smell voids a fit-test and an irritant smoke tube must be used instead. Check worker sensitivity to a small amount of smoke from a tube.
3. Instruct wearer to put respirator on and conduct the daily check as indicated previously.
4. Once the daily check has been completed, instruct wearer to breathe normally and close eyes. Wave the banana oil or irritant smoke gently around the entire perimeter of the face seal area and at the filters of the respirator.
5. Instruct wearer to take regular deep breaths while continuing to apply the banana oil.
6. Instruct wearer to breathe normally and turn head from side to side and up and down, continue to apply banana oil.
7. Instruct wearer to chew or talk; continue to apply banana odor.
8. Immediately after each successful test, instruct wearer to remove respirator.
9. Record the fit test results on the *Respiratory Protection Fit Test Record*. Retain this documentation on site for the duration of the job. Send a copy to head office.

Training

The following persons require training to ensure the proper use of respirators:

- respirator wearer
- supervisor of persons wearing respirators
- person issuing respirators
- person performing fit tests
- person maintaining and repairing respirators

Training records will be retained for the duration of the employee's plus two years. Every person required to use a respirator must be retrained at least annually; and more frequently in special circumstances. The training for every person required to wear respirators will consist of:

- the nature, extent and effects of respiratory hazards to which the person may be exposed
- an explanation of the operation, limitations and capabilities of the selected respirator



- instruction in procedures for inspection, donning, removal, checking the fit and seals, and wearing the respirator (using hands-on techniques to enable the person to become thoroughly familiar and confident with the respirator)
- an explanation of the procedure for maintenance and storage of the respirator
- recognizing respirator malfunction

Supervisor training will include respirator selection, fit, issue and inspection, and monitoring of use.

Cleaning, Maintenance & Storage

Respirators require regular maintenance to retain their original effectiveness. An acceptable program of care and maintenance includes:

- cleaning and sanitizing
- inspection, testing and repair
- appropriate storage
- record keeping

Respirator users must inspect their respirators before and after each use and ensure that they are cleaned and sanitized after each use. Respirators stored for emergency and rescue use must be inspected monthly.

On sites where employees are responsible for the maintenance of individually assigned respirators, they must be thoroughly trained in cleaning and sanitizing procedures, and appropriate cleaning and sanitizing materials must be available. After being cleaned and sanitized each respirator must be inspected and tested to determine if it is in proper working condition. Tag defective or non-functioning devices "OUT OF SERVICE" and remove from use until disposed of or repaired.

An acceptable respirator inspection includes a check for:

- tightness of connections
- condition of component parts - face-piece, harness, valves, connecting tubes, harness assemblies, filters, cartridges
- shelf-life dates
- proper functioning of regulators
- pliability and deterioration of rubber or elastomeric parts

A record of respirator inspections will be maintained including information on:

- date of use and date of inspection
- physical condition and repairs made
- cleaning and sanitizing
- tests or remedial action taken



Where inspections indicate that repairs or overhaul are required, follow the manufacturer's instructions. Only properly trained personnel may repair and test respirators, using original manufacturer's replacement parts and repair procedures. Store respirators in a manner which protects them from distortion, dust, ozone, sunlight, heat, extreme cold, excessive moisture, vermin, damaging chemicals or any other potential hazard.

Health Assessments

Where there is doubt about the fitness or ability of an employee to wear a respirator, instruct the employee to seek medical advice from a physician who is knowledgeable about the work. The physician will be requested to inform management about the fitness or ability of the employee to wear a respirator.

Program Evaluation

The effectiveness of the Respiratory Protection Program will be periodically evaluated by management to ensure that wearers are being provided with adequate protection. If any corrective actions are required, they will be taken immediately, including the reporting of all pertinent data. This evaluation will be conducted at least annually, or as required.

Wearer acceptance of a respirator is an important matter to consider when evaluating the effectiveness of the Respiratory Protection Program. Supervisory personnel will consult respirator wearers periodically about the following factors:

- comfort and restriction of movement
- breathing resistance
- fatigue
- interference with vision or communication
- interference with job performance
- confidence in the respirator's effectiveness

Supervisory personnel will also review the Respiratory Protection Program frequently to ensure:

- correct types of respirators are selected, issued and used
- wearers are adequately trained and wear respirators correctly
- respirators are adequately inspected and maintained; and respirators are properly stored

Guidelines for Respirator Use

1. Ensure that the face is clean-shaven where the face-piece seals to the skin.
2. Ensure that respirators which require an effective face seal to perform effectively are not worn if this seal cannot be achieved and maintained.
3. Where practicable, avoid wearing contact lenses while wearing a respirator. Ensure that corrective lenses do not interfere with the face-piece seal.
4. Ensure that no covering passes between the sealing surface of the respirator face-piece and the face.
5. Ensure that other Personal Protective Equipment does not interfere with the face-piece seal.



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6. Inspect the respirator for proper operating condition prior to each use.
 7. Check the face-piece seal immediately after donning a respirator.
 8. High and low air temperature environments can affect respirator performance and the safety and health of the user. Ensure strict adherence to good maintenance, repair, training and fit test and use procedures while working in extreme temperatures.
 9. Monitor the use of respirators to ensure that:
 - the correct type is being used
 - they are being worn properly
 - they are in good working order
 - problems are documented
 10. Where appropriate, develop specific written work procedures to address emergency and rescue situations.





Roadside Work – Traffic Safety

Responsibilities

Employer	It will be the responsibility of the Employer to take reasonable and practical measures to identify work that will take place on or nearby road- ways. The Superintendent is responsible for assessing the hazards and safe work procedures to be followed. The Superintendent will ensure that suitable equipment and materials are made available and maintained in accordance with the applicable regulations and manufacturer’s specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to ensure road-side work is conducted in accordance with a Traffic Control Plan, the <i>Ontario Traffic Control Manual</i> , and regulatory requirements. Traffic Planning, Control forms, and inspection forms located in the Forms Section 18 of this H&S Program. The Supervisor will ensure appropriate traffic control equipment is located on site and used. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required.
2. Traffic Control warning signs and devices.

Safe Work Practice

1. This Safe Work Practice applies to equipment, vehicles and personnel working along an active roadway (existing, temporary detour, or final alignment)
2. Traffic control used on the Project must be in compliance with contractual agreements. Contact the Management to ensure required traffic control communication procedures are in compliance with the following:
 - **Lane closures not required:** Notification of the intended locations requiring signage and/or delays less than 2 minutes must be provided to the City or Municipality by Tuesday the week prior to the scheduled work.





Silica

Silica is called the silent killer.

Crystalline silica can cause silicosis (formation of nodules deep in the lung) and lung cancer. Extremely high levels of exposure to silica for one to three years can be fatal in the short term. More commonly there is a gradual decrease in lung function and for many persons no noticeable change; however, with silicosis there is greater susceptibility to lung infections and similarly there is a greater risk of lung cancer. **Damaged caused by breathing silica dust is permanent.**

Responsibilities

Employer	It will be the responsibility of the Employer to ensure that protective measures are taken to protect personnel from exposure to silica dust. Priority must be given to wet methods of cutting, grinding, etc.
Supervisor	It will be the responsibility of the Supervisor to ensure a suitable equipment to suppress, or extract, silica dust is present on site and used correctly. The Supervisor is responsible to ensure workers are not over-exposed to silica dust and are trained in safe practices & procedures. The supervisor must ensure that workers use protective clothing and equipment if wet and/or dust extraction protective measure are not used.
Workers	It will be the responsibility of Workers to follow safe work practices and procedures for work involving silica. They must use required protective equipment.
H&S Coordinator	The H&S Coordinator is responsible for providing the resources that will ensure effective protection from silica dust. This may include providing air sampling where necessary and ordering appropriate protective equipment.

Construction Activities that Produce Silica Exposure

Construction activities that produce dust containing respirable crystalline silica include:

- **Abrasive blasting:** Exposures to crystalline silica can be very high. This is particularly true when silica sand is used as the abrasive (sandblasting), although blasting of concrete or stone surfaces may produce crystalline silica exposures regardless of the blasting agent. Abrasive blasting often occurs prior to bridge and tank painting, as well as other steel structure work (either new construction or maintenance).
- **Masonry, bricklaying, block laying, and/or stone setting:** Masonry contains crystalline silica in varying amounts. If any of these materials are sawed, hammered, or ground without dust control, there will be very high dust concentrations. Mixing of sand for mortar may add to the exposure.



- **Demolition and repair of concrete or masonry structures:** Demolition of buildings, highways, and bridges, and repair of roads and highways can generate ample quantities of dust containing crystalline silica. Whenever a concrete or masonry structure such as a highway is sawed, drilled, or jack hammered, there is potential for high exposures.
- **Concrete finishing work:** After a concrete foundation, wall, or floor has been poured, workers may grind, drill, or saw the surface of the concrete. These operations often smooth or shape the concrete prior to the application of a finish surface or finish appliances. Sometimes this work is done with hand-held grinders, drills, or saws that are used without dust collection or water spray. Concrete grinding, drilling, or sawing for any purpose can produce high crystalline silica exposure levels.
- **Rock drilling:** Drilling in rock prior to blasting for highway construction, or for other reasons such as site preparation, water well drilling, or pipeline installation, is basically the same in the construction industry as in past surface mining.

The key to preventing silicosis is keeping dust out of the air. LCE managers and supervisors will need to recognize when silica dust may be generated and plan ahead to eliminate or control the dust at the source. Dust controls can be as simple as a water hose to wet the dust before it becomes airborne.

Known Health Effects of Silica Exposure

The long-term health effects from exposure to airborne silica is a condition called silicosis. Silicosis is a scarring of the lungs which in turn causes breathlessness. This is at first only noticeable on exertion, but as the disease progresses the worker may be breathless even at rest. Persons with silicosis run an increased risk of contracting tuberculosis as well as other lung infections. Silicosis of the lungs puts an increased strain on the heart, which may develop into heart failure.

Particles with diameters less than 1 micrometer and freshly cleaved particles (for example, those produced by sandblasting) are considered most hazardous. Several reliable studies have found silicosis in employees with exposure to considerably less than 1 mg/m³ respirable silica dust. **OHSA has set a permissible exposure level of 0.025 mg/m³ for eight hours, and lists silica as a suspected human carcinogen and an ALARA substance.**

Silica dust can accumulate in the lungs. Inhaled particles are deposited at various locations within the respiratory tract, depending on their shape, mass, aerodynamic characteristics and other physical properties. Most, but not all, silica is cleared from the lungs after inhalation and deposition. The elimination of silica continues for many years after the last exposure. Silica is slightly absorbed into the body. Absorbed silica is deposited mainly in the liver, spleen and regional lymph nodes. Silica acid absorbed into the blood stream is excreted through the kidneys.

Once a worker has developed silicosis no improvement is expected even though the worker is withdrawn from further exposure. There is a tendency for the disease to progress in spite of no further exposure to silica. Cases of silicosis have been reported which have developed several years after exposure to silica had ceased. High concentrations of dust may cause coughing and mild, temporary irritation following a short-term exposure. Evidence of silicosis can normally be seen on an X- ray. Inhalation of silica has also been associated with a number of other, less well characterized, harmful effects including effects on the kidney (glomerulonephritis), the liver, the



spleen and immune system disorders (progressive systemic sclerosis, scleroderma or rheumatoid arthritis).

Silica dust is not expected to be irritating to the skin; however, foreign-body reactions (granulomas) have been observed after crystalline silica accidentally got under the skin as a result of an injury. Often the effects are delayed for periods ranging from weeks up to more than 50 years. Silica dust is not expected to be irritating to the eyes except as a "foreign object". Some tearing, blinking and mild temporary pain may occur as the solid material is rinsed from the eye by tears. One unconfirmed case is described in which foundry workers with silicosis experienced deterioration in eyesight due to corneal opacities and there was evidence of abnormally high silicon content in the cornea. Silica is probably not toxic following short-term ingestion. There is no human or animal information available. Ingestion is not a typical route of occupational exposure.

Controlling Silica Exposures

Engineering methods to control hazardous conditions are preferred. Methods can include local exhaust ventilation, process or personnel enclosure, control of process conditions, and process modification or substitution of a less hazardous material, although most of these methods are not practical for construction. Because of the high potential hazard associated with this substance, stringent control measures such as enclosure or isolation may be necessary. This is often encountered for abrasive blasting operations in construction. The most common engineering control methods to be used on LCE projects will consist of the use of:

- dust extraction systems attached tools and equipment
- HEPA vacuums/extraction systems
- wet methods for chipping and grinding concrete
- dust suppressing agents

Use of administrative controls is relatively limited for controlling silica exposures. It is limited to implementing the safe work practices for use of engineering controls and protective equipment, and training. Every worker who may be exposed to silica dust will receive training in:

- hazards of silica dust exposure
- the written work procedures to be followed
- the correct operation and use of any required engineering controls and personal protective equipment
- personal hygiene and decontamination procedures
- the purpose and significance of any health monitoring

Engineering and administrative controls are not always effective or practical in controlling exposure to silica in construction. Often workers will be required wear suitable personal protection equipment including approved respiratory protection and protective coveralls. Allowing silica dust to accumulate on clothing will not be permitted as the even the small amounts workers are exposed when removing their clothing may be above the permissible exposure limit. (See also *Respiratory Protection* in this section). In addition, LCE will control worker exposure to silica as follows:



- LCE will develop and implement an exposure control plan on jobsites where workers are or may be exposed to silica in excess of 50% of the exposure limits, or if exposure through any route of entry could result in elevated silica body-burdens.
- If there is a high potential for hazardous exposure to airborne silica dust in a construction project, LCE will ensure that air monitoring is conducted as required to ensure that controls are effective and respiratory protection is adequate. (**Note:** Air monitoring is used to ensure containment structures, ventilation and other control measures have effectively accounted for risk factors such as variability of silica dust content in material and abatement methods.)
- If exposure to finely silica dust or silica dust compounds results in the contamination of exposed skin or work clothing, LCE will comply with the following additional requirements for personal hygiene:
 - supply appropriate protective clothing such as Tyvek coveralls
 - dispose of the protective clothing on a regular basis, according to the hazard
 - provide adequate wash facilities
 - allow time for washing before each work break
- Workers will:
 - wear the supplied protective clothing
 - wash effectively before each work break and the end of the work shift
- All surfaces in the work area must be kept as free as practicable from accumulations of silica dust.
- Removal of silica dust must be done by a means that prevents the dispersal of finely divided silica dust into any work area.
- Proper housekeeping practices are very important in minimizing silica dust exposures. Dry sweeping or the use of compressed air to clean a silica dust contaminated area can create a serious problem, as fine dry dust becomes suspended in air where it can easily be inhaled by personnel. Dust can also become suspended in air if a regular vacuum cleaner is used to clean an area. Only a vacuum with high efficiency (HEPA) filters is recommended for cleaning silica dust contaminated areas. An alternative to this equipment is the use of wet cleaning methods or dust suppressing materials.



Slings and Chokers – Maintenance and Rejection Criteria

This safety requirement and procedure affects any employee who uses slings and sling products to lift, secure, and move loads.

See also *Slinging and Rigging Safety (General)*.

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required.
2. All workers must use personal protective equipment suitable and necessary for the hazards of the work being performed.

Conditions

The following information is to be used as a guide for inspecting synthetic and wire rope slings. Inspection frequency is based regulatory requirements and manufacturer specifications. A sling inspection program specific to the types of slings in use on the Project will be implemented.



Safe Work Practice

1. The following inspection criteria is required for all slings used on the LCE Project:

- a. **Wire rope slings** will be removed from service when the following conditions are present:
 - Three or more randomly distributed broken wires in one rope lay between end connections or more than one broken wire in one lay of an end connection.
 - Wear, scraping or corrosion on one-third the original diameter of outside individual wires.
 - Kinking, crushing, bird caging, or any other damage resulting in distortion of the wire rope structure.
 - Evidence of heat or arc damage.
 - Corrosion of the rope or end attachments.
 - Reductions of normal rope diameter, by any cause, in excess of:
 - i. 0.4 mm (1/64 in) for diameters up to and including 8 mm (5/16 in),
 - ii. 1 mm (3/64 in) for diameters greater than 8 mm (5/16 in) up to and including 19 mm (3/4 in),
 - iii. 2 mm (1/16 in) for diameters greater than 19 mm (3/4 in) up to and including 29 mm (1 1/8 in), or
 - iv. 3 mm (3/32 in) for diameters greater than 29 mm (1 1/8 in).
- b. **Synthetic web slings** will be removed from service when any of the following conditions are present:
 - The length of an edge cut exceeds the thickness of the web.
 - The penetration of abrasion exceeds 15% of the webbing thickness taken as a proportion of all plies.
 - Abrasion occurs on both sides of the webbing and the sum of the abrasion on both sides exceeds 15% of the webbing thickness taken as a proportion of all plies.
 - Warp thread damage up to 50% of the sling thickness extends to within 1/4 of the sling width of the edge or exceeds 1/4 the width of the sling.
 - Warp thread damage to the full depth of the sling thickness extends to within 1/4 of the sling width of the edge or the width of damage exceeds 1/8 the width of the sling.
 - Weft thread damage allows warp thread separation exceeding 1/4 the width of the sling and extends in length more than twice the sling width.
 - Any part of the sling is melted or charred, or is damaged by acid or caustic.
 - Stitches in load bearing splices are broken or worn.
 - End fittings are excessively pitted or corroded, cracked, distorted or broken.
 - A combination of the above types of damage of approximately equal total effect are present.



-
- c. **Hooks** will be removed from service when any of the following conditions are present:
- Hooks opened more than 15 per cent of the normal throat opening measured at the narrowest point or twisted more than 10 degrees from the plane of the unbent hook.
 - The hook has lost 10% or more of its cross-sectional area.
 - The hook is cracked or otherwise defective.
 - Wear or damage exceeds any criteria specified by the manufacturer.
2. Slings will be inspected after any unusual situation that may have damaged it, such as overload, accident, or fire. It will not be returned in service until continued safe operation has been verified.
3. Each sling will have a serial number. If no number is available, a tag will be attached at the time of inspection with a number. This number will be listed on a sling inventory and inspection schedule. Any inspections of the sling will note the sling number on the report.
4. Only persons with sufficient experience and knowledge to properly apply the criteria for rejection should perform inspection.
5. The following Safe Work Practice will be followed when using slings:
- a. Slings damaged or defective will be removed from service.
 - b. Slings will not be shortened with knots or bolts or other makeshift devices.
 - c. Sling legs will not be kinked.
 - d. Slings will not be loaded beyond their rated capacity.
 - e. Slings used in a basket hitch will have the loads balanced to prevent slippage.
 - f. Slings will be securely attached to their loads.
 - g. Slings will be padded or protected from the sharp edges of loads.
 - h. Suspended loads will be kept clear of obstructions.
 - i. All employees will be kept clear of loads about to be lifted and/or suspended loads.
 - j. Hands or fingers will be kept clear of loads and not placed between the load and the strap.
 - k. Shock loading will not be allowed.
 - l. Slings will not be removed while loads are resting on the sling.





Slings and Rigging Safety (General)

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required.
2. All workers must use personal protective equipment suitable and necessary for the hazards of the work being performed.

Safe Work Practice

1. Before use, inspect all cables, chains or wire rope rigging components for wear and tear and replace if necessary.
2. Observe local government safety regulations and guidelines for use of cable clamps, safety latches, chains and slings.
3. Know rated capacity of cable, chain or wire rope being used.
4. Avoid overloading rigging assemblies and exposing rigging to sudden jerks. Sudden, unexpected movement may result in failure of rigging components.
5. Wear appropriate personal protection equipment consistent with the hazard, including hard hats, CSA footwear, safety glasses and work gloves.
6. Loads to be lifted shall be checked for balance and the rigging inspected to ensure a safe and balanced condition.
7. Personnel shall not stand or work under suspended loads.
8. Awkward loads or loads maneuvered in wind must have taglines attached to control the load.



9. Review the area for utility lines, tree limbs and other overhead safety hazards.
10. Personnel working tag lines should review area for slipping, tripping and falling hazards. If not possible to eliminate them, then take precautions to avoid them.
11. Rigging and slinging work may only be done by or under the supervision of qualified and authorized workers.
12. When signaling is required, visual signals are preferred. Signals must only be given by one person at a time and the signal person must have a clear, unobstructed view of both the load and the operator of the lifting equipment.
13. Store and use hoisting equipment with care to prevent damage. Cable clips, shackle pins, heel pins, wedge sockets, anchors, sheaves and slings must be visually inspected prior to use and installed and used in accordance with the requirements of the OSHA Regulation and the manufacturer's recommendations.
14. Avoid sharp bends, pinching, and kinking in rigging components. Thimbles should be used in sling eyes. In a choker hitch, slings must be long enough so the choker fitting chokes on the webbing and not on the other fitting.
15. Don't wrap the hoist line around the load. Attach the load to the hook by a sling.
16. Don't use nylon and polyester slings at temperatures in excess of 180°F (82°C).
17. Safe working loads of rigging components must be determined by a professional engineer if a manufacturer's specification is not available, or there are signs of stress or damage, or a MOL officer determines it is necessary.
18. Sharp edges and corners of the material being rigged must be protected to prevent damage to the choker. Use softeners to prevent slippage and damage.
19. All components must be of an adequate strength for the application. Only forged alloy steel load-rated hardware (stamped or tagged with its SWL) may be used for overhead lifting. Ensure that the safe working load of all hardware is compatible with the rope or chain used with it.
20. Do not use open hooks. Safety hooks, or shackles (shackle pins must be secured) must be used for all hoisting operations.
21. Make sure loads are balanced in the hook. Eccentric loading can result in a hazardous reduction in capacity. Open hooks are not to be used in any circumstances where accidental dislodgement of the load from the hook could cause injury to workers.
22. Tag lines must be used when hoisting and rigging loads and rigging must not be rigged from unsound structural points.
23. Hooks which have opened more than 15% of the normal throat opening or twisted more than 10% from the original plane of the hook, or are otherwise cracked or defective must be removed from service.



POLYPROPYLENE AND NYLON ROPE	
Chalky exterior	Overexposed to sunlight (UV) rays possibly from being left unprotected outside. Remove from service and replace.
Dusty residue when twisted open	Wearing from inside out. Usually due to overloading. If extensive, replace rope.
Frayed exterior	Damaged by abrasive or sharp edges. Strength may be reduced.
Broken strands	Remove from service and replace.
Cold or frozen	Thaw and dry at room temperature.
Reduced width	Usually indicates previous overloading. Use caution and reduce lifting capacity or remove from service and replace.

WIRE ROPE AND WIRE ROPE SLINGS	
Rusty, dry	Apply clean light oil. Do not use engine oil
Excessive outside wear	Indicates rope has been used over rough surfaces or with misaligned or incorrect sheaves. Reduce load capacity according to wear. If any of the outside individual wires are more than 1/3 worn away, replace and remove from service.
Broken wires	In running ropes, up to 5 allowed in one rope lay or 2 in one strand in one rope lay or, in standing ropes, up to 2 in one lay and a maximum of 1 at an end connection. If any of these limits are exceeded, replace rope and remove from service.
Crushed, jammed or flattened strands	Replace and remove from service.
Bulges in rope	Replace and remove from service.
Gaps between strands	Replace and remove from service.
Core protrusion	Replace and remove from service.
Heat damage, torch burns or electric arc damage	Replace and remove from service.
Frozen	Allow to warm at room temperature. Avoid sudden



WIRE ROPE AND WIRE ROPE SLINGS	
	loading of cold rope.
Kinks, bird-caging	Replace and remove from service.
Size reduction	Replace and remove from service if reductions are in excess of 0.4 mm (1/64 in) for ropes up to and including 8 mm (5/16 in), 1 mm (3/64 in) for ropes greater than 8 mm (5/16 in) up to and including 19 mm (3/4 in), 2 mm (1/16 in) for ropes greater than 19 mm (3/4 in) up to and including 29 mm (1 1/4 in) or, 3 mm (3/32 in) for ropes greater than 29 mm (10 in).
Sharp bends	Sharp corners should be avoided. Use pads such as soft wood, rubber hose, old carpet, etc. to avoid damaging slings and ropes.

MANILA ROPE	
Manila rope is not recommended for use in construction and is prohibited for use in fall restraint and fall arrest systems.	
Dusty Residue when twisted open	Wearing from inside out. Usually due to overloading. If extensive, replace rope.
Broken strands, fraying, spongy feel	Remove from service and replace.
Wet	Reduce maximum load limit.
Frozen	Thaw and dry at room temperature.
Mildew or dry rot	Remove from service and replace.
Dry and brittle	Do not oil. Wash with cold water and hang in coils to dry at room temperature.



CHAIN SLINGS	
Capacity safety tag	Use only alloy steel identified by an "A" or "8" for overhead lifting.
Stretched or deformed links	Return to manufacturer for repair or remove from service.
Cracks, nicks or gouges	Return to manufacturer for repair or remove from service.
Failure to hang straight	Return to manufacturer for repair or remove from service.
Corrosion pitting	Return to manufacturer for repair or remove from service.
Burns	Return to manufacturer for repair or remove from service.
Reduction in chain diameter of any link	Reference the requirements of the WorkSafeBC Regulation regarding chain sling wear rejection criteria. If allowable limits exceeded, remove from service.

POLYPROPYLENE AND NYLON WEB SLINGS	
Chalky exterior appearance	Overexposed to sunlight (UV) rays. Should be checked by manufacturer or replaced and removed from service.
Frayed exterior	May have been shock-loaded or abraded. Inspect very carefully for signs of damage.
Breaks, tears or patching	Replace and remove from service.
Frozen	Thaw and dry at room temperature before use.
Oil contaminated	Replace and remove from service.

Standard Hand Signals Hoisting Operations

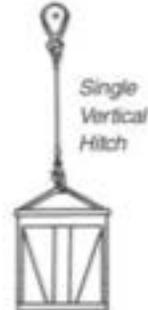
<p>Load Up</p> <p>1</p>	<p>Load Down</p> <p>2</p>	<p>Load Up Slowly</p> <p>3</p>	<p>Load Down Slowly</p> <p>4</p>	<p>Boom Up</p> <p>5</p>
<p>Boom Down</p> <p>6</p>	<p>Boom Up Slowly</p> <p>7</p>	<p>Boom Down Slowly</p> <p>8</p>	<p>Boom Up Load Down</p> <p>9</p>	<p>Boom Down Load Up</p> <p>10</p>
<p>Everything Slowly</p> <p>11</p>	<p>Use Whip Line</p> <p>12</p>	<p>Use Main Line</p> <p>13</p>	<p>Travel Forward</p> <p>14</p>	<p>Turn Right</p> <p>15</p>
<p>Turn Left</p> <p>16</p>	<p>Shorten Hydraulic Boom</p> <p>17</p>	<p>Extend Hydraulic Boom</p> <p>18</p>	<p>Swing Load</p> <p>19</p>	<p>Stop</p> <p>20</p>
<p>Close Clam</p> <p>21</p>	<p>Open Clam</p> <p>22</p>	<p>Dog Everything</p> <p>23</p>	<p>No response should be made to unclear signals.</p>	

Sling Configurations

The term "sling" includes a wide variety of configurations for all fibre ropes, wire ropes, chains, and webs. The most commonly used types in construction are explained here.

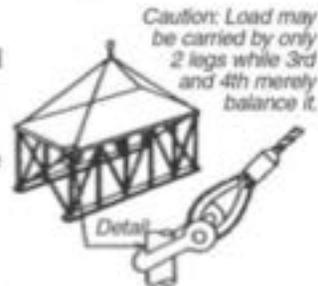
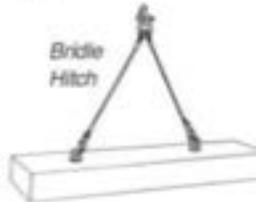
Single Vertical Hitch

The total weight of the load is carried by a single leg. This configuration must not be used for lifting loose material, long material, or anything difficult to balance. This hitch provides absolutely no control over the load because it permits rotation.



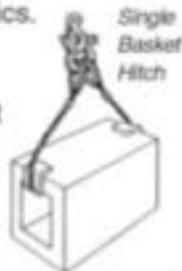
Bridle Hitch

Two, three, or four single hitches can be used together to form a bridle hitch. They provide excellent stability when the load is distributed equally among the legs, when the hook is directly over the centre of gravity of the load, and the load is raised level. The leg length may need adjustment with turnbuckles to distribute the load.



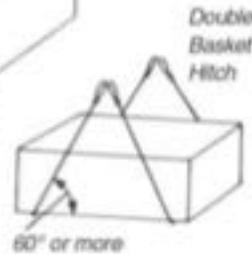
Single Basket Hitch

This hitch is ideal for loads with inherent stabilizing characteristics. The load is automatically equalized, with each leg supporting half the load. Do not use on loads that are difficult to balance because the load can tilt and slip out of the sling.



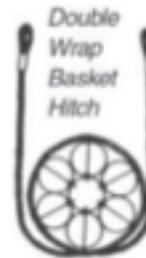
Double Basket Hitch

Consists of two single basket hitches passed under the load. The legs of the hitches must be kept far enough apart to provide balance without opening excessive sling angles.



Double Wrap Basket Hitch

A basket hitch that is wrapped completely around the load. This method is excellent for handling loose materials, pipes, rods, or smooth cylindrical loads because the rope or chain exerts a full 360-degree contact with load and tends to draw it together.



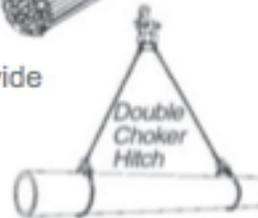
Single Choker Hitch

This forms a noose in the rope and tightens as the load is lifted. It does not provide full contact and must not be used to lift loose bundles or loads difficult to balance.



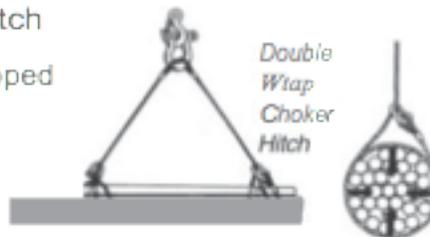
Double Choker Hitch

Consists of two single chokers attached to the load and spread to provide load stability. Does not grip the load completely but can balance the load. Can be used for handling loose bundles.



Double Wrap Choker Hitch

The rope or chain is wrapped completely around the load before being hooked into the vertical part of the sling. Makes full contact with load and tends to draw it together. If the double wrap choker is incorrectly made and the two eyes are placed on the crane hook, the supporting legs of the sling may not be equal in length and the load may be carried by one leg only. Do not run the sling through the hook, permitting an unbalanced load to tip.



Wire Rope Slings

Caution: This table is for illustration and comparison only. Check manufacturers' ratings for the WLLs of the specific slings you use.

WIRE ROPE SLINGS						
6 x 19 Classification Group, Improved Plow Steel, Fibre Core						
Rope Diameter (Inches)	MAXIMUM WORKING LOAD LIMITS - POUNDS (Design Factor = 5)					
	Single Vertical Hitch	Single Choker Hitch	Single Basket Hitch (Vertical Legs)	2-Leg Bridle Hitch & Single Basket Hitch With Legs Inclined		
						
				60°	45°	30°
3/16	600	450	1,200	1,050	850	600
1/4	1,100	825	2,200	1,900	1,550	1,100
5/16	1,650	1,250	3,300	2,850	2,350	1,650
3/8	2,400	1,800	4,800	4,150	3,400	2,400
7/16	3,200	2,400	6,400	5,550	4,500	3,200
1/2	4,400	3,300	8,800	7,600	6,200	4,400
9/16	5,300	4,000	10,600	9,200	7,500	5,300
5/8	6,600	4,950	13,200	11,400	9,350	6,600
3/4	9,500	7,100	19,000	16,500	13,400	9,500
7/8	12,800	9,600	25,600	22,200	18,100	12,800
1	16,700	12,500	33,400	28,900	23,600	16,700
1-1/8	21,200	15,900	42,400	36,700	30,000	21,200
1-1/4	26,200	19,700	52,400	45,400	37,000	26,200
1-3/8	32,400	24,300	64,800	56,100	45,800	32,400
1-1/2	38,400	28,800	76,800	66,500	54,300	38,400
1-5/8	45,200	33,900	90,400	78,300	63,900	45,200
1-3/4	52,000	39,000	104,000	90,000	73,500	52,000
1-7/8	60,800	45,600	121,600	105,300	86,000	60,800
2	67,600	50,700	135,200	117,100	95,600	67,600
2-1/4	84,000	63,000	168,000	145,500	118,800	84,000
2-1/2	104,000	78,000	208,000	180,100	147,000	104,000
2-3/4	122,000	91,500	244,000	211,300	172,500	122,000
				If used with Choker Hitch multiply above values by 3/4. 		

Notes: Table values are for slings with eyes and thimbles in both ends, Flemish Spliced Eyes and mechanical sleeves. Eyes formed by cable clips – reduce loads by 20%.

Grade T(8) Chain Slings

ALLOY STEEL CHAIN						
Chain Size (Inches)	MAXIMUM WORKING LOAD LIMITS – POUNDS (Design Factor = 5 per OH&S Regulations)					
	Single Vertical Hitch	Single Choker Hitch	Single Basket Hitch (Vertical Legs)	2-Leg Bridle Hitch & Single Basket Hitch with Legs Inclined		
				60°	45°	30°
1/4	2,800	2,100	5,600	4,850	3,959	2,800
3/8	5,680	4,260	11,360	9,838	8,032	5,680
1/2	9,600	7,200	19,200	16,627	13,574	9,600
5/8	14,480	10,860	28,960	25,079	20,475	14,480
3/4	22,640	16,980	45,280	39,212	32,013	22,640
7/8	27,360	20,520	54,720	47,388	38,687	27,360
1	38,160	28,620	76,320	66,093	53,958	38,160
1 1/4	57,840	43,380	115,680	100,179	81,786	57,840

Use only alloy steel chain.

If used with Choker Hitch multiply above values by 3/4.

For Double Basket Hitch multiply above values by 2.

Strength based on ISO Standards and adjusted to reflect a design factor of 5.

Discard if more than 10% wear at bearing surfaces.

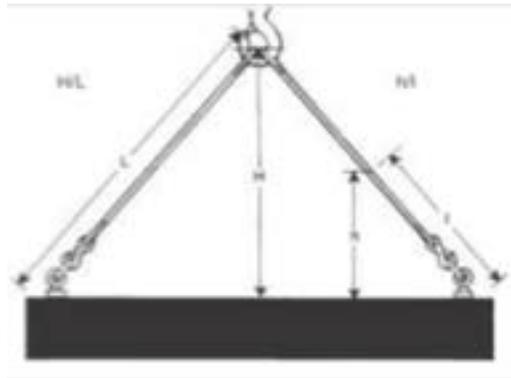
Estimating Sling WLLs

Because it is difficult to remember all load, size, and sling angle combinations provided in tables, some general rules can be used to estimate working load limits for common sling configurations.

Each rule is based on the working load limit of a single vertical hitch of a given size and material and on the ratio H/L .

H is the vertical distance from the saddle of the hook to the top of the load. **L** is the distance, measured along the sling, from the saddle of the hook to the top of the load

If you cannot measure the entire length of the sling, measure along the sling from the top of the load to a convenient point and call this distance **l**. From this point measure down to the load and call this distance **h**. The ratio h/l will be the same as the ratio H/L



H/L or h/l will apply equally to the following rules for different sling configurations. The efficiencies of end fittings must also be considered to determine the capacity of the sling assembly.

REMEMBER: the smaller the sling angle, the lower the working load limit.

Hardware

Know what hardware to use, how to use it, and how its working load limits (WLL) compare with the rope or chain used with it.

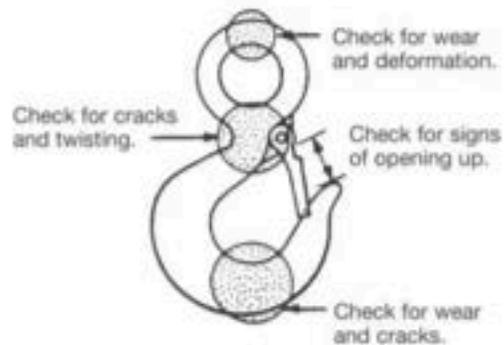
All fittings must be of adequate strength for the application. Only forged alloy steel load-rated hardware should be used for overhead lifting. Load-rated hardware is stamped with its WLL (Figure 44).

Inspect hardware regularly and before each lift. Telltale signs include:

- wear
- cracks
- severe corrosion
- deformation/bends
- mismatched parts
- obvious damage.



Figure 44

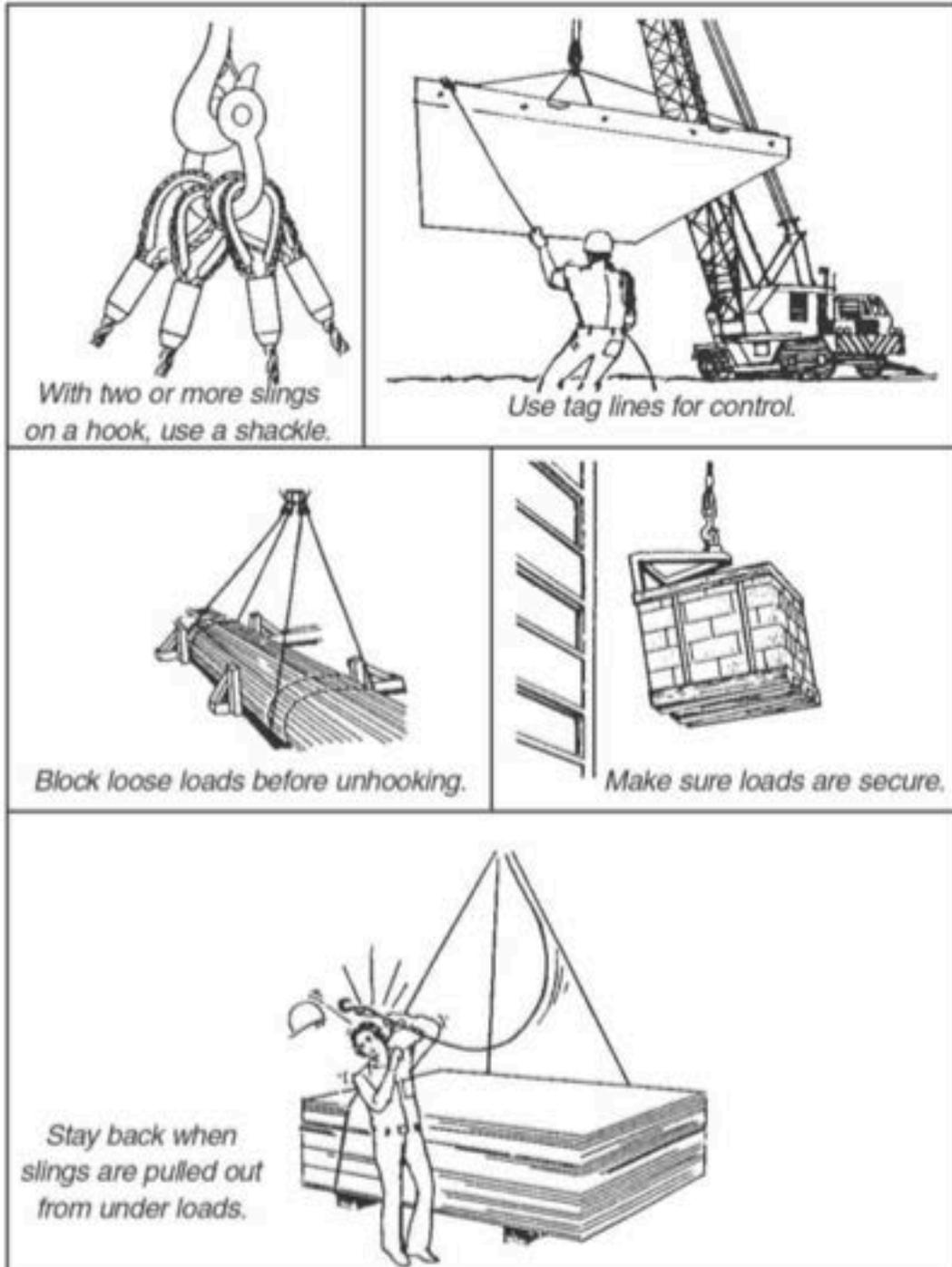


Hook Inspection Areas
Figure 45

Hoisting Hooks

- Should be equipped with safety catches (except for sorting or grab hooks).
- Should be forged alloy steel with WLL stamped or marked on the saddle.
- Should be loaded at the middle of the hook. Applying the load to the tip will load the hook eccentrically and reduce the safe working load considerably.
- Should be inspected regularly and often. Look for wear, cracks, corrosion, and twisting – especially at the tip – and check throat for signs of opening up (Figure 45).

Safety Tips



Weights of Common Materials

(ALL WEIGHTS ARE APPROXIMATE)

MATERIAL	Weights are Approximate	Round Steel Bars And Rods	
		Diameter (inches)	Weight (Lbs Per Foot Of Length)
Aluminum	165 lbs/ cu.ft	3/16	.1
Aluminum (1' x 1' x 1')	13.5 lbs	1/4	.2
Asphalt And Tar	80 lbs/ cu.ft.	5/16	.3
Bricks Common	121 lbs/ cu.ft.	3/8	.4
Concrete	4,050 lbs/ cu.yard	7/16	.5
Concrete	150 lbs/ cu.ft.	1/2	.6
Concrete Block	52-84 lbs/ cu.ft.	9/16	.8
Concrete Block 4"	24 lbs. a piece	5/8	1.0
Concrete Block 6"	35 lbs. a piece	3/4	1.5
Crushed Rock	2,550 lbs/ cu.yard	7/8	2.0
Crushed Rock	95 lbs/ cu.ft.	1	2.7
Drywall	52 lbs/ cu.ft.	1 1/8	3.4
Drywall (4' x 8' x 1/2")	55 lbs	1 3/16	3.8
Earth- Dry	2,050 lbs/ cu.yard	1 1/4	4.2
Earth- Dry	75 lbs/ cu.ft.	1 3/8	5.1
Mortar	100 lbs/ cu.ft.	1 1/2	6.0
Pipe Steel Schedule 40		1 5/8	7.1
1" I.D.	1.7 lbs/ ft.	1 3/4	8.2
2" I.D.	3.7 lbs/ ft.	1 7/8	9.4
3" I.D.	7.6 lbs/ ft.	2	10.7
4" I.D.	10.8 lbs/ ft.	2 1/8	12.1
Portland Cement Loose	94 lbs/ cu.ft.	2 1/4	13.5
Sand	3,250 lbs/ cu.yard	2 3/8	15.1
Sand	120 lbs/ cu.ft.	2 1/2	16.7
Steel	490 lbs/ cu.ft.	2 5/8	18.4
Steel (1' x 1' x 1')	40 lbs	2 3/4	20.2
Water	62 lbs/ cu.ft.	2 7/8	22.1
Wood - Dry Hardwood	40 lbs/ cu.ft.	3	24.0
Wood - Dry Softwood	30 lbs/ cu.ft.		
Wood - Wet	50 lbs/ cu.ft.		



Structure Raising and Parging Operations

LCE will take all reasonable measures to ensure that Parging and Raising of structures are conducted safely with no incidents. This requires a systematic approach to identify the potential for incidents, and actions necessary to prevent incidents from occurring. Parging and structure raising operations have an element of risk not normally encountered in other aspects of construction, and therefore requires good planning and execution of work. All personnel will comply with this Safe Work Practice and legal requirements.

Application

This safe work practice applies to all personnel, who are directly involved in this work.

Responsibilities

Employer	It will be the responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. Personal Protective Equipment (i.e. hardhat, CSA footwear, eye and hearing protection, gloves when handling material).
2. Excavation equipment and hand tools, mechanical or otherwise.
3. Cart Chop saw.
4. Levelling shims
5. Grade Rings or concrete moduloc
6. Lifting hooks and chains for any heavy lifting
7. Parging mix and tools
8. All Confined Space Equipment shall be available, including required paperwork and trained personnel. If there is need to "enter" the structure.
9. Fall restricting guard or other means of Fall Protection



Conditions for Safe Use

1. Traffic control plan designed to meet Book 7 and OHS Regulations, if work is being completed within or near a roadway
2. Delineation or protection barrier set, to separate the work from those not involved in this specific job/safe work practice and the public.
2. Use the correct saw and tools for the application.
3. Do not allow other personnel or the public who are not involved in the raising and parging work operation beyond the delineated area.
4. All of the Safe Work Practice below is to be completed by at minimum two employees using buddy system to approach hazards.
5. Fall Restricting Guard.

Note: Fall Restricting Guard must be used to protect workers from fall hazards. If guard is not available, other adequate means of fall protection is required to complete this practice. If none is available or an adequate fall protection plan cannot be made. Do not continue with this Work Practice and consult your supervisor.

Safe Work Practice

1. Supervisor and all workers involved in the raising or parging process shall hold a safety meeting/tool-box talk. Addressing the specific hazards of the operation, the possibility of a fall hazard when structure has been opened. Lifting and lowering techniques when handling heavy objects. Traffic control plan, etc.
2. Where you may be excavating with mechanical equipment. Ensure to follow the Safe Work Practice for excavating located in this section of this policy. Ensure locates of underground infrastructure are accurate and valid.
3. **NOTE:** If the locating procedure requires a person/worker to enter a road or right of way step 4 must be followed prior to completing this step.

Locate the desired structure using Design plans, GPS or Total Station which are most accurate, though swing tie measurements are used also when these are not available. Bar finders can be used to locate structures or steel plates that may be on top, though this method may not be as accurate.
4. Dependent upon the location of the structure to be raised. A Traffic control/protection Plan must be set up in accordance to MTO Book 7, the OHS, and LCE's H&S Policy. Prior to working in any road or right of way.
5. Mark the desired cut/dig location of the structure on the surface (asphalt/other).
6. Cut and remove asphalt if necessary. Following the Safe Work Practice for cutting with saw in this section of H&S Policy.
7. Excavate to the top of the structure. Note: If excavation is to be done with the use of a machine. Proper Safe Work Practice while excavating must be followed, as noted in this section of the H&S Policy.

8. Before opening or removing the lid from the structure. A protection perimeter must be set to delineate the area of work, in order to protect workers and others from the possibility fall hazard. Only those working directly on the structure who have participated in the safety briefing, and are aware of the possibility of the presence of an open hole/fall hazard are permitted to be within this area.
9. Determine the level of adjustment to raise the structure to the desired elevation. Overall level of adjustment from the surface to the structure - frame and cover (6" standard size) = the Level of adjustment needed through grade rings/Moduloc.
10. Gather the necessary material together at the location of the structure being raised. (Frame and cover, adjustment rings, shims, etc.) Before removing the lid/steel cover from the structure.
11. Prior to removing the lid from the structure. The underside must be checked using a gas detector as per the Confined Space Procedure located in this section of this H&S Policy. To ensure no combustible or other atmospheric hazards are present.
12. If result of the atmospheric test is negative of any atmospheric hazard, proceed with this Safe Work Practice. If the result of the test is positive do **NOT** continue with the Work Practice. Consult your Supervisor and the Confined Space Safe Work Practice in this section of the H&S Policy to determine how to proceed.
13. With negative results you may remove the lid/steel plate from the structure.
Note: Always be aware of the opening/fall hazard and your surroundings when the hole is open. Keep an eye on your fellow co-worker to avoid any incidents. At any time that the work is paused or discontinued. The fall restricting guard or lid must be placed back over the top of the opening.
14. Clean off the surface of the structure to allow for the grade rings/moduloc to sit flush to the surface.
15. Install grade rings/moduloc:
 - Using proper lifting techniques for all manual lifting to prevent MSI injuries
 - Follow proper Safe Work Practice for lifting heavy objects when using a machine.
16. Set frame and cover and shim as necessary to desired grade.
17. Backfill and pack with granular material to the desired level.
18. Finish with asphalt or concrete depending on spec or staging

Parging

Note: In order to complete Parging it will require you to “Break the Plane” (as termed in the MOL Confined Space Guideline) with your hand(s). Or sit on the edge of the structure on the surface “breaking the plane” with your feet. For the purposes of this Safe Work Practice it is determined that this does not qualify as a Confined Space Entry. If this section is being completed in conjunction with the above process of Raising a Structure begin this procedure at step #7.



- If this process is being done at a later time or date than the raising of the structure. The Parging process must begin with the first step below.
1. Supervisor and all workers involved in the raising or parging process shall hold a safety meeting/tool-box talk. Addressing the specific hazards of the operation, the possibility of a fall hazard when structure has been opened. Lifting and lowering techniques when handling heavy objects. Traffic control plan, etc.
 2. Dependent upon the location of the structure to be raised. Traffic control/protection must be set up in accordance to MTO Book 7, the OHSA, and LCE's H&S Policy. Prior to working in any road or right of way.
 3. Before opening or removing the lid from the structure. A protection perimeter must be set up to delineate the area of work, to protect workers and others from the possible fall hazard. Only those working directly on the structure who have participated in the safety briefing, and are aware of the presence of the open hole and the possibility of a fall. Are permitted to be within this area.
 4. Gather desired materials together at the location of the structure. (Parging tools, concrete mix etc.) Before removing the lid/steel cover from the structure.
 5. Prior to removing the lid from the structure. The underside must be checked using a gas detector as per the Confined Space Procedure located in this section of this H&S Policy. To ensure no combustible or other atmospheric hazards are present at the surface.
 6. If result of the atmospheric test is negative of any atmospheric hazard, proceed with this Safe Work Practice. If the result of the test is positive do **NOT** continue with the work. Consult your Supervisor and the Confined Space Safe Work Practice in this section of this H&S Policy to determine how to proceed.
 7. With negative results you may remove the lid/steel plate from the structure. Immediately place the fall restricting guard over the opening of the structure.
 8. Prepare parging/mortar mix.
 9. Fill the required area below the lid with the mixture.



Supporting Excavated Utilities

This Safe Work Practice applies to excavation of existing underground utilities including power, gas, communications, water and sewer. (See also *Safe Work Practice – Locating Underground Utilities*).

Responsibilities

Employer	It will be the responsibility of the Employer to take reasonable and practical measures to support underground utilities during excavating. This includes referencing the Work Plan, applicable drawings and ensuring an Ontario One Call has been completed and information is available on site. The Employer is responsible to work with the LCE Field Engineer and Utilities Owner to locate and mark underground utilities before any ground disturbance activity.
Supervisor	It will be the responsibility of the Supervisor for initiating with Ontario One Call and providing the information on locations of underground services for inclusion in the Work Plan. to implement the required safety precautions before any ground disturbance. They have direct responsibility to ensure the location of underground services are known to all persons involved in ground disturbance activities. The Supervisor must know where underground services are located and how they are to be supported. They must communicate this information to their crew. Locating and exposing underground utilities must be part of the pre-work hazard assessment and crew safety briefing. The Supervisor is responsible to ensure workers have received proper instruction and training prior to conducting this type of work.
Workers	It will be the responsibility of Workers to comply with the safe work requirements set forth within this practice. Workers will immediately notify their Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.
Field Engineer	The Utilities Coordinator may also be responsible for initiating the Ontario One Call and providing the information on locations of underground services for inclusion in the Work Plan. The Utilities Coordinator will ensure information on the correct methods of supporting excavated underground utilities is received from the Utilities Owner and is provided to field crews undertaking the work.



Owner of Utility

The Utilities Owner will dispatch an Inspector to the work site and provide construction personnel with specific directions on acceptable means to supported exposed utilities during excavation. (communications), Norseman (methane gas), and rail companies (communication lines).

Personal Protective Equipment

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required.
2. CSA approved safety glasses with approved side shields or over the top safety glasses where required.
3. CSA approved hearing protection as may be required for high noise hazard.
4. Gloves appropriate for type of task.
5. Materials and equipment required to construct support structures.
6. Adequate means to ensure the trench/excavation is safe (sloped or shored).

Safe Work Practice

1. **Underground utilities must be accurately located prior to any ground disturbance activity.** Work with the utilities owner/designate to locate underground utilities before digging or excavating. Exposing underground utilities must be done with techniques that will prevent the utility from being compromised, e.g., hydrovaccing or hand digging.
2. Coordinate with the utility owner to have a representative on site to provide specific instructions on what is required to adequately support utilities exposed during excavating.
3. Support exposed utilities in accordance with instructions received from the utilities company. Ensure temporary support structures remain in place until the utilities are buried and supported by the fill material in accordance with approved practices/standards.

Guidelines for Planning Work

The following guidelines are provided to assist operations personnel in planning to meet the requirements for supporting exposed underground utilities. They are not intended to replace specific instructions provided by the Utilities Owner.

1. Temporary support structures will be used to prevent sag, bending or deflection of pipelines during excavation and backfill. Temporary support structures should be made of either wood or steel.
2. If a temporary support structure is required:
 - a. Supports must be installed prior to excavating above or below the Utility.
 - b. Support beams must rest on firm, undisturbed soil and will not bear directly on the Utility.



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- c. Beam(s) placed across the trench/excavation should extend at least one meter (3 feet 3 inches) on either side of the trench/excavation.
 - d. Methods and materials used must be approved by the Utilities Owner.
 3. The Utility Owner's representative must inspect the temporary support structure to ensure it adequately supports the pipeline.
 4. The temporary support structure used may be a suspended type or placed directly under the Utility. Support beams will be of sufficient strength to support the weight of the Utility. Wood beams should be grade No. 1 Spruce-Pine-Fir (S-P-F) or equivalent.
 5. Supporting pipelines from below the pipe will be done with a structure with sufficient strength to prevent bending, sag or deflection. Options for construction include the following:
 6. Suspending Utilities from a support beam May be done with nylon sling retaining straps, chains, or minimum 10 mm rope, dependent upon the material of the unsupported Utility.
 7. Excavation/trench wall support may be required to support pipelines running parallel and in close proximity to the excavation. Support requirements are dependent upon soil conditions.





Tag Lines Responsibilities

Superintendent	It will be the Responsibility of the Superintendent to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA/ANSI approved safety footwear, approved safety headgear and hi-visibility apparel are required.
2. All workers must use personal protective equipment suitable and necessary for the hazards of the work being performed.

Conditions

The following steps are to be followed at all times to ensure safe use of tag lines and the safety of workers during the lifting of materials and equipment:

1. Tag lines are to be used on any load hoisted:
 - Above the waist.
 - If the load is more than 10 feet horizontally.
 - In congested areas.
 - Where windy conditions exist.
2. Tag line is to be held when:
 - The load is hoisted off the ground until the load is steadied and ready to swing.
 - Anytime during hoisting when obstacles or wind make it necessary to hold the load steady.
3. Tag line will not be:
 - Wrapped around employee's hand during hoisting.
 - Longer than required for the job.
 - Tied to anything but the load during hoisting.



- The tag line is to be free of knots and loops.

Safe Work Practice

1. Position crane in proper location to make the lift.
2. Hook up rigging (wire rope, nylon slings, etc.) to the load.
3. Determine which point on the load is best to attach the tag line for best control and safe handling.
4. Attach the tag line to the load.
5. Ensure riggers are aware of the destination of the load and are in contact with each other.
6. Signal the crane operator to hoist the load off the ground so that it is clear, ensuring rigging and tag lines are secure.
7. Check the path of the load to the intended destination is clear of personnel and obstacles. Be sure to inform personnel in the area of your intentions.
8. Signal the crane operator to hoist the load off the ground enough so that it is clear of any obstacles or possible snag points.
9. Ensure the landing site is suitable for the load. (Level, proper dunnage, etc.)
10. Signal operator to swing the load into place.
11. When the load reaches the laydown point, signal the operator to lower the load to the point where tag line is accessible to the worker who is placing the load.
12. Control the load with the tag line until it is no longer possible to effectively and safely control the load with the tag line.
13. At this point take control of the load with hand, watching closely for pinch points.
14. Slowly lower the load onto secure support of dunnage. Lower the crane hook until rigging is loose enough to unhook from the load. Unhook rigging and tag line.
15. Signal the crane operator up until rigging is clear of all obstacles.



Temperature Extremes - Cold

Responsibilities

Employer	It will be the responsibility of the Employer to ensure the actions identified to protect workers from over exposure to cold are implemented.
Supervisor	It will be the responsibility of the Supervisor to ensure workers are not over- exposed to cold and are trained in safe practices & procedures.
Workers	It will be the responsibility of Workers to follow safe work practices and procedures for work in cold weather.
H&S Coordinator	The H&S Coordinator is responsible for providing the conducting cold exposure risk assessments and developing an exposure control plan if required.

Risk Assessment

The need for a risk assessment for exposure to cold is entirely dependent upon the temperatures that the personnel will be exposed to, and whether or not there is a danger of the occurrence of either:

- a) **Hypothermia** – a lowering of the body core temperature below 36°C. Personnel are most often at risk of hypothermia in conditions when they are wet, the ambient temperature is near or below 0°C, and they are exposed to a wind. Submersion in cold water can bring on severe hypothermia very rapidly.
- b) **Frostbite** – a freezing of parts of the body. The face, hands and feet are the body parts most easily affected. There is a danger of frostbite if temperatures are below -1°C and flesh is unprotected. Contact with cold surfaces in sub-zero temperatures can cause frostbite to occur very quickly.

Protecting Personnel from Over-Exposure

To determine the appropriate course of action when evaluating cold exposure:

1. Determine if personnel will be exposed to conditions that may result in either hypothermia or frostbite. If not, then cold stress is not an issue. If so, go to step 2.
2. Determine if the cold exposures will be below -1°C and have the potential to result in frostbite. If not go to step 3. If yes, then determine under what conditions, time of year, weather conditions, work areas, tasks, personnel affected, etc. that this exposure may occur. Then go to step 4.
3. Determine under what conditions hypothermia is likely to be an issue. Include the time of year, weather conditions, work areas, tasks, personnel affected, etc. Then go to step 4.
4. Take actions to control the exposure through:



- engineering such as eliminating the need to work where there is cold exposure, heating the work areas, etc.
- administrative controls such as work procedures/instructions, work/rest cycles that reduce exposure times, and re-warming especially of the hands when the work requires exposing the hands to cold conditions
- personal protective equipment such as warm clothing and protection of the face, hands and feet in extreme temperatures

5. Also take the following actions as required by the OHSA and good management practice:

- provide a re-warming facility, which can be a heated vehicle (this is a regulatory requirement where the cold exposure is below -7°C with the wind chill factored in, see Table below for equivalent wind chill temperatures)
- provide eye protection where there is a hazard to the eyes from ultraviolet light, glare or blowing ice crystals
- provide opportunities to change into dry clothing if the worker becomes wet or is immersed in cold water
- educate and train workers & supervisors about:
 - signs and symptoms of cold related disorders
 - appropriate clothing for work in cold environments
 - proper re-warming procedures
 - good eating and drinking practices for maintaining body heat in cold environments
 - safe work practices for the work that is to be performed
 - responsibilities for leaving cold environments at the first signs of a cold related disorder
- methods to reduce the effects of working in a cold environment including steps to be taken to reduce or eliminate contact with cold surfaces that could result in frostbite
- keep records of the cold stress assessment and education/training provided
- remove cold stress victims from the area immediately and provide first aid treatment

Exposure Control Plan

If an exposure control plan is required, it must be written and include the following:

- A statement of purpose and responsibilities for assessing the risks and controlling the exposure(s).
- Details on the identification of the risks, the assessments to be performed and/or that have been performed, and the control measures taken to limit exposure.
- Details on the education and training that are to be provided.
- The written procedures that have been produced (as may be required) to inform personnel about hazards and establish safe work methods.
- Details on the documentation that is required (such as records) to ensure that the issues are addressed as required by regulation and good management practice.
- A review, at least annually, and regular updates as may be necessary. This will be done in consultation with the occupational health and safety committee.



Temperature Extremes – Heat

Responsibilities

Employer	It will be the responsibility of the Employer to ensure the actions identified to protect workers from over exposure to heat are implemented in their area of responsibility.
Supervisor	It will be the responsibility of the Supervisor to ensure workers are not over- exposed to heat and are trained in safe practices & procedures.
Workers	It will be the responsibility of Workers to follow safe work practices and procedures for work in hot weather.
H&S Coordinator	The H&S Coordinator is responsible for providing the conducting heat exposure risk assessments and developing an exposure control plan if required.

Wet Bulb Globe Temperature (WBGT) – Assessing Risk

The need for assessing exposure to heat is entirely dependent upon the temperature in the work area measured with a Wet Bulb Globe Temperature (WBGT) device. A WBGT device measures not only the ambient temperature, but also the amount of heat dissipation through evaporation (perspiration) and the amount of radiant heat present.

WBGT measurements take into consideration the amount of internal heat load the body must handle produced by physical activity. It is this combination of heating the body through ambient temperature, radiant heat load and internal heat production vs. the ability to cool the body (i.e., perspiration) that determines whether or not the hot environment is dangerous or safe. To assess the potential risks from heat exposure and determine the appropriate course of action:

1. Determine if the WBGT in the work areas to be evaluated will ever exceed the limits set out. If not, then heat stress is not an issue. If so, go to step 2.
Note: The priority here should be to implement controls so that the exposure is below the allowable limits. If so, then further evaluation is not required.
2. Assess the work activities that will take place and determine if they will be light, moderate or heavy. Also determine how long personnel will be exposed to the hot environment. This process will give an indication on whether or not further evaluation and controls are necessary. If not, then heat stress is not an issue. If so, go to step 3.
3. Determine if the exposure will be one time, infrequent or a regular occurrence. If it will be an on-going type of exposure an exposure control plan is required (as per OHSA). Also go to steps 4 and 5.



4. Take actions to control the exposure (when not practicable by engineering controls) through:
 - administrative controls such as work procedures/instructions and work/rest cycles
 - personal protective equipment such as reflective clothing, or air or water cooled clothing

5. Also take the following actions as required by the OHSR and good management practice:
 - provide cool potable water close to the work area and encourage frequent water intake
 - post warning signs in high heat stress areas
 - educate and train workers & supervisors about signs & symptoms of heat related disorders, responsibilities for leaving hot environments at the first signs of a heat related disorder, and methods to reduce the effects of working in a hot environment
 - keep records of the heat stress assessment and education/training provided
 - remove heat stress victims from the area immediately and provide first aid treatment by

If an exposure control plan is required, it must be written and include the following:

- A statement of purpose and responsibilities for assessing the risks and controlling the exposure(s).
- Details on the identification of the risks, the assessments to be performed and/or that have been performed, and the control measures taken to limit exposure.
- Details on the education and training that are to be provided.
- The written procedures that have been produced (as may be required) to inform personnel about hazards and establish safe work methods.
- Details on the documentation that is required (such as records) to ensure that the issues are addressed as required by regulation and good management practice.
- A review, at least annually, and regular updates as may be necessary. This will be done in consultation with the occupational health and safety committee.

WSBC publishes an excellent reference document that applies to this topic entitled *Heat Exposure and Heat Related Emergencies (PH15)*.



Temporary Lighting Systems

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to have site equipment and materials made available and maintained in accordance with the applicable regulations and manufacturer's specifications.
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to have site equipment serviced, maintained and operated by qualified personnel. The Supervisor is responsible to ensure workers have received proper instruction and training in the safe use of related equipment and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials.

Equipment Required

1. CSA approved safety footwear, approved safety headgear and hi-visibility apparel are required.
2. All workers must use personal protective equipment suitable and necessary for the hazards of the work being performed.

Safe Work Practice

1. All jobsite temporary lighting that will be hard wired is to be installed by a qualified electrician in accordance with all applicable acts and codes.
2. Temporary lighting must be constructed of materials rated for use in construction and contain a ground to eliminate the hazard associated with shock. "Brewery cord" used in the past is NOT acceptable on the Project.
3. Lighting shall be installed in a manner which will minimize potential damage to the wiring, fixtures or light bulbs. If lighting is positioned in an area which places the bulbs at risk of breakage, the bulbs shall be protected with protective cages.
4. If temporary lighting has been installed in public walkways check that all bulbs are operating on a regular basis.
5. Temporary lighting circuits are to be used for lighting only. No one shall remove a light bulb from a temporary lighting circuit and replace it with an outlet allowing them to plug in an electrical tool or appliance.



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6. Always avoid contact with the wires strung for temporary lighting. Frequent relocation of circuits can loosen connections, break insulation and create other hazards.
 7. Beware of tripping and shock hazards from wires strung overhead and underfoot.
 8. Take care that wires do not contact steel door frames in final stages of the work, when temporary lines often pass through doors that may be accidentally closed on them.
 9. Where it is not feasible to install lighting into an electrical utility grid. The use of plug in, battery powered, or generator lights will be used to illuminate the work and or pedestrian walkways where lighting has been reduced or removed due to construction activities.
 10. Always be sure to replace broken or burned-out bulbs to maintain lighting levels in walkways, stairwells, work areas, halls or alley ways and other areas where lighting has been reduced or removed due to construction activities..
 11. When temporary lighting is removed from service, check the wiring fixtures for breakage and damage. Repair any damage and/or replace any broken fixtures prior to placing the lighting in storage.



Traffic Control

All traffic control will be done in accordance with requirements of the *Traffic Control Manual*, the MOL, OHSA (Sections 67 through 69), and other requirements as specified with the Province.

Responsibilities

Employer	It will be the Responsibility of the Employer to take reasonable and practical measures to ensure traffic control requirements are assessed and requirements determined prior to work commencing. Employer must take steps to protect the worker from this hazard. There are many protections that might be used including flashing lights, barricades, delineators, warning signs crash trucks etc. If it is not feasible to close the project to non- construction traffic and the posted speed limit is less than 90km/h then a worker may be used to direct traffic through the site
Supervisor	It will be the responsibility of the Supervisor to take reasonable and practical measures to implement safe and compliant traffic control plan for work sites. Forms for developing traffic control plan is located in the Forms Section-18 of this H&S Program. The Supervisor is responsible to ensure only trained and qualified Traffic Control Personnel (TCP) perform traffic control duties The Supervisor is responsible to ensure that all workers have received proper instruction and training, and personal protective equipment prior to performing this type of activity.
Worker	It will be the responsibility of the Worker(s) to adhere to the safety requirements regarding this specific task. traffic control Worker(s) must be competent persons, not be asked to perform any other work while directing traffic, be positioned in such a way that they are endangered as little as possible by vehicular traffic. The Worker will advise the Supervisor of any damage, deviation in operation, excessive wear, etc., prior to using equipment or related materials. All traffic related incidents, including near miss occurrences, will be reported to the H&S Coordinator on the same day they occur.

Note: Worker(s) may be used to direct pedestrian traffic separately to directing vehicular traffic, if the area has a high volume of pedestrian traffic (i.e. Downtown streets). These Worker(s) will coordinate along with other traffic controllers to keep both project and public activities flowing smoothly throughout the duration of LCE projects.



Equipment Required

1. CSA approved safety footwear.
2. Hi-visibility vests or apparel that meets OHS requirements.
3. Reflective wrist and leg bands while conducting work at night.
4. Traffic control paddle, and lighted wand if working at night.
7. Traffic Control signs.
8. Clothing suitable for the weather conditions.
6. Communication and warning devices when needed (e.g., two way radio, air horn).

Safe Work Practice

1. Traffic control will be done in accordance with the *Traffic Control Manual Book 7 for Work on Roadways* and LCE's *Traffic Control Plan*.
2. Only trained Traffic Control Persons (TCP) will be used to control traffic.
3. Traffic control plan will be designed by Supervisor, and the following requirements will be implemented:
 - a. traffic control requirements and arrangements and procedures are communicated in a pre-task crew briefing for the work
 - b. required traffic control devices and procedures are in place before the start of work and are removed when they are no longer required
 - c. traffic control personnel are positioned in a safe location away from hazards such as rail crossings and environmental hazards
4. When two or more TCPs are required to control traffic, one of the TCP will be designated responsibility to coordinate of changes in traffic flow.
5. Traffic control signs and devices must be positioned and used as specified in the *Traffic Control Manual*. Signs and traffic control devices must be located to allow traffic to move by or through the work area in a controlled manner and, if necessary, to come to a controlled stop with due regard for the prevailing weather and road conditions.
6. Traffic control signs and devices must be installed and removed in a sequence which best protects workers during this phase of a traffic control operation.
7. Signage advising of TCP ahead must be placed in advance of each TCP's station. The signs must be removed promptly when a traffic control person is no longer on duty at that station
8. TCPs will be used when:
 - a. It is necessary to institute a one-way traffic system by or through a work zone and the circumstances do not allow self-regulating single lane traffic controlled by signs and



- other devices as specified in the *Traffic Control Manual*, and a traffic signal system is not used.
- b. Work-related traffic cannot safely self-regulate to move in or out of the work area or safely coordinate with other traffic.
 - c. An existing traffic control system, or an existing traffic signal light system, is not adequate to regulate traffic.
 - d. The work encroaches into an intersection so as to interfere with regular traffic movement.
 - e. Traffic speed or volume is a hazard to workers while setting up or removing other traffic control devices.
 - f. Other traffic control devices are not available in an emergency situation.
9. A traffic control person must stand in a safe position with a clear unobstructed view of the approaching traffic. The initial safe position will be on the shoulder of the road.
10. TCPs will not enter the travelled portion of the roadway while vehicles are still moving. All attempts to stop vehicles will be done from the side of the road (shoulder). TCPs will only move to the driver's side of the lane under their control once the first vehicle has stopped.
12. TCPs will be positioned at least 25 m (80 ft.) away from the work area unless circumstances or space requirements, such as working at or near an intersection, dictate otherwise.
13. Traffic control operations during day time will require the following:
- a. Use of a traffic control paddle meeting the requirements as specified in the *Traffic Control Manual* and, if necessary to control fatigue, a non-conductive support staff for the paddle.
 - b. High visibility apparel meeting the requirements of the OHS A *Personal Protective Equipment Standard, High Visibility Garment*, or the Class 2 or 3 garment criteria of *CSA Standard Z96-02, High-Visibility Safety Apparel*.
 - c. Wrist and lower leg bands fitted with a minimum 5 cm (2 in) wide fluorescent retro-reflective strip about their entire circumference.
 - d. Safety headgear of a high visibility color with a strip of retro-reflective tape across the top from front to back and on the sides.
 - e. An effective means of communication when traffic control persons are not visible to each other, which under no circumstances means a system of two way radio's, passing batons, or similar items to indicate the last vehicle traveling through the zone under control.
14. Traffic control operations during night time or poor visibility will also require the following:
- a. A flashlight fitted with a red signaling wand.
 - b. Immediate access to spare batteries for the flashlight.



15. A traffic control person must make all traffic control directions and signals precisely and deliberately so that the meaning can be clearly understood.
16. Hand signals for communicating traffic direction change and controlling movement of traffic will be as provided in *TCP Signals*.
17. Appropriate measures will be taken to control airborne dust. The primary means to accomplish this will be wetting the travelled surfaces.

The other aspect of traffic safety concerns construction and pedestrian traffic. This part is multi-faceted with the need to protect both our own workforce and the public from hazards. Dump-trucks and heavy equipment are equipped with back-up alarms; it is against the law to disable these alarms and any trucks or equipment found to have non-functional back-up alarms must be reported to the Supervisor and sent off-site and or repaired immediately. Equipment or trucks are not permitted to reverse on any LCE site unless they are under the direction of a signal-person. Truck drivers have been instructed to pull onto site and wait until someone arrives to direct them. Any truck reversing without a signal-person must be reported to the Supervisor; drivers will receive one warning before they are removed from the site.

Individuals responsible for traffic control need to remember that the general public has very little appreciation for the speed and movement of construction equipment; they WILL sit in blind spots and try to fit into places they shouldn't out of ignorance. It is our responsibility to protect them from themselves while they are on our sites so please remain vigilant and stop people cutting through areas travelled by construction equipment and give our operators plenty of room to maneuver.

TCP Signals

To instruct a partner to halt traffic from the other direction - Raise free hand with fist clenched, straight above the shoulder. Move entire arm slowly from the upright position to a position directly out to the side at shoulder height. Repeat signal as long as necessary.



To indicate an all clear situation and instruct partner to allow traffic to proceed from other direction - Move the free hand directly out from the side at shoulder height. Lower the entire arm until it rests against the side of the body. Repeat signal as long as necessary.



To instruct a partner to stop all vehicles in event of approach of emergency vehicles or other emergency such as out-of-control vehicles entering the control zone - Drop the STOP/SLOW paddle. Raise both arms to the side at shoulder height, then rapidly move both arms from the shoulder level to a point above the head where the wrists will cross. Continue signal until the partner is seen to take necessary action.



To stop traffic by day - Face traffic and display static STOP paddle in left hand. When approaching vehicle has almost stopped, use right arm to indicate stopping point.



Normal signal



*Alternative - reverse of normal signal

To stop traffic by night - Face traffic and display static reflectorized STOP paddle in left hand and flashlight, with red signaling baton attached, in right hand. Move arm from 3 to 6 o'clock position and back. When approaching vehicle has almost stopped, use flashlight/baton to indicate stopping point.



Normal signal



*Alternative - reverse of normal signal

To slow traffic by day - Face traffic and display static SLOW paddle in left hand. If traffic slows below desired speed, give appropriate "Move Traffic" signal.



Normal signal



*Alternative - reverse of normal signal

To slow traffic by night - Face traffic and display static reflectorized SLOW paddle in left hand and flashlight, with red signaling baton attached, in right hand. If traffic slows below desired speed, give appropriate "Move Traffic" signal



Normal signal

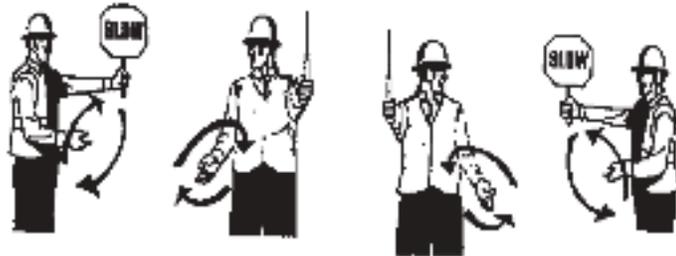


*Alternative - reverse of normal signal

* **NOTE:** Use alternative signals only when the traffic control person is located on the right side of traffic under their control.

To move traffic slowly by day -

Face across the approach traffic lane and look across right shoulder at traffic to be moved. Display static SLOW paddle in left hand. Advance traffic by rotating lower right arm in an elliptical manner, in the direction vehicle wheels will rotate.

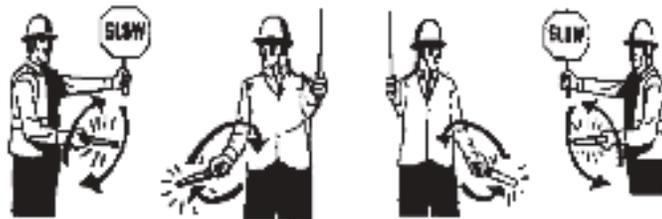


Normal signal

*Alternative - reverse of normal signal

To move traffic slowly by night -

Face across the approach traffic lane and look across right shoulder at traffic to be moved. Display static reflectorized SLOW paddle in left hand and flashlight, with red signaling baton, in right hand. Advance traffic by rotating lower right arm in an elliptical manner, in the direction vehicle wheels will rotate.

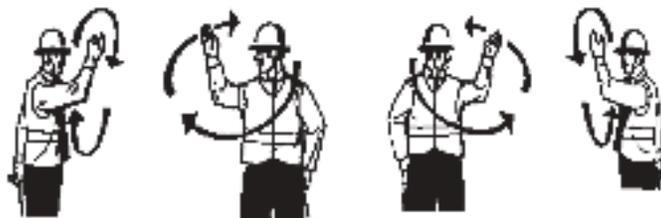


Normal signal

*Alternative - reverse of normal signal

To move traffic at posted speed by day -

Face across the approach traffic lane and look across right shoulder at traffic to be moved. Lower left arm to conceal paddle and motion traffic on with right arm at shoulder level.



Normal signal

*Alternative - reverse of normal signal

To move traffic at posted speed by night -

Face across the approach traffic lane and look across right shoulder at traffic to be moved. Lower left arm to conceal paddle and hold flashlight, with red signaling baton, in right hand. Motion traffic on with right arm at shoulder level



Normal signal

*Alternative - reverse of normal signal