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1. DEFINITIONS

1.1 Competent Person

A person who is qualified because of knowledge, training and experience to organize the work and its performance, is familiar with the Occupational Health & Safety Act (OHSA) and the regulations that apply to the work and has knowledge of any potential or actual danger to health or safety in the workplace.

1.2 Contract Administrator

Is a person or persons designated by PUC who is assigned the responsibility of administering activities associated with a contract. This may include (but is not limited to) preparing the Contract tender documents, filing a notice of project with the Ministry of Labour, Immigration, Training and Skills Development (when necessary), arranging pre-bid meetings, coordinating the bid evaluation process, recommending the award of the Contract and financial, technical, Contractual, and logistical administration through the execution and closeout stages of the Contract.

1.3 Contract Monitor (HSE)

Is a person or persons responsible for monitoring the Contractor, Sub-Contractor, and their Workers. They monitor the health, safety, and environmental performance, providing feedback to both the Contractor and the Project Manager. The Contract Monitor will compare the Contractor's work and work methods with the standards and expectations defined in the Contract.

Qualifications for Contract Monitor, include but are not limited to:

- Knowledge related to the hazards associated with the work
- Knowledge of the procedures and hazard controls for high-risk tasks relating to the project
- Training on relevant federal, provincial, and municipal health, and safety and environmental regulations
- Supervisor training; two-day training course recommended
- Training on the relevant PUC policies and procedures e.g. health, safety, security, or environment relating to the project
- Daily Job planning training and experience
- Crew observations training.

1.4 Contractor

Third party that is Contracted, engaged, or retained by PUC to perform work or provide services, who is not engaged in an employment Contract. This term applies to all Contractors, all Contractor Workers, and any Sub-Contractors hired by the Contractor.

1.5 Contractor Health, Safety, and Environmental Orientation

A high-level orientation provided to Contractors, by the PUC Health, Safety, and Environmental Department. The focus is on the PUC philosophy for health, safety, and environment.

1.6 Construction

Includes erection, alteration, repair, dismantling, demolition, structural maintenance, painting, land clearing, earth moving, grading, excavating, trenching, digging, boring, drilling, blasting, or concreting, the installation of any machinery or plant, and any work or undertaking in connection with a project but does not include any work or undertaking underground in a mine.

1.7 Construction Project

Includes any work which meets the definition of construction which is being performed at any location coming within the definition of project.

1.8 Constructor

A person who undertakes a project for an owner and includes an owner who undertakes all or part of a project by himself or by more than one employer.

1.9 Consultant

Is an individual or firm hired by the PUC to provide subject matter expertise.

1.10 Critical Lift

Is one where the load weight is heavier than 75 percent of the rated capacity of a mobile crane, tower crane, or hoist. Other examples of critical lifts include the following:

- Lifts in congested areas where structures, pipelines, power lines or other obstacles are located
- Lifts that involve turning or flipping the load, which can result in "shock loading" or "side loading"
- Lifts that require machinery or assemblies furnished by others
- Lifts where the load weight is not known
- Lifts in areas of poor soil or unknown ground conditions
- Lifts that include potentially unstable pieces
- Lifts that utilize two or more cranes
- Lifts that exceed the rated capacity of a fixed overhead crane permanently installed at a facility

1.11 Employer

A person who employs one or more workers or Contracts for the services of one or more workers and includes a Contractor or Sub-Contractor who performs work or supplies services and a Contractor or Sub-Contractor who undertakes with an owner, constructor, Contractor or Sub-Contractor to perform work or supply services.

1.12 Field Orientation ("Site Specific")

Orientation provided by the Project Manager or delegate, immediately prior to work commencing. This orientation takes place on site with any Contractor or Sub-Contractor who will be working on the site/project. The Project Manager or delegate will review any relevant procedures, including emergency procedures, and personal protective equipment requirements. This is required for all medium and high-risk projects lasting longer than five (5) continuous working days and annually for service Contracts.

1.13 Non-Construction Work

Is Contract work that does not meet the definition of Construction or Construction project. All non-construction work is governed by the Industrial Regulation.

1.14 Owner

A trustee, receiver, mortgagee in possession, tenant, lessee, or occupier of any lands or premises used or to be used as a workplace, and a person who acts for or on behalf of an owner as an agent or delegate.

1.15 Pre-Bid Meeting

This meeting, held at the discretion of the PUC, is for Contractors that are interested in PUC work. They are generally at the work location, to allow bidders to become familiar with the scope of work, workplace hazards and conditions. The Contractors are allowed to ask questions about the upcoming job. Attendance shall be taken and minutes of the meeting documented.

1.16 Pre-Job/Construction Meeting

This meeting is conducted with the successful Contractor, by the Project Manager or delegate after award of the Contract. At the discretion of the Project Manager, a representative from the PUC Health, Safety, and Environmental Department may be invited. The General Scope of the Contract is reviewed, as well as hours of work, communication, administrative expectations, site safety, and emergency response. Minutes of the meeting are completed, and a copy is sent to the job/project file, using Appendix E Pre-Job Construction Meeting Checklist or an approved equivalent document.

1.17 Pre-Qualified

A Contractor that has met the minimum administrative health, safety, and environmental requirements before beginning work for the PUC.

1.18 Project

A Construction Project, whether public or private, including:

- The construction of a building, bridge, structure, industrial establishment, mining plant, shaft, tunnel, caisson, trench, excavation, highway, railway, street, runway, parking lot, cofferdam, conduit, sewer, watermain, service connection, telegraph, telephone or electrical cable, pipeline, duct or well, or any combination thereof.
- The moving of a building or structure.
- Any work or undertaking, or any lands or appurtenances used in connection with construction.

1.19 Project Manager

A person or persons designated by the PUC's Department Management accountable for project delivery and the overall authority for the successful completion of a project. Their responsibilities include (but are not limited to):

- assigning the Contract Monitor(s) (HSE)
- conducting the Pre-Job/Construction Meeting (Appendix E)
- resolving Contractor health, safety, and environmental performance issues
- conducting the close out meeting with the Contractor and completing the Contractor Closeout Evaluation (Appendix I).

Qualifications for a Project Manager include, but are not limited to:

- Qualifications of a Contract Monitor, and
- Training/certification (or demonstrated experience – five years recommended) in Project Management.

1.20 Risk

A situation involving exposure to danger.

High Risk Work

Work that exposes Contractors to hazards such that if an incident occurs the likely outcome is a fatality or permanent disability. Examples include:

a) line construction, line clearing (within 10' of primary conductor)
b) confined space entry
c) exposure to asbestos and other designated substances

d) work around water, diving operations
e) working aloft > 10 feet, scaffolding
f) hoisting and rigging
g) shoring and major excavation
h) working in traffic.

Medium Risk Work

Work that exposes Contractors to hazards such that if an incident occurs the likely outcome is a temporary disability (broken bones, muscle, or ligament damage). Examples include:

a) plant and facilities maintenance
b) minor excavation (pole holes, cable trenching)
c) welding, carpentry, civil work (concrete, fencing).

Low Risk Work

Work that exposes Contractors to hazards such that if an incident occurs the likely outcome is a minor injury (cuts, bruises, strains). Examples include:

a) Training
b) Consulting
c) Office equipment maintenance, Office cleaning.

1.21 Service Contract

A Contract in which a Contractor is hired to perform services that are non-construction.

1.22 Sub-Contractor

Any person, firm or corporation having a Contract with a prequalified PUC Contractor for the execution of a part or parts of the work included in the Contract, and any person, firm or corporation furnishing material called for in the Contract that is worked to a special design according to the drawings or specifications but does not include one who merely furnishes material not so worked.

1.23 Supervisor

A person who has charge of a workplace or authority over a worker.

1.24 Worker

Any of the following, but does not include an inmate of a correctional institution or like institution or facility who participates inside the institution or facility in a work project or rehabilitation program.

- A person who performs work or supplies services for monetary compensation.
- A secondary school student who performs work or supplies services for no monetary compensation under a work experience program authorized by the school board that operates the school in which the student is enrolled.
- A person who performs work or supplies services for no monetary compensation under a program approved by a college of applied arts and technology, university, private career college or other post-secondary institution.

1.25 Workplace

Any land, premises, location, or thing at, upon, in or near which a worker works.

2. OBLIGATIONS

2.1 General Expectations and Standards of Performance

2.1.1 Compliance

The Contractor shall ensure that the Work shall be carried out in compliance with these Contractor's Health, Safety and Environmental Obligations, any local procedures provided as attachments, and/or Project specific technical specifications. The Contractor shall comply with all applicable requirements of all federal, provincial, local health and safety acts and regulations, as well as any environmental legislation, regulations, rules and guidelines. The Contractor shall ensure that the Work be carried out in compliance with such acts, regulations, rules and guidelines and that all Workers work in the manner prescribed therein and use the protective equipment, take all measures and follow all procedures required to protect Workers, members of the public, and the environment.

Unless otherwise identified in the agreement any necessary licenses, authorizations, certificates or permits required to perform the Work must be obtained by the Contractor and furnished to the Owner upon request. The

Contractor shall report promptly to the Owner any situations that may include, or lead to, the reception of a notice or an order from an agency.

2.1.2 If the Contractor is unsure of a proper working procedure, the Contractor shall immediately request guidance from the Owner prior to proceeding with the Work.

2.1.3 The Contractor shall promptly and suitably correct health, safety, and environmental related deficiencies and hazards, including those that could be identified by the Owner, regulatory agencies, or auditing parties. All deficiencies and hazards found shall be reported to the Owner.

2.1.4 The Contractor shall employ persons competent and efficient in their respective trades and callings. In addition to the Contractor's own disciplinary policy, the Owner is at liberty to object to, and to require, the Contractor to remove from the Workplace forthwith any person employed by the Contractor in or about the execution of the Work who, in the opinion of the Owner, conducts themselves inappropriately, is incompetent or negligent in the performance of its duties, or does not comply with applicable legislation, these Contractor's Health, Safety, and Environmental Obligations, including the Project Health, Safety, and Environmental Plan (Appendix K) or the Daily Job Health, Safety, and Environmental Plans (Appendix L). Such persons shall not be employed again at the Workplace without the prior written consent of the Owner.

2.1.5 The Contractor shall not deviate, or work contrary, to these Contractor's Health, Safety, and Environmental Obligations without written consent formally provided to the Contractor by the Owner, specific to the scope of Work for which such deviation may apply.

2.2 Processes and Programs

2.2.1 The Contractor shall establish a thorough pre-job health, safety, and environmental planning process that complies with the requirements of this document. This shall include a Contractor Hazard Assessment Form (Appendix D), a comprehensive Project Health, Safety, and Environmental Plan (Appendix K), or equivalent, and a task-specific Daily Job Health, Safety, and Environmental Plan (Appendix L).

2.2.2 The Contractor shall develop and maintain a minimum personal

protective equipment (PPE), program that addresses standards for use, care, inspection, training, and standards for purchasing. The PPE program must meet or exceed the relevant PUC's requirements and be evaluated as part of the risk assessment process.

2.2.3 At a minimum, PUC requires a hard hat, safety glasses, high-visibility clothing, and green patch/omega safety boots. Any further specifications will be communicated as needed.

2.3 Qualifications and Training

2.3.1 Prior to commencement and during execution of the Work, the Contractor shall satisfy the Owner that the Contractor, its Sub-Contractor(s), and their Workers have the skills and knowledge to perform the Work safely and with respect to the environment.

2.3.2 The Owner may require the Contractor and its Sub-Contractor(s) and personnel to participate in health, safety, and environmental training or orientation sessions in order to have the skills and knowledge necessary to comply with the requirements laid out through regulation and the content of this document.

2.3.3 No persons will be allowed to go to Work at the Workplace until they have completed a PUC General Contractor Health, Safety, and Environmental Orientation and a Field Orientation.

2.3.4 The Contractor shall ensure that all Workers employed in the execution of the contract are fully briefed on and advised of the location of all electrically energized apparatus in the vicinity of the Work and that they are fully briefed and instructed on the correct and safe working procedures, including but not limited to isolating, grounding, and maintaining safe distances for work in proximity to energized equipment.

2.3.5 The Contractor shall further ensure that every on-site supervisor and every Worker understands the correct work methods to be used in order to prevent electrical contact or encroaching on safe working distances and the procedures to be followed in case of an electrical contact.

2.3.6 The Contractor shall participate in Field Orientations (Appendix G) conducted by the Owner prior to the commencement of the Work

when required. This Field Orientation is mandatory for the Contractor's and Sub-Contractors' supervisors and Workers who will be on the Workplace during the start-up phase of the Work. This orientation will be at an appropriate location and work specific and will identify the limits of the safe working area and all known high- and medium risk hazards, environmental Hazards, safety issues, and the site emergency response plan.

Afterwards, during execution of the Work at site, the PUC or delegate shall conduct Field Orientations for new Contractor and Sub-Contractor personnel prior to them starting to work.

2.3.7 The Contractor must provide only trained and knowledgeable Workers. The Workers must understand the safety, technical, and environmental aspects of their jobs. The Contractor is responsible for providing primary, update, or refresher training as needed.

2.3.8 The Contractor must verify, track, and document worker training and skills. A log of worker skills, training, and designations shall be maintained by the Contractor and available on-site. Verification must be provided immediately upon request of the Owner. (i.e.: Qualified/Competent Persons, Licenses, Certifications, etc.)

2.3.9 The Contractor shall conduct site health, safety, and environmental meetings with its Workers at least monthly or as requested by the Owner. The Contractor must ensure involvement in these meetings by their own senior management designated to the project. Invitation to these meetings should be extended to the Owner and applicable stakeholders within a reasonable timeframe prior to assembly. The content of these meetings should be relevant to the exposures anticipated on the project.

2.4 Other Requirements

2.4.1 The Contractor shall ensure that all tools and equipment are checked regularly to establish that they are in proper working condition, designed to applicable safety and environmental standards, that any defect is rectified before equipment use is resumed and that the equipment is approved for the purpose for which it is being used by the applicable governing body(s).

2.4.2 The Contractor shall make available to the Owner, upon request, all

health, safety, and environmental related documentation for review and audit.

2.4.3 The Contractor shall provide a positive, open and inclusive work environment to all Workers. Specifically, the Contractor shall strictly prohibit and have zero tolerance for workplace violence, discrimination, harassment, and bullying in the context of the Work whether on the Workplace or not.

2.4.4 The Contractor shall maintain positive and respectful relations with third parties including government agency representatives, as well as neighbours and other users of the area where the Work is taking place or areas near the Workplace.

2.4.5 The Contractor shall refer any inquiry from the public or the media related to the Work to the Owner.

2.4.6 The Contractor shall report problematic relations with third parties to the Owner without delay. In such situations, the Owner may stop the Work.

2.4.7 The Contractor shall notify the Owner immediately of any visits or inspections from regulatory agencies or governing bodies at the Project.

2.4.8 The Contractor shall participate in a closing meeting with the Owner to complete an evaluation of the Contractor's performance. The meeting will in part assist the Owner to determine whether or not, or under what circumstances, the Contractor may be considered for future Work. The Contractor will be provided with a written copy of the evaluation and closing meeting notes. (Appendix I)

2.5 Security

2.5.1 The Contractor shall comply with all PUC security policies/procedures as made available to it and as applicable to the site, Project and/or the Contractor's scope of Work.

2.5.2 Contractor must ensure compliance to all qualification requirements pertaining to the hiring and employment of Workers as outlined in the contract.

2.5.3 Drugs and alcohol are strictly prohibited from all PUC Workplaces. No Workers will be permitted to enter a Workplace/Project if

believed to be in possession of, or under the influence of, drugs or alcohol.

2.5.4 At all times, the Owner and Emergency Services shall be able to enter the Workplace/Project in case of emergency situations.

3. PROJECT PLANNING AND MANAGEMENT

3.1 Site Hazard Assessment

3.1.1 Prior to the commencement of Work, the Owner will perform an assessment of the known high-risk Hazards associated with the Workplace (including public safety ones) that could arise during the Contractor's site mobilization and preparation, PUC Appendix D: Contractor Hazard Assessment Form, or an approved equivalent. The Contractor shall complete the form to identify any additional hazards specific to the Work and describe the specific barriers and work methods to be employed to control all identified hazards and shall provide a copy to the Owner for review and comment.

3.1.2 The Contractor shall be responsible for controlling the hazards and implementing the specific barriers and work methods identified in the completed Contractor Hazard Assessment Form (Appendix D).

3.1.3 The Contractor shall ensure that all Hazard controls and barriers are in place and functional prior to commencement of the Work and are maintained and functional at all times until completion of the Work.

3.1.4 The Contractor is responsible for communicating the information contained within the hazard assessment to all levels of Sub-Contractors that they bring on site throughout the course of their Work.

3.2 Project Planning Level

3.2.1 Project Planning Decision Tree (Appendix J) or equivalent form shall be used by the Owner to determine the appropriate level of safety and environmental planning required by the Contractor for the Work.

3.2.2 Level 1 Planning: If the Project involves a prolonged outage, complex Work or Work lasting more than 20 continuous working days, the Contractor shall prepare a Project Construction Schedule, a Project Health, Safety, and Environmental Plan (Appendix K) and Daily Job

Health, Safety, and Environmental Plans (Appendix L) for medium and high-risk work.

3.2.3 Level 2 Planning: If the Project involves a brief outage, multiple crews, or Work lasting more than 5 continuous working days, the Contractor shall prepare a Project Health, Safety, and Environmental Plan (Appendix K) and Daily Job Health, Safety, and Environmental (Appendix L) for medium and high-risk work.

3.2.4 Level 3 Planning: If the project does not involve any of the above, the Contractor shall prepare Daily Job Health, Safety, and Environmental Plans (Appendix L) for all tasks related to construction activities, Projects, maintenance, operating, switching, service work, field studies and trouble calls for all medium and high-risk work.

3.2.5 The Owner will use information gathered during the planning process to determine the appropriate level of monitoring required during the construction process.

3.3 Project Construction Schedule

3.3.1 When applicable as specified in 3.2, the Contractor shall provide to the Owner, prior to commencement of the Work on site, a Project Construction Schedule showing the sequence of tasks required to complete the Work. The Project Construction Schedule will include the timing, resources and special equipment required for each task in the plan. The Owner will review and comment on the Project Construction Schedule. The Contractor will use the Project Construction Schedule to prepare the Project Health, Safety, and Environmental Plan(s) (Appendix K) required as per Section 3.2.

3.4 Project Health, Safety, and Environmental Plans

3.4.1 When applicable as specified in Sections 3.2.2 and 3.2.3, the Contractor shall provide to the Owner, prior to the commencement of the Work on site, a Project Health, Safety, and Environmental Plan (Appendix K). The Project Health, Safety, and Environmental Plan(s) (Appendix K) shall identify the sequence of activities to be completed on site for the entire project term. If a project has multiple major phases or Contractors, then additional plans may be required at the request of the Owner. For each activity, the plan will identify the high-risk Hazards that may be present and include a barrier analysis that identifies the intended Control Barriers, Safety

Barriers, and Support Barriers (or an equivalent analysis approved by the Owner) required for each identified Hazard.

3.4.2 The Owner will review the Project Health, Safety, and Environmental Plan(s) (Appendix K) and may, at its sole discretion, require the Contractor to make modifications the Owner deems necessary to ensure compliance with these Contractor's Health, Safety, and Environmental Obligations (Appendix A). The Contractor shall revise its Project Health, Safety, and Environmental Plan(s) (Appendix K) to include any such modifications required by the Owner. The Contractor shall communicate to the Workers performing the Work, the details of any such revised Project Health, Safety, and Environmental Plan(s) (Appendix K) prior to the commencement of field operations at the Workplace.

3.4.3 Notwithstanding the review of the Project Health, Safety, and Environmental Plan(s) by the Owner, the responsibility for the accuracy, completeness, suitability, implementation and communication of such Project Health, Safety, and Environmental Plan(s) shall remain the exclusive responsibility of the Contractor. The Contractor shall update the Project Health, Safety, and Environmental Plan to address any new major tasks that may arise during the course of the Work, or at the request of the Owner.

3.4.4 The Contractor shall not make changes to the Project Health, Safety, and Environmental Plan(s) (Appendix K) without the prior written consent of the Owner.

3.4.5 The Project Health, Safety, and Environmental Plan (Appendix K) shall be available at the Project, and available for review by all Workers and PUC staff.

3.4.6 The Contractor is responsible for drafting specific environmental plans that may relate to special case site activities that require such considerations as spill prevention control and countermeasures (SPCC), stormwater pollution prevention (SWPPP), critical habitat protection, or erosion control. These plans shall be submitted for review by the Owner prior to the start of Work.

3.4.7 The Contractor shall ensure that the Project Health, Safety, and Environmental Plan(s) (Appendix K) is (are) fully implemented and complied with at all times during execution of the Work on site.

3.5 Daily Job Health, Safety, and Environmental Plans

3.5.1 At the start of each work shift and prior to commencement of any Work on Site, each of the Contractor's work crews shall prepare a Daily Health, Safety, and Environmental Job Plan (Appendix L) or an approved equivalent, where all individual workers and working crews assess the critical health, safety, and environmental hazards pertaining to the Work shift. The Contractor shall provide the Owner with a copy of all Daily Health, Safety, and Environmental Job Plans, and any toolbox talks, tailboards, job site analyses, or other planning documentation, upon request.

3.5.2 The Daily Health, Safety, and Environmental Job Plan (Appendix L) shall identify the sequence of tasks to be completed and the high-risk hazards and medium-risk Hazards that may be present related to each task, and the applicable control methods needed to complete the Work safely. The plan should include a barrier analysis that identifies the control barriers, safety barriers and support barriers required for each hazard. If the work conditions change at any time giving rise to new safety and/or environmental issues, the Contractor shall stop, reassess, and revise the Daily Health, Safety, and Environmental Job Plan (Appendix L), and communicate it to all affected Workers, before executing any more Work.

3.5.3 Daily Health, Safety, and Environmental Job Plans (Appendix L) must be communicated to all Workers associated with the task each day. Every Worker shall adhere to the requirements of each applicable Daily Health, Safety, and Environmental Job Plan (Appendix L).

3.5.4 The Contractor is responsible to provide training to all designated site supervision in how to prepare quality Daily Health, Safety, and Environmental Job Plans for any project involving high and medium-risk Work.

3.6 Project Specific Health, Safety, and Environmental Plans and Programs

3.6.1 Product Transport and Delivery Systems and Waste Management

a) The Contractor shall have, and administer, a hazard communication program that meets applicable municipal, provincial and federal regulations.

b) When the Contractor is shipping to or from the Workplace, or planning to use at the Workplace, any product which is categorized as a hazardous material or dangerous good, the Contractor shall conform to the relevant municipal, provincial, federal legislation and regulations pertaining to such materials. All

such materials and their transport containers and/or vehicles shall be properly identified with the required warning labels.

c) The Contractor shall maintain at the Workplace and provide the Owner with one copy of the Safety Data Sheet for each hazardous material brought on to a Workplace.

d) Upon completion of the Work or when a particular product is no longer required on site, whichever shall occur first, the Contractor shall remove all remaining quantities of the product and all empty containers.

e) Hazardous waste or dangerous goods shall not be disposed of through the Owner's waste management system (unless requested to do so by the Owner) or on the Owner's or third party's property. The Contractor is responsible for ensuring waste material is disposed of in accordance with all applicable laws and regulation, and ensuring the material goes to appropriate waste disposal site(s).

f) Hazardous material, waste, or dangerous goods shall not be left on site or with the Owner without the prior written consent of the Owner.

g) Product delivery systems, including but not limited to, containers, valves, pumps, pipes, hoses, nozzles and vents, shall be in good working order and without leaks.

h) The Contractor shall provide overflow prevention or protection for fuel or oil storage containers.

i) The Contractor shall provide effective secondary containment to address possible overflow discharge during mobile refueling operations.

j) The Contractor shall ensure that all waste material be separated into hazardous and non-hazardous waste. Each waste type shall be disposed of in compliance with municipal, provincial or federal requirements. In some jurisdictions, certificates of classification and proof of disposal for all waste shall be available for review.

3.6.2 Industrial Hygiene

a) For any projects that require Level 1 or 2 planning, or at the request of the Owner, the Contractor must evaluate the project site for possible health, safety, and environmental health hazards that may be present after mobilization. Considerations for testing and working with, or around these substances shall be considered. Hazards to consider include, but are not limited to,

lead, asbestos, silica, mercury, polychlorinated biphenyls (PCB's), Radon, volatile organic compounds (VOC's), oxygen enrichment/deficiency, sulfur dioxide, carbon monoxide, mold, hexavalent chromium, etc.

b) The Contractor is responsible to establish a hearing conservation program identifying capability to perform audiometric testing, and identification of tasks, or areas, where protection may be required due to their planned Work.

3.6.3 Traffic Control

a) For any projects that require Level 1 or 2 planning, or upon request of the Owner, the Contractor shall prepare a site plan that includes all structures, meeting areas, access roads, drop-off locations, and vehicle parking areas. The plan must be updated as Workplace conditions change. This plan must be made available for review by the Owner.

b) A Traffic Control Plan as per Book 7 of the Ontario Highway Traffic Act shall be required if the Project will involve vehicle traffic, shared roadways with pedestrian traffic, or backing of vehicles. This plan will be developed by the Contractor and shall address roadway marking, personal protective equipment, physical barriers, signage, speed control, the use of flaggers/spotters, and communication.

c) All vehicles at Workplace must be in good working order with current vehicle inspections for safety and mechanical conditions. All vehicles must be operable per original equipment manufacturers specifications.

d) All vehicles with a gross vehicle weight rating above greater than 10,000lbs (4,500kg) must have backup alarms installed. Dedicated personnel are required to assist in backing vehicles up in any circumstance where a drivers line of sight is obstructed.

e) Drivers must hold the applicable license for the equiptment they intend to operate per municipal, provincial, or federal regulation.

f) All persons in vehicles must wear seatbelts at all times the vehicle is in use.

g) The use of handheld cellular devices is prohibited for all persons operating a vehicle within the scope of the project.

3.7 Crew Observations

3.7.1 The Owner or delegate may conduct regular crew observations of the Work at the Owner's discretion. The Contractor shall ensure that the Workers cooperate with the Owner during such observations.

4. INCIDENTS, EMERGENCY PREVENTION, AND RESPONSE

4.1 Incident Response and Reporting

4.1.1 In the event of an Incident resulting in an injury to a Worker, a member of the public, or in the event of a potentially high-risk health, safety, or environmental incident, the Contractor shall:

a) Stop Work;
b) Secure the Workplace to ensure protection of Workers, the environment or the public with respect to the investigation;
c) Report the Incident immediately to the Owner;
d) Provide notice to the proper authorities.

4.1.2 The Contractor shall complete a thorough investigation of any incident occurring during performance of the Work, whether or not the Incident resulted in an occupational injury or illness to a Contractor's Worker, an Owner's worker or member of the public, in property damage, in damage to the natural environment. The Contractor shall provide the Owner with a detailed written report of its findings within 24 hours.

4.1.3 The Contractor shall assist the Owner in any investigation the Owner may undertake related to any incident, and in the implementation of any action plans relating to the incident. This may include making workers and/or Subcontractors available for interviews, conferencing, or training.

4.2 Emergencies, Spills, and Emergency Preparedness

4.2.1 The Owner has the authority and the Contractor has the obligation to stop the Work whenever, in the opinion of either party, such stoppage may be necessary to ensure the safety of a life, or any equipment, structure or property, or the protection of the environment. This includes the authority to make changes and to order the Contractor, or a Sub-Contractor, to stop working. The Contractor shall notify the Owner immediately upon stoppage of Work due to a health, safety, or environmental concern.

4.2.2 The Contractor shall have available on site at all times a list of

emergency phone numbers and the means to make emergency calls, using Contract Roles (Appendix P) or equivalent.

4.2.3 The Contractor shall ensure that spill kits are available at all times and are located within the areas where a spill could occur. The spill kits shall be appropriate in content for the materials that could be spilled on site and appropriate for the area the spill may lead to (soil, water, etc.). Small kits shall be available in mobile equipment such as pick-up trucks.

4.2.4 The Contractor shall immediately report to the Owner any spill and take appropriate actions to contain and clean up the spill. The Contractor shall complete an Incident report after a spill.

4.2.5 The Contractor shall ensure that areas or equipment that present risk of leaks or spill be protected. This protection shall include, but is not limited to, the following: spill containment systems for oils, fuels and chemical storage and transfer areas; spill containment systems under stationary equipment such as generators, pumps, heavy operating equipment, and compressors.

4.2.6 The Contractor will comply with all emergency procedures relating to the Workplace and is responsible for ensuring all of its Workers are familiar with such procedures and participate in relevant exercises and training as required.

4.2.7 The Contractor may be required to develop and maintain an emergency response plan (ERP) for possible emergencies at the project according to their scope of Work and/or caused by their own activities. The plans shall, at a minimum, encompass responses for fire, evacuation, and oil/petrol/chemical spill, but should also include the following whenever applicable:

a) Medical;
b) Inclement weather;
c) Public Safety;
d) Confined space rescue;
e) Fall rescue.

4.2.8 All workers who have responsibilities within an emergency response plan must be trained in their duties.

4.2.9 Emergency response plans must also ensure that a system is established to ensure that the Contractor's Workers record their attendance on site in order that their numbers can be satisfactorily accounted for in the event of fire or other emergency and that

adequate and suitable firefighting equipment is made available.

4.2.10 The Contractor is responsible for providing at least the minimum level of first aid equipment required by regulation applicable to the scope of Work and size of the workforce.

4.2.11 The Contractor is responsible to provide at least one person trained in first aid and cardiopulmonary resuscitation (CPR) for every 10 Workers on-site, or anytime a project will last longer than one week. An automated external defibrillator (AED) must be on site anytime there are more than 25 workers on site, or if advanced emergency response is more than 30 minutes away from the Work.

4.3 Fire Prevention and Protection

4.3.1 The Contractor shall comply with all laws, by-laws and regulations and with the instructions of the Owner with respect to fires and prevention of fires.

4.3.2 The Contractor shall provide and maintain portable fire extinguishing equipment and such equipment shall remain at the Workplace until all Work is completed and accepted by the Owner.

4.3.3 The Contractor shall comply with all fire prevention requirements of the municipality and the Owner and shall have at all times personnel at the Workplace who are experienced in the use of the prescribed equipment.

4.3.4 The Contractor shall report immediately any escaped fires to the local municipality and to the Owner.

5. ACTIVITIES WITH ADDITIONAL REQUIREMENTS

5.1 Work in Proximity to Energized Electrical Equipment

5.1.1 For any Work involving energized electrical equipment, **regardless of the voltage, the first alternative shall always be to isolate, test and de-energize equipment.**

5.1.2 All Workers must be qualified pursuant to industry practices and have been trained on the specific procedure prior to performing any Work in Proximity to Energized Equipment (see definition below).

5.1.3 "Work in Proximity to Energized Electrical Equipment" is Work where a person, or conducting tools, equipment or other objects are within the minimum clearance distance to energized electrical equipment, or are physically capable of, through unintentional movement, encroaching on the minimum clearance distance to energized electrical equipment.

5.1.4 The "Minimum Clearance Distance" to energized electrical equipment is established by the regulatory requirements for the various voltage levels for qualified Workers, unqualified Workers, and equipment.

5.1.5 If it is not possible to de-energize the electrical equipment, the Workers, conductive tools, equipment or materials must be kept outside of the Minimum Clearance Distance to energized electrical equipment. The positioning of Workers, conductive tools, equipment or materials must take into consideration any planned action, equipment failure, and unintentional movement that may result in encroachment on the Minimum Clearance Distance.

5.1.6 For any Work that may encroach on the minimum clearance distance to energized electrical equipment, physical control barriers must be applied to prevent accidental electrical contact and a qualified dedicated observer must be present at all times.
Examples of physical control barriers include items that provide complete protection from electricity independent of the worker, these include voltage rated rubber cover-up or insulated blankets. Rubber gloves and insulated tools are *not* considered physical barriers because they don't provide complete protection.

5.2 Work on Energized Electrical Equipment

5.2.1 No Work on energized electrical equipment is allowed unless a specific written consent has been granted by the Owner following a formal request by the Contractor. Such request, which must include work specific procedures and barriers, must be submitted at least one month prior to the Work to be done. The Owner may not approve the Work to be conducted on energized equipment above 600 volts.

5.2.2 "Work on Energized Electrical Equipment" is Work where contact is made with an energized conductor or equipment.

***Rule 129 of the Electrical Utility Safety Rules**

Limits of Approach
Maintain Maximum Clearances and Install Barriers Where Practical

	Personnel Zones			Mobile Work Equipment		
Voltages	OHSA Minimum	Authorized Worker	Restricted Zone	OHSA	Non-Insulated Boom	Certified Insulated Aerial Device
750 V to 15 kV	> 3.0 m (10 ft.)	> 0.9 m (3 ft.)	0.9 m to 0.3 m (3 ft. to 1 ft.)	> 3.0 m (10 ft.)	> 0.9 m (3 ft.)	> 0.3 m (1 ft.)
> 15 kV to 35 kV			0.9 m to 0.45 m (3 ft. to 1.5 ft.)			> 0.45 m (1.5 ft.)
> 35 kV to 50 kV		> 1.2 m (4 ft.)	1.2 m to 0.6 m (4 ft. to 2 ft.)		> 1.2 m (4 ft.)	
> 50 kV to 150 kV		> 1.5 m (5 ft.)	1.5 m to 0.9 m (5 ft. to 3 ft.)		> 2.4 m (8 ft.)	> 0.9 m (3 ft.)
> 150 kV to 250 kV	> 4.5 m (15 ft.)	> 2.1 m (7 ft.)	2.1 m to 1.2 m (7 ft. to 4 ft.)	> 4.5 m (15 ft.)	> 3.0 m (10 ft.)	> 1.2 m (4 ft.)
> 250 kV to 550 kV	> 6.0 m (20 ft.)	> 3.7 m (12 ft.)	3.7 m to 2.75 m (12 ft. to 9 ft.)	> 6.0 m (20 ft.)	> 4.6 m (15 ft.)	> 2.75 m (9 ft.)
SYMBOLS ≤ less than or equal to > greater than < less than				cranes, power shovels back-hoes, mech. brush cutter	RDB, aerial ladder, work plat-form, uncertified aerial device	certified and tested by ***certified laboratory***

5.3 Use of Heavy Operation Equipment

5.3.1 "Heavy Operating Equipment" is equipment used for construction, maintenance or transport activities, and includes but is not limited to bulldozers, vacuum trucks, mobile cranes, overhead fixed cranes, excavators, front end loaders, tractors, forklifts, manlifts, bucket trucks, digger derrick trucks, tractor trailers, dump trucks,

compaction rollers, backhoes, directional drilling equipment, asphalt spreaders, hydrovac trucks, mobile drills, asphalt saws.

5.3.2 The Contractor shall ensure that operators of Heavy Operating Equipment have up-to-date licenses to operate the Heavy Operating Equipment as per the regulatory requirements.

5.3.3 The Contractor shall ensure that operators have received training within a structured program on the safe operation of the Heavy Operating Equipment and have a thorough understanding of the operating limitations of the specific equipment to be operated.

5.3.4 The Contractor shall ensure that orientation is provided to all operators on the safe operation of any Heavy Operating Equipment that is new to the Workplace prior to the equipment being used on site.

5.3.5 The Contractor shall ensure that inspection and maintenance is performed as per the manufacturer's requirements for any Heavy Operating Equipment the Contractor use to perform the Work and that inspection and maintenance records are maintained.

5.3.6 Operators shall conduct pre-use checks on all Heavy Operating Equipment prior to performing Work with the equipment. Pre-use checklists shall be used by the operators and records shall be maintained.

5.3.7 The Daily Health, Safety, and Environmental Job Plan (Appendix L) shall include the details on the use of the equipment such as vehicle setup, stabilization, work zone protection, rigging requirements, the operating limitations of the Heavy Operating Equipment and minimum clearance distances to energized electrical equipment.

5.3.8 All Work requiring the use of mobile Heavy Operating Equipment near electrical supporting structures, such as towers, poles and guy wires, shall comply with the following conditions, except for Work performed by qualified powerline Workers on transmission and distribution circuits.

5.3.9 In addition:

a) Operators shall ensure that the mobile Heavy Operating Equipment is maintained at a minimum safe working distance from any electrical supporting structure.

b) A safe work zone shall be established around the electrical supporting structure. The perimeter of the zone and the structure shall be marked with cones, flags or caution tape. These visual aids shall be attached or positioned so the operator of the equipment has good visual contact with them while working in the area of the electrical supporting structures.

c) If the above conditions cannot be met, a documented work procedure shall be approved by the Owner.

5.4 Climbing and Working at Heights

5.4.1 The Contractor must have a fall protection and prevention program established and applicable to the Workplace. This program must meet the standards Fall protection measures must be taken whenever there is a potential for a high-risk health and safety incident involving gravitational energy such as a Worker(s):

a) falling from an elevated position of 10 feet (3 m) or greater;

b) falling into water or other liquid;

c) falling into or onto a hazardous substance or object;

d) falling through an opening on a work surface.

5.4.2 For all temporary and permanent work structures, equipment and installations, where conditions such as of the ones above exist, the first alternative is to change the design in order to eliminate the hazard. If it is not practical to implement design changes, the second alternative must be to implement fall prevention measures such as a guardrail system or travel restraint system. In the cases where neither design changes nor the implementation of fall prevention measures are practical, the third alternative must be to implement a fall restricting or a fall arrest system.

5.4.3 Whenever there is a possibility of objects falling from a work platform onto persons below, an adequate safe work zone must be established to ensure that Workers are not exposed to falling objects. The work zone should be delineated with caution tape or

monitored by a dedicated observer. The work platform must have kick plates installed and the Workers should tie off the tools and equipment whenever possible.

5.5 Welding, Cutting, and Hot Work

5.5.1 Hot Work operations, or "Hot Work" shall be considered any temporary operation that involves open flame, extreme heat and / or sparks. This includes but is not limited to: electric welding; air arcing; grinding; disc cutting; high temperature heating; open flame burning; brazing; soldering; and hot patch roofing.

5.5.2 Before initiating any Hot Work the Contractor is required to complete an initial job assessment by means of a Daily Health, Safety, and Environmental Job Plan (Appendix L) and Hot Work permit. Both document templates must be reviewed and approved by the Owner.

5.5.3 Hot Work permits must be maintained at the location of Hot Work operations and maintained by the crew leader.

5.5.4 In addition to complying with all applicable municipal, provincial and federal regulations, all Hot Work activities will require the use of a designated fire watch. This person must be trained in their duties, identified on the permit, and at the Work location full time while Hot Work is underway then, at minimum, 30 minutes after completion of Work.

5.6 Cranes, Hoisting, and Rigging

5.6.1 The Contractor must have a formal hoisting and rigging program that defines the requirements for all types of lifts using cranes or hoisting equipment. The program requirements must include, but are not limited to, the following:

a) Roles and responsibilities related to hoisting and rigging, for the Contractor's Project Manager, safety personnel, hoisting/erection crew supervisor, crane/derrick/hoist operator, signalperson, riggers, and applicable qualified/Competent Persons assigned to such operations. (e.g. designated engineer or consultant);

b) Training records and retraining schedules/documentation for all staff assigned responsibilities in the Contractor's hoisting and rigging program;

c) Lift assessment and lift approval process including identification criteria for lifts in need of review by a professional engineer;

d) Crane inspection process, documentation, and frequency;

e) A drawing showing the anticipated location of the hoisting equipment, structures, utilities, public and site traffic, and other operations within 150% of the crane's boom length, proposed travel of the lift, and expected delivery entry/exit points along with staging of support vehicles/equipment and materials;

f) Criteria related to lifting or hoisting to include in Daily Health, Safety, and Environmental Job Plans (Appendix L);

g) Loading and offloading of craning/hoisting equipment, crane walking, fueling, and storage;

h) Crane assembly and disassembly;

i) Crane/derrick/ levelling, stabilization, and if appropriate (e.g. on a barge) securing;

j) Establishing a safe work zone around craning/hoisting activities, this will include identification of the cranes range of motion, and possible drop areas;

k) Communication/signaling requirements during hoisting or moving of materials and equipment;

l) Inspection and maintenance (including documentation) of all hoisting and rigging equipment, e.g. cranes, derricks, slings, spreaders, and other rigging devices;

m) Pre-lift meetings/discussions;

n) Working in the vicinity of hazards, e.g. overhead or underground utilities, manholes, structures, traffic;

o) Selection, inspection, storage, and maintenance of rigging equipment;

p) Environmental aspects, e.g. wind speed, visibility, lightning.

5.6.2 The Contractor's hoisting and rigging program must define critical lifts and their requirements in accordance with all municipal, provincial and federal regulation for cranes and rigging.
See definition for Critical Lift 1.10.

5.6.3 In addition to compliance with critical lift guidelines based on municipal, provincial and federal regulation, and descriptions within

this document, Contractors must identify high-risk lift activities that will take place on a project. A high-risk lift activity may be defined should it meet one or more of the following conditions:

a) Any lift that may be subject to adverse weather conditions or high wind loads;

b) If load weights or the center of gravity are difficult to determine;

c) Loss of control may result in catastrophic damage to a structure's integrity, or the health and safety of occupants or neighbours;

d) The potential release of hazardous substances into the environment;

e) Lifting of Workers with a crane or hoist;

f) When utilizing chain-falls or other dynamic rigging with the intention of altering the rigging configuration and/or center of gravity while a load is suspended;

g) A lift where any part of the equipment within the swing radius may become closer than 20' to electrical lines;

h) Lifts in poor soil/ground conditions;

i) Loss of an irreplaceable or un-repairable item that would jeopardize future operations, the safety of a facility, or result in delay to schedule or other serious program impact;

j) Significant financial impact to the extent it would affect Facilities/project commitments

k) When specifically requested by the Owner.

5.6.4 All lifts that meet criteria for critical or high-risk Work and will require a lift plan to be completed by the Contractor's designated qualified person.

5.6.5 The Contractor will define the format and content of this plan though it must address the following elements:

a) Description of lift;

b) Crane(s) involved in the lift activity and the equipment specifications;

c) Drawing for the lift that identify:
   - Location of lifting equipment
   - Lift height
   - Load radius

- Boom length & angle
- Size & weight of the load
- Flight path of load
- Rigging specifications and attachment points
- Percent of crane's rated capacity

d) Personnel involved;

e) Communication method;

f) Ground conditions;

g) Required environmental conditions to safely perform lift;

h) Pre-lift inspection procedures;

i) Procedures for lifting Workers (when applicable)

j) Procedures for keeping unwanted persons from crossing below suspended loads.

5.6.6 The Contractor's hoisting and rigging program must define the requirements for a licensed professional engineer to review the lift plan prior to a lift. At a minimum, the Contractor's hoisting and rigging program shall require an engineer review for the following:

a) For any lift meeting the criteria of a critical lift

b) When rigging components are altered or used in a way that is different from manufacturers specification

c) When rigging components are site or shop fabricated

d) When the sling angle is lower than 45% for an eye bolt and 30% for other lifts

e) When structural members are used for hoisting and the strength of the anchor points cannot be ensured

f) When specifically requested in the work plan or by the Owner

Note: The engineer shall be knowledgeable of the requirements applicable to cranes, hoisting devices and rigging hardware identified in the applicable regulations and industry standards and be responsible for interpreting standards, codes, regulations, instructions and procedures.

5.7 Use of Chainsaws and Brushsaws

5.7.1 When using a chainsaw or brushsaw for Work in which members of the public may have access to the Workplace, a safe work zone of 5 meters (16 feet) shall be established and delineated with caution tape or cones. The requirement to use caution tape does not necessarily apply to all right-of-way maintenance work; its use to be determined during the Site Hazard Assessment done prior to commencement of the Work on site.

5.7.2 When using a chainsaw or brushsaw for minor construction and bucking work, a safe work zone of 3 meters (10 feet) shall be established and marked with cones or caution tapes and monitored by a dedicated observer.

5.7.3 When using a chainsaw or brushsaw for felling small or large trees on level ground, a safe work zone shall be maintained at a minimum twice the height of tree being felled.

5.7.4 All Workers performing Work involving the use of chainsaws or brushsaws shall be trained and qualified for the type of work performed. The training shall include classroom sessions on the safe use of chainsaws or brushsaws, the use of personal protective equipment, and practical application related to the type of Work performed.

5.7.5 All Workers who use a chainsaw or brushsaw for clearing of electrical right of way (ROW) or Line Work shall have basic electrical awareness training.

5.7.6 When using a chainsaw or brushsaw the following PPE will be required as a minimum:

a) Leg protection (including back calf)
b) Gloves
c) Head
d) Eye
e) Long sleeves
f) Hearing protection

5.8 Utility Locates

5.8.1 The Contractor shall arrange with the appropriate utility authorities for the stake out of all underground utilities and service connections that may be affected by the Work. The Contractor shall follow the locate document and will be held responsible for any damage, based on the locate paperwork and diagram. The Contractor shall also be responsible for any damage done to the service connections. The Contractor shall attend such meetings with the Contract Administrator and the utility authorities as may be required by the Contract Administrator to ensure coordination of activities among the Contractor and the utility authorities for each utility affected by the Contract.

5.8.2 In the case of damage to, or interference with any utilities, pole lines, pipelines, conduits, farm tiles, or other public or privately owned works or property, the Contractor shall immediately notify the Owner and the Contract Administrator of the location and details of such damage or interference.

5.8.3 Except as otherwise noted in the Contractor's Health, Safety, and Environmental obligations document (Appendix A), the Contractor assumes all the risks and responsibilities arising out of any obstruction encountered in the performance of the Work and any traffic conditions, including traffic conditions on any Highway or road giving access to the Workplace, and the Contractor shall not make any claim against the PUC for any delay, loss, damage or expense occasioned thereby.

5.8.4 Where the obstruction is an underground utility such as cable, pipelines, sewers, or drains, or any other object, the Contractor shall be required to assume the risks and responsibilities arising out of such obstruction.

5.8.5 During the course of the Contract, it is the Contractor's responsibility to obtain locates from utility companies or other appropriate authorities for further information in regard to the exact location of these Utilities, to exercise the necessary care in construction operations, and to take such precautions as are necessary to safeguard the Utilities from damage.

5.8.6 Existing gas mains, where identified through locates or encountered in the excavation and trenching operations shall be protected at all

times and extreme caution shall be taken when digging within close proximity to any gas main.

5.8.7 Excavation work carried out within the vicinity of the existing gas mains shall be carried out in accordance with Enbridge Gas' Specification for Excavation, Cover, and Clearance. The Contractor shall also comply with the document "Third Party Requirements in the Vicinity of Natural Gas Facilities" which will be made available to the Contractor upon request.

5.8.8 The cost for the protection and support of gas mains shall be borne by the Contractor. Backfill and bedding shall be placed using proper placement and compaction procedures to the satisfaction of the utility representative involved.

5.8.9 When underground communication lines become exposed during construction it is the responsibility of the Contractor to ensure that the lines are reinstalled to an acceptable depth of bury complete with bedding sand cover. The cost of bedding sand and reinstallation of the communication lines shall be included in the tender price for the appropriate item and shall be full compensation for any relocation, reinstallation and sand cover to the satisfaction of the utility company.

5.8.10 Under no circumstances shall the Contractor move, support, or otherwise contact overhead wires, including low voltage wires, or any other above ground distribution electrical facilities. With the exception of the support of electrical ducts, subject to approval by PUC, no contact shall be allowed of buried electrical infrastructure.

5.8.11 Should the Contractor's work potentially encroach on the Occupational Health and Safety Act's limits of approach to overhead wires, pole supports, duct banks, etc, the Contractor shall implement one or more of the following options, listed in order of preference:

a) Modify work to maintain a safe distance and eliminate potential for contact as stated in and spelled out by any applicable Codes or Regulations.

b) If the Contractor can demonstrate to the PUC's Representative that the work cannot reasonably be modified consistent with the above, the Contractor and the PUC's Representative shall work in

conjunction to evaluate alternatives to eliminate the hazard, reduce the hazard to a safe level, or implement an appropriate system of barriers. The Contractor's Representative would initiate this request through the PUC representative. If modification to the distribution facility is required for work to proceed safely, the Contractor's Representative shall give PUC sufficient lead time to mobilize the necessary crews.

5.8.12 These costs are deemed to be included in the unit prices bid for the related items and no separate or additional payment will be made for this work.

5.9 Work Around Energized/Pressurized Piping

5.9.1 Contractors excavating or working in the vicinity of live watermains can present hazards if proper precautions to control pressurized watermains are not in place. This will be discussed in the Pre-Job/Construction Meeting.

5.9.2 When required, PUC will de-pressurize a watermain, based on the Contractor's job plan.

5.9.3 PUC will require the Contractor to submit a LOTO policy / procedure prior to work commencing. Contractors are required to submit a process to determine safe limits of approach for waterworks. The determination as to the safe limit of approach to a watermain is an engineering decision. The limit varies with soil type and pipe diameter.

5.9.4 Contractors may be required to address special provisions for shoring and thrust restraint for pressure pipes for review.

5.9.5 Contractors are responsible for hiring a professional engineer to design thrust restraint systems, as outlined n PUC Special Provisions - Waterworks. The thrust restraint system must be accepted by the PUC Engineering department.

5.10 Safe Excavation/ In Proximity to Undermining

5.10.1 When excavating in proximity to undermining, it is important to take extra precautions to ensure the safety of workers and the surrounding area.

5.10.2 Guidelines to follow include, but are not limited to:

5.10.2.1 **Identify the soil type**: Before beginning excavation, identify the soil type and its properties. Soil types vary widely within a single trench, so it's important to be aware of any changes in soil type from top to bottom and along the length of the trench.

5.10.2.2 **Avoid undermining nearby structures**: Ensure that excavations do not undermine the scaffold footings, buried services, or the foundations of nearby buildings or walls. Many garden or boundary walls have very shallow foundations that are easily undermined by even small trenches, causing the wall to collapse onto those working in the trench.

5.10.2.3 **Check the pit each day**: Check the excavation site each day before starting work and after any event that may affect its stability. Look for signs of instability, such as cracks, bulges, or sloughing, and take corrective action if necessary .

5.10.2.4 **Prevent collapse**: Shore, bench, or batter back the excavation to prevent collapse. The type of shoring and timbering to be used for each soil type is specified in the Excavations section of the Construction Regulation. Trench support systems must be designed by a professional engineer.

5.10.2.5 **Provide safe access**: Provide safe access to get in or out of the excavation site. Ensure that workers are trained on how to enter and exit excavations safely.

5.11 PUC Pole and Equipment Support

5.11.1 The Contractor is to ensure that any and all PUC plant affected by the excavation work that is encroached upon and/or supported is done so in accordance with PUC Service Inc.'s Pole/Equipment Support of PUC Facilities Including Road Reconstruction and Public ROW Projects.

5.11.2 All PUC Operations costs incurred in regards to pole and equipment support are the responsibility of the contractor. For costs related to pole support, contact PUC Engineering. Contractor Pole Support Checklist is available through PUC Engineering, upon request, and is to be used as a guideline only.

5.12 Gas Mains

5.12.1 All work in the vicinity of gas facilities must adhere to the requirements set forth in the "Third-Party Requirements in the Vicinity of Natural Gas Facilities Standard". Work includes, but is not limited to, any ground disturbance in the vicinity of facilities or equipment crossing.

5.12.2 Ground disturbance includes, but is not limited to, activities associated with excavation, directional drilling, blasting, piling, compaction, boring, ploughing, grading, backfilling, and hand digging.

5.13 Duct Banks

When working in promixity to PUC Duct Banks the following expectations are to be met:

5.13.1 Duct support/support plans are absolute requirements when undermining duct banks (beyond allowable limits). Also applies to direct buried conduit and cable (herein referred to singularly as duct banks). The contractor must supply a plan for PUC's review and approval prior to undermining and supporting duct structures (see attached).

5.13.2 Contractors are not to chip away at or otherwise alter the external dimensions of a duct bank to permit the installation of other plant (without PUC review and permission). This includes not driving anything into a duct bank.

5.13.3 Contractors are not to install any cable, pipe, or other plant into PUC duct banks without PUC review and permission.

5.13.4 Contractors are not to directly tamp backfill without an acceptable barrier between tamping and duct banks (Ie. not to directly tamp duct banks).

5.13.5 Exposed duct banks should be brought to PUC's attention so that backfilling is completed correctly and with acceptable materials.

5.14 Stray Current (Attaching Water Services to Homes)

5.14.1 The Contractor is advised of a possible electrical safety hazard caused by stray current in metallic water service piping used to ground electrical systems.

5.14.2 The Contractor is advised to consult the Electrical Utilities Safety Rules (EUSR) and to implement appropriate measures to protect worker safety.

5.15 Trenching/Soils/Excavation

5.15.1 The excavation section of O. Reg. 213/91 defines the various types of soils and specifies the type of shoring and timbering to be used for each soil type. It also spells out the requirements for trench support systems that must be designed by a professional engineer.

5.15.2 The type of soil determines the strength and stability of trench walls. Even hard soil may contain faults in seams or layers that make it unstable when excavated.

5.15.3 Identifying soil types requires knowledge, skill, and experience. The supervisor must know about the different soil types found on a project and plan protection accordingly. This knowledge must include an awareness that soil types and conditions can change over very short distances. It is not unusual for soil to change completely within 50 metres or for soil to become saturated with moisture over even smaller distances.

5.15.4 The Construction Projects regulation (213/91) sets out four soil types. If you are unsure about the soil type, have the soil tested to confirm it.

5.15.5 Trenching is a type of excavation that involves digging a narrow and deep hole in the ground, usually for installing or repairing underground utilities or services. Trenching is a hazardous activity that can expose workers to risks such as cave-ins, falls, contact with buried or overhead lines, flooding, hazardous atmospheres, and vehicle or equipment incidents. Therefore, contractors who perform trenching work in Ontario must comply with the legal requirements

and precautions to ensure the health and safety of themselves and others.

5.15.6 According to the Occupational Health and Safety Act (OHSA) and the Construction Projects Regulation (O. Reg. 213/91), contractors who are involved in trenching work must:

5.15.6.1 Notify the Ministry of Labour, Training and Skills Development before starting any trenching work that exceeds $50,000 in value or involves a trench more than 1.2 metres deep into which a worker may enter.

5.15.6.2 Obtain valid locates and mark the location of any underground services or utilities that may be affected by the trenching work, and contact the owners of those services or utilities to ensure they are de-energized or isolated as necessary.

5.15.6.3 Identify and locate any overhead power lines that may pose a risk to the trenching work, and maintain a safe distance from them or request that they are de-energized or insulated as necessary.

5.15.6.4 Identify the soil type(s) and the potential hazards associated with the trenching work, such as cave-ins, flooding, hazardous atmospheres, etc., and conduct a hazard assessment before any worker enters the trench.

5.15.6.5 Implement the appropriate protective measures to eliminate or reduce the hazards, such as sloping, shoring, shielding, ventilation, drainage, personal protective equipment, etc., and ensure that they are designed, installed, inspected and maintained by qualified persons.

5.15.6.6 Provide workers with adequate information, instruction, training and supervision on the hazards, protective measures, entry procedures and emergency plans related to the trenching work.

5.15.6.7 Ensure that workers have access to communication devices, rescue equipment and trained rescuers in case of an emergency, and that no worker performs work in a trench unless another worker is working above ground.

5.15.6.8 Remove any debris, soil or excess water from the vicinity of the trench, and prevent any person from falling into the trench by using barriers, guardrails or covers.

5.15.6.9 Keep records of the hazard assessments, entry permits, worker training and rescue plans

5.16 Soil Regulation (Soil Removal)

5.16.1 As a contractor working on projects involving soil excavation and management, you are required to comply with Ontario Regulation 406/19: On-Site and Excess Soil Management, under the Environmental Protection Act.

5.16.1.1 This regulation sets out rules and standards for the reuse, storage, processing and disposal of excess soil, as well as the tracking and reporting of soil movements.

5.16.1.2 The regulation aims to protect human health and the environment from the potential impacts of excess soil, and to encourage the beneficial reuse of soil locally.

5.16.1.3 You can find more information about the regulation and its requirements on the Ontario government website or on the Canadian Legal Information Institute website.

5.16.1.4 Please ensure that you follow the regulation and its associated documents, such as the Rules for Soil Management and Excess Soil Quality Standards and the Beneficial Reuse Assessment Tool when handling excess soil.

5.17 Hazardous Substances

5.17.1 Most hazardous substances are covered by the WHMIS Regulation (Reg. 860) or the Control of Exposure to Biological or Chemical Agents Regulation (Reg. 833). However, there is a separate regulation for 11 chemical agents that have been classified as "designated substances." The Designated Substances Regulation (Reg. 490) regulates exposure to designated substances in the workplace and outlines different ways to control the hazards posed by those substances.

5.17.2 A designated Substance is defined as a biological, chemical or physical agent or combination thereof prescribed as a designated substance to which the exposure of a worker is prohibited, regulated, restricted, limited, or controlled.

5.17.3 Any instance where the Contractor may be in proximity to designated substances as a result of working on or in proximity to PUC electrical plant, the Contractor shall comply with PUC's policies and procedures. (06-09 Designated Substance Assessment and Hazardous Material Control Procedures and 06-10 Hazardous Material Control and Emergency Preparedness Plan).

5.18 Confined Spaces

5.18.1 Contractors working on projects that involve entering or working in confined spaces, are required to comply with Ontario Regulation 632/05: Confined Spaces, under the Occupational Health and Safety Act.

5.18.1.1 This regulation defines a confined space as a fully or partially enclosed space that is not both designed and constructed for continuous human occupancy and in which atmospheric hazards may occur because of its construction, location or contents or because of work that is done in it.

5.18.1.2 The regulation sets out the duties and obligations of employers, supervisors, workers and other parties involved in confined space work, such as conducting hazard assessments, developing entry plans, providing training and equipment, and ensuring adequate rescue procedures.

5.18.1.3 The Guideline for Working in Confined Spaces can be used as a tool as well as PUC's Confined Space Entry Program.

5.18.2 Expectations include:

5.18.2.1 Identifying and evaluating the potential hazards that may exist or develop in a confined space, and the measures to control them;

5.18.2.2 Obtaining a written entry permit that documents the completion of the hazard assessment and the authorization for entry;

5.18.2.3 Implementing the appropriate control measures to eliminate or reduce the hazards, such as ventilation, isolation, lockout, personal protective equipment, etc.;

5.18.2.4 Providing workers with adequate information, instruction and supervision on the hazards, control measures, entry procedures and emergency plans;

5.18.2.5 Ensuring that workers have access to communication devices, rescue equipment and trained rescuers in case of an emergency;

5.18.2.6 Identifying the lead employer if more than one contractor is working in the space; and

5.18.2.7 Keeping records of the hazard assessments, entry permits, worker training and rescue plans

I have read and taken the opportunity to seek clarification and ask questions as necessary. My signature below acknowledges that I understand my obligations as a contractor for the PUC, and agree to comply with all applicable provisions.

_____	_____	_____	_____
Contractor	**Name**	**Signature**	**Date**