System Engineering
Engineering Services

935 de la Gauchetière Street West
Montreal, Quebec
H3B 2M9

WORK PERMIT APPLICATION
Recoverable

For Railway Use Only:

Mile: _____
Sub: _____
Location: _____
CN Ref. #: _____
Cust. Ref. #: _____

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SECTION A: INSTRUCTIONS & PERMIT FEES

Instructions

Definitions:
"CN" and "Railroad" refers to Canadian National Railway Company or such of its affiliates or associates (within the meaning ascribed to those terms under the Canada Business Corporations Act) to whose property this Authorization and Consent relates.

"Applicant" refers to public road authority, company or individual that is requesting authorization and consent to perform work on or adjacent to CN property and/or requesting flagging services.

"Contractor" refers to authorized employees, servants, agents, contractors or sub-contractors representing or working on behalf of the Applicant.

Complete the Work Permit Application as follows:

1. Complete Section B, "Applicant & Work Information" (page 3)
2. Complete Section E, "Right of Entry for Contractors" (page 12)
3. Read and initial each page of the Work Permit Application (page 1 to 47)
4. Provide signature in Section G, "Agreement and Authorization" (page 47)

Return the following:

1. Pages 1 through 47 of the completed Work Permit Application
2. Required documents as per Section C, "Terms and Conditions" Paragraph 2
3. Proof of Insurance, as per Section E, "Right of Entry for Contractors"
4. Payment for the Permit Fee
5. **Please return all of the above to the following address**:

Megan Whalen

Design and Construction
1 Administration Road,
Concord, ON, L4K 1B9

Permits.gld@cn.ca

Ensure that all personnel have completed their Contractor Orientation Course before entering CN ROW (www.contractororientation.com)

Upon receipt of the signed documents, CN will provide contact names and numbers to the Applicant to arrange for required work.

Rates & Billing Information (2019)

Where applicable, HST/PST/GST will be added to the prices described on this page.

Application Fees*

Permit Fee	$1350.00 (Invoiced)____

Flagging and Cable Locate/Protection Costs*

FOR RECOVERABLE PROJECTS ONLY (R or M networks)– ACTUAL PRICING
Flagging and locates will be charged per hour based on actual labour rates plus applicable overheads and per diems. The time charged will consist of on-site hours (including set-up time) in addition to the travel time to and from the site.

The daily time invoiced per employee will be rounded up to the next full hour.

Disclaimer – The above rates are on a "per worker/ per day" basis.

Notification Delays

- CN requires 10 working days notice for flagging / signal protection services.
- CN requires 10 working days notice for cable locates.
- **CN requires two (2) business days' notice to cancel scheduled work. Notice must be given in writing via email. Cancellations received without the required notice will be invoiced at the minimum daily rates.**

Penalties/Additional Fees*

If work is performed without any CN flagman being present or without proper locates, an amount of $5,000 per incident shall be billed to the Applicant as a penalty. Penalties will also be issued for any practices deemed as unsafe per railroad safety requirements. Safety is necessary to ensure that no worker and/or passerby is/or will be in any danger.

If one or more trains are delayed, Applicant must pay to CN, under title of Damages of Liquid Assets and not under title of penalties, the following amounts depending on the situation:

- Passenger Trains: $2,500 per delay + $25 per minute of delay
- Freight Trains: $200 per minute of delay
- Each train delay can lead to additional costs that you will be responsible to pay

Fees are subject to yearly changes without notification

CN Tax Registration Information

- CN GST/HST Registration Number 10076 8779 RT0001
- CN QST Registration Number 10000 43156 TQ0514

SECTION B: APPLICANT & WORK INFORMATION

ROAD AUTHOURITY / COMPANY: _____
("Applicant")

BILLING ADDRESS: _____
_____
_____

CONTACT ADDRESS: _____
_____
_____

PHONE NO.: _____
FAX NO.: _____
EMAIL ADDRESS: _____

NAME OF SUB-CONTRATOR: _____
(if applicable)
FIELD CONTACT: _____
MOBILE PHONE: _____

1. DESCRIPTION AND LOCATION OF WORK (including details of *all excavations* on or adjacent to the CN right-of-way):
   _____
   _____
   _____

   WARNING - CN right-of-way contains buried communication, power and fibre optic lines. Cable locates by CN Signals and Communications personnel and implementation of appropriate protective measures are mandatory prior to all excavations.

DATE(S) WORK TO BE PERFORMED: from _____ to _____ .

N.B. Actual date(s) of work will be dependent upon availability of CN flagging and cable locates / protection.

SECTION C: TERMS AND CONDITIONS

With reference to this submission and attached prints of drawing number , dated / revised , CN has no objections, in principle, to the proposed work subject to the following conditions.

Prior to the commencement of work:

1. The Applicant shall:

1.1. Execute the attached Application and submit the required documentation and payments (including applicable taxes)as per Section A "Instructions & Permit Fees" of this application.

1.2. Read and be aware of "CN Safety Guidelines for Contractors and Non-CN Personnel" (See Section D) and for underground installations only, "SCP-1005 Instructions to Excavators for the Protection of Underground S&C Cables" (See Section F).

2. The Applicant's shall:

2.1. Submit a detailed proposal for (i) construction methodology and (ii) ground surface and subsurface monitoring program. Drawings shall be stamped and signed by an Engineer licensed in the Province where the work is being performed. CN reserves the right to prohibit a certain construction methodology, at its own discretion; however, CN shall not assume any responsibility for the suitability of the accepted method. Open cut methodology shall only be considered where other installation techniques are deemed impractical and where rail traffic volumes are low. Installations using water jet methods shall not be permitted.

2.2. Submit a contingency plan and notification procedure to be implemented in the event of excessive/unexpected settlement or heave, and unforeseen changes in subsurface conditions, i.e. cobbles and boulders, ravelling /flowing ground.

2.3. Submit a dewatering plan

2.4. Submit a purchase order reference to cover Engineering & Geotechnical review, flagging, cable locates and all other associated to this Application. The amount of the purchase order shall be for $, based on your estimated work duration of weeks. Additional purchase order authority shall be required should work extend beyond the estimated timeframe.

2.5. Submit a Geotechnical Report prepared by a Geotechnical Engineer with experience in trenchless technology. The Report shall include (i) comments and recommendations with respect to construction methodology, (ii) an estimate of the expected extent and magnitude of ground movement over time, (iii) measures to be undertaken to preserve the safety of rail operations and the structural integrity of the track structure, and (iv) a detailed proposal for ground surface and subsurface monitoring.

2.6. Provide, in writing, the name and phone number of the Applicant's qualified site inspector who will be on the job site on a full time basis for the duration of construction.

2.7. If there are fibre optic cables buried within the ROW, the Contractor shall submit details on the type of equipment to be used for pile driving, and estimate the vibrations that will be induced at ground level during operation.

2.7.1. The Contractor may be required to monitor vibrations levels during pile driving operations, for which the Contractor shall submit a procedure and the type of monitoring equipment to be used.

2.7.2. Induced vibrations shall be limited to a maximum peak particle velocity (PPV) of less than 100mm/sec (measured in 3 mutually perpendicular directions taken at tie level / ground surface). And induced amplitude of movement shall be less than 0.2mm

2.7.3. Notwithstanding any prior approved procedures, or allowable levels of PPV ground vibrations, should CN or the fibre optic companies deem pile driving operations to be a risk / harmful to their buried cables, the procedures for pile installation shall be abandoned and new procedures designed so as to minimize the impact to the fiber optic cables, to the satisfaction of CN and/ or the fibre optic campany(s).

2.8. A CN flagperson shall be present at all times when work progresses within the CN right-of-way, unless otherwise approved by CN. The presence of a flagperson in no way relieves the Applicant from liability for damage or disruption to CN property, infrastructure or operations caused by the actions of the Applicant, or the agent acting on its behalf.

2.8.1. At least one (1) flagperson per day shall be available for a maximum eight (8)-hour Contractor working day, which may be reduced at the discretion of CN. Overtime and weekend work shall not be permitted, unless otherwise approved by CN.

2.8.2. All personnel working within the CN right-of-way, including truck drivers, material supply drivers and service providers shall attend, record and acknowledge understanding of the daily briefing session with the CN flagperson prior to the commencement of any work within the right-of-way.

2.8.3. Work may be ceased under the authority of the CN flagperson at any time to accommodate train movements.

2.8.4. Once the installation is complete and the CN flagperson is discharged, the Applicant and its agents shall not be permitted on CN property for the purpose of collecting data for ground surface and subsurface monitoring. This monitoring shall be observed from outside the CN right-of-way.

3. The Applicant's site inspector shall:

3.1. Be responsible to act on behalf of the Applicant. CN reserves the right, at its sole discretion, to assign a full time site representative of its choice at the Applicant's expense, notwithstanding the requirement of the Applicant to assign their own, qualified inspector.

3.2. Provide a written report to CN on the progress of the trenchless installation on a daily basis. The installation shall be inspected on a continuous basis to ensure:

3.2.1. Installation is in compliance with the Contractor's procedures.

3.2.2. Over-excavation does not occur, and the liner / casing is installed tight to the excavation. Report theoretical vs. actual volumes of spoils removed to CN.

Once work has begun, boring or jacking works within 3 meters of a railway track must be continued without interruption (24hrs /24hrs)

3.2.3. The roof of the excavation is fully supported at all times until the liner / pipe installation is complete.

3.2.4. The bulkhead is installed at the end of every work shift or during any prolonged stoppage of work.

3.2.5. Voids are fully grouted to refusal immediately after the completion of liner / pipe installation. Report theoretical vs. actual volumes of grout pumped to CN.

3.3. Submit ground surface and subsurface monitoring reports to CN on a daily basis, showing a comparison to baseline readings taken prior to the commencement of construction. Settlement of 10 mm or greater shall be reported to CN immediately.

3.4. Any problems or issues related to the installation, including changes in subsurface conditions, shall be reported to CN immediately.

4. **Under no circumstances shall the excavation be unsupported at any time**. For jack and bore operations, the cutting head of the auger shall never be advanced ahead of the casing pipe, and shall be recessed inside the casing for a distance of at least one (1) pipe diameter. If work cannot proceed for any reason with the auger inside the casing pipe, work shall

cease immediately and alternative methods of installation, such as pipe ramming, shall be reviewed with the Applicant's geotechnical consultant and CN.

5. During construction, the Applicant shall maintain positive drainage of Railway property. After construction is completed, the Railway's right-of-way shall be restored to its original condition and to the satisfaction of the Railway. Any fencing removed to facilitate construction shall be restored.

6. The Applicant shall be liable for all costs, direct and indirect, incurred by CN due to the settlement of track(s) or any other problems related to CN's operations, property or infrastructure, that occur as a result of this work, for a period of one (1) year from the date of completion of the work.

6.1. Should CN be unable to maintain normal operating speed during installation or within a period of one (1) year from the date of completion of the work, the Applicant shall be responsible for the cost of train delays resulting from the train slow order, and shall be assessed a daily penalty as per the rates established in calculated according to the rates in Section A until such time as normal operating speed is resumed.

6.2. CN, at its option, may undertake the necessary measures to ensure safety, at the risk and expense of the responsible party.

6.3. The Applicant shall be responsible for the cost of flagging and cable locates / protection work. The cost of flagging and cable locates / protection work shall be based on actual time on site, calculated according to the rates in Section A.

7. Payment terms and conditions:

7.1. Payments shall be made at CN's remittance address indicated on the invoice and is due 30 days after invoice date.

7.2. CN reserves the right to charge and be paid interest on all sums due from the Customer at the rate of 12% per annum compounded monthly, calculated from the date upon which payment is due until the date upon which it is received. Invoices are payable in full without set-off retention or counterclaim.

7.3. CN reserves the right to invoice Goods and Services upon delivery, regardless of whether other Goods or Services remain outstanding or not. The Applicant understands and accepts that failure to adhere to the payment terms and conditions may result in the termination of part or all services provided by CN, recuperation of goods sold, and escalated collection and legal procedures.

7.4. The Applicant acknowledges and agrees that all decisions with respect to the extension, continuation and termination of credit shall be at the sole discretion of CN.

7.5. Chargeable labour hours for CN personnel are tabulated through CN's time-keeping and payroll system, and are maintained electronically. The Applicant waives any right to acquire timesheets for labour hours charged.

SECTION D: SAFETY GUIDELINES FOR CONTRACTORS AND NON-CN PERSONNEL

Introduction

This document is a condensed version of CN's mandatory safety training for Contractors and non-CN personnel. It should be noted that this document is not a substitute for the mandatory safety training for Contractors and non-CN personnel including eRailsafe or Contractor Orientation as the case may be. For the purposes of this document "Contractor" may also apply to individuals on CN property, whether under contract to CN or not.

These guidelines are not to be considered as a substitute for the applicable government regulations. These guidelines are the minimum requirement and must be exceeded where the hazard or government regulations warrant.

It is not possible to deal with every hazard in this one document. These guidelines are to be employed in conjunction with Government Acts, Regulations, local Ordinances, CN Safety and Operating Rules Standards, and good judgment to facilitate the safe completion of the work.

Additional information regarding safe work practices may be included in contract documents and specifications. In the event of a discrepancy between these guidelines and the contract, the contract shall govern.

GENERAL RULES AND INFORMATION

"Expect the movement of a train, engine, rail car or track unit at any time, on any track, in either direction. Protect yourself and others from the movement of trains, engines, railcars and track units and do not expect them to stop."

If any situation arises which affects the safe movement of trains, CN must be contacted immediately at:

1-800-465-9239.

Alternatively, contact CN's Network Operations Centre in Edmonton at:

1-800-661-3963.

Before any digging is performed on CN property, proper clearance and instructions must be obtained through the Information Technology Command Centre (ITCC Network Management Centre) at:

1-800-661-3687 or 1-800-NO1-FOTS.

In an emergency, any object waved violently by anyone on or near the track is a signal for trains to stop.

Violation of CN's mandatory Contractor Safety training or contravention of these guidelines may result in the immediate removal of the Contractor or the offending personnel from CN property.

Compliance with Government Regulations

Contractors shall follow all applicable Federal, Provincial, and Municipal Acts, Regulations, Laws and Codes, including but not limited to those related to the licensing of workers, occupational health and safety, transportation or handling of dangerous substances, inspection and certification of equipment. As CN is a federally regulated enterprise, Contractors are advised that work undertaken on CN right-of-way may be governed by Federal regulation.

The Contractor must become familiar with all applicable regulations and must ensure compliance by workers at the job site. Supplementary instructions may be issued by CN representatives from time to time.

Contractor's Responsibility

1. Before entering upon CN right-of-way, the Contractor must have all documentation properly executed and available for review by CN personnel at the working site. (i.e. Permits, Licenses, Contract Documents, Contractor Safety Approved identification card and/or Waivers).
2. Daily briefings must be held at every work site to review the contents of these guidelines and any unique conditions at the site relating to safety. A record must be kept of such briefings by the Contractor's responsible person at the work site. Work site briefings must be updated regularly as the job conditions change
3. Unless explicitly permitted by CN, no equipment or vehicle may enter upon the operated right-of-way.
4. Unless explicitly permitted by CN, no work shall take place within thirty (30) feet of the nearest rail except in the presence of a CN Protecting Foreman. The CN Protecting Foreman is concerned only with the safe movement of trains and will not be responsible for the safety of the Contractor, the Contractor's personnel or the Contractor's equipment.
5. Contractor's personnel must not crawl under, climb over or pass through standing railway equipment.
6. Contractor's personnel must not cross a track within thirty (30) feet, of standing railway equipment.
7. CN has many power and/or communication cables buried within the CN right-of-way. The Contractor shall be sure of their location before making any excavation, driving stakes or otherwise penetrating the ground surface. In the event of any excavation work that strikes an underground cable adjacent to CN's track, the contractor must make immediate contact with CN
8. In accordance with CN's safety standards, Contractor's personnel must wear CN required personal protective equipment at all times while on CN right-of-way. Such equipment will include hard hats, safety glasses, reflective apparel, safety footwear (protective footwear shall meet or exceed CSA Z195 and/or ASTM F2413, shall cover and support the ankle and have a defined heel. In Canada, the defined heel must be a minimum of 9 mm (3/8 inch) and shall not exceed 25 mm (1 inch). In the US, the defined heel must be a minimum of 12 mm (1/2 inch and shall not exceed 25mm (1 inch). Boots must be equipped with laces, which must be laced to the top and tied. Hearing and respiratory protection and fall arrest equipment shall be worn where signs are posted or when a potential hazard exists.
9. No CN plant, signal, structure, equipment or property of any kind may be tampered with, modified or removed.
10. "Hi-rail" equipment shall only be operated on the track by personnel qualified in the latest version of the "Canadian Rail Operating Rules".
11. Horseplay, practical jokes, fighting or any other activity that may create a hazard will not be tolerated.
12. Contractor's personnel must immediately abide by instructions from CN personnel.

Approaching Train

1. On the approach of a train, the Protecting Person will communicate to the Contractor's Responsible Person, either by radio or by personal contact, that a train is approaching.
2. After receiving the train information from the Protecting Person, the Contractor's Responsible Person must ensure that all workers, equipment and materials are "Clear Of The Track" (as defined in 5.3.5. below) then communicate this to the Protecting Person.
3. The Protecting Person will not authorize any trains through the working limits nor authorize cancellation of protection before receiving confirmation that all workers have been alerted, stopped working and the track is clear of workers and machinery.
4. After the train has passed, no one is to foul or occupy the track until the Protecting Person has given the authorization. Authorization will be communicated to the Contractor's Responsible Person.

Clear Of The Track

To be Clear of the Track shall be defined as:

1. All work has been stopped.
2. All workers are made aware of the approaching train and route to be followed.
3. All workers, equipment and material have been positioned beyond the clearance limits or at any other location deemed safe by CN. (at least 5 meters (15 feet) from the nearest rail of the track on which the train is to pass with additional allowances for curvature and super elevation).
4. All off-track equipment by special approval less than 5 (15 feet) meters of the nearest rail has stopped working and operators have left their equipment.
5. All off-track equipment more than 5 meters (15 feet) from the nearest rail has stopped working. Operators may remain in their cabs unless directed otherwise by the Contractor's Responsible Person. All equipment must be properly secured against unintentional movement
6. All on-track equipment has been moved into the siding or other track as per the Protecting Person's instruction. Operators will leave their equipment unless directed otherwise by the Contractor's Responsible Person. All unattended equipment must be properly secured against unintentional movement
7. Booms, cranes or other similar equipment have been immobilized and the boom is parallel to the railway track(s), and clear of the nearest rail be 5 meters (15 feet)
8. Provided there is no possible way for the worker to become unintentionally foul of a passing train, and at the discretion of the CN Supervisor, workers may continue working.

POLICY TO PREVENT WORKPLACE ALCOHOL AND DRUG PROBLEMS

Policy standards

The Contractor, subcontractors, employees, suppliers and visitors must remain free from any adverse effects of alcohol or other drugs and conduct themselves in an appropriate manner while on CN business or premises. The Contractor must ensure that all those having access to the site adhere to the following standards when on CN business or premises, including vehicles and equipment:

1. No use, possession, distribution or sale of illegal drugs or drug paraphernalia.
2. No use, possession, distribution or sale of beverage alcohol or any form of alcohol.
3. Responsible use of prescribed and over-the-counter medications.
4. No distribution, offering or sale of prescription medications.
5. To report for duty and remain during the entire period of duty free of the negative effects of alcohol and other drugs, including the after effects of such use.

Consequences of violation

Failure to meet these standards will be considered a breach of the contract. This may at CN's sole discretion, trigger the suspension or termination of the contract.

Policy violation procedures

Where CN has reasonable grounds to believe any individual in the employ of the Contractor or a supplier is on duty in an unsafe condition or otherwise in violation of the Policy, or where during the preliminary phase of any investigation such an individual has been identified as being directly involved in the chain of acts or omissions leading up to an accident or incident:

1. CN will escort the individual(s) to a safe place.
2. CN will notify the Contractor or supplier.
3. The Contractor will investigate the situation.
4. The Contractor must satisfy CN that there has been no policy breach.
5. If a policy breach has occurred, the individual will not be allowed to continue providing services to CN without written permission from a CN official, and he/she will be required to adhere to any conditions governing his/her return.

Firearms

Firearms (loaded or empty) are not permitted on CN property, except for CN Police officers and other designated persons performing authorized work and when authorized to do so. In all cases, any firearms must be accompanied with a written authorization from the Chief of CN Police and the person should have in his possession all pertinent government permits.

Explosives

No explosives will be permitted on CN property without written CN approval.

Vehicles

Contractor's vehicles on the site must be in safe operating condition. Operators must observe all site speed limits. Unattended vehicles must not be left running unnecessarily. Where they must be left running, the parking brake must be applied. The operator is responsible for the safety of all passengers and the stability of materials being transported.

All vehicles will be parked in a pre-determined area and where required, a designated Contractor entrance shall be used.

Smoking in the Workplace

Smoking is not permitted in any CN interior workplace or motor vehicle.

Security

Contractor's personnel will proceed directly to the Contractor's work location. Contractor's employees must remain at their designated work site and must not wander about the site.

The Contractor shall not permit persons other than the Contractor's personnel to enter the site without the prior written authority of the CN representative.

Emergency Evacuation Procedures

Prior to commencing work, all Contractor's employees must be familiar with the emergency evacuation plan for that work site. The Contractor shall issue written emergency and rescue procedures to the Contractor's personnel and shall post such procedures on the job site.

Unsafe Conditions or Practices

Contractors shall correct or report any unsafe conditions or practices they observe. All such conditions or practices shall be reported to the CN representative at the work site as soon as practical.

Reporting Accidents/Incidents

All accidents/incidents occurring on CN property, that result in or had the potential of causing serious injury, lost work days, vehicle or property damage must be reported to the CN representative within twenty-four (24) hours. All such incidents will be fully investigated by the Contractor.

The Contractor shall subsequently provide a written report to CN (i.e. Company Officer assigned as Liaison to Contractor) within seven (7) days detailing the nature of the incident, the cause(s), regulatory authorities notified, and a specific action plan to prevent recurrence.

Treatment of Injured Personnel (Contractors)

Contractors shall ensure the following is provided for their personnel as required by CN and in accordance with applicable government regulations:

1. Adequate first-aid supplies and equipment.
2. Qualified personnel to render first-aid treatment.

Audio and Visual Recording Equipment

Cameras and audio-visual equipment are not permitted on CN property without prior approval. Use of personal electronic devices such as smart phones for the purpose of recording video, photographic or audio information is prohibited while on CN property.

Summary

In conclusion, CN requires the full cooperation of the Contractor and the Contractor's employees with these guidelines and all other applicable regulations. Should there be any doubt as to the meaning or interpretation of these guidelines, consult with the CN representative responsible for the worksite.

Contractor Acknowledgement

Contractor/Sub-contractor personnel must read and understand CN's "Safety Guidelines for Contractors and Non-CN Personnel". The Contractor/Sub-contractor must also follow the appropriate Contractor Safety training.

SECTION E: RIGHT OF ENTRY FOR CONTRACTORS

Right of Entry

General Conditions

1. "Railroad" refers to Canadian National Railway Company or such of its affiliates or associates (within the meaning ascribed to those terms under the *Canada Business Corporations Act*) to whose property this Right of Entry relates.

2. This Agreement is entered into as described in Section G "Agreement and Authorization" of this document (page 47).

3. The Railroad, solely to the extent of its right, title and interest, without any warranty, expressed or implied, at law, under contract or otherwise, hereby grants to Company and its authorized employees, servants, agents or contractors, authorization and consent to enter upon the property described under Schedule "A" hereto (the "Railroad property") for the sole purpose described under Schedule "A" hereto. This Right of Entry shall only extend to such actions as are necessary or required to fulfill the purpose described under Schedule "A" hereto.

4. This Right of Entry shall terminate forthwith upon expiration of the term noted in Schedule "A" hereto, it being understood that Railroad shall have entire discretion to revoke this Right of Entry at any time prior to the expiration of the term, upon notice to that effect to the Company, which notice shall be effective forthwith upon receipt by the Company or at such later date indicated by Railroad in the aforesaid notice.

5. The Railroad grants this consent subject to the understanding that Company and its authorized employees, servants, agents or contractors who enter upon Railroad property will:

    5.1. See that any activities conducted on said Railroad property are done in a good workmanlike manner, in compliance with applicable laws, statutes, regulations, policies, directives, orders, approvals and other legal requirements and in such manner and at such time as not to obstruct or interfere with Railroad's operation, trains or the functioning of its signal and communications systems or any fiber optic cable system or unduly delay the safe passage of Railroad's trains;

    5.2. For the purposes hereof, the following expressions shall have the meanings hereinafter noted:

        5.2.1. "Applicable Laws" means the applicable and enforceable statutes, regulations, policies, directives, orders, approvals and other legal requirements of an Authority or of the common law in effect from time to time, including, without limitation, those, together with the guidelines of an Authority, relating to the protection, conservation or restoration of the natural environment;

        5.2.2. "Authority" means the federal, provincial, municipal, state, county and, generally local governments, the courts, administrative and quasi-judicial boards and tribunals and any other organizations or entities with the lawful authority to regulate, or having a power or right conferred at law or by or under a statute;

    5.3. Observe, abide by and comply with any and all guidelines, directives and policies adopted from time to time by Railroad including, without limitation eRailsafe, Contractor Orientation (as the case may be).

    5.4. Take due precautions against injury and damage to persons or property located upon said Railroad property; and

    5.5. Unless otherwise agreed to, return said Railroad property to the same condition, reasonable wear and tear excepted, as existed prior to such work, failing which Railroad, after providing written notice to Company, and allowing Company a reasonable amount of time to return the Railroad property to the same condition, may do so at Company's sole cost and expense.

Work

6. Any work carried out by Company shall be carried out at those locations described in Schedule "A" or shown on the Plan attached hereto as Schedule "B" and, as the case may be, in the manner described therein.

7. Company agrees to advise Railroad's representative identified in Schedule "A" hereto (the "Representative") or such other representative designated from time to time by Railroad as to the dates and times when the work will be conducted on Railroad property and to provide him with at least ten (10) working days advance notice before entering upon Railroad property to commence any work or for any other purpose. Unless otherwise agreed to in writing, Company agrees to assume the costs of engineering services, Railroad's Representative's costs and its designee, signal locates, flagman, track labor and all other associated costs incurred by Railroad. Railroad shall, at its option, invoice Company directly for such costs or, if any of those services have been provided by a third party, Railroad may direct such third party to invoice directly Company, in which case Company undertakes and agrees to pay such third party forthwith upon receipt of (i) Railroad's direction to pay such third party; (ii) proper invoice for the relevant services.

8. The Railroad, its employees, agents or representatives shall have the right to view and inspect any activity or work on Railroad's property. If, in the sole opinion of Railroad, any activity or work is undesirable for any safety-related reason, Railroad shall notify Company, its authorized employees, servants, agents or contractors and if appropriate corrective action is not taken, Railroad shall have the right to terminate this Agreement at once.

9. Railroad shall have the right to restrict Company's activity on Railroad's property in any way that Railroad may deem necessary from time to time to assure normal railroad operations or for safety reasons and, after consultation with Company, shall also have the right to require Company, its authorized employees, servants, agents or contractors to comply with Railroad's instructions and take any safety precautions that Railroad may reasonably deem necessary from time to time. No work shall be performed or equipment located within thirty (30) feet of the centerline of the nearest railroad track without flagging protection being provided by Railroad, at the Company's expense or as otherwise agreed to in writing. Said work must be arranged no less than ten (10) business days in advance of starting work.

10. Company shall not suffer or permit any construction lien or similar lien to be filed or registered against Railroad property. If such a lien shall at any time be filed or registered, Company shall forthwith procure its discharge at its sole costs and expenses. Railroad shall have the right, if Company fails to forthwith procure such discharge, to discharge any lien filed or registered at any time against Railroad property, and any amount paid by Railroad in so doing together with all reasonable costs and expenses of Railroad including its legal fees and costs shall be paid to Railroad by Company on demand.

Confidentiality

11. Company covenants and agrees that any information of whatsoever nature (whether such information is written, verbal or otherwise), relating to Railroad, its operations, properties, business, assets, liabilities and financial condition (together with any and all memoranda, notes, reports, documents based upon and relating to such information, all copies and extracts thereof and all studies and data prepared on the basis of such information), is strictly confidential and Company represents and warrants that neither Company nor those for whom it is responsible at law will release the reports or any of the information contained therein (including to any Authority), without the express written consent of Railroad, and Company shall refuse all requests for such reports or information in the absence of Railroad's express written consent, unless compelled to do so by competent judicial or administrative authority and only to the extent that (i) Company gives Railroad timely notice of any proceeding and/or hearing related thereto; and (ii) Company has taken no action that would hinder Railroad from seeking a protective order to prevent such disclosure of its confidential information. Company further undertakes and agrees to share with Railroad, at no cost to Railroad, any and all conclusions, studies, reports or data incorporating, based upon or relying on any such information.

Indemnity

12. Company shall indemnify and hold harmless Railroad from any losses, liens, damages, liability, and expenses ("Damages") incurred by Railroad arising from Company's, or its employees, agents, contractors or sub-contractors', breach of its obligations or warranties under this Right of Entry; any third party claims associated with or arising under this Right of Entry; or Company's access to Railroad's or Railroad's affiliates' premises. In the event that Railroad has incurred Damages,

Railroad shall notify Company and Company shall indemnify Railroad for the Damages and defend and hold harmless Railroad against any third party legal claims associated with the Damages. No third party claim may be settled without the consent of Railroad, which consent shall not be unreasonably withheld.

Insurance

13. Company, its contractors or any sub-contractors shall each provide and keep in force and effect throughout the term of this Right of Entry such insurance, in amounts and for risks as Railroad may prescribe from time to time including, if applicable, the kinds and minimum amounts of insurance set out under Schedule "C" – "General requirements".

14. If Company, its contractors or any sub-contractors shall perform sub-surface work, Company, its contractors or any sub-contractors shall also provide and keep in force and effect throughout the term of this Right of Entry the additional insurance specified under Schedule "C" – "Sub-Contractor Insurance Coverage".

    The Company, its contractors or any sub-contractors will not enter Railroad property without having obtained a certificate certifying that they have obtained all of the insurance coverage required hereunder. The Railroad may at any time require the Company to furnish said certificate and failure to so may result in removal from Railroad property, cancellation of agreement and other consequences including without limiting damages or consequential losses resulting from the non-completion of the work, as Railroad may determine. Said insurance shall state that no material changes will be made to the policies unless Railroad is given a prior written notice of thirty (30) days before such change or cancellation. Any insurance coverage required under the terms and conditions of this contract shall in no manner restrict or limit the liabilities assumed by Company nor shall they release Company from any of its obligations under this contract.

Exceptions

15. Any exception or variation to the terms and conditions of this Right of Entry shall be specifically identified in Schedule "A" hereto. No such exception or variation shall be binding upon Railroad unless Schedule "A" is properly initialed by Railroad's duly authorized representative(s).

Miscellaneous

16. Company shall not have the right to transfer and/or assign this Right of Entry or any of its rights hereunder without Railroad's prior written consent, which consent Railroad shall have entire discretion to withhold or delay.

17. All notices provided for under this Right of **En**try shall be in writing and sent by pre-paid registered mail, fax or hand-delivered to the other party at the addresses herein first noted or at such other address as either party may notify the other from time to time.
    Such notices, if given by mail, shall be deemed to have been received on the third business day following the postage thereof; if by fax or hand delivery, at the date and time the fax is sent or the hand delivery is made.

18. Either party's exercise or failure to exercise any rights under this Agreement shall not relieve the other party of any responsibility under this Agreement.

19. In the event of conflict between the terms hereof and the terms of any other agreement between Railroad and Company, the most stringent standards and conditions shall govern.

20. This Right of Entry shall be governed by the laws of the jurisdiction where Railroad property accessed under the authority hereof is located, as noted under Schedule "A" hereto.

Schedule A: Information

Railroad Property _____

_____

_____

_____

_____

Limited Access Purpose For the limited purpose of [insert detailed description]:

_____

_____

_____

_____

_____

Term A term of _____ [number of days / months / years], beginning on [commencement date] _____ and terminating on _____ [termination date], unless sooner terminated as provided hereunder.

Representative
(name and address) _____

_____

_____

_____

_____

Schedule B: Plans

(Appended hereto)

****

Schedule C: Insurance

General Requirements

To the extent Company carries out work on its behalf or on behalf of Railroad, the Contractors or the Sub-contractors shall, throughout the term of this Right of Entry agreement, maintain in force the following coverage. The insurance limits may be met by a combination of primary and umbrella insurance policies.

1) **Commercial General Liability Insurance** - occurrence based - in an amount no less than **$10,000,000** per occurrence, or such greater amount as Railroad may from time to time reasonably require, covering liability for bodily injury, including death, property damage or destruction of property (including loss of use), contingent employers liability, sudden and accidental pollution, product and completed operations, broad form property damage, non-owned automobile, blanket contractual liability, and unlicensed vehicles on and off premises owned or controlled by the owner.

   Company shall provide to Railroad a certificate of insurance evidencing the above and include:
   a) a waiver of subrogation in favour of CN and its subsidiaries;
   b) name CN and its subsidiaries as additional insured;
   c) contain a cross liability and severability of interest clause ;
   d) specifically include liability for operations within or around railroads and railway tracks;
   e) contain a clause stating that CN's interests will not be prejudiced in the event the First named insured breaches any warranty of the policy;
   f) provide a 30 days written notice of cancellation, modification or material change in coverage.

2) **Automobile Liability Insurance** on all licensed vehicles owned, hired, leased to or operated by or on behalf of the Company's contractor in the amount of not less than **$5,000,000** per occurrence. The certificate of insurance must include a waiver of subrogation in favour of CN and its subsidiaries.

3) **Workers' Compensation -** if available in the jurisdiction(s) covered by this Agreement, Company must be compliant with statutory Worker's Compensation and hold the relevant clearance letter(s). Otherwise, Company must provide Employer's Liability Insurance in an amount no less than **$5,000,000**.

WHERE APPLICABLE, THE FOLLOWING COVERAGES ARE TO BE PROVIDED IN ADDITION TO THE ABOVE

- **For professional advice or design (architects/engineers/inspectors/training, etc.)**

4) **Professional Liability Insurance/Errors and Omissions** (incl. Pollution Liability) with a limit of no less than **$5,000,000**.

- **For contractors leasing large machinery and equipment**

5) **All Risks Contractor's Equipment Insurance** covering construction machinery and equipment used by the Contractor and Sub-Contractors for the performance of the Work, as any structures being built or assembled, shall be in a form acceptable to the Contractor and Railroad and shall not allow subrogation claims by the Insurers against the Contractor and Railroad. The policy shall be endorsed to provide the Contractor with no less than 30 days written notice in advance of cancellation, change or amendment restricting coverage.

- **For building construction**

6) **All Risk Builders Insurance / Course of Construction Insurance** must be provided if required, in order to cover the construction of the building, the building foundations, fixtures, machinery, equipment used to service the building, building materials and supplies, and debris removal in the event of a loss.

- **<u>For construction projects estimated at $5,000,000 and more (ex.: rail, bridges, roads, structures, buildings)</u>**

7) **Project Wrap-Up Liability Insurance** subject to limits of not less than **$25,000,000** per occurrence. Such insurance shall be in the joint names of the owner and contractor and name as additional insures all subcontractors and consultants. The Wrap-Up Liability insurance shall include, but is not limited to: bodily injury including death and property damage including loss of use; personal injury; contractual liability; premises and operations; products and completed operations liability coverage extension of twenty-four (24) months; contingent employers liability; shoring, blasting, excavation, underpinning, demolition, pile driving, caisson work and work below ground surface including tunnelling and grading; non-owned automobile; limited pollution coverage (Insurance Bureau of Canada Form 2313); non-cancellable or at least 120 days notice of cancellation, contingent medical malpractice; and fire fighting expense. This insurance policy shall be the primary insurance coverage in all cases for all risks of liability associated with the operations of this project. The policy shall be in force from commencement of work until substantial completion and include coverage for unfinished construction, maintenance and repair for a period of 12 months following substantial completion.

Schedule D: Undertaking by Contractor

I hereby undertake to respect the attached CN Policies and to ensure that they are respected by my workers, subcontractors and suppliers and visitors.

I also hereby acknowledge that I have received a copy of said documents.

WSIB/CSST EMPLOYER NUMBER:

CONTRACTOR'S NAME:

AUTHORIZED REPRESENTATIVE:

TITLE:

Signature: _____

Date: _____

Schedule E: Employer Information Sheet

Contractor information

Name :

Address :

Telephone (head office) :

(Work site) :

(Emergency) :

Fax (head office) :

(Work site) :

Person in charge at work site

Name :

Title / Association :

Phone :

Safety and health representative

Name :

Title / Association :

Phone :

Union representative

Name :

Title / Association :

Phone :

Signature: _____

Date: _____

Instructions to Excavators for the Protection of Underground S&C Cables

Purpose

The instructions contained within this document are issued for the information and guidance of all CN employees and contractors engaged in any ground disturbance activities (excavation) and must be adhered to. Excavating includes any activity that results in an opening being made in the ground including, but not exclusive to: driving, blasting, boring, installing sign posts, and pipe pushing. They provide the minimum requirements for safe and effective ground disturbance practices in the vicinity of underground Signals and Communications ("S&C") facilities buried on CN's Right-of-Way (ROW).

These instructions do not supersede any applicable Federal Regulations.

Safety

All persons, contractors and companies must comply with CN safety rules, policies, standards and procedures including but not limited to Track Standards (TS) 1.3, 2.0, 7.0 and Critical Task (CT) 02. Workers are responsible for their safety and are accountable for their behavior on the Right-of-Way. Any dangerous condition or unsafe practice must immediately be reported to the appropriate CN representative.

Non-CN employees must comply with CN's "Guidelines Regarding Access to CN Workplace". All contractors must be e-RAILSAFE certified.

Buried Power Cables

CN utilizes underground power cables to deliver power to S&C facilities. These cables are typically buried in a common trench with other S&C and Fiber Optic cables. Voltages in use for underground AC power systems range from low voltage (31-600 volts) to medium and high voltage (above 600 volts). **All cables must be considered live.** Ground disturbance activities in the vicinity of power facilities may require additional precautions as outlined in SCP 1508.

Awareness of Hazards

Personnel engaged in ground disturbance activities on CN's Right of Way must be aware of all hazards that may be encountered. Hazards must be identified, removed or mitigated, and must be recorded in all daily Job Briefings.

Potential hazards associated with ground disturbance activities may include but are not limited to:

- Electrical shock (underground/overhead facilities);
- High-pressure releases, e.g., hydro-vacing;
- Spills or releases of hydrocarbons or other chemicals;
- Ground disturbance cave-in and engulfment;
- Moving on- and off-track machinery
- Laser exposure and glass particles from Fiber Optic cable;
- Struck by heavy equipment, trains, etc.

Open Trenches

Trenches must not remain open overnight unless protected by fencing barricades and appropriate signage. Where possible, cover with planks as well.

Definit

Bell Hole	A bell hole is an excavation made to permit a survey, inspection, maintenance, repair, or replacement of facilities. It is so called because of its upside-down bell shape.
Bore Pits	The excavated holes sometimes required for the entry and exit points of the Horizontal Directional Drilling bore.
Bridge Troughing / Raceways	Bridge Troughs, also known as Cable Raceways, are metal/plastic pipes or "C" troughs with lids, which are placed along the sides of railway and highway bridges to route and protect power and communication cables from accidental damage or acts of vandalism.
CN CBYD	CN Call Before You Dig number is used to request facility locates and provide notification prior to any ground disturbance activity.

Definit

Cable Markers	Permanent facility markers are installed only to indicate the presence of buried facilities and are not meant to indicate the precise location of the facility. Permanent facility markers are not necessarily placed directly above buried facilities or located on the same side of the CN Right-of-Way.
CN Underground Facilities	Any infrastructure located below the surface of the ground owned and/or operated by CN, including, but not limited to direct buried cables, conduits, duct structures, manholes, pedestals, hand-wells, and cross-connect boxes.
CN Flag person	A CN Employee who provides protection for the safe movement of trains.
Common Trench	A single trench used to route multiple cables, which may include power, Fiber Optic and S&C cables.
Daylighting	A term used to describe the uncovering and exposing of underground facilities by a non-destructive means and without the use of mechanical excavation to confirm location and depth. Performed by hand exposing or vacuum excavation. Also referred to as test holes or potholing.
Dry Bores	Method of creating a bore without the use of a drilling fluid.
Duct	A single enclosed raceway (conduit) used for routing cables.
Duct bank	An arrangement of multiple ducts, usually in tiers.
Excavation	See **Ground Disturbance** definition.
Excavator	A person, employer, owner, contractor or “digger” disturbing the ground.

Definit

Facility Locate	The process by which CN S&C Facility Locators use electromagnetic fields, signals or other methods, together with site plans, to identify the location of facilities. Facilities are identified by means of locate field marks in the form of paint, flags, and/or stakes.
Facility Locate Form	A form completed and issued by the CN employee performing the CN cable or underground facility locate, including any precautionary measures that must be followed (any third party locates must be requested from the respective utility company). The Form includes one or more Facility Locate Sketch Sheets.
Facility Locate Sketch Sheet(s)	One or more sketches showing all existing underground facilities relevant to the ground disturbance area, and their relationship to any visible or buried facilities, structures or other identifiable references.
Ground Disturbance	All work, operation or activity that results in a disturbance or displacement of the soil, regardless of depth, and including horizontal or vertical drilling and blasting.
Ground Disturbance Limits	The geographical boundaries as identified on the Facility Locate Form in which the ground disturbance activity will take place. The Excavator must not work outside these restricted limits.
Ground Disturbance Method Of Procedure (MOP)	A form to be completed by the S&C Supervisor and submitted to the CN TNOC (Telecom Network Operations Center) for any High Risk Ground Disturbance activity, as determined by the S&C Locator and identified on the Facility Locate Sheet. The MOP document can be found on the S&C Sharepoint site under the Telecom page.

Definitions

Hand Expose	Physically identifying the exact location and depth of a buried CN facility by non-mechanical means using a shovel or spade with a wooden or insulated handle. Picks, bars, metal stakes or other earth piercing devices must not be used for this purpose.
Hand Expose Zone	See Tolerance Zone definition
Handhole	A plastic or polymer concrete structure set below ground with the lid flush to the surrounding soil, used to house and protect cable splices and slack coils. It is usually not large enough for a person to completely enter to perform work; therefore it should not to be confused with a Manhole. Also referred to as a Handwell.
"High Risk" Ground Disturbance	Any ground disturbance activity which has an increased potential for underground facility damage.
Horizontal Directional Drilling	Horizontal Directional drilling or HDD is a steerable trenchless method of installing underground pipes, conduits and cables in a shallow arc along a prescribed bore path by using a surface-launched drilling rig, and resulting in minimal impact to the surrounding area.
Live	Cables which are electrically connected to a source of voltage and/or any active S&C or Telecommunication cables.
Locate Marks	Colored lines, flags or both, used to mark the location of underground facilities.
Manhole	A large underground cable vault in which it is expected that a person can completely enter to perform work.
Mechanical Excavation Equipment	Any powered excavation, earthmoving or earth piercing equipment including hand-held augers, picks, bars and metal stakes.

Definitions

Observation Hole	A hole required to observe the crossing of an underground facility. Observation holes are required during the Horizontal Directional Drilling process.
Pedestal	An above ground enclosure for splicing and terminating buried cables.
S&C Facility Locator	A CN S&C employee whose job is to locate underground facilities.
S&C Observer	A CN S&C employee that is required on site to ensure a safe ground disturbance activity when the proximity of the ground disturbance poses a risk to CN underground facilities. A CN S&C Observer is not to be confused with a CN Flagperson.
Slack Coil / Slack Loop	A coil of cable strategically placed at specific locations for future use, emergency repair or splice enclosure access. Locations typically include building entrances, pedestals, bridges and road crossings.
Slack Container	A buried storage container used to store Fiber Optic cable coils in a figure 8 format for easy access and protection.
TNOC	The CN Telecom Network Operations Center is responsible for administering, supervising, monitoring and maintaining the CN telecommunications network
Tolerance Zone	The Tolerance Zone, also known as the Hand Expose Zone, is defined as the horizontal 1 meter (3.3 feet) distance on each side of the marked underground facility. For any Power Distribution Component, such as Transformers and Switches, the Tolerance Zone is the horizontal 2 meter (6.6 feet) distance on each side of the facility.
Trenchless Excavation	See Horizontal Directional Drilling definition

Definitions

Vacuum Excavation	The use of pressurized water or compressed air to loosen soil from around buried CN facilities, followed by suctioning to remove the soil. Also known as Hydro-Vacing when using pressurized water.
White Lining	White-lining is the process wherein a CN Design and Construction employee or an authorized contractor pre-marks the area to be disturbed with white paint and/or white flags for clarity purposes prior to calling for the Facility Locate.

Facility Locate

Prior to any ground disturbance activity or any work affecting Bridge Troughing, the Excavator:

- MUST call the CN CBYD (Call Before You Dig) number at 1-800-661-3687 a **minimum of 3 business days** prior to the proposed start of the ground disturbance activity to request a facility locate**.**
- Major projects or "High Risk" Ground Disturbance activities **require 14 days advance notice** for Ground Disturbance MOP processing**.**
- **Important: CN only locates CN facilities.** It is the **Excavator's responsibility** to contact all owners of underground facilities within the Ground Disturbance Limits.
- **Must** have a signed "CN Letter of Approval" from the CN Design and Construction and/or Public Works groups.

Exceptions

The following list of jobs have been identified as low risk and therefore a facility locate is not required:

- Pounding wooden stakes less than **30 cm (1 foot**)
- Hand digging to a depth of **30 cm (1 foot)** below the ground surface so long as it does not permanently remove cover of a buried facility.
- Removing asphalt or concrete road/sidewalk surface, but only to the depth of that hard surface

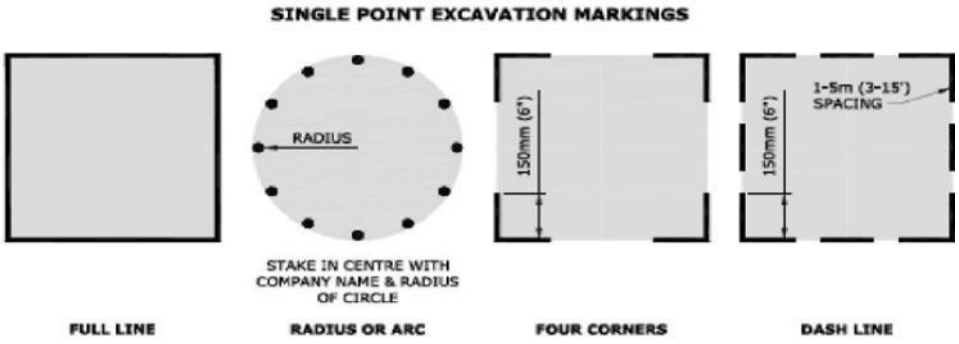
White Lining

The proposed Ground Disturbance Limits are to be marked in white paint using one of the following methods: a continuous line, dots marking the radius or arcs, dashes marking the four corners of the area, or dashes outlining the area perimeter.

Important: Under no circumstances may White Lining take place without first following CN's "Guidelines Regarding Access to CN Workplace".

When snow conditions prevail, wooden stakes with orange reflective tape should be inserted no more than 6 inches into the ground.

The maximum separation of white line marks is to be reduced to a length that can be reasonably seen by the S&C Facility Locators. See examples below:



Reques

When requesting a Facility Locate the Excavator should be prepared to:

- Include contact information, email and phone number for the representative who will be on site.
- Identify the Ground Disturbance Limits by Railway Subdivision and mileage and/or the street address.
- Identify if the proposed Ground Disturbance Limits is white-lined.
- Provide information describing the nature of the work, the expected start date, and a request for a site meeting when required.
- Facility Locate requests must be made a minimum of 3 business days prior to the proposed start of the ground disturbance activity. If a Ground Disturbance MOP is required due to high risk activities, such as boring within 2 meters of cable, exposing more than 2 meters of cable, fiber relocation, trough removal, blasting, etc., refer to "Ground Disturbance MOP" section on page 12.

Emer

Emergency locate requests must be called into the CN CBYD Number. The CN Call Center will dispatch an S&C Facility Locator.

Field Marking

The S&C Facility Locator will only mark the underground CN facilities in the Ground Disturbance Limits at regular intervals with paint, flags, and/or stakes as follows, to the best of the detector's ability:

- The locate field marks will indicate the center line of the individual facilities or the outside edges of a structure.
- Individual facilities will have one field mark.
- Multiple facilities will have one field mark if they are in the same trench.
- Multiple facilities will have more than one field mark if they are placed in different trench lines.
- Facility type will be identified according to the Color Code that follows

Third party locates must be arranged by the requestor with these respective parties.

Color		Type of Facility/Indicator
Red		Electric – power line, cables, conduit & lighting cables
Yellow		Gas, oil, steam, petroleum, compressed air, gases and other hazardous liquid or gaseous materials
Blue		Potable water
Orange		Communications - Fiber Optic, Signal lines, cables & conduit
Green		Sewer and drain lines
Purple		Reclaimed/treated water, irrigation & slurry Lines
Pink		Temporary survey markers
White		Proposed ground disturbance

Facility Locate Form

CN will issue a Facility Locate Form, including one or more associated Facility Locate Sketch Sheets, which detail the underground CN facilities within the Ground Disturbance Limits.

The Facility Locate Form contains a Site Requirements section identifying:

- The requirement for a Ground Disturbance MOP for any high risk activities. See "Ground Disturbance MOP" section of this document on page 12.
- The requirement for a CN S&C Observer. See "S&C Observer" below.
- The presence of AC power cables, and if necessary, the requirement to have the power de-energized. See CN SCP 1508 for details.
- Other documents that are to be used with the Locate.
- S&C Locator Instructions / Remarks specific to the Ground Disturbance Limits. Examples include:
  - Only vacuum excavation is permitted
  - Facility congestion at this location. All facilities must be daylighted.
  - No Known Facilities. See "No Known Facilities Section" below.

Excavators must obtain the completed Facility Locate Form from CN prior to commencing any ground disturbance activities.
The Facility Locate Form must be kept on site at all times during the ground disturbance activity.

S&C Observer

When the proximity of the ground disturbance activity poses a risk to CN underground facilities, a CN S&C Observer may be required on site. The Site Requirements section of the Facility Locate Form will indicate if a CN S&C Observer is required during the ground disturbance activity.

IMPORTANT: A CN S&C Observer provides underground facility protection and is not to be confused with a CN Flagperson required for the safe movement of trains.

No Known Facilities

When no known facilities are present within the proposed Ground Disturbance Limits, the Facility Locate Form will indicate "No Known Facilities Present" in the Locator's Instructions/Remarks section of the form.

Facility Locate Sketch Sheets	Facility Locate Sketch Sheet(s) are an integral component of, and must be attached to, the Facility Locate Form. Multiple Facility Locate Sketch Sheets may be associated with a single Facility Locate Form. The number of Facility Locate Sketch Sheets will be identified on the Facility Locate Form.
Locate Validity	Locates are valid for 30 days
Locate Marks	**Locate marks must remain visible during the life of the project**. Paint marks may fade and flags/stakes may be moved. The Excavator must contact CN CBYD to refresh any faded or disturbed locate field marks.
Ground Disturbance Limits	The Excavator must not work outside the Ground Disturbance Limits identified on the Facility Sketch Sheet(s) without obtaining additional Facility Locates.
Facility Depth	Facility depth readings **are not provided** by the Facility Locate process and **must never be assumed** for any underground facilities. Depth Verification is obtained by Hand Exposing or Vacuum Excavation to physically confirm facility depth (daylighting). For multiple facilities in a common trench, all of the facilities must be exposed and accounted for with the method described above.

Ground Disturbance MOP

A Ground Disturbance MOP document serves the following purposes:

- It advises all relevant CN departments, control centers or client organizations of the High Risk Ground Disturbance activity so they may take action to protect their facilities, infrastructure and/or operations. In the case of Fiber Optic networks, for example, multiple Telecom companies may have networks in one Fiber Optic cable.
- It identifies the necessary field precautionary measures needed to manage any High Risk Ground Disturbance activity.
- It is used in circumstances where the guidelines outlined in this CN SCP are not feasible.

A Ground Disturbance MOP is required for each of the following activities, but is not limited to:

- Parallel ground disturbance or grading within **2 m (6.6 feet)** of Fiber Optic cable,
- Fiber Optic cable relocation or movement,
- New Track Infrastructure crossing or build within **2 m (6.6 feet)** of Fiber Optic cable,
- More than **2 m (6.6 feet)** of exposed Fiber Optic cable,
- Blasting within **5 m (16.5 feet)** of Fiber Optic cable,
- Bridge troughing removal,
- Crossing underground facilities with a separation less than **2 m (6.6 feet)**,

The requirement for a Ground Disturbance MOP will be identified on the Facility Locate Form and must be in the Excavator's possession prior to commencing any ground disturbance activity. The MOP document can be found on the S&C Sharepoint site under the Telecom page.

MOP Process

Note: A 14 day notification is required to process the Ground Disturbance MOP.

The following process will occur when a Ground Disturbance MOP is required:

- The responsible CN S&C Supervisor will be notified by the CN S&C Facility Locator of a Ground Disturbance MOP requirement.
- The CN S&C Supervisor will complete and submit the Ground Disturbance MOP form to the CN TNOC Manager for approval.
- The CN TNOC will advise the impacted internal CN departments and/or external companies, and when approved by all affected parties, generate a Ground Disturbance MOP ticket.
- The CN S&C Supervisor will provide the requesting Excavator with the approved Ground Disturbance MOP document and CN TNOC reference ticket.
- The Ground Disturbance MOP must be in the possession of the Excavator prior to starting any ground disturbance activity, and during the life of that activity.
- The Ground Disturbance MOP must be part of all daily Job Briefings.

Locate Verification

Upon receiving the Facility Locate Form, the Excavator must verify the following:

- The **Locate Date** to ensure the Locate is within the 30 day validity period.
- The **Marked or Staked Area** painted reflects the Locate Sketches
- The **Locate Marks** are clearly visible and undisturbed
- The **Facility Locate Limits** encompass the proposed Ground Disturbance Limits
- If **Power Cables** are indicated to be present and whether the power needs to be turned off. The Excavator must refer to CN SCP 1508 for specific instructions and guidelines regarding ground disturbance activities near power cables.
- If a **Ground Disturbance MOP** is required, verify that it is on hand and understood prior to commencing Ground Disturbance.
- The requirement for a **CN S&C Observer** to be on site, per *CN S&C Observer* section of this document (page 10).

Job Briefing

The Facility Locate Form, Facility Locate Sketch Sheet(s) and Ground Disturbance MOP (when required), shall be included in all Job Briefings

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Ground Disturbance near Track Structure

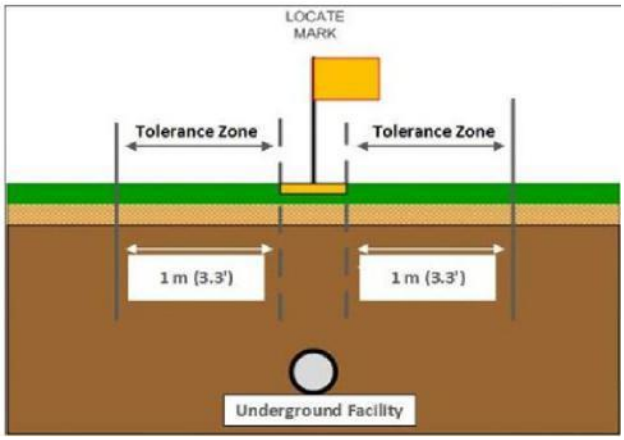
The CN Engineering Department must be on site when ground disturbance activity takes place within the CN ROW that may impact the integrity of the track infrastructure.

CBYD Notification

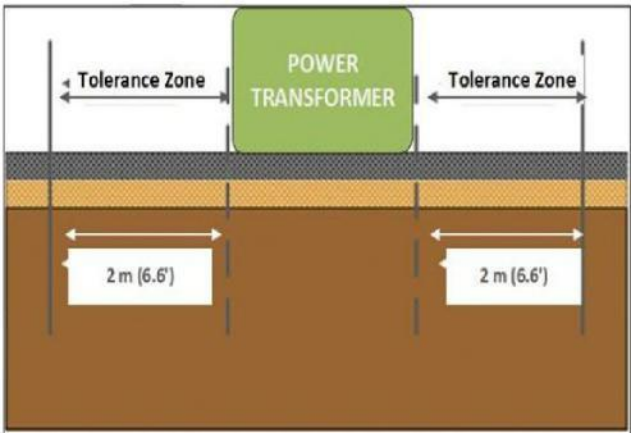
At the start of each work day, the Excavator must notify CN CBYD, referencing the Locate ticket number, stating that they are on site and ready to commence ground disturbance activity.

Ground Disturbance Tolerance Zone

The Tolerance Zone is the horizontal 1 m (3.3 feet) distance on each side of the marked underground facility, as shown in the diagram below.



For any Power Distribution Components, such as transformers or switches, the Tolerance Zone is the horizontal 2 m (6.6 feet) distance on each side of the facility, as shown in the diagram below.



Only Hand Exposing or Vacuum Excavation will be permitted within the Tolerance Zone.

Restricted Distance

Mechanical excavation must never be used within the Tolerance Zone until the facility is hand exposed or vacuum excavated.

Once all the buried facilities have been hand exposed or vacuum excavated in the Tolerance Zone and are clearly visible, the Excavator may use mechanical equipment in **Non Power Cable locations,** but must **not** come within **a minimum restricted distance of 0.3 m (1 foot)** in any direction of the exposed facility. For Power Cable locations, refer to CN SCP 1508 for detailed instructions.

Slack Coils

Cable Slack Coils (also called Slack Loops) within the Tolerance Zone must be fully exposed. Slack Coils may be located at buildings, pedestals, bridges and road crossings. In some cases Slack Coils are stored in a slack container.

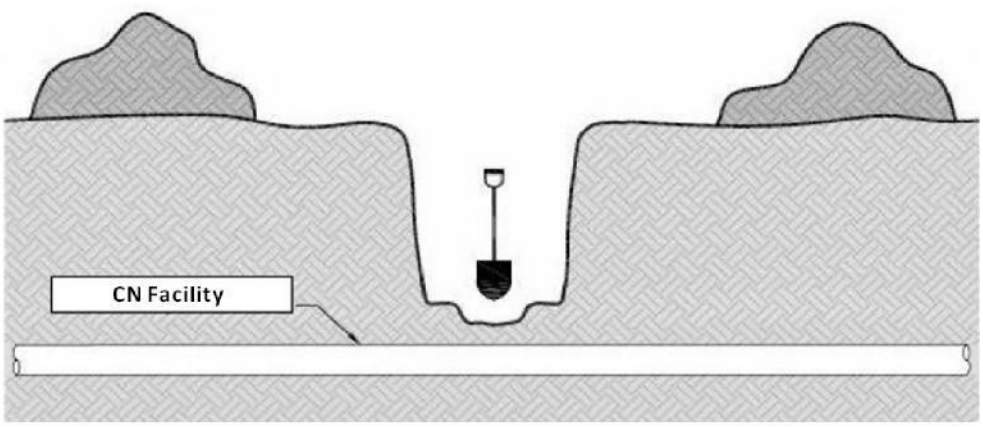
Hand Expose

Excavators should be aware of the following guidelines when Hand Exposing within the Tolerance Zone:

- Never jump on or use the entire body weight on a shovel when digging.
- Never probe for the facility using a sharp pointed tool such as a pick axe, metal stake, pointed bar, or other earth piercing device.
- Dig on an angle if possible, such that any contact with the facility is a glancing blow rather than a direct hit.
- Use a prying (rather than striking) motion to loosen hard dirt.

Hand Expose – Vertical Dig

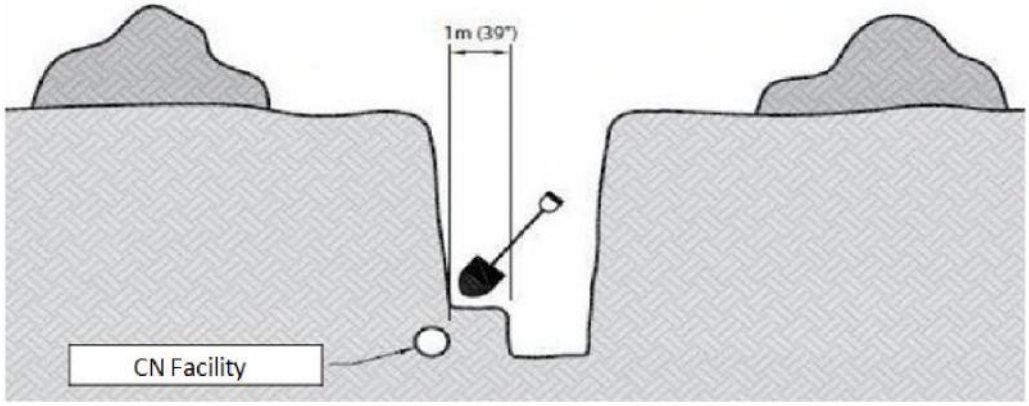
Dig a hole with a shovel directly above the facility location until the facility is exposed. Care must be taken to avoid damaging the facility. See diagram below:



Mechanical excavation equipment must not be used to widen or deepen the hole before the facility is exposed.

Hand Expose – Lateral Dig

Dig a trench or Bell Hole **1 m (3.3 feet)** from the facility location, parallel to the facility, and then dig laterally to expose the facility. See diagram below:



Mechanical excavation equipment must not be used to widen or deepen the hole before the facility is exposed.

Vacuum Excavation

When excavating within the Tolerance Zone using vacuum excavation methods, a maximum setting of **38 °C (100 °F)** water temperature and **10,342 kPa (1,500 psi)** must not be exceeded.

Only oscillating head type nozzles are to be used for the water wand. The end of the vacuum wand must be neoprene or equivalent. Expose the buried facility by using a sweeping motion only, perpendicular to the locate markings, until the facility is sighted.

Important! After sighting the underground facility, further direct contact with the exposed facility must be avoided to prevent any possible damage.

In areas of congested underground facilities, CN may designate that only vacuum excavation is permitted.

Hard Surface Removal

Mechanical equipment may be used to remove the asphalt or concrete road/sidewalk surface and should only be used to the depth of that surface. It is the Excavator's responsibility to obtain the appropriate authorizations from the respective property owner.

Avoid starting the pavement break directly over the marked facility. Start a few feet away from the marks and attempt to "peel off" the pavement or break it into small chunks for removal.

Frozen Ground

Frozen ground conditions do not eliminate the requirement to hand expose or vacuum excavate buried facilities prior to ground disturbance activity in the Tolerance Zone.

In situations where the ground is frozen, ground thaw blankets or hydro-vac excavation shall be used.

Excavation of Slack Coils

When ground disturbance activity occurs in the vicinity of cable slack coils, the entire coil must be hand exposed or vacuum excavated.

The exposed coil must be protected from worksite hazards. The recommended method is to install exposed slack coils into a handhole.

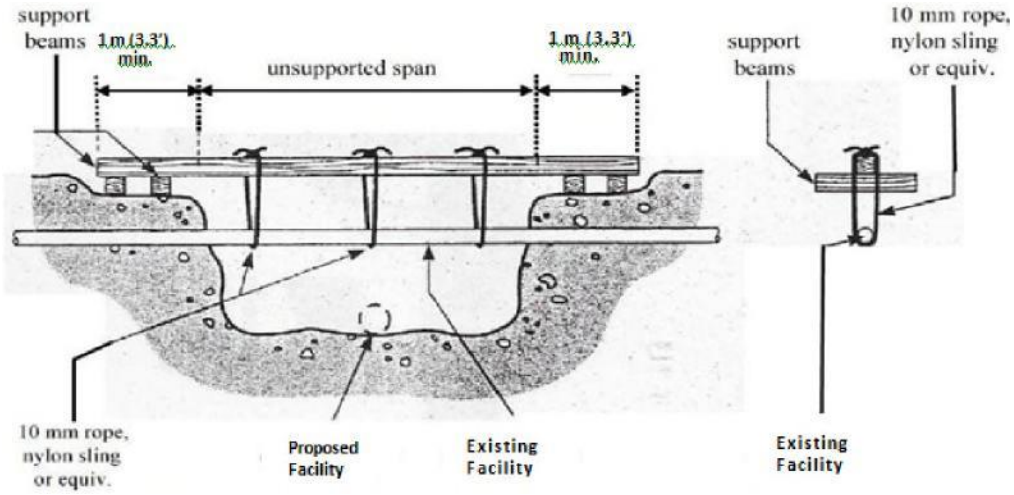
Trench Crossing Underground Facilities

Before crossing an existing underground facility, the facility must be exposed to provide an observation hole. The observation hole must be slightly wider than the existing facility (e.g., by **0.3 m (1 foot)**) such that full viewing of the new facility installation is possible.

Maintain a minimum separation of **0.6 m (2 feet)** when crossing facilities. Best practice is for new facilities to pass under existing facility locations.

Underground Facility Support

When **2 meters (6.6 feet)** or greater of underground facility are exposed, the facility must be supported to prevent settling or sagging. See example below:



Unma

If an unmarked facility is exposed during ground disturbance, **STOP WORK** and immediately contact CN CBYD.

Exist

At no time is an Excavator allowed to reposition, dismantle, or tamper with any CN facilities.

Parall

When parallel excavating is necessary within **2 m (6.6 feet)** of an existing facility route, the following process must be respected:

- The entire route of the existing facility must be located within the Ground Disturbance Limits.
- The entire facility route within the Ground Disturbance Limits must be daylighted at intervals no greater than every **10 m (33 feet)** to determine the true cable alignment and depth.
- Where there is an alignment change indicated by the locator marks, the CN facility must be daylighted at each alignment deviation.
- Daylighted locations may be temporarily marked with **flexible** "Big 0" Perforated Tubing. Rigid pipe or stakes **must not** be used to mark daylighted facilities as this may cause the facility to be damaged in the event the marker is run over by equipment.
- All slack coils along the route must be exposed and protected by means of a handhole.
- Prior to commencing mechanical excavation, The Tolerance Zone must be remarked along its entire route within the Ground Disturbance Limits. The marks must be maintained during the excavation activity.
- If at any point the line becomes obscured, it must be re-marked immediately.

Backfill

To prevent settling or stress, the Excavator is required to place clean fill under buried facilities. The backfill material must be free of rocks, sharp objects or other material that could damage the facility/cable. If the backfill material is frozen, it should be free of large lumps of frozen soil. The backfill material must be gradually placed, not dumped, on the facility/cable.

The backfill material must be tamped after reaching grade and grade must be maintained.

Open

Prior to leaving the work site, all open trenches must be protected by fencing barricades and appropriate signage, and covered with planks for added protection where possible.

End of

At the completion of each work day the Excavator must notify CN CBYD that work has ended for that day.

Trenchless Excavation

Prior to commencing trenchless excavation,

- A completed Facility Locate Form must be On Hand.
- CN CBYD must be notified stating that you are on site and ready to begin drilling.
- A CN S&C Observer must be on site if trenchless excavation is occurring within the Tolerance Zone.
- If boring across existing CN Facilities, the facility depth and location must be confirmed by hand exposing or vacuum excavating.

Bore Pits

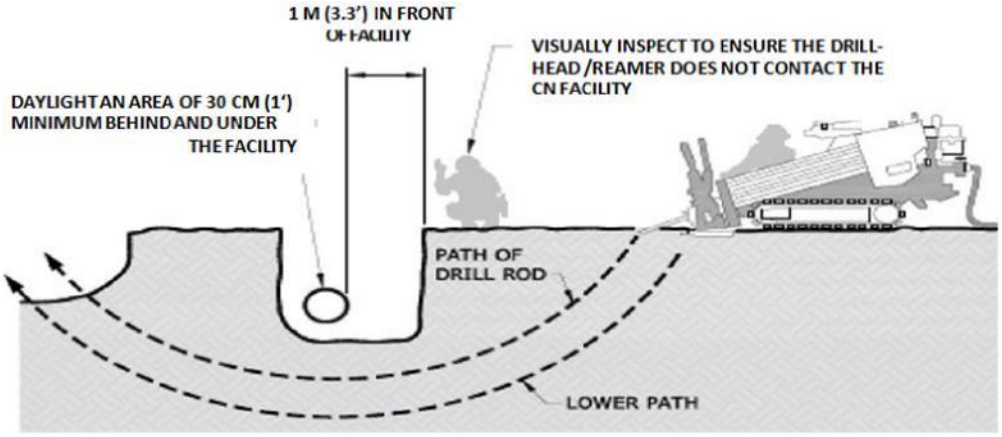
The location of the bore pit must not conflict with CN facilities. This may require designing a longer than normal bore when crossing roads in order to avoid CN facilities.

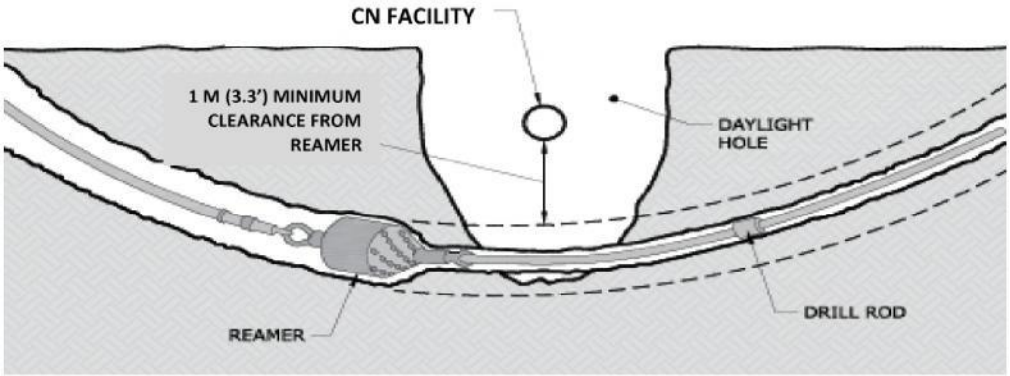
In all cases, the size of the bore pits must be kept to a minimum.

Observation Hole

An Observation Hole is required when boring across any CN facility

- The accuracy of the drill head location and depth must be visually verified **1 m (3.3 feet)** prior to crossing CN facilities.
- When the bore head or back reamer's path crosses above a CN facility, the bore head and/or reamer must be visually observed crossing the facility.
- When the bore head or back reamer's path crosses below a CN facility, an observer must verify that the bore head or reamer does not enter the observation hole within **1 m (3.3 feet)** of the facility.
- The minimum dimensions of the observation hole **must be**:
  - **1 m (3.3 feet)** in front of the CN facility on the near side of the bore path;
  - **30 cm (12 inches)** on the far side of the bore path;
  - **30 cm (12 inches)** on each side of the bore path;
  - **30 cm (12 inches)** below the CN facility;
  - **1 m (3.3 feet)** on each side of the bore path below the CN facility if using a reamer.





Site Congestion

Where underground facility congestion does not effectively allow **1 m (3.3 feet)** separation from CN facilities, a Ground Disturbance MOP is required.

Dril

When parallel drilling is necessary within **1 m (3.3 feet)** of an existing facility route, the following process must be observed:

- The entire route of the existing facility must be located within the Ground Disturbance Limits.
- When suspected of drilling within **1 m (3.3 feet)** of any CN facility determined by the bore head (sonde) position readings and the proximity to the Locate Marks, the location of the CN facility must be verified; the CN facility adjacent to the bore path must be daylighted.
- The CN facility must be daylighted a minimum of once every **10 m (33 feet)** to confirm alignment.
- Where there is an alignment change indicated by the Locate Marks, the CN facility must be daylighted by daylighting at each alignment deviation.
- The Locate Marks must be maintained during the excavation activity. If at any point the line becomes obscured, it must be re-marked immediately.

Under-Track

For all Under Track Bores, the following process must be observed:

- A CN Flagperson must be on site to protect trenchless excavation crews and equipment for the safe movement of trains.
- Trenchless excavation activities must not operate during the passing of trains.
- All Under Track Bores must be at **90 degrees** and must not simultaneously cross the track and a road crossing.
- The following minimum distances must be maintained:
- Minimum depth of burial below base of rail on Main Track is **1.68 m (5.5 feet)**.
- Minimum depth of burial below road surface is **1.0 m (3.3 feet).**
- Minimum depth of burial below ditch bottom is **1.0 m (3.3 feet**).
- If any damage occurs to the railroad subgrade or track structure, trenchless operation **must immediately stop**.
- For Under-Track Bores of **25.4 cm (10 inches)** or greater, application must be made to CN Engineering Services prior to commencing drilling activity.

Blasting

For all Blasting Ground Disturbances the following process must be observed:

- An application must be made to CN Engineering Services and a Blasting Plan submitted by the contractor's blasting engineer.
- Blasting within **5 m (16.5 feet)** of the Fiber Optic cable requires a Ground
- The addition of mechanical facility protection may be required.

Accidental Facility Contact

Stop Work!

If any equipment is entangled in, or severs, a CN facility, **operations at the site must stop immediately**. Trying to extract, flex or manipulate the facility can compound the damage and put workers at risk of injury.

Under no circumstances must the Excavator attempt to repair nicked or damaged facilities.

Excavators must leave the facility exposed and barricade the area immediately.

Call the CN CBYD number immediately and report the location of the hit. **Do not** touch or handle any facilities that have been damaged.

Reports and Drawings

All plan modifications, site drawings and as-built plans must be submitted to the CN Manager of Fiber Optics Office and CN S&C Fiber Coordinator. Where possible and feasible, GPS coordinates and photographs should be taken of the ground disturbance activity, and submitted along with any other available written or digital documentation.

Contacts

To request CN Facility Locates contact CN CBYD at 1-800-661-3687 CN only locates CN Facilities. For all non-CN facilities, contact the CALL BEFORE YOU DIG or ONE CALL service in your area to request a Facility Locate.

Personal safety starts with you and public safety depends on you!

- **Common Ground Alliance Best Practices Guide Version 12, 2015** http://commongroundalliance.com/best-practices-guide
- **Union Pacific 2015 Standards Manual**
- **Work Safe BC** Prevention of Damage to Buried Facilities in British Columbia
- **CSA Group** Damage Prevention for the Protection of Underground Infrastructure: Standard Z247-15

Facility Locate Form

CN Call Before You Dig
Appelez Avant De Creuser
1-800-661-3687

CN Only Locates CN Facilities

Locate Date	***This Locate is Valid for 30 days from the Locate Date***	*Total Number of Sketches attached*
Place (Subdivision, Mileage, Street)		*Proposed Excavation Site White Lined* Yes ☐ No ☐
Locator Name	*Ticket #*	*GPS Coordinates*

Excavator Information

Company Name	*Contact Phone*	*Project #*
Contact Name	*Contact Phone*	*Contact Email*
Additional Contacts		

Excavation Site Information

Project Description / Nature of Work

Excavation Type
Machine Dig ☐ Directional Bore ☐ Vacuum Truck ☐ Blasting ☐ Hand Expose ☐ Other ☐ _____

Site Requirements

MOP Required Yes ☐ No ☐	*CN S&C Observer Required On Site During Ground Disturbance* Yes ☐ No ☐	*AC Power to be Turned Off* Yes ☐ No ☐	*Applicant Present at Time of Locate* Yes ☐ No ☐

Documents to be used with this Locate

Locator Instructions / Remarks

Acknowledgement

I, _____, acknowledge that I have received, read and understood the requirements outlined in the CN Code of Practice SCP 1005, "CN Damage Prevention Guidelines for Excavators" and declare that the contents thereof have also been brought to the attention of all our employees, contractors and agents who will be performing work on CN's Right-of-Way.

Signature *Title* *Date*

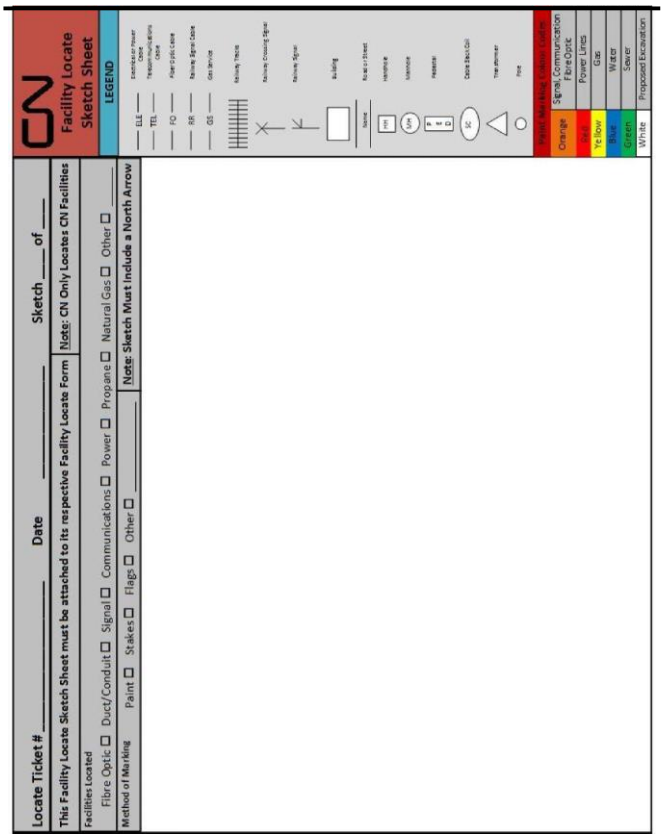
Locate Verification – To be completed by Excavator Prior to Commencing Ground Disturbance Activity

Area painted reflects Locate Sketch Yes ☐ No ☐	*Locate Marks are Clearly Visible & Undisturbed* Yes ☐ No ☐	*Facility Locate encompasses proposed ground disturbance limits* Yes ☐ No ☐			
Power Cables Present Yes ☐ No ☐	*Power is turned off* Yes ☐ No ☐	*SCP 1508 Read & Understood* Yes ☐ No ☐			
High Risk Ground Disturbance MOP Required Yes ☐ No ☐	*MOP on hand & Understood* Yes ☐ No ☐	*Excavator has notified CBYD they are on site and ready to excavate* Yes ☐ No ☐			

CN Safety Policies

- All CN Safety policies must be understood & observed
- All non-CN persons must be e-Railsafe certified
- All hazards must be identified, removed or mitigated, and recorded in Job Briefings
- Open trenches must be protected by fencing barricades and appropriate signage prior to leaving the job site.
- This Locate document must be included in all Job Briefings

Note: Faded or Disturbed Locate Marks Must be Refreshed Prior to Proceeding with Ground Disturbance


Facility Locate Sketch Sheet
Locate Ticket #
Date
Sketch ___ of ___
This Facility Locate Sketch Sheet must be attached to its respective Facility Locate Form
Note: CN Only Locates CN Facilities
Facilities Located
Fibre Optic ☐ Duct/Conduit ☐ Signal ☐ Communications ☐ Power ☐ Propane ☐ Natural Gas ☐ Other ☐
Method of Marking
Paint ☐ Stakes ☐ Flags ☐ Other ☐
Note: Sketch Must Include a North Arrow
LEGEND
Signal/Communication
Fibre Optic
Power Lines
Gas
Water
Sewer
Proposed Excavation
Orange
Red
Yellow
Blue
Green
White

SECTION G: AGREEMENT AND AUTHORIZATION

This Agreement is entered into as of this _____ day of _____, _____ between CN, having its registered office at 935 de la Gauchetière West, Montreal, Quebec, H3B 2M9, and [Applicant Name] ("Applicant"), having a place of business at [Applicant Address].

For a term of _____ (number of days/months/years), beginning on _____ (commencement date) and terminating on _____ (termination date), unless sooner terminated as provided hereunder.

CN

(Signature)_____

Print Name: Megan Whalen

Title: Engineering Technician

APPLICANT

(Signature)_____

Print Name:

Title:

Proponent of the work

(Signature)_____

Print Name:

Title: