# PIPELINE CROSSING/ENCROACHMENT APPLICATION FORM (OIL/GAS)

A non-refundable application fee of **$1,675 (+GST)** will be invoiced to you upon receipt of your application.

***Regular Applications*** are a minimum of 6-8 weeks for initial review
***Rush Applications*** are a minimum of 1-2 weeks for initial review

**NOTE**: Application review times are for applications only, they do not include field reviews, construction or installation of actual crossing.
The timeline provided are dependent on workload, work force and material availability therefore they are not guaranteed

**DATE:** **APPLICANT FILE #:** **DRAWING #:**

**1. Owner /Applicant Information:**

Full Legal Company Name: _____

Address: _____

Contact Name: _____ Title _____

Phone Number: _____ Email: _____

Billing Email: _____

**2. Consultant / Land Agent Information:**

Name: _____

Address: _____

Contact Name: _____ Title _____

Phone Number: _____ Email: _____

**3. Location Of Pipeline:**

CN Mile Post (or nearest Mile Post): _____

Legal Land Description: _____

At or Near _____
(Name of City, Town, Village)

GPS Coordinates: Latitude: _____

Longitude: _____

**4. Existing Agreement:**

If this is a change to an existing crossing please indicate the CN File Number here:

_____

**5. Please provide a brief description of proposed work** (i.e.: OH Wire 65,000 Volts, UG Water Pipeline):

_____
_____
_____
_____

**6. Pipe Data Checklist:**

- ☐ Inside Diameter of pipe (carrier and casing)
- ☐ Outside Diameter of pipe (carrier and casing)
- ☐ Wall Thickness of pipe (carrier and casing)
- ☐ Pipe Material (carrier and casing)
- ☐ Specification / Grade or Class (carrier and casing)
- ☐ Yield Strength (min. 241Mpa) (carrier and casing)
- ☐ Type of Joint
- ☐ Working Pressure
- ☐ Cooper E-90 (Design Loading) per TC E-10
- ☐ Max. Operating pressure in pipeline
- ☐ Length of Casing Pipe (must extend full width of CN ROW)
- ☐ Crossing Angle (must be min. 45 degrees)
- ☐ Cathodic Protection Noted (if applicable)
- ☐ Hydrostatic pressure carrier pipe tested prior to use
- ☐ Burial Depth below track and Right of Way
- ☐ Method of Installation
- ☐ Commodity
- ☐ Direction of Flow
- ☐ Warning Markers
- ☐ Shut off Valves
- ☐ Plan Number and Date
- ☐ Legal Land Description
- ☐ Width of CN Right of Way
- ☐ Number of Tracks
- ☐ Hoop Strength
- ☐ Include Note: "Installation and maintenance to be in accordance with TCE10, and the latest edition of applicable CSA Standard Z- 662"
- ☐ Signed and Stamped by Professional Engineer
- ☐ "For Construction" drawing only (not for construction/preliminary drawings will be declined)
- ☐ Completion of GEO-FORM 1, or GEO-FORM 2 if applicable (attached) & add appropriate Geotechnical note to your plan if required (5" or greater outside diameter.)

## 7. Geotechnical Information:

Is the pipe outside diameter between 127mm-250mm (5-10 inches): _____
Completed the attached GEO-FORM 1: _____
Add following note to your plan: "Geotechnical Engineer evaluation has been completed and the Geotechnical Engineer has determined that based on the soil conditions, there will be no adverse effects to CN operation and property."

Is the pipe outside diameter greater than 250mm (10 inches): _____
Completed the attached GEO-FORM 2: _____
Add following note to your plan: "Geotechnical Engineer evaluation has been completed and the Geotechnical Engineer has determined that based on the soil conditions, there will be no adverse effects to CN operation and property. Engineer must be on site during construction."

## 8. Date of Construction:

What is the anticipated start date of this project: _____

*Applications must have this completed form, one copy of an acceptable Engineer designed plan printable on 11 x 17 paper, and a cover letter. Plans must provide sufficient information to determine that installation will meet Railway Standards, General Order requirements and CSA Standards. They must be to scale or have all dimensions shown.* ***They must clearly and accurately show Railway property lines.***

Signature: _____ Date: _____

Design & Construction

A Guide to:
***Oil / Gas Pipeline Applications***

Applicants must submit one (1) copy of an acceptable plan, cover letter and completed application form. Plans and Installation shall conform to Railway Standard, CSA Standard Z-662 and Transport Canada (TC) Standards Respecting Pipeline Crossings under Railways.

The *Non-refundable*, Application Fee, in the amount of $1,675.00 (+GST) to cover the cost of reviewing the application and plan(s), will be invoiced to you upon receipt of your application. An additional fee of $500 (+GST) for each review after the initial review due to inadequate or missing information will be charged.

CN GST/HST Registration Number 10076 8779 RT0001, EFT Payable to "Canadian National Railway Co."

| | |
|---|---|
| Engineering Application* - ***will be invoiced to you***<br>• Rush Application Fee | $1,675.00 (plus GST)<br>• Add $5,000.00 (plus GST) |
| Agreement* (applies to 3m wide x 30m long) | $2,200.00 (plus GST) |
| Additional Review* | $500.00 (plus GST) per review |
| Railway Engineer Review* | $5,000.00 (plus GST) per detailed CN Engineer Review |

*** The Railway reserves the right to charge for additional costs incurred by the Railway as a result of specific applications. Without limiting the generality, this includes items such as open-cut installations, inductive coordination, charges for train delays and slow orders, consulting and inspection costs. All fees and charges that may be imposed under this Agreement are subject to annual review and adjustment by the Railway.**

The Applicant shall indicate the duration of construction on / above / below the CN Right of Way, provide an estimated construction schedule and provide a field contact name and phone number

**The following information is require on the drawing:**

- ☐ Drawings must be to scale or have all dimensions shown
- ☐ A site plan showing the location of crossing in relation to a legal description, road allowance or Railway mileage and subdivision
- ☐ Dimension width of CN Right of Way, the number of tracks and the angle of crossing (crossing angle to be greater than 45 degrees)
- ☐ Direction of flow and location of nearest emergency shut off valves
- ☐ Profile showing the depth of burial from the base of rail and ditch bottom to top of pipe
- ☐ Type of carrier and casing pipes. Wall thickness, and pressures (operating and maximum test). Ensure Cooper E-90 Loading for all designs
- ☐ Show the cross-section of the carrier pipe being held clear of the casing pipe by supports / spacers.

  **NOTE**: Every Carrier pipe with a diameter of 3 inches or greater shall be held clear of the casing pipe by properly designed supports, insulators or centering devices, installed so that no external loads will be transmitted to the carrier pipe. Grouting of the space between the carrier and casing will NOT be permitted. The ends of the casing pipe shall not be sealed by any load transferring material.
- ☐ Hoop Strength calculation must be shown on uncased crossings.
- ☐ No gas pipeline under buildings, switches etc
- ☐ 13.7m clearance to any bridges, building, switches etc.
- ☐ Minimum yield strength 241MPa with a joint factor of 1.00 (standard-welded)
- ☐ Warning Markers required on each side of the CN Right of Way
- ☐ Cathodic protection indicated (if applicable)
- ☐ Casing to be extended the full width of the CN Right of Way (Steel pipe is the only acceptable material for casing pipe)
- ☐ Method of Installation
- ☐ Contents of Pipe
- ☐ Indicate location of proposed jacking and receiving pits in relation to the gauge side (inside) of nearest rail
- ☐ NOTE: "Installation and maintenance to be in accordance with TC E-10 and the latest edition of applicable CSA Standard Z-662"
- ☐ Professional Engineer Stamp and signature. "Not for Construction" or "Preliminary" drawing are not acceptable.
- ☐ Contact Name, Mailing Address, Phone Number, and Email Address
- ☐ Revised Drawings must be marked as revised and state reason for revision and date revised
- ☐ 11 x 17 paper size ONLY. Applications received on larger or small paper are classified as inadequate and will be declined

**Casing**

| | |
|---|---|
| Carrier Pipe less than 168.3 mm O.D → | Casing Pipe must be a minimum of 50mm O.D larger |
| Carrier Pipe more than 168.3 mm O.D. → | Casing Pipe must be at least 75 mm O.D. larger |
| Casing pipe must be sealed to the carrier pipe | |

☐ Wall Thickness to be a minimum of 4.8 mm, unless no protective coat or it is not cathodically protected then you must add 1.6 mm (see table 4.10 CSA Z-662 for all sizes)

**Minimum Depth of Burial**

| | | | |
|---|---|---|---|
| Below Track | Mainline | Cased 1.68m | Uncased 3.05m |
| | Other Tracks | Cased 1.37m | Uncased 3.05m |
| Below Right of Way | | Cased 1.00m | Uncased 1.83m |

**Geotechnical Requirements:**

☐ Outside Diameter 5”-10”, Completion of GEO-FORM 1 & include note on drawing “Geotechnical Engineer evaluation has been completed and the Geotechnical Engineer has determined that based on the soil conditions, there will be no adverse effects to CN operation and property”.

☐ Outside Diameter 10” or greater, Completion of GEO-FORM 2 & include note on drawing: “Geotechnical Engineer evaluation has been completed and the Geotechnical Engineer has determined that based on the soil conditions, there will be no adverse effects to CN operation and property. Engineer must be on site during installation”.

Transport Canada Standards Respecting Pipeline Crossings under Railways can be found at:
https://www.tc.gc.ca/eng/railsafety/standards-tce10-236.htm

Applications should be directed to:

| | |
|---|---|
| **NORTHERN ONTARIO, MANITOBA AND SASKATCHEWAN**<br>CN Public Works<br>Prairie Division<br>Building B, Floor 2<br>10229-127th Avenue<br>Edmonton, Alberta T5E 0B9 | Attention:<br>Rogerio Neto<br><br>Email: praengsvc@cn.ca |
| **ALBERTA AND BRITISH COLUMBIA**<br>CN Public Works<br>Pacific Division<br>Building B, Floor 2<br>10229-127th Avenue<br>Edmonton, Alberta T5E 0B9 | Attention:<br>Adele Ammar<br><br>Email: wcengsvc@cn.ca |
| **BC RAIL TERRITORY**<br>CN Public Works<br>Prairie Division<br>Building B, Floor 2<br>10229-127th Avenue<br>Edmonton, Alberta T5E 0B9 | Attention:<br>Rogerio Neto<br><br>Email: praengsvc@cn.ca |

| **APPLICATION CHECKLIST** – ensure the below required items are sent when applying. Should something be missing, your application will be c and you will be required to re-apply accordingly. " WE DO NOT CONDUCT PRELIMINARY REVIEWS" |
|---|
| ☐ Cover Letter |
| ☐ Completed Application Form |
| ☐ Completed GEO-Form 1 / GEO-Form 2 (if applicable) |
| ☐ 1 copy of Signed and Stamped Drawing to Scale – 11 x 17 paper size |

## CONSTRUCTION, OPERATION AND MAINTENANCE OF CROSSINGS

1. The Company shall give the Railway at least ten (10) days' prior notice of its intention to do any construction or maintenance work. The determination of this notice period shall not include Saturdays, Sundays and statutory holidays. Should an emergency situation arise, the Company shall contact the Railway to make special arrangements. The Railway agrees to act reasonably in these situations.

2. Construction and maintenance by the Company of any crossing shall be subject to the supervision of the Railway or the Railway's appointed representatives.

3. Should any work be required to support or repair the tracks or facilities of the Railway or to protect train movements due to the construction, operation, maintenance or removal of crossings, such work shall be performed by the Railway and the Company shall reimburse the Railway for all reasonable costs associated with such work upon receipt of the Railway's account.

4. The Company shall maintain all Crossings under this Agreement in good order and condition in accordance with the applicable rules, requirements and specifications issued from time to time by the Canadian Standards Association and approved by Transport Canada. If at any time during the term of this Agreement, the Company neglects to do any restoration and Maintenance work required to keep any crossing free from hazard, the Railway, after giving reasonable prior written notice to the Company specifying the nature of the work required, may itself carry out such work. The Company shall reimburse the Railway for all reasonable costs associated with this work upon receipt of the Railway's account.

5. The construction, operation and Maintenance of Crossings shall be carried out in a manner so as to minimize interference with Railway Property, facilities and operations. When any such work has been completed, Railway Property shall be restored by the Company to its former condition so far as practicable. The Company shall, at its expense, expeditiously and effectively, remedy any interference that does occur, or, should no appropriate remedy be found, remove such crossing and restore the Railway Property to good order and condition. Should the Company fail to correct such interference, the Railway reserves the right to do so at the Company's expense and the Company will reimburse the Railway upon receipt of the Railway's account therefore.

5. The Railway may impose other construction conditions at time of application.

# GEO FORM 1

THE APPLICANT MUST COMPLETE THIS FORM, AND SUBMIT WITH UTILITY APPLICATIONS FOR PIPES WITH AN OUTSIDE DIAMETER BETWEEN 5" TO 10".

ONCE COMPLETED, PRINT, AND SIGN THIS FORM.

Note must be added to all plans for pipes between 5 to 10" in outside diameter:

*"Geotechnical Engineer evaluation has been completed and the Geotechnical Engineer has determined that based on the soil conditions, there will be no adverse effects to CN operation and property."*

**Installations between 5" to 10" in outside diameter:**

1. During construction the following must be monitored:
    a. Ground surface and subsurface movements or settlements
        - Core Main Line
        i. ANY SETTLEMENTS OF 5MM IS TO BE REPORTED TO CN IMMEDIATELY
        ii. ANY SETTLEMENTS OF 10MM OR GREATER, WORK IS TO STOP IMMEDIATELY
        - Branch Line
        i. ANY SETTLEMENTS OF 8MM IS TO BE REPORTED TO CN IMMEDIATELY
        ii. ANY SETTLEMENTS OF 16MM OR GREATER, WORK IS TO STOP IMMEDIATELY

    b. Ensure sufficient measures are taken to preserve the safety of rail operations and structural integrity of the track grade.

    Please initial here if you understand the above requirements. Initial _____

***Please submit a copy of your Geotechnical Report with your application***

Applicant: _____ Signature:_____

Date Signed: _____ Title: _____

# GEO FORM 2

THE APPLICANT MUST COMPLETE THIS FORM, AND SUBMIT WITH UTILITY APPLICATIONS FOR PIPES WITH AN OUTSIDE DIAMETER OF 10" OR GREATER.
ONCE COMPLETED, PRINT, AND SIGN THIS FORM.

Note must be added to all plans for installations 10" or greater in outside diameter:

*"Geotechnical Engineer evaluation has been completed and the Geotechnical Engineer has determined that based on the soil conditions, there will be no adverse effects to CN operation and property. Engineer must be on site during construction."*

**Installations 10" or greater in outside diameter:**

1. A Geotechnical study must be conducted to ensure there are no known or suspected problems with the installation due to soil conditions at the location. Please provide confirmation that a monitoring and mitigation plan is in place to mitigate potential stability issues with the proposed installation. Review the below requirements and initial indicating compliance and acceptance.

    a. Construction Methodology relative to soil conditions will be reviewed and identified by the Geotechnical Engineer as a safe and appropriate method of installation.

    b. Communicate & Rectify potential adverse effects to CN Operations and property.

    c. The expected extent and magnitude of ground movement over time is expected to be less than the critical threshold in the monitoring plan.

    d. Set up a contingency plan in the event problems arise during construction at the site and communicate this plan to all parties involved in construction.

    e. Ground surface and subsurface monitoring in place.

    f. Vibration limits for communication cables will be considered and will be protected as necessary. If applicable.

    g. Placed required "note" on application drawing along with stamp and signature.

2. A Geotechnical Engineer must be onsite during installation. Please provide the following:

Firm name: Name of Geotechnical Firm
Name of Engineer assigned to project: Name of Geotechnical Engineer
Contact number of Engineer assigned to project: Contact phone number
Email address of Engineer assigned to project: Email address of Engineer

3. During construction Engineer must monitor 24hrs a day, 7days a week:
    a. Ground surface and subsurface movements or settlements
        - Core Main Line
        i. ANY SETTLEMENTS OF 5MM IS TO BE REPORTED TO CN IMMEDIATELY
        ii. ANY SETTLEMENTS OF 10MM OR GREATER, WORK IS TO STOP IMMEDIATELY
        - Branch Line
        i. ANY SETTLEMENTS OF 8MM IS TO BE REPORTED TO CN IMMEDIATELY
        ii. ANY SETTLEMENTS OF 16MM OR GREATER, WORK IS TO STOP IMMEDIATELY

    b. Ensure sufficient measures are taken to preserve the safety of rail operations and structural integrity of the track grade.

4. Post Installation the following is to be done:
    a. Engineer to provide confirmation in writing that the work was conducted in accordance with the detailed plans accepted by CN. This will include the submission of as-constructed plans with an engineer's stamp.
    b. Engineer to report on the results of the ground monitoring and confirm that there are no expected problems due to installation

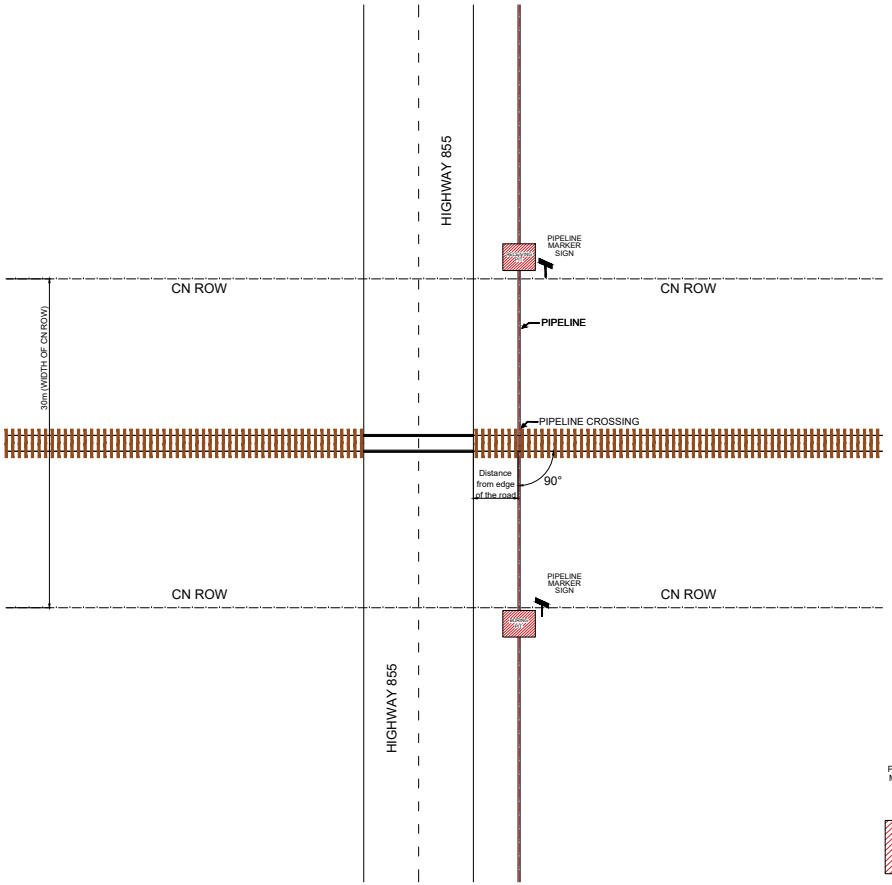
    Please initial here as understanding of the above requirements. Initial_____

***Please submit a copy of your Geotechnical Report with your application***

Applicant: _____ Signature:_____

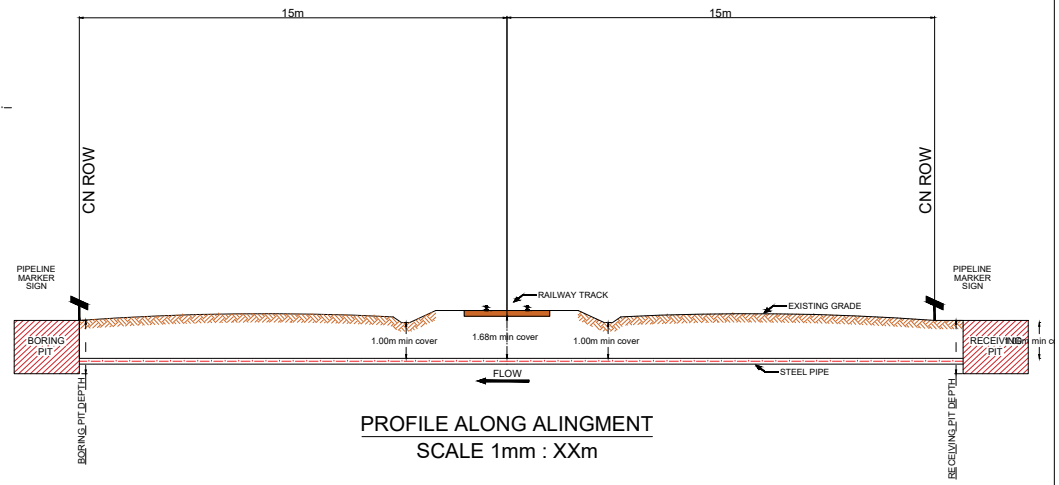
Date Signed: _____ Title: _____

# U/G OIL & GAS




PLAN VIEW
SCALE 1mm : XXm

PROJECT LOCATION
GPS Coordinates: XXX Latitude
XXX Longitude




PROFILE ALONG ALINGMENT
SCALE 1mm : XXm

P.ENG. STAMP

DATE
P.ENG. SIGNATURE

**LEGEND:**

EXISTING GRADE
PIPELINE
RIGHT OF WAY
RAILWAY TRACK
EXISTING ROAD

Note:
1. Contractor to arrange CNR S&C locates and flagging prior to construction
2. Boring and Receiving pit should be located outside CN Right of Way
3. Warning Pipeline Marker are to be placed installed outside CN ROW
4. Method of Installation: Boring pit to receiving pit in a manner that the railway grade is not disturbed
5. Installation and maintenance to be in accordance with Transport Canada E-10, and the latest edition of applicable CSA standard Z-662.
6. Casing ends shall be suitably sealed to the outside of the carrier pipe with link seals. Densyl mastic and Denso tape. Spacers shall be installed at minimum 3.0m intervals.
7. A Geo-technical Engineer has reviewed the proposed installation work and verified that there are no stability issue with the proposed installation. A Geo-technical Engineer should be on site during construction. (If applicable)

Carrier Pipe Specifications
a. Pipe Size: mm x mm
b. Nominal Pipe Size: x PE
c. Test Pressure: x kPa
d. Operating Pressure: x kPa
e. Hydrostatic Design Basis: x Mpa
f. Pipe Specifications: xx
g. Hoop Stress: x Mpa (Stress Level: %)
h. Emergency shutoff values location: SW 19-19-19

Casing Pipe Specifications
a. Pipe Size: mm x mm
b. Nominal Pipe Size: x St.
c. Minimum Yield Strength: x MPa
d. Pipe Specifications: xxx
e. Protective Coating : xxx
f. Cathodic Protection: Sacrificial Zinc Anode
g. Pipe Material: Steel

| REVISIONS | |
|---|---|
| DATE | BY |
| | |
| APPROVALS | |
| | |
| | |
| SHEET X OF X | |

CN

| | |
|---|---|
| OPERATING RAILROAD | |
| XXX SUBDIVISION | |
| XXX MILEAGE | |
| LOCATION | |

METHOD OF INSTALLATION
FOR
PROPOSED UNDERGROUND UTILITY

OFFICE OF THE PUBLIC WORKS

| | | |
|---|---|---|
| DRAWN BY: XXX | SCALE: 1mm to XXm | DWG NO: |
| CHECKED BY: XXX | DATE: DD MM YY | FILE: |