

THIS IS EXHIBIT "U"
REFERRED TO IN THE AFFIDAVIT OF
JANE MUSTAC
SWORN BEFORE ME THIS 24TH DAY
OF JULY, 2020.


.....
A Commissioner, etc.



Administrative Report

Office of the Director of Infrastructure Services

To: Warden McNamara and Members of County Council

**From: Jane Mustac, P. Eng.
Director of Infrastructure Services/County Engineer**

Date: Wednesday, May 20, 2020

Subject: Road User Agreement – Enbridge

Report #: 2020-0520-IS-R019-JM

Purpose

The purpose of this report is to provide County Council with information and recommendations related to entering into a Road User Agreement with Enbridge Gas Inc.

Background

As of January 1, 2019, Union Gas and Enbridge Gas Distribution have amalgamated into one utility with the legal name Enbridge Gas Inc. (Enbridge Gas). Enbridge Gas completed inspections of an existing pipeline along County Road 46 and identified multiple integrity and depth of cover issues that could pose safety and security of supply concerns if not addressed. A significant portion of the existing line was installed in the 1930s & 1940s.

Due to these integrity concerns, Enbridge Gas proposed to replace approximately 64km of the existing 8-10-inch Windsor Natural gas pipeline (1380kPa), with a high pressure 6-inch replacement (3450 kPa) starting near the intersection of County Road 46 and Concession Road 8 (located in the Town of Tecumseh), extending easterly towards Chatham-Kent to the existing Enbridge Gas Port Alma Transmission station. Enbridge Gas has confirmed that the decrease in diameter and the increase in maximum operating pressure will not provide any significant change in the capacity of the proposed pipeline at this time and is considered a "like for like" replacement.

Jane Mustac, P.Eng, Director of Infrastructure Services/County Engineer
Corporation of the County of Essex, Suite 315, 360 Fairview Ave. W., Essex, ON N8M 1Y6
Phone: 519-776-6441, ext. 1397; Email: jmustac@countyofessex.ca

Administrative Report

Page 2

May 20, 2020

Road User Agreement – Enbridge

The proposed project includes a complete removal of the existing pipeline immediately upon the completion of the proposed project construction and related customer tie-ins to maintain continued delivery of natural gas service to customers. It is expected that the abandoned pipeline (10") will be removed as there are several other existing/proposed utilities for the corridor, and further that any impacted soil resulting from the gas pipeline would also need to be removed and replaced with native material.

An environmental study was completed and investigated data on the physical, biophysical and socio-economic environmental concerns along the proposed and existing pipeline route(s) and provided a recommended program of supplemental studies, mitigation and protective measures to be undertaken as part of the construction activities. As such, there is a potential risk that some additional studies and/or activities that may be required (i.e. The Stage 1 AA has determined that the majority of the proposed pipeline route retains potential for the identification and documentation of pre-contact Aboriginal, post contact Aboriginal, and Euro-Canadian archaeological resources) and/or unexpected finds related to heritage resources or unknown contaminated soils that may significantly impact the schedule and works for the project.

Timelines for review of the Project

May 2019

A presentation by Enbridge Gas was given to County Council on May 15, 2019 to introduce the Windsor Line project at a high level and gain Council support for their application to the Ontario Energy Board (OEB). County Council expressed concern that County Administration was not engaged in the project to date and also wanted reassurance that the new proposed project would be designed to accommodate future growth in the area. The direction from County Council was for Enbridge to work with County Administration to review the proposed project in terms of future capacity and alignment.

A preconsultation meeting with Enbridge and Administration was held on May 24, 2019. Enbridge proposed the 6" pipeline be constructed within the County Road 46 right of way. At this meeting, Administration was informed that 80% of the existing pipeline was within private easement adjacent to the County Road, in the boulevard area. The County recommended that the new pipeline should be replaced at the existing location, as it was approximately 9m away from the edge of pavement and will not restrict the roadway.

Administrative Report

Page 3

May 20, 2020

Road User Agreement – Enbridge

June 2019

On June 27, 2019, Enbridge submitted drawings that identified the entire 6" pipeline within the County Road allowance, adjacent to the existing edge of pavement, within the travelled portion of the right-of-way.

On June 28, Administration shared County Council's discontent that the proposed pipeline being replaced is a 'like for like' and did not consider future growth and expansion within Essex County. Administration also expressed concerns with the proximity of the pipeline identified in the drawing package since it did not remain within the existing private easement alignment as discussed.

July 2019

Administration communicated with Enbridge on July 3, 2019 restating the outstanding issues with the proposed project and requested updated information to reflect previous discussions.

August 2019

On August 13, 2019, County Staff and the Town of Lakeshore attended a site meeting requested by Enbridge to review areas of congestion and confirm separation from the Town's watermain. The County further expressed concern with the proximity of the pipeline in the travelled portion of the right-of-way and requested an alignment change to relocate the pipe as far as possible from the edge of pavement during the site meeting.

October 2019

An updated drawing package was received by Enbridge on October 2, 2019 in advance of meeting. A subsequent meeting was held with Enbridge staff on October 3, 2019 to discuss outstanding issues: 1) the growth projections used to size the pipe; and 2) the alignment of the pipeline within the County Road right-of-way. New information surfaced and Enbridge identified a discrepancy in the amount of the existing pipeline within private easement and confirmed that only 20%, not 80% of the pipeline was in private easement. None of the issues were resolved at that meeting.

November 2019

Enbridge provided comment on November 7, 2019 further explaining the rationale utilized to determine future growth. Although the growth projections did not anticipate future development in accordance with the Town and/or County official plans, Administration accepted the response and indicated that would form part of the report to County Council.

Administrative Report

Page 4

May 20, 2020

Road User Agreement – Enbridge

December 2019

A follow-up meeting was held with Enbridge on December 12, 2019 (with the Town of Lakeshore) and discussed the County's concerns regarding the pipe location and the shallow depth proposed. In the meeting, it was identified that lane closure would be required along CR 46 from May to October (approx. 300 days) in order to construct the pipeline. The County expressed concerns on limiting traffic to one lane on CR 46 for that long of a duration due to the nature of the corridor. The Enbridge team proposed innovative construction activities that would reduce the number of days for lane closures and Administration requested a Traffic Control Plan be submitted for review to further understand the impact/duration.

February 2020

On February 6, 2020 County staff met with Enbridge (and the Contractor) to discuss the concerns with the provided Traffic Control Plan and associated lane closures. It was identified that regardless of location on alignment that the roadway was still required to utilize a lane (i.e. pipe stringing) and that Enbridge reviewed the proposal and decreased number of days of lane closures, however, depth and alignment of the pipe still were not agreed upon. Due to the proximity of the pipeline, a minimum depth of 1.5 m was reiterated, or the option to re-align to the boulevard area remains preferred. Updated drawings were received from Enbridge on February 28, 2020 that did not satisfy Administration.

March 2020

Administration, with the assistance of the County Solicitor, initiated a draft Road User Agreement that describes terms and conditions accompanying the municipal consent for the project. Matters related to Grant conditions, terms, construction methods, traffic management, preliminary/final highway reporting requirements and payment obligations are included in this agreement.

April 2020

On April 8, 2020 Administration restated concerns with respect to depth and proximity to the edge of pavement. Enbridge organized a conference call with senior administration seeking direction on next steps for project approval.

At this meeting, County staff was advised that Enbridge received OEB Notice of Decision with approval to construct a natural gas pipeline. Enbridge expressed a desire to initiate construction on May 7th, 2020.

County staff continued to express concern with the alignment and depth of the pipe and identified that Transportation Association of Canada (TAC), *Guidelines for Underground Utility Installation Crossing Highway Rights-of-Way* is one document that provides guidance on minimum conditions.

Administrative Report

Page 5

May 20, 2020

Road User Agreement – Enbridge

Oversized loads are a reality for this corridor and Administration accepted the proposal by Enbridge to complete a loading analysis report to support the strength of the pipe which can handle the loads expected on the highway and protect the integrity of the roadway and must be qualified by a professional engineer.

Administration received updated alignment drawings on April 23, 2020 with a notation describing a proposed 1.0m depth and no significant change to horizontal alignment with the understanding that this can only be approved with the justification support from a Qualified Professional Engineer.

May 2020

Enbridge report received and shared with a professional engineering firm for an opinion on whether a deviation from the TAC Guidelines is defensible and if Administration should consider a shallower depth within the travelled portion. The review identified that the pipeline was defined adequately in accordance with its governing legislation (Canadian Standards Association CSA-Z2661-15) however falls short on reviewing the impact and protection to the roadway.

Discussion

The location of the new high-pressure distribution system starts near the intersection of County Road 46 and Concession Road 8 (located in the Town of Tecumseh) and extends easterly towards Chatham-Kent to the existing Enbridge Gas Port Alma Transmission station for a total of 30 kms affecting County Road right of ways. CR 46 is a major arterial road that functions similar to a provincial highway that not only accommodate car and truck traffic, but also serves as a reliable corridor for oversized loads, agricultural equipment, etc. A map showing the project alignment is included as **Appendix A**.

Administration has been actively working with the project team from Enbridge. Enbridge Gas provided Administration with detailed information pertaining to the proposed pipeline for review on several occasions.

County staff have spent significant time and effort to review and included, but not limited to, the following activities:

- Attend project meetings to discuss the project
- Review and provide comments on design drawings and plan
- Attend site to verify field work & exploration
- Review proposed construction schedules and methods
- Review road user agreement terms and conditions
- Review traffic management plans
- Review permitting requirements

Administrative Report

Page 6

May 20, 2020

Road User Agreement – Enbridge

Additional activities that would still be required by County staff include:

- Review Preliminary/Final Highway Condition report
- Attend site to inspect and monitor work completed within the right-of-way during duration of project
- Coordinate use of the highway for other users (oversized loads, agricultural activities, etc.) during the construction period
- Review the removal program for the decommissioned pipe
- Obtain post construction asset drawings
- Confirm condition of highway is restored

Alignment of the Pipe

The existing pipeline, if located approximately 9m outside the existing edge of pavement and is to some extent installed in the municipal right of way with approximately 20% in private easements.

The review of the proposed pipeline included considerations pertaining to all aspects of project including the legislative and policy context, planning, project development, utility placement, and working in the road under a Draft Road User Agreement included as **Appendix B**. This agreement is applicable to the construction activities of the new pipe only and the County would rely on the 1957 Franchise Agreement, included as **Appendix C** for any further removals, relocations, or other conditions as required.

It is recognized that there may be valid reasons why a utility provider may want a second alignment rather than digging up its original alignment, however with numerous interests competing for both short and long-term use of these rights-of-way, and maintaining the safety and operations of the corridor is paramount, it is crucially important that a balance exist where its intended use, present and future, is protected.

This key corridor functions as a Class 2 arterial road, is a major truck route and accommodates an Average Annual Daily Traffic (AADT) count of up to 12,000 vehicles per day (vpd) with 5% consisting of heavy truck traffic. The traffic volume along this corridor has been increasing at a rate of up to approximately 15% annually over the last couple of years and growth is expected to continue.

Based on the role and function of the roadway, the platform that is considered utilized and protected as the travelled portion can encompass up to 6.0 meters from the existing edge of pavement for safety purposes, to meet roadway maintenance requirements, to accommodate oversize and/or overload permits and to allow for future expansion of the shoulder and/or travelled lanes. It is known that County

Administrative Report

Page 7

May 20, 2020

Road User Agreement – Enbridge

Road 46 would require a road widening of the existing road ROW as the travel growth needs of the community require, including expansion of intersections. The existing and planned future right-of-way should be protected as a 'Travelled portion' and lands outside of the area, would be identified as "Boulevard portion".

Guidelines are utilized by Road Authorities and are intended to describe processes required by regulatory, administrative or ethical considerations associated with specific professional services provided by engineers. There are several sections in the TAC manual that specifically provides guidance on utilities that cross and/or occupy a highway and some specific references include the following:

- Section 3.3.1 entitled **Later Adjustment and Interference** identifies that "new utility installations should be located to minimize the need for later adjustment to accommodate future highway improvements and to permit servicing such installations with minimum interference to highway traffic".
- Section 4.1.8 entitled **Underground Utility Cover** stresses that "the minimum utility cover depths should be as specified hereafter (see Table 1 and Figure 4 in **Appendix D**) for each utility installation type. Utility installations should conform to all conditions described in columns A, B, C and D of Table 1. The minimum utility cover depths specified by a road authority may be greater when installed within freeway rights-of-way".

Table 1 - Minimum Cover Depth for Underground Installations Crossing Highways (and Freeways) provides directives that the minimum depth for an un-encased new high-pressure gas or liquid petroleum pipelines (>680 kPa) below pavement surface is 1500 mm (1.5m) and that the minimum depth below ground elevation in a boulevard area is 1000 mm (1.0m). The depth can be reduced with encasement to 1200mm (1.2m) below pavement surface. This 1.2m depth is also supported by the updated CSA guidelines Z2662-19 that identifies a 1.2m depth to surface cover under a roadway.

Utilities can be accommodated on highway rights-of-way when such use and occupancy do not adversely affect highway safety, construction, maintenance or operations. In this respect, guidelines outlining safe and rational practices for accommodating utilities within highway rights-of-way are of valuable assistance to the road authorities to protect the safety, integrity, maintenance standards and future improvements within key corridors.

In an effort to determine if specific site conditions do not require these guidelines to be met, compromises may be made based on sound and reasonable engineering judgement. In this regard, Enbridge completed a structural loading report to verify the pipe is strong enough to sustain the expected oversized loads on the highway but was silent on its impact to the roadway. County Administration retained a

Administrative Report

Page 8

May 20, 2020

Road User Agreement – Enbridge

qualified Consulting Firm to complete a third-party review and both reports are included in **Appendix E**.

The conclusion of the third-part review confirmed the calculations submitted by Enbridge do confirm structural capacity based on the assumptions made; however, from the second portion of the discussion, failed to address the risk imposed by deviating from a standard regularly applied by the County and other similar Authorities for protecting a roadway.

The recommendation of the review concludes with:

"Based on our review and in the interest of shielding the County from liability while maintaining a consistent application of policy, and in the interest of good engineering and right-of-way management practices, we formal recommend that Enbridge be directed to adhere to the requirements set forth by your office as the Road Authority; as such compliance with the TAC guidelines should occur without further discussion"

Enbridge has shared that they do not support the opinion of the third party.

At this time, Administration is not satisfied that the proposed alignment and depth of the Enbridge pipeline could be constructed without an adverse effect to the roadway and can't recommend the proposal as presented. Administration is prepared to enter into a Road User Agreement (as detailed in **Appendix B**) with Enbridge if, all conditions can be met, including those specifically regarding the alignment and depth included below:

- With a minimum depth of cover of 1.0 meters where the horizontal distance from the edge of pavement is in excess of 6.0 meters; or
- With a minimum depth of cover of 1.5 meters where the horizontal distance from the edge of pavement is located at and/or closer than 6.0 meters.

Financial Implications

Administration has incurred significant staffing costs in reviewing the Enbridge pipeline project and also deemed it necessary to engage professional engineering and legal services as a result of the proposed location of the pipeline.

Recommendation

That Council adopt By-law 2020-23, authorizing the execution of the Road User Agreement with Enbridge - Windsor Pipeline Project on CR 46 by the Warden and Clerk, at such time that County Administration, with the assistance of the County

Administrative Report

Page 9

May 20, 2020

Road User Agreement – Enbridge

Solicitor, is satisfied that the terms and conditions of the Road User Agreement can be met.

Respectfully Submitted

Jane Mustac

Originally Signed by

Jane Mustac, P.Eng, Director of Infrastructure Services/County Engineer

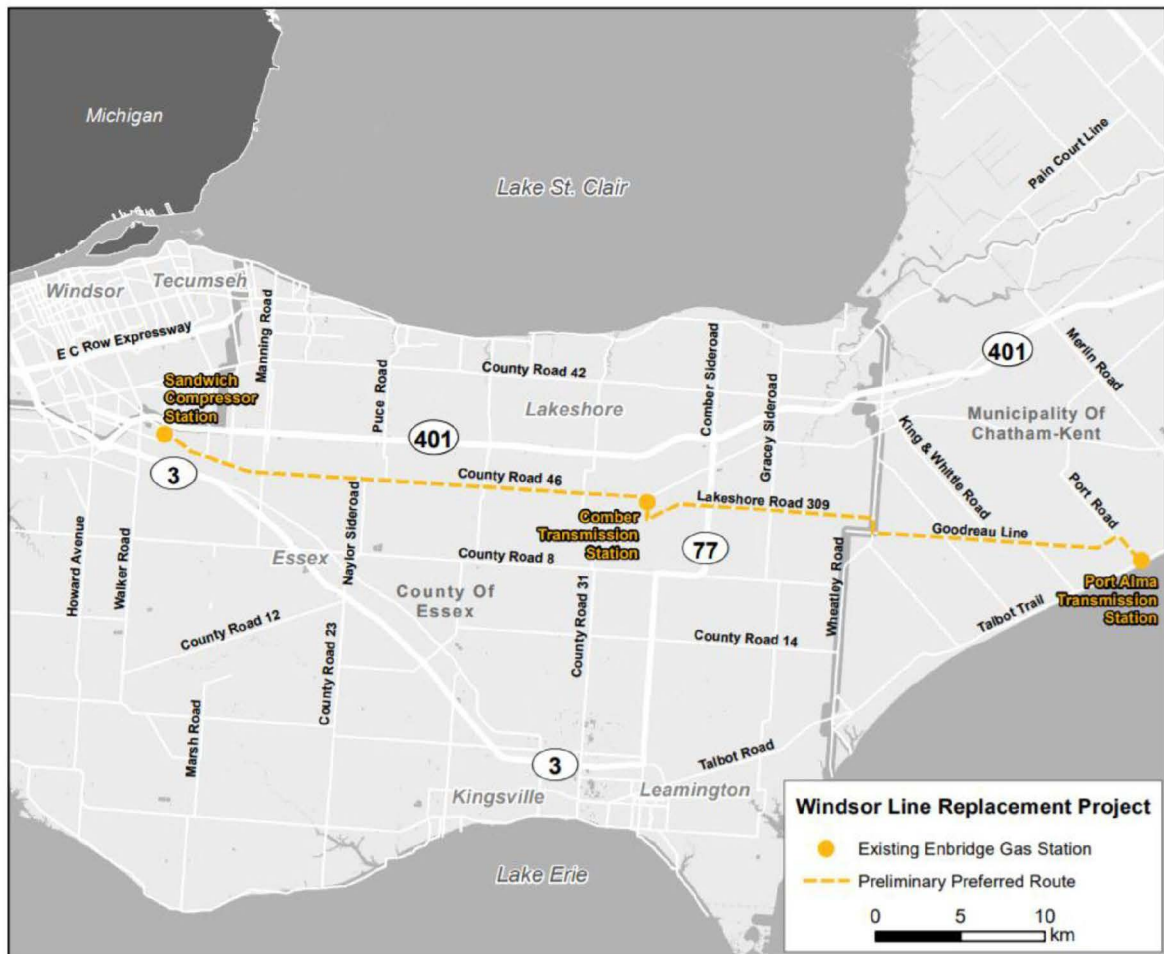
Concurred With,

Robert Maisonville

Originally Signed by

Robert Maisonville, Chief Administrative Officer

Appendix No.	Title of Appendix
A	Enbridge Windsor Pipeline – Project Route
B	Road User Agreement - Draft
C	1957 Franchise Agreement
D	TAC references
E	Third Party Review



ROAD USER AGREEMENT

THIS ROAD USER AGREEMENT made in duplicate this [__] day of May, 2020 (the "**Effective Date**")

B E T W E E N:

THE CORPORATION OF THE COUNTY OF ESSEX
(hereinafter referred to as the "County")

OF THE FIRST PART

- and -

ENBRIDGE GAS INC. (hereinafter referred to as the "**Gas Company**", and together with the County, the "**Parties**")

OF THE SECOND PART

WHEREAS the Gas Company is a corporation, amalgamated pursuant to the laws of the Province of Ontario;

AND WHEREAS the Gas Company, as successor to Union Gas Limited, currently operates and maintains pipelines and distributes Gas to the residents of the County pursuant to the terms of an existing Agreement, dated December 11, 1957 (the "**Union Gas Agreement**");

AND WHEREAS the Parties acknowledge and agree that the Union Gas Agreement remains in full force and effect, and that this Road User Agreement is made to permit construction of a pipeline governed by the Union Gas Agreement;

AND WHEREAS pursuant to the Union Gas Agreement the Gas Company wishes to occupy certain Highways owned by the County and to utilize the County's right of way to install a NPS 6 pipeline (the "**Installation**") and carry out additional Works on the Highways for the distribution of Gas to the residents of the County, including the Decommissioning of the Old Line (the "**Road Use**"), all as specified in Schedule "C" to this Agreement (the "**Project**");

AND WHEREAS the County has agreed to grant to the Gas Company the rights described in this Agreement upon the terms and conditions of this Agreement;

AND WHEREAS the Gas Company has agreed to implement and comply with the Schedules attached to this Agreement;

AND WHEREAS by By-law passed by the Council of the County (the "**By-law**"), the duly authorized individuals have been authorized and directed to execute this Agreement on behalf of the County;

AND WHEREAS the Effective date of this Agreement shall be the date this Agreement is executed by the County, which execution shall not occur until all Schedules have been finalized, approved by the County and attached to this Agreement, and the Agreement has been executed by the Gas Company;

NOW THEREFORE IN CONSIDERATION of the undertakings and covenants hereinafter expressed and upon the terms hereinafter set forth, and other valuable consideration, the receipt and sufficiency of which is hereto acknowledged, the County and the Gas Company mutually covenant and agree as follows:

1. RECITALS

1. The Parties warrant that the above recitals are true and that same form an integral part of this Agreement and are accordingly hereby incorporated into this Agreement by reference.

2. DEFINITIONS

1. In this Agreement:
 - (a) "**Applicable Laws**" means any an all applicable laws, statutes, codes, ordinances, principles of common and civil law and equity, rules, approvals, regulations, and municipal by-laws which are binding upon and applicable to the Project;
 - (b) "**Approved Plan**" means, as applicable, the approved layout of the pipeline (as may be amended from time to time) or the approved Plans (as may be amended from time to time) as approved by the County Engineer in accordance with the provisions of this Agreement;
 - (c) "**County Engineer**" means the most senior individual employed by the County with responsibilities for highways within the County or the person designated by such senior employee or such other person as may from time to time be designated by the Council of the County;
 - (d) "**Crossing(s)**" means any place where any component(s) of the pipeline cross, in whole or in part, any travelled portion of a Highway;
 - (e) "**Decommission(s)**", "**Decommissioned**", and/or "**Decommissioning**" when used in connection with parts of the gas system, mean any parts of the gas system taken out of active use and purged in accordance with the applicable CSA standards and in no way affects the use of the term 'abandoned' pipeline for the purposes of the *Assessment Act*;
 - (f) "**Environmental Plan**" means the environmental plan prepared by Stantec Consulting Limited for the Gas Company, dated July 16, 2019, as filed with

the Ontario Energy Board as part of the Gas Company's Windsor Pipeline Replacement Project;

- (g) **"Gas"** means natural gas, manufactured gas, synthetic natural gas, liquefied petroleum gas or propane-air gas, or a mixture of any of them, but does not include a liquefied petroleum gas that is distributed by means other than a pipeline;
- (h) **"Gas System"** means such mains, plants, pipes, conduits, services, valves, regulators, curb boxes, stations, drips or such other equipment as the Gas Company may require or deem desirable for the distribution, storage and transmission of gas in or through the County;
- (i) **"Highway(s)"** means all common and public highways, street, roadway, avenue, parkway, driveway, square, bridge, viaduct or trestle, any part of which is intended to be used for or is used by the general public for the passage of vehicles and includes the area between the lateral property lines thereof and shall include not only the travelled portion of such highway, but also ditches, driveways, sidewalks, and sodded areas forming part of the road allowance now or at any time during the term hereof under the jurisdiction of the County, as more fully described in **Schedule "B"**. For greater clarity, the location and general site plan details of the Project, and the portions of the Highway affected by this Agreement are more particularly depicted on **Schedule "A-1"** to this Agreement, and those Highways affected by the Agreement are further particularly described in **Schedule "A-2"** to this Agreement;
- (j) **"Party"**) means, singularly, either the County or the Gas Company and **"Parties"** means, collectively, both the County and the Gas Company;
- (k) **"Plan"** means any plan required to be provided by the Gas Company to the County pursuant to this Agreement;
- (l) **"Project"** has the meaning given to such term in the Recitals;
- (m) **"Distribution System"** means the pipeline to be installed by the Gas Company for the distribution of gas, including the high pressure pipeline and other related pipelines as depicted on **Schedule "C"** to this Agreement;
- (n) **"Distribution Pipeline Plan"** means the plan drawn to scale, showing the permitted routing for the Distribution System, as more particularly set out in **Schedule "B"** to this Agreement;
- (o) **"Tree Work"** means cutting, trimming, removing, and/or replacing trees or hedges growing on the Highway(s);
- (p) **"Work"** or **"Works"**) means any work related to the Project to be undertaken by the Gas Company or its agents or contractors in connection

with the Highways, including, without limitation the Road Use, the Installation, and the Decommissioning; and

- (q) whenever the singular, masculine or feminine is used in this Agreement, it shall be considered as if the plural, feminine or masculine has been used where the context of the Agreement so requires.

3. SCHEDULES

1. The following Schedules (as may be amended from time to time by mutual agreement of the Parties) are attached hereto and form part of this Agreement:

Schedule "A" – Map depicting boundaries of Project

Schedule "B" – List of Highways upon which Distribution System located

Schedule "C" – Distribution Pipeline Plan comprised of:

Schedule "C-1" – List of Drawings

Schedule "C-2" – Drawings reference with full and approved drawings on file with the County

Schedule "D" – Schedule of Permits, Fees, and Charges

4. GRANT

1. The consent, permission, and authority of the County is hereby given and granted to the Gas Company, its employees, agents, and contractors:
 - (a) to enter upon the Highways under the jurisdiction of the County in accordance with the timelines provided for in Section 13 hereto, or as amended, to lay and construct the Distribution System under the road allowance of the Highways for the distribution of gas in connection with the Project as shown on the approved Distribution Pipeline Plan at Schedule "C" (with detailed plan on file with the County) to carry out the Works contemplated in this Agreement. The consent, permission, and authority hereby given extends only to the Highways-as shown in Schedule "A" and listed in Schedule "B", attached hereto, and the County shall not be obligated to provide any further right-of-way for the Distribution System, as part of the Project;
 - (b) to complete installation of the Distribution System, which shall be comprised of a single NPS 6 pipeline with maximum pressure of 3450 kPa,

and based on provincial guidelines, and the nature of the proposed pipeline, shall be installed at the below required depths:

- (i) a minimum depth of cover of 1.0 metre where the horizontal distance from the edge of the pavement is in excess of 6.0 metres (ground elevation);
 - (ii) subject to subparagraph (iii) below, a minimum depth of cover of 1.5 metres where the horizontal distance from the edge of the pavement is located at or closer than 6.0 metres (pavement surface);
 - (iii) where the Gas Company has prepared a study by a qualified professional engineer, to the satisfaction of the County Engineer, in her sole and absolute discretion, certifying that a variation in depth will not compromise the Highway(s) or the pipeline, and showing the load stress on the pipeline within 6.0 metres of the horizontal edge of the pavement is acceptable and safe, the minimum depth cover may be reduced to 1.0 metre; and
 - (iv) to do such other things as may be required by the terms of this Agreement and approved by the County to complete the Project.
2. The consent, permission, and authority hereby given and granted shall be subject to:
- (a) the rights and obligations of the County to construct, maintain, reconstruct, rehabilitate, and use at any and all times all Highways under the jurisdiction of the County;
 - (b) the right of free and legal use of all Highways by all persons entitled to use them;
 - (c) the rights of the owners of properties adjoining the Highways to enjoy full access to and from the Highways and of constructing crossings and approaches from their properties; and
 - (d) the rights and privileges that the County has granted or may grant to other persons (including, but not limited to, commuters, agricultural vehicles, overweight/oversized loads, and maintenance crews for maintenance of drainage ditches and roadway repairs) on the Highways;

all of which rights are expressly reserved.

3. Save as hereinafter provided, the consent, permission, and authority hereby given and granted to the Gas Company to enter upon the Highways shall at all times be subject to the prior approval of the County Engineer which shall be administered in accordance with the procedures set forth in this Agreement. All Work from time to time under this Agreement is subject to the prior approval of the County

Engineer, acting reasonably, who has full power and authority to give such directions and orders that the County Engineer considers in the best interest of the County, and the Gas Company will follow all directions and orders that the County Engineer provides that are issued in accordance with the provisions of this Agreement and Applicable Laws.

5. TERM

1. The rights hereby given and granted shall commence on the Effective Date and shall continue and be in force and effect until such time as the completion of the Work associated with the Project, when all phases of construction of the Project have been completed to the satisfaction of the County which is confirmed in writing by the County (the "**Term**").
2. The Parties acknowledge that the Union Gas Agreement shall continue to apply, but nothing in this Agreement shall prevent the Parties from negotiating a Franchise Agreement to replace the Union Gas Agreement.

6. APPROVAL PROCESS

1. Before commencing any Works under this Agreement, the Gas Company will deposit both a digital copy and a hard copy of the Distribution Pipeline Plan (including any amendments thereto) and its plan for the Decommissioning of the Old Line with the County Engineer for review pursuant to the terms of this Section 6.
2. The County Engineer shall review and consider the Distribution Pipeline Plan and any other Plans submitted by the Gas Company and, within a reasonable period of time following submission of such Plans, shall either approve or not approve the Work as presented in the applicable Plan. In the event the County Engineer does not approve the Distribution Pipeline Plan or any other Plan, the County Engineer shall issue written instructions to the Gas Company with any additional information or modifications which are reasonably required by the County Engineer with respect to the Distribution Pipeline Plan or any other Plan, including the imposition of any reasonable terms and conditions as the County Engineer considers in the best interest of the County in its capacity as custodian of the Highways. The Parties agree to work together in good faith to consider amendments to the Distribution Pipeline Plan or any other Plan which may be required by the County provided such amendments comply with Applicable Laws. The Gas Company shall not undertake Work of any kind until they are in receipt of the Approved Plan or an amended Approved Plan, as the case may be, and the issuing of the relevant permits.
3. Should there be any disagreement between the County and the Gas Company regarding the requirements of the Distribution Pipeline Plan or any other Plans

submitted by the Gas Company or required by the County, the opinion and requirement of the County Engineer, in her sole discretion, shall prevail.

4. The Gas Company is required to consult with the County Engineer in advance of commencing with the Project in order to determine what permits are required and agrees to apply for and obtain all permits from the County for the Project.
5. The Gas Company further agrees that prior to commencement of any Work pursuant to this Agreement, it shall obtain all permits and approvals which are required pursuant to any Applicable Laws, including, where necessary, the approval of any federal, provincial, and/or lower tier municipal government, any agency, and the County, and to satisfy the County that the Works will be completed to and meet the minimum standards of the County, in order to commence any of the Works.
6. Furthermore, it shall be the sole and absolute responsibility of the Gas Company to notify any other person or body of which it is aware or otherwise notified by the County, which is operating any equipment, installations, utilities, or other facilities, within the Highways where such Work is to be conducted, of the details of the anticipated Work so as to minimize the potential interference with or damage to such existing equipment, installation, utilities, and other facilities by the said Work, and so as to maintain the integrity and security thereof. Should any dispute arise between the Gas Company and any other user of the Highway(s) and the associate right-of-way, it is the sole responsibility of the Gas Company to resolve the dispute to the satisfaction of itself and any affected third party.

7. **HIGHWAYS**

1. Both the County and the Gas Company acknowledge that the Highways shown on **Schedule "A"** and listed on **Schedule "B"**, and only such Highways, are authorized for use by the Gas Company, its agents and/or contractors, for the Project.
2. If and to the extent the Gas Company wishes, after the commencement of the Project, to use any additional Highway(s) under the jurisdiction of the County for the Project not reflected on **Schedule "A"** and **Schedule "B"**, or to alter the alignment or depth of any pipe forming part of the Distribution System, the Gas Company shall request and obtain the prior approval of the County Engineer for the addition of the use of those additional Highway(s) for use with the Project, prior to completing any Work on those additional Highway(s), and shall enter into such amendments to this Agreement, as the County may require.
3. In the event it becomes necessary, during the Project, for the Gas Company to transport goods for use on the Project by way of oversized loads on any County Highway(s), the Gas Company shall obtain all of the necessary permits from the

County to do so, including posting any security required pursuant to such permits, and to comply with any reasonable conditions that may be required or imposed by the County at that time.

4. The Gas Company hereby agrees to comply with provision of all relevant By-laws of the County with respect to weight restrictions on the Highways, unless and until it receives the express written permission of the County Engineer to be exempted from the weight restrictions, with such permission and terms of such permission at the sole and absolute discretion of the County Engineer.

8. DECOMMISSIONING AND REMOVAL OF EXISTING UNION GAS LINE ALONG COUNTY ROAD 46

1. As part of seeking approval of the Approved Plan and the issuing of the relevant permits by the County, the Gas Company shall submit a plan, acceptable to the County Engineer, in her sole and absolute discretion, for the decommissioning and removal of the existing gas pipeline, and any appurtenances thereto, that was installed and maintained pursuant to the Union Gas Agreement and that are located on the Highways forming part of the Project (the "**Old Line**"). Except as otherwise provided below, the Old Line is to be completely decommissioned and removed, including the portions of the Old Line that cross driveways and portions of the Highway(s), including, but not limited to Crossings, subject to final approval of the plan, current uses of the affected Highway(s), and must obtain any necessary approvals from lower-tier municipalities for the said removal.
2. Notwithstanding the above, the County may, in its sole and absolute discretion, permit certain portions of the Old Line to be abandoned in place, if requested by the Gas Company with evidence to the satisfaction of the County, and provided that any approval to abandon in place remains subject to the sole and absolute discretion of the County and remains subject to all relevant approvals, including the method of abandonment.
3. The Gas Company expressly acknowledges and understands that the completion of the Decommissioning and removal of the Old Line is required by the County in consideration for entering into this Agreement and allowing the new proposed Distribution System to be installed.
4. The Gas Company further expressly acknowledges and agrees that should a dispute arise as to the timelines for the removal of the Old Line, the Gas Company shall abide by the conditions imposed by the relevant By-laws of the County as final, and, in any event shall complete the removal of the Old Line within twelve (12) months of the installation of the new Distribution System being completed.
5. The Project shall not be deemed to be complete until the Gas Company has completed the Decommissioning of the Old Line to the satisfaction of the County.

9. TREE CLEARING AND REPLACEMENT

1. In completing the Project, the Gas Company will comply with the Environmental Plan, including as it relates to Tree Work.
2. In the event that trees along the Highways are removed or damaged beyond repair by the Gas Company and thereby requiring removal (a "**Tree Removal**"), the Gas Company shall, at its own and sole expense, completely remove the tree(s), including any residual tree stumps to a level below grade and to restore and remediate the surface where the tree(s) were located to an even grade.
3. Further, for each Tree Removal, the Gas Company shall, at the option of the County, shall provide the County with a fee in accordance with **Schedule "D"** hereto.

10. METHOD OF CONSTRUCTION

1. The Gas Company shall install the Project by the method of construction identified in the Approved Plan as submitted to and approved by the County Engineer.
2. The County shall assign a consulting engineer, at the Gas Company's sole expense, to inspect the Work and monitor the Project (the "**Inspector**"), who can provide proof of training safety upon request, to satisfy the County that the Project is being completed in accordance with the Approved Plan. The said Consulting Engineer shall continue to be engaged until such time as the Project is completed to the sole and absolute satisfaction of the County.
3. All road crossings shall be installed via trenchless methods, including services, and shall be perpendicular to the Highway(s), ninety (90) degrees, except as otherwise approved.
4. The Gas Company shall, based on provincial guidelines, and the nature of the proposed pipeline, install the Distribution System in accordance with the Approved Plans and at the minimum depths required and agreed to in Article 4 of this Agreement.

11. BACKFILL AND RESTORATION

1. Prior to commencing any backfill and restoration work, the Gas Company shall submit a plan for approval to the County Engineer, and shall obtain any and all permits and approvals which are required pursuant to any Applicable Laws.

2. The Gas Company shall backfill the areas disturbed by the installation of the Distribution System by means of full granular backfill, as required, unless otherwise expressly approved by the County Engineer, in her sole discretion.
3. All backfill of trenches shall be placed in 0.3 metre layers and compacted in accordance with the requirements of the County. For backfilling not on the travelled portion of the Highway(s) and not on the gravelled shoulder of the Highways, native material can be used for backfilling, with necessary compaction requirements of the County being met. The Gas Company expressly acknowledges and agrees that excavated material cannot be used for backfilling the trenches on the travelled portion of the Highway(s) and/or on the gravelled shoulder of the Highway(s), with the excavated material being removed from the right-of-way by the Gas Company.
4. All backfilling of boring pits and trenches and compaction shall be completed every night, unless adequate protective safety barriers are erected to the satisfaction of the County Engineer, and which safety barriers do not impede traffic, to allow for full use of the paved portion of the Highway(s) after working hours.
5. The Gas Company expressly acknowledges and agrees that it shall complete the same backfilling and restoration work required by the County with respect to the removal and decommissioning of the Old Line, which may include, without limiting the generality of the foregoing, backfilling and seeding the affected area.

12. PROTECTION OF HIGHWAYS, ACCESS, AND FUTURE EXPANSION

Access and Future Expansion

1. The Gas Company expressly acknowledges and agrees that it is obligated to ensure the right of free and legal use of all Highways by all persons entitled to use them during completion of the Project;
2. The Gas Company further acknowledges and agrees that:
 - (a) the County has an overarching responsibility to ensure that the Highways, including the associated rights-of way, are operated and utilized in a manner that ensures safety of users and that maintains the traffic carrying ability and physical integrity of the Highways and associated rights of ways; and
 - (b) in light of the responsibility of the County, the Gas Company shall complete the Project in such a manner as to protect the structural integrity of the Highway(s) and associated rights-of-way, and to ensure the safety of users of the Highway(s) and associated rights-of-way, during completion of the Project.

3. The Gas Company further acknowledges and agrees that the County has advised the Gas Company that the Distribution System may need to be relocated to accommodate future expansion of the Highway(s) being utilized for the Project, which relocation shall be governed in accordance with the provisions of the Union Gas Agreement, applicable policies and procedures of the County, and by the Gas Company obtaining any and all necessary permits.

Protection of Highways from Damage

4. No tracked or overweight equipment shall be placed on the Highway(s) unless approved protection methods are in place, and with special care and attention being provided with respect to the paved surface of the Highways.

Accommodation of County Moving Permits

5. It is a requirement of this Agreement, that the Highway(s) remain open and available at all times for use by users of the Highways(s), including users who have been issued oversized/super-load permits by the County. To this end, the Gas Company shall ensure that there remains a minimum of 5.0 metres of passable lane available to traffic at all times.
6. Should a temporary closure of the Highway(s) be granted by the County for the completion of any part of the Work, the Gas Company shall, within 24 hours of being notified of a moving permit being issued by the County that effects the Highway(s) being utilized by the Gas Company for the Project, accommodate the party to whom the moving permit has been issued.

13. COMPLIANCE WITH APPROVED PLAN AND PERMITS

1. The Gas Company agrees to commence, perform, and complete the Installation and Decommissioning in accordance and compliance with the Approved Plan(s) for the Distribution System, including all permits and conditions, unless otherwise approved by the County Engineer, acting reasonably.
2. Any modifications, deviations or changes to the Approved Plan, Distribution Pipeline Plan, and/or other approved Plans (except for modifications, deviations, or changes deemed to be minor by the Inspector, which minor modifications the Inspector may approve or deny on behalf of the County), shall be sought from the County Engineer in writing, with approval to be obtained in advance of proceeding with any work that deviates from the Approved Plan, Distribution Pipeline Plan, or any other approved Plans. The Gas Company expressly acknowledges, agrees, and understands that the decision to grant or deny any request for modifications, deviations, or changes to the Approved Plan is in the sole and absolute discretion of the County Engineer and that any decision by her is binding and final, unless and until modified or reversed subject to the provisions of Article 39 hereto.

14. SCHEDULE OF PHASES

1. The Gas Company proposes to complete the Project in 3 phases in accordance with the following schedule commitments:

Phase	Item	Completion
Phase 1	Installation of new main including restoration	15-Dec-20
Phase 2	Service transfer from old main to new main	15-Dec-21
Phase 3	Decommissioning and removal of old main including restoration	15-Dec-21

15. TRAFFIC CONTROL PLANS

1. The Infrastructure Services Department is the contact department to submit traffic control plans, coordinate temporary traffic control, and to set the extent of traffic disruption allowed on County-owned Highways and rights-of-way, with this authority being granted through the County's Traffic Bylaw.
2. Prior to commencing work on each phase of the Project, the Gas Company shall provide the County with traffic control plans for review and approval in compliance with provincial standards, including OTM Book 7, and such other standards in excess of the requirements contained in OTM Book 7 required by the County that are specific to the Project.
3. The Gas Company acknowledges and agrees that Work that requires temporary traffic control requires a Temporary Traffic Control Plan, except for minor matters dealt with in the week-ahead traffic plan. The Temporary Traffic Control Plan(s) must be submitted at least three (3) days prior to the start date of the planned activity for review by the County and to seek approval from the County, to determine the effect the planned work may have on other planned activities requiring access to the Highway(s) and/or rights-of-way by any other public and/or private entity, including, but not limited to, solid waste collection, oversized loads, Emergency Services, Enforcement Services.

16. LANE RESTRICTIONS AND ROAD CLOSURES

1. The County agrees that the Gas Company may request that the County temporarily close or restrict lane access to portions of the Highways, but only where necessary, and for the purpose of safety, and with such requests shall be based on the bona fide requirements of the Project. The Gas Company expressly acknowledges and agrees that the granting or refusal of such requests is at the sole and absolute

discretion of the County Engineer, and for the time limits imposed by the County in its sole and absolute discretion.

2. In the completion of the Project, the Gas Company will use care and diligence to ensure that there will be no unnecessary interference with the Highways, or any other municipal works or improvements.
3. In the event that the impeding of traffic is approved by the County Engineer, all conditions of approval will be detailed on the permit, which condition may include, but are not limited to, advanced warning signs, the use of a pace vehicle, etc.
4. The Gas Company acknowledges and agrees that securing its worksite is necessary to protect the public from potentially hazardous conditions within the work zone. The Gas Company acknowledges and agrees that it is required to secure its worksite both while in use and during any period(s) of inactivity.
5. During any period(s) of time when traffic control signs are not required, they will be turned away from traffic, with such period(s) including, but not being limited to, shutdowns due to weather conditions, at the end of workdays, on weekends, and on holidays.

17. ENVIRONMENTAL LIABILITY

1. The County is not responsible, either directly or indirectly, for any damage to the natural environment or to any property, including any nuisance, trespass, negligence, or injury to any person, howsoever caused, arising from the presence, deposit, escape, discharge, leak, spill, or release, of any hazardous substance in connection with the Gas Company's occupation or use of the Highways as part of the Project, or previous use.
2. The Gas Company agrees to assume all environmental liabilities, claims, fines, penalties, obligations, costs, or expenses, whatsoever, relating to the Project, its removal and decommissioning of the Old Line, and/or its use of the Highways as part of the Project, including, without limitation, any liability for the clean-up, removal, or remediation of any hazardous substance on or under the Highways that result from:
 - (a) the occupation, operations, or activities of the Gas Company, its contractors, agents, or employees, or by any person with the express or implied consent of the Gas Company within the Highways; or
 - (b) any Works brought or placed within the Highway by the Gas Company, its contractors, agents, or employees, or any person with the express or implied consent of the Gas Company;

unless such environmental liabilities (including, without limitation, any liability for the clean-up, removal, or remediation of any hazardous substance) were caused directly or indirectly in whole or in part by the negligence or wilful misconduct on the part of the County or those for which it is responsible under Applicable Laws.

18. REQUIRED HIGHWAY UPGRADES TO ACCOMMODATE THE PROJECT

1. In the event that the standard condition or maintenance of any of the Highways is not sufficient to permit the Gas Company to carry out completion of the Project, or any of its obligations under this Agreement, the Gas Company shall be solely responsible for carrying out any required remedial work or maintenance required to upgrade or maintain the Highway(s), at its own and sole expense, but with the Gas Company not carrying out any such remedial work or maintenance without first obtaining the approval of the County Engineer and any necessary permit(s).
2. Should the Gas Company complete any remedial work or maintenance required to upgrade or maintain the Highway(s) to complete the Project, the Gas Company expressly agrees that it shall, at its own and sole expense, return the Highway(s) to the condition it was in prior to the remedial work or maintenance work being completed, unless the County expressly advises that the Gas Company is not required to do so.

19. EMERGENCY

1. In the event of an emergency involving the Distribution System during the Term hereof, the Gas Company shall notify the responsible police force immediately upon becoming aware of the situation and shall do all that is necessary and desirable to control the emergency, including such work in and to the Highways as may be required for the purpose. As soon as is reasonably possible after the emergency is discovered, the Gas Company shall advise the County Engineer by telephone and shall keep her advised throughout the emergency. If the emergency is caused by the Gas Company, the Gas Company shall reimburse the County for any and all costs incurred in connection with the emergency. Forthwith after it becomes necessary for the Gas Company to exercise its obligations under this Section, the Gas Company shall provide a written report to the County Engineer of what work was done and the further work to be undertaken, if any, and seek the approval of the County Engineer for the further work as contemplated in this Section, with the sufficiency of the completed work being subject to the approval of the County Engineer, in her sole and absolute discretion.
2. Should the Gas Company fail to comply with its obligations pursuant to this section of the Agreement to the satisfaction of the County Engineer, in her sole and absolute discretion, the County may complete any and all necessary work to address the

emergency involving the Distribution System, or retain a qualified third party contractor to do so, and shall charge the amounts for same, plus any and all other expenses incurred by the County, which includes, but is not limited to the time expended by the County to oversee the work and for any additional third party expenses, to the Gas Company. The Gas Company expressly agrees to pay for said charges forthwith upon demand from the County.

20. URGENT HIGHWAY REPAIRS

1. During the time the Project and associated Works are underway, should the County determine that urgent repairs to the Highway is required, and which repairs are not required as a result of the Works, the Gas Company shall immediately cease any Works related to the Project, to permit the County to complete the repairs it deems necessary, in the County's sole and absolute discretion.
2. During the time the Project and associated Works are underway, the County may give written notice to the Gas Company that urgent repairs are required to a Highway in order to maintain the Highway(s) in a passable condition for the everyday traffic load or to remove material and adverse safety risk or to prevent imminent harm to the users of such Highway in the normal course, provided that such repairs are required as a direct result of the Gas Company's use of such Highway. The need for such repairs shall be determined by the County Engineer, acting reasonably and based upon the advice of the Consulting Engineer. If the urgent repairs are not completed by the Gas Company within twenty-four (24) hours of the sending of the written notice by the County or, if the emergency repairs cannot be completed within such twenty-four (24) hour period, the Gas Company does not commence to diligently perform the urgent repairs within such twenty-four (24) hour period, the County may perform the emergency repairs at the Gas Company's sole expense and the Gas Company shall pay the County's invoice(s) for such urgent repairs immediately upon receipt. If the Gas Company fails to pay any invoice submitted by the County for urgent repairs within thirty (30) days of receipt, the County shall be entitled to draw upon the Security filed pursuant to this Agreement to recover the full amount of the unpaid invoice(s).

21. PRELIMINARY HIGHWAY CONDITION REPORT

1. The Parties agree that a report detailing the current condition of the Highways (the "**Preliminary Highway Condition Report**"), shall be prepared at the Gas Company's sole expense, with said Preliminary Highway Condition Report to be prepared as follows:
 - (a) the Parties shall jointly identify and engage, at the Gas Company's sole expense, a consulting engineer (the "**Consulting Engineer**") to inspect the

Highway(s) and prepare the aforesaid Preliminary Highway Condition Report, which report shall include, without limitation:

- (i) the identification of all Highways and structures that will or may be subject to damage in connection with any aspect of the Project and the use of the Highways for the Project;
 - (ii) the full scope and nature of the Preliminary Highway Condition Report shall be coordinated and agreed to by the County and the Gas Company jointly; and
 - (iii) draft and final copies of the Preliminary Highway Condition Report shall be provided to the Gas Company and the County as soon as they become available and the Gas company shall be afforded an opportunity to comment on the Preliminary Highway Condition Report before it is finalized. The draft Preliminary Highway Condition Report shall be subject to the approval of the County, not to be unreasonably withheld, after which final copies of the said Preliminary Highway Condition Report shall be provided to both Parties; or
- (b) The County acknowledges that the Gas Company, without prior consultation with the County or the County's approval as to the selection of and instructions to the Consulting Engineer, has prepared a Preliminary Highway Condition Report and provided a copy of same to the County. Should the Preliminary Highway Condition Report prepared by the Gas Company solely be acceptable to the County, or should it be capable of being revised to the satisfaction of the County, the County may waive, in its sole and absolute discretion, the requirements of 21.1.(a) above.

22. ONGOING HIGHWAY MONITORING

1. During the period that the Highway is in use by the Gas Company for the Project, the County or a designated Consulting Engineer shall, at the sole expense of the Gas Company, carry out inspections in respect of those Highways being used by the Gas Company and such inspections shall be carried out with such frequency as is reasonably required having regard to the frequency and nature of the use of the Highways by the Gas Company. Summary reports will be provided to the Gas Company and the County on a timely basis outlining the condition of the Highways and any urgent repair requirements.

23. FINAL HIGHWAY CONDITION REPORT

1. Within ten (10) days of completion of the entire Project, including the Installation and the Decommissioning, the Gas Company shall notify the County in writing that the Project is complete and the County shall then instruct the Consulting Engineer to conduct a further inspection, using the same methodologies employed in producing the Preliminary Highway Condition Report, and provide a supplemental report (the "**Final Highway Condition Report**"), at the Gas Company's sole expense, which Final Highway Condition Report shall include, without limitation:
 - (a) the identification of those portions of the Highways that, in the opinion of the Consulting Engineer, acting reasonably with reference to the Preliminary Highway Condition Report, have been damaged by the Gas Company (taking into consideration normal wear and tear during the period of time taken to complete the Project that would have been likely to occur in any event), its agents and/or contractors during the Project and their use of the Highways in completing the Project; and
 - (b) with respect to the portions of the Highways identified as having been determined to have been damaged pursuant to the subsection above, identification of the extent of repairs, replacements, or remedial work that would be necessary to repair or replace such Highways or otherwise restore such Highways to a condition that is the same or better than the condition demonstrated by the Preliminary Highway Condition Report.
2. The Parties shall use reasonable efforts to ensure that the Final Highway Condition Report is completed not later than thirty (30) business days following receipt by the County of notice of completion of the Project from the Gas Company. Notwithstanding the foregoing, the Final Highway Condition Report shall not be deemed complete or final until the Gas Company has had the opportunity to review and comment on same and the Consulting Engineer has had the opportunity to consider and adopt, where reasonably appropriate, the comments of the Producer with respect to such report.

24. GAS COMPANY'S DUTY REGARDING DAMAGED HIGHWAYS

1. The Gas Company shall well and sufficiently restore, to the reasonable satisfaction of the County Engineer, with reference to the Final Highway Condition Report, all Highways and property that it damages during the course of the Project. The Gas Company shall be solely responsible for all costs associated with the repair of any Highways damaged by the Gas Company or its employees, agents, or contractors as a result of the Works done in completing the Project, in accordance with the process set out herein and as determined by the County Engineer. Such restoration shall be equal to or better than the condition of the said Highway as it was in existence on the said Highway before the Project commenced. If the Gas Company

fails at any time to do, or commence and complete, any of the required work within a reasonable period of time following notification by the County (having regard to the nature of the required work), the County may do so, or may retain a qualified third party contractor to do so, and the County shall charge the amounts for same, plus any and all other expenses incurred by the County, which includes, but is not limited to the time expended by the County to oversee the work and for any additional third party expenses, to the Gas Company. The Gas Company expressly agrees to pay for said charges forthwith upon demand from the County.

2. The Gas Company expressly acknowledges and agrees that any required restoration works shall be paid for by the Gas Company, with the costs for same to be determined by the Consulting Engineer and the Inspector, based on the recommendations contained in the Final Highway Condition Report.

25. ADDITIONAL REPAIRS

1. Twelve (12) months following completion of the road repairs identified in the Final Highway Condition Report, the Parties shall jointly inspect the said repairs to confirm the repairs were properly completed. If following such joint inspection, the Parties agree that no additional repair is required, the County shall immediately return the Letter of Credit. If, however, the said repairs require further repair as a result of having been improperly completed and not as a result of the use of the Highways by third parties subsequent to the completion of the said repairs, the Gas Company shall complete such additional repairs forthwith ("**Additional Repairs**"). Following the completion of the Additional Repairs to the satisfaction of the County Engineer, the County shall immediately return the Letter of Credit to the Gas Company.

26. RECORD DRAWINGS

1. The Gas Company shall provide two (2) copies of the "as constructed" Distribution System (with sufficient detail to the satisfaction of the County, including but not limited to, both location and pipe depth) for the records of the County plus a final electronic copy prepared in an AUTOCAD, CAD, or GIS environment, prior to release of any deposits or securities (including the Security).

27. LOCATING OF DISTRIBUTION SYSTEM

1. The Gas Company agrees that throughout the Term of this Agreement it shall, at its own cost, record and maintain adequate records of the locations of the Distribution System. If requested by the County, the Gas Company shall, at its own expense,

physically locate the Distribution System by marking the applicable Highways using paint, staking, or other suitable identification methods ("**Locates**").

2. The Gas Company agrees to respond within sixty (60) days to any request from the County for a mark up of the Distribution System design drawings showing the location of any portion of the Distribution System within the portion of the Highways shown on the plans (the "**Mark-ups**") and shall provide such accurate and detailed information as may be reasonably required by the County.

28. ABANDONMENT OR RELOCATION OF DISTRIBUTION SYSTEM

1. Should the Gas Company require the abandonment or relocation of the Distribution System, or any part thereof, during the Term of this Agreement, then the Gas Company shall give written notice to the County that the Distribution System has been abandoned, or seek approval for the relocation of the Distribution System, or any part thereof, with the abandonment and/or relocation shall be governed in accordance with the provisions of the Union Gas Agreement, applicable policies and procedures of the County, and by the Gas Company obtaining any and all necessary permits.

29. INSURANCE

1. The Gas Company shall procure and maintain public liability insurance ("**Liability Insurance**"), which Liability Insurance shall:
 - (a) be comprised of primary and/or umbrella coverage with a limit of **TEN MILLION DOLLARS (\$10,000,000.00)** per occurrence, with not less than a limit of **THIRTY MILLION DOLLARS (\$30,000,000.00)** in the aggregate;
 - (b) include Commercial General Liability Insurance covering all operations and liability assumed under this Agreement with the County. The Commercial General Liability Insurance Policy shall be written on an occurrence form and include:
 - (i) Premises and Operations
 - (ii) Products and Completed Operations
 - (iii) Blanket Contractual
 - (iv) Broad Form Property Damage
 - (v) Contingent Employer's Liability

- (vi) Cross Liability
 - (vii) Severability of Interests
 - (viii) Owners and Contractors Protective
 - (ix) Personal Injury
 - (x) Employer's Liability
 - (xi) Employees as Additional Insureds
 - (xii) Non-owned Automobile including OEF #96
 - (xiii) Hostile Fire
 - (xiv) Attached Machinery
- (c) if the Works are to include shoring, underpinning, etc. this policy must not contain any exclusions with respect to the intended Works, and a copy of the endorsement or a letter from the insurer verifying coverage is to accompany the Certificate of Insurance;
 - (d) include coverage against liability for bodily injury and property damage caused by vehicles owned and/or operated by the Gas Company and used in conjunction with the Works either within or outside the terms of this Agreement, and shall have a limit of liability of not less than **FIVE MILLION DOLLARS (\$5,000,000.00)** inclusive for any one occurrence;
 - (e) include an Equipment Floater in sufficient amounts to provide full coverage for the Gas Company's equipment that may be located on the County's lands, from time to time, throughout the duration of this Agreement;
 - (f) provide that the policy or policies will not be cancelled or allowed to lapse without thirty (30) days prior written notice to the County; and
 - (g) include the County as an additional named insured.

30. SECURITY DEPOSIT

1. Prior to making any use of the Highways for the purpose described in this Agreement, the Gas Company shall provide the County with an irrevocable letter of credit as security for the Gas Company's performance of its obligations under this Agreement. The letter of credit shall be in a form acceptable to the County, and shall be in the amount of **TWO MILLION DOLLARS (\$2,000,000.00)** (the "**First LC**").

2. Prior to making any use of the Highways for the purposes described in this Agreement the Gas Company shall provide the County with an irrevocable letter of credit as security for the Gas Company's obligation to remove and decommission the Old Line to the Satisfaction of the County. The letter of credit shall be in a form acceptable to the County, and shall be in the amount of **SEVEN HUNDRED AND FIFTY THOUSAND DOLLARS (\$750,000.00)** (the "**Second LC**").
3. Upon completion of the repairs identified in the Final Highway Condition Report to the satisfaction of the County Engineer, the County shall return the First LC to the Gas Company, and the Gas Company shall at the same time, provide a second irrevocable letter of credit, substantially in the same form as the First LC, but in the amount of **TWO HUNDRED THOUSAND DOLLARS (\$200,000.00)** (the "**Third LC**", and together with the First LC and the Second LC, the "**Security**"), to be held for the balance of the Term of the Agreement.
4. Upon completion of the removal and decommissioning of the Old Line to the satisfaction of the County, in its sole and absolute discretion, the County shall return the Second LC to the Gas Company.

31. SECURITY TERMS

1. The Security to be provided under this Agreement shall be held by the County on the following terms:
 - (a) The Gas Company acknowledges and agrees that the County reserves the right to draw on and use the proceeds from the First LC to complete repairs required to be done by the Gas Company under the terms of this Agreement; and
 - (b) The Gas Company acknowledges and agrees that the County reserves the right to draw on and use the proceeds from the Second LC to complete the removal and decommissioning of the Old Line, should the Gas Company fail to do so to the satisfaction of the County;
 - (c) The Gas Company acknowledges and agrees that the County reserves the right to draw on and use the proceeds from the Third LC to complete the Additional Repairs as provided for in this Agreement, provided that the Parties have first agreed on the repairs to be performed by the Gas Company and the Gas Company has not completed such repairs within ten (10) business days of the date of written notice from the County is provided with respect to the requirement to complete the Additional Repairs, or such further time as the Parties may agree in writing. Upon the completion of the Additional Repairs to the satisfaction of the County Engineer, the County shall immediately return the Third LC to the Gas Company.

32. COSTS AND PERMIT FEES

Permits

1. The Gas Company acknowledges and agrees that **Schedule "D"** attached hereto is a list of fees and charges associated with permits, which are consistent with fees and charges normally required by the County, and which may be requested and issued by the County in respect of the Project and the associated Works contemplated by this Agreement, and further undertakes and agrees to pay such fees and charges in accordance with **Schedule "D"**.

Approval and Construction

2. The Gas Company shall be responsible for the following payment obligations:
 - (a) Upon the presentation of invoices, the Gas Company shall reimburse the County, within thirty (30) business days of receipt of an invoice from the County, with respect to all reasonable out of pocket costs incurred in connection with the negotiation, preparation, execution, and implementation of this Agreement, including legal costs to a maximum aggregate cap of **THIRTY THOUSAND DOLLARS (\$30,000.00)**;
 - (b) A non-refundable administration fee in the amount of **TWENTY THOUSAND DOLLARS (\$20,000.00)** shall be paid to the County by the Gas Company within thirty (30) days of the execution of this Agreement by the Parties; and
 - (c) Upon the presentation of invoices, the Gas Company shall reimburse the County in connection with any inspections by the County and/or its designated Inspector during the use of the Highways by the Gas Company for the Project, and for necessary monitoring, inspections, and field work during the Project.

33. FORCE MAJEURE

1. If either Party is prevented from carrying out its obligations under this Agreement by reason of any cause beyond its control, such Party shall be relieved from such obligations while such inability continues; provided, however, that this Section shall not relieve the Gas Company from its obligations to indemnify the County as contemplated herein, and provided further that nothing herein shall require either Party to settle any labour or similar dispute unless it is in the best interests of such Party to do so.

34. APPLICABLE LAWS

1. It is acknowledged and agreed by the Parties that this Agreement is subject to the provisions of all Applicable Laws of the Province of Ontario.

35. NOTICES

1. Any notice to be given under any of the provisions of this Agreement shall be provided to the County by delivering the notice to the Clerk of the County, or by sending the notice by facsimile transmission to 519-776-4455, or by registered mail, postage prepaid, addressed to the attention of the Clerk of the County at **360 Fairview Avenue West, Suite 202, Essex, Ontario N8M 1Y6**, and to the Gas Company by delivering the same to its head office, or by sending same to its business office by registered mail, postage prepaid, addressed to the Gas Company as follows:

Enbridge Gas Inc.
50 Keil Drive North
Chatham, Ontario N7M 5J5

Attention: Manager Major Projects

If any notice is sent by facsimile transmission, the notice shall be deemed to have been given on the next business day following its transmission. If any notice is sent by mail, the same shall be deemed to have been given on the fourth (4th) day following the posting of the notice, provided that in the event of a disruption in postal service, either at the point of mailing or the point of delivery, any notice sent by mail shall be deemed to have been given on the day when it is actually received by the addressee of such notice.

36. ASSIGNMENT

1. The Gas Company may not assign any part of this Agreement without the express written consent of the County. The Gas Company acknowledges that any proposed assignee shall be required to covenant, in favour of the County, to assume full responsibility of this Agreement.

37. INDEMNIFICATION

1. The Gas Company shall indemnify and save harmless the County, its Councillors, officers, directors, employees, legal counsel, agents, and contractors from and against all claims, suits, demands, liabilities, losses, costs, damages, or other

expenses of every kind that the County may incur or suffer as a consequence of or in connection with the Project, or in any other way with the rights granted hereunder, except to the extent that such claims, liabilities, losses, costs, damages, and other expenses are caused by the County's negligence or breach of this Agreement.

38. BREACH BY GAS COMPANY

1. If the Gas Company commits a breach of or otherwise fails to comply with any of the provisions of this Agreement, the County shall give the Gas Company notice in writing specifying the breach complained of. In the event the Gas Company fails to remedy such breach within sixty (60) days of receipt of such notice (or such longer period of time having regard to the nature of the breach as the County may in its sole discretion deem appropriate), the matter shall be addressed in accordance with Article 39 of this Agreement, being the Dispute Resolution provisions provided for hereunder.

39. DISPUTE RESOLUTION

1. Any controversy, dispute, difference, question or claim arising between the Parties hereto in connection with the interpretation, performance, construction, or implementation of this Agreement that cannot be resolved by the County Engineer and a representative of the Gas Company (the "**Dispute**") shall be settled in accordance with this Section. The aggrieved Party shall send the other Party written notice identifying the Dispute, the amount involved (if any) and the remedy sought, and invoking the procedures in this Section. The Parties shall confer in an effort to resolve the Dispute themselves. If the Parties are unable to resolve the Dispute within five (5) business days after receipt of the written notice of the Dispute, then the Dispute is to be referred to a Mediator selected by Agreement between the Parties. If the Parties cannot agree on the selection of a Mediator, the final decision as to the Mediator shall be at the sole discretion of the County, provided that the Mediator selected is a certified Mediator, a senior, respected lawyer with experience as a mediator, or a retired Judge.
2. If the Dispute cannot be resolved by way of Mediation, the Parties may then pursue any remedies available to them at law.
3. Except to the extent that a matter is specifically the subject of a Dispute, both Parties shall continue to observe and perform the terms and conditions of this Agreement pending the resolution of the Dispute.

40. NUMBER AND GENDER

1. This Agreement shall be construed with all changes in number and gender as may be required by the context.

41. COVENANTS

1. All obligations herein contained, although not expressed to be covenants, shall be deemed to be covenants.

42. INCLUSIONS

1. Whenever a statement or provision in this Agreement is followed by words denoting inclusion or example and then a list of or reference to specific items, such list or reference shall not be read so as to limit the generality of that statement or provision, even if words such as "without limiting the generality of the foregoing" do not precede such list or reference.

43. SEVERABILITY

1. The Parties agree that all covenants and conditions contained in this Agreement shall be severable, and that should any covenant in the Agreement be declared invalid or unenforceable by a court of competent jurisdiction, the remaining covenants and conditions of the remainder of the Agreement shall remain valid and of full force and effect.

44. NO JOINT VENTURE, PARTNERSHIP, OR CO-OWNERSHIP

1. The Parties hereby acknowledge and agree that this Agreement is solely a road user agreement, and that no relationship is formed between the Parties in the nature of a joint venture, partnership, co-ownership arrangement or other similar relationship.

45. GOVERNING LAW

1. This Agreement shall be interpreted under and is governed by the laws of the Province of Ontario.

46. BINDING AGREEMENT

1. This Agreement shall extend to, benefit, and bind the Parties hereto, and their respective successors and permitted assigns.

IN WITNESS WHEREOF the Parties hereto have duly executed this Agreement, written on this and the preceding twenty-five (25) pages, with effect from the day first written above.

**THE CORPORATION OF THE
COUNTY OF ESSEX**

ENBRIDGE GAS INC.

Per: Gary McNamara
Title: Warden

Per:
Title:

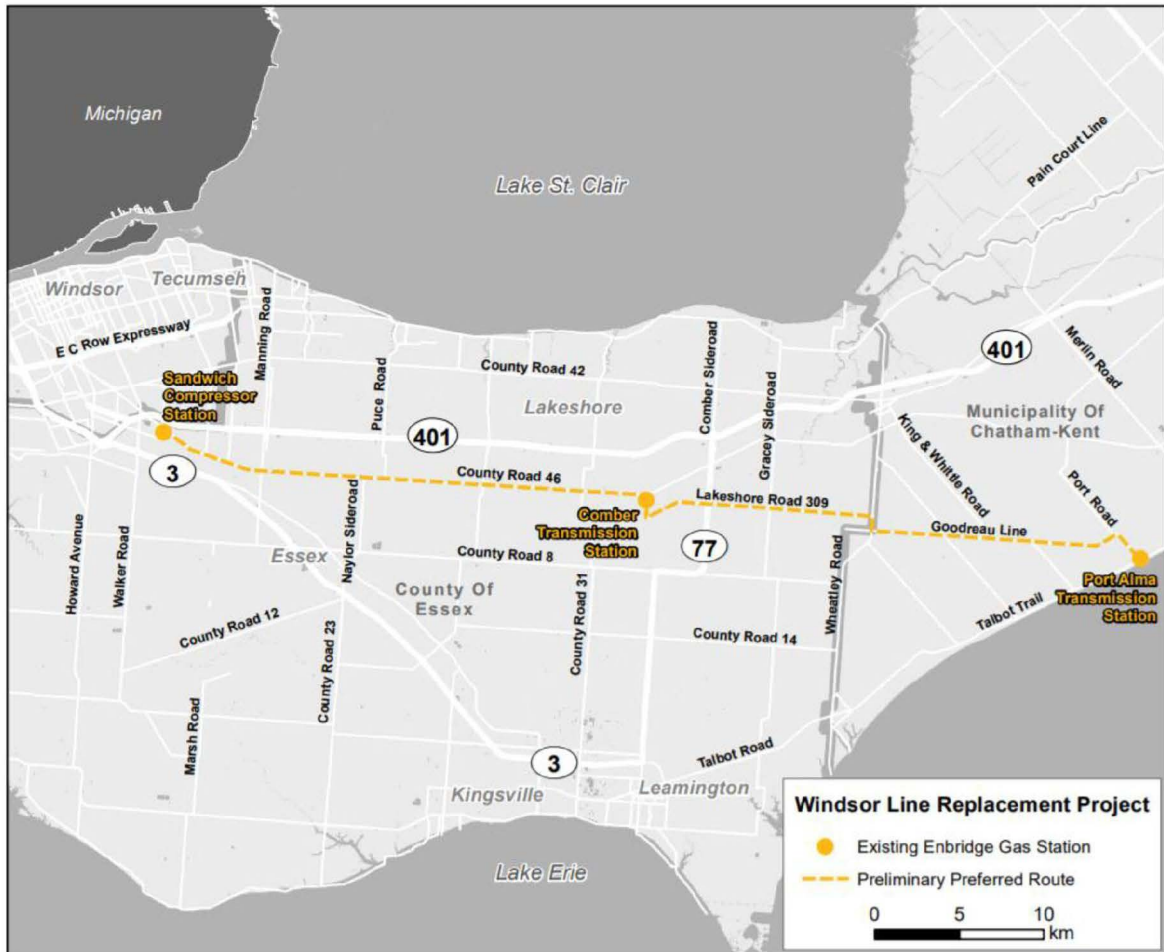
I have authority to bind Enbridge.

Per: Mary Birch
Title: Clerk

We have authority to bind the County.

SCHEDULE A

Map depicting boundaries of Project



SCHEDULE B

List of Highways upon which Distribution System located

- County Road 46 from Enbridge's proposed station (05B-302), approximately 1 km west of Concession 9 Road, in the Town of Tecumseh to Rochester Townline in the Town of Lakeshore; and
 - 6.3 km's outside the travelled portion of the roadway (located at a distance of greater than 6.0 meters from the edge of pavement) installed at a depth of cover of 1.0 meters; and
 - 22.5 km's within the travelled portion of the roadway (located at a distance of 6.0 meters or less from the edge of pavement) installed at a depth of cover of 1.5 meters.

- County Road 1 from Lakeshore Road 309 to Goodreau Line
 - 2.1 km's outside the travelled portion of the roadway (located at a distance of greater than 6.0 meters from the edge of pavement) installed at a depth of cover of 1.0 meters.

SCHEDULE C

Distribution Pipeline Plan comprised of List of Drawings & Drawing reference
with full and approved drawings on file with the County

(TO BE APPENDED ONCE APPROVED DRAWINGS ARE RECEIVED)

SCHEDULE D

Schedule of Permits, Fees, and Charges



SCHEDULE - D

PERMIT FEES AND OTHER CHARGES

1. **Permit Fees**

Permit Fees and charges shall be as per the most recent County of Essex Permit Fee By-Law #2020-13

- a) Access Permits (and as per By-Law #2481)
- b) Setback Permit (and as per By-Law #2480)
- c) Moving Permits – Oversized Loads
- d) Work Permits (includes detour plans, traffic management, etc.)

2. **Fees not identified in County of Essex Permit Fee By-Law that require Permits**

- a) Tree clearing in the right-of-way (ROW)

3. **Producer Payment Obligations Regarding Engineering & Administrative Fees as per Road User Agreement**

- 1) Legal Fees – up to \$30,000.00 upon invoice
- 2) Administration Fee - \$20,000.00 (non-refundable)
- 3) Upon the presentation of invoices, the Gas Company shall reimburse the County in connection with any inspections by the County and/or its designated Inspector during the use of the Highways by the Gas

Company for the Project, and for necessary monitoring, inspections, and field work during the Project.

- 4) Removal Costs – Obligations of the Producer commencing on the day of activation of the New Line for a period of 2 years, the Producer shall bear 100% of the costs of Removal of the old line.

I HEREBY certify the attached to be true copies of
By-law # 1270 of the County of Essex,
finally passed the 11th day of December, 19 57,
and agreement pursuant thereto dated the 11th day
of December, 19 57, between the said County
of Essex and Union Gas Company of Canada,
Limited, duplicate originals of which are in the
possession of the said Union Gas Company of Canada,
Limited.

AS WITNESS my hand as Secretary and the corporate seal
of the said Union Gas Company of Canada, Limited this
11th day of May, 1965.


Secretary.

BY-LAW NUMBER 1270

- of -

1

THE CORPORATION OF THE COUNTY OF ESSEX

A By-law to authorize Union Gas Company of Canada, Limited (hereinafter called "the Company") to lay down, maintain and use pipes and other necessary works for the transmission of gas on, in, under, along or across any highway under the jurisdiction of the Council of The Corporation of the County of Essex. *LR*

FINALLY PASSED the ~~10th~~ day of December, A.D. 1957.

WHEREAS the Company has requested The Corporation of the County of Essex (hereinafter called "the Municipality") to grant it a franchise or right to lay down, maintain and use pipes and other necessary works for the transmission of gas on, in, under, along or across any highway under the jurisdiction of the said Council for the purpose of passing through the Municipality in the continuation of a line, work or system which is intended to be operated in or for the benefit of another municipality and is not used or operated in the Municipality for any other purpose except that of supplying gas in a township to persons whose land abuts on a highway along or across which gas is carried or conveyed or to persons whose land lies within such limits as the said Council by by-law passed from time to time at the request of the Company determines should be supplied with such service.

AND WHEREAS subject to the terms and conditions hereinafter set forth, the Council of the said Municipality has agreed to grant the said franchise.

BE IT THEREFORE ENACTED by the Council of The Corporation of the County of Essex as follows:-

1. Full right, power, permission and consent are hereby granted, conferred and assured unto Union Gas Company of Canada, Limited, its successors and assigns, to keep, use, operate, repair, maintain, remove, abandon, replace, reconstruct, alter and extend its existing lines, pipes and works in the highways under the jurisdiction of the Council of the Municipality and to lay down, maintain and use

- 2 -

pipes and other necessary works for the transmission of gas on, in, under, along or across any highway under the jurisdiction of the said Council for the purpose of passing through the Municipality in the continuation of a line, work or system which is intended to be operated in or for the benefit of another municipality and is not used or operated in the Municipality for any other purpose except that of supplying gas in a township to persons whose land abuts on a highway along or across which gas is carried or conveyed or to persons whose land lies within such limits as the said Council by by-law passed from time to time at the request of the Company determines should be supplied with such service.

2. Such right or franchise shall be subject to all the terms and conditions set out in an Agreement to be entered into in pursuance of this By-law.

3. The Warden and Clerk of the Municipality are hereby authorized and empowered to enter into and to execute on behalf of the Corporation an Agreement in the form hereto annexed, and to affix the corporate seal thereto.

4. This By-law shall come into force and take effect immediately after the Agreement hereto annexed shall have been executed by all the parties hereto.

THE CORPORATION OF THE COUNTY OF ESSEX



Laurence Brunet Warden.
[Signature] Clerk.

BY-LAW NUMBER 1270

- of -

THE CORPORATION OF THE COUNTY OF ESSEX

A By-law to authorize Union Gas Company of Canada, Limited (hereinafter called "the Company") to lay down, maintain and use pipes and other necessary works for the transmission of gas on, in, under, along or across any highway under the jurisdiction of the Council of The Corporation of the County of Essex.

- - - - -

1st READING - December 10, 1957

2nd READING - December 11, 1957

3rd READING - December 11, 1957

FINALLY PASSED - December 11, 1957

- - - - -

McNevin, Gee & O'Connor,
Barristers, etc.
Bank of Montreal Bldg.
CHATHAM, Ontario.

AGREEMENT made in duplicate this ¹³~~10th~~ day of December, ¹⁹⁵⁷~~1956~~

A.D. 1957.

B E T W E E N:

THE CORPORATION OF THE COUNTY OF ESSEX,

hereinafter called "the Corporation"

- OF THE FIRST PART - 2

A N D

UNION GAS COMPANY OF CANADA, LIMITED,

hereinafter called "the Company"

- OF THE SECOND PART -

WHEREAS the Company has requested The Corporation of the County of Essex (hereinafter called "the Municipality") to grant it a franchise or right to lay down, maintain and use pipes and other necessary works for the transmission of gas on, in, under, along or across any highway under the jurisdiction of the said Council for the purpose of passing through the Municipality in the continuation of a line, work or system which is intended to be operated in or for the benefit of another municipality and is not used or operated in the Municipality for any other purpose except that of supplying gas in a township to persons whose land abuts on a highway along or across which gas is carried or conveyed or to persons whose land lies within such limits as the said Council by by-law passed from time to time at the request of the Company determines should be supplied with such service.

AND WHEREAS the Council of the Corporation has by By-law passed on the ^{13th}~~10th~~ day of December, A.D. 1957, granted the said franchise from and after the date of the execution of this Agreement and has authorized and empowered the Warden and Clerk of the Corporation to execute this Agreement and to affix the corporate seal thereto.

NOW THEREFORE THIS AGREEMENT made in consideration of the premises and of the performance of the covenants and obligations hereinafter contained on the part of the Company, WITNESSETH as follows:-

1. Full right, power, permission and consent are hereby granted, conferred and assured unto Union Gas Company of Canada, Limi-

- 2 -

ted, its successors and assigns, to keep, use, operate, repair, maintain, remove, abandon, replace, reconstruct, alter and extend its existing lines, pipes and works in the highways under the jurisdiction of the Council of the Municipality and to lay down, maintain and use pipes and other necessary works for the transmission of gas on, in, under, along or across any highway under the jurisdiction of the said Council for the purpose of passing through the Municipality in the continuation of a line, work or system which is intended to be operated in or for the benefit of another municipality and is not used or operated in the Municipality for any other purpose except that of supplying gas in a township to persons whose land abuts on a highway along or across which gas is carried or conveyed or to persons whose land lies within such limits as the said Council by by-law passed from time to time at the request of the Company determines should be supplied with such service.

2. The rights and privileges hereby granted shall continue and remain in force for a period of ten years from the date hereof and so long thereafter as the said lines are in actual use for the transportation of gas.

3. The said pipelines shall be laid across the said highways in locations approved by the Road Superintendent of the County of Essex for the time being or such other officer as may be appointed by the Council for that purpose, and the charges of such Road Superintendent or other officer attending to give such approval shall be paid by the Company.

4. All pipelines shall be placed underground, if required by the officer of the Corporation and shall be so constructed as not to obstruct or interfere with the use of the highway or with any sewers, water-pipes, drains or ditches thereon or therein, or with works of improvement or repair thereof or with the roads or bridges to property fronting thereon.

5. Upon the laying down of the said pipelines or other works hereby authorized or taking any of the same up, or moving the same from place to place in any highway, the highway shall be left unbroken on its surface and in as safe and good a state of repair as it was before

- 3 -

it was entered upon or opened.

6. In the event that the Corporation in pursuance of its statutory powers shall deem it expedient to alter the construction of any highway or of any municipal drain, ditch, bridge, culvert or other municipal works or improvements thereon or therein and in the course thereof it shall become reasonably necessary that the location of a main, line, pipe or works of the Company laid or operated under this By-law should be altered at a specified point to facilitate the work of the Corporation, then upon receipt of reasonable notice in writing from the Clerk of the Corporation specifying the alteration desired, the Company shall, at its own expense, alter or re-locate its main, pipe, line or works at the point specified.

7. The Company shall and does hereby at all times indemnify and save harmless the Municipality from and against all loss, damage, injury or expense which the Municipality may bear, suffer or be put to by reason of any damage to property or injury to persons caused by the construction, repair, maintenance, removal or operation by the Company of any of its mains, pipes, lines or works in the Municipality unless such loss, damage, injury or expense is occasioned by Act of God or by the act, neglect, or default of some person, firm or corporation other than the Company, its servants, contractors, sub-contractors, agents or employees.

8. This agreement shall enure to the benefit of and be binding upon the parties hereto, their successors and assigns.

IN WITNESS WHEREOF the said parties have caused to be affixed hereto their respective corporate seals duly attested by the hands of their proper officers in that behalf.

SIGNED, SEALED AND DELIVERED



APPROVED AS TO FORM
1400
.....

THE CORPORATION OF THE COUNTY OF ESSEX

Laurence B. Bunt
Warden.

[Signature]
Clerk.

UNION GAS COMPANY OF CANADA, LIMITED

[Signature]
Vice-President and General Manager.

[Signature]
Assistant Secretary.

DATED December 11th A.D. 1957.

THE CORPORATION OF THE COUNTY OF
ESSEX

- and -

UNION GAS COMPANY OF CANADA,
LIMITED

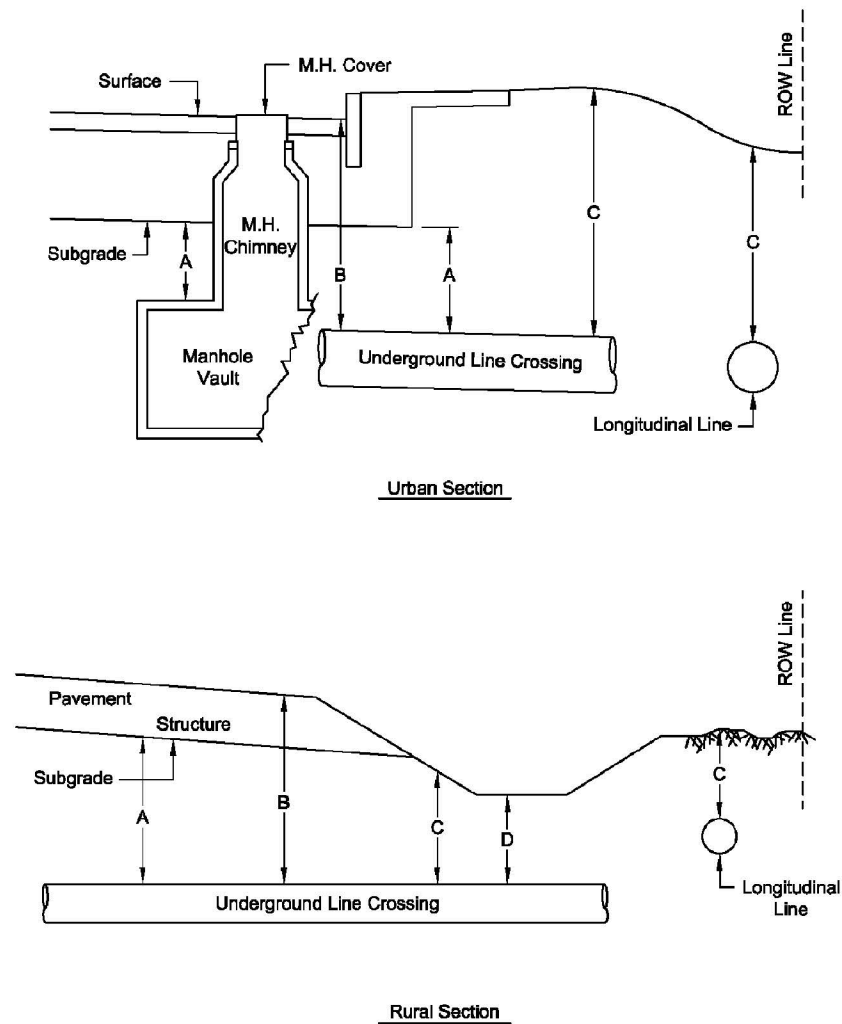
-: AGREEMENT :-

McNevin, Gee & O'Connor,
Barristers, etc.
Bank of Montreal Bldg.
CHATHAM, Ontario.



Guidelines for Underground Utility Installations
Crossing Highway Rights-of-Way

FIGURE 4 – Minimum Cover DEPTH for Underground Installations



Guidelines for Underground Utility Installations
Crossing Highway Rights-of-Way



**TABLE 1 -- Minimum Cover DEPTH FOR Underground Installations
Crossing Highways (and Freeways)**

Utility Facility Type		A	B	C	D
		Below pavement structure (subgrade) mm	Below pavement surface mm	Below ground elevation mm	Below ditch line elevation mm
High Pressure Gas or Liquid Petroleum Pipelines (> 680 kPa)	unencased existant	450	1 200	900	900
	unencased new	450 or ½Ø	1 500	1 000	1 200
	encased existant	300	1 000	750	750
	encased new	450 or ½Ø	1 200	900	1 200
Medium and Low Pressure Gas or Liquid Petroleum Pipelines (< 680 kPa)	unencased existant	450	1 000	600	750
	unencased new	450 or ½Ø	1 200	600 750 plastic	900
	encased existant	300	1 000	600	750
	encased new	450 or ½Ø	1 200	600	900
Water and Sewer Pipes	existant	450	1 200	1 000	1 000
	new	450 or ½Ø	1 800	1 500	1 200
Electric Power	existant	300	1 000	750	750



**Guidelines for Underground Utility Installations
Crossing Highway Rights-of-Way**

Distribution Lines (all in conduit)	new	450	1 500	900	1 200
Communication Lines	existant	300	1 000	750	750
	new	450	1 200	750	900

(Ø : pipe diameter)

GLOSSARY

Backfill - Material used to replace or the act of replacing material removed during construction; also may denote material placed or the act of placing material adjacent to structures.

Boring - The operation by which large carriers or casings are jacked through oversize bores. The bores are carved progressively ahead of the leading edge of the advancing pipe as soil is mucked back through the pipe.

Carrier - A pipe directly enclosing a transmitted fluid (liquid, gas or slurry). Also an electric or communication cable, wire or line.

Casing - A larger pipe, conduit or duct enclosing a carrier.

Clear Zone - The total roadside border area, starting at the edge of the traveled way, available for safe use by errant vehicles. This area may consist of a shoulder, a recoverable slope, a non-recoverable slope and/or a clear run-out area. The desired width is dependent upon the traffic volumes and speeds, and on the roadside geometry.

Coating - Material applied to or wrapped around a pipe.

Conduit - An enclosed tubular casing, singularly or multiple, for the protection of wires, cables or lines, usually jacketed and often extended from utility access hole to utility access hole.

Control of Access - The condition where the right of owners or occupants of abutting land or other persons to access, light, air or view in connection with a highway is fully or partially controlled by road authority.

Coring - The operation by which a small casing is drilled into firm soil. As the pipe advances, the core material is removed by sluicing during or after the drilling.

Enbridge Pipeline Vehicle Loading Analysis

Proposed NPS 6 Windsor Line along County Road 46, County of Essex Ontario

Introduction:

Enbridge is proposing to replace the existing NPS 10 Windsor Line with a new NPS 6 pipeline. The pipeline will be installed within the road allowance parallel to roads for approximately 64 kms between Chatham-Kent and The County of Essex. There was a concern about the stress of the pipeline in its proposed location as it is likely to be exposed to vehicle loading including but not limited to superloads, particularly on County Road 46 in the County of Essex as the pipelines proposed alignment is within approximately 2m of road edge in some locations. The following analysis will provide results of a load assessment on this new pipeline under vehicle loading conditions to meet the Enbridge's design and operating requirements and those of CSA Z662-15 and to determine the max allowable axle load that can be accepted by the pipeline. Analysis considers the hoop stress due to internal pressure and those imposed on it by the soil and vehicle loading.

Assumptions:

- Basis for axle load will be the Ministry of Transportation Ontario (MTO) legal axle load limit of 9000kgs per axle.
- Superload is considered a vehicle weighing more than 120000kgs, from MTO, A Guide to Oversize/Overweight Vehicles and Loads in Ontario, but is limited to max axle load of 9000kgs per axle.
- Vehicle axle load is to be positioned directly vertical over the pipeline. This arrangement will create the maximum loading for this condition.
- An imbalance factor of 10% which increases the wheel load of the axle to allow for consideration of illegal loads and an impact factor of 1.5 was used to simulate vehicles driving on uneven surface over the pipeline.
- Analysis will consider tired vehicles only, which will simulate the maximum ground pressure over the pipeline. Other vehicles, such as those that ride on tracks generally disperse their weight over a larger area and therefore have a lower ground pressure values than those of tired vehicles.
- Assume the pipeline is backfilled only with the native material found within the road allowance, which is known to be ordinary clay. This is considered a conservative assumption as compacted granular fill over and/or around the pipeline would bear more of the vehicle loading than clay and transfer less to the pipeline.

Pipeline Design Parameters:

Outside Diameter (OD): NPS 6 (168.3mm)

Wall Thickness: 4.8mm

Material: Gr. 359, Cat. I, HFERW seam, CSA Z245.1-18 steel pipe

Specified Minimum Yield Strength: 359 MPa

Cover Depth: 100cm

Max Op Temp: 20C degree

Max Op Pressure: 3450 kPa

Min Install Temp: 0C degree

Content: Sweet Natural Gas

Pipeline design to meet the requirements of Clause 12, of CSA Z661-15

During vehicle loading pipeline shall operate at less than 85% SMYS

Live Loads To Calculate:

1. MTO road legal limit or 9000kgs per axle. See analysis equipment label SHL.
2. 5 x MTO road legal limit or ~45000kgs per axle. See analysis equipment label 5xSHL
3. 10 x MTO road legal limit or ~90000kgs per axle, to simulate a maximum pipeline loading. See analysis equipment label 10xSHL

Results:

In all live load cases the results display that the pipeline operates below allowable stress limits under the proposed design conditions for the pipeline located near or under the travelled portion of the roadway. This includes a superload.

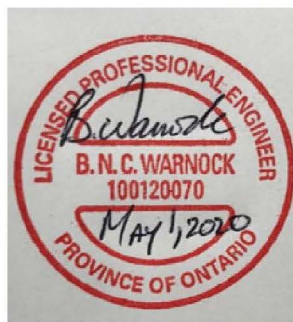
The results of the analysis meet the requirements of the Transportation Association of Canada (TAC) Guidelines For Underground Utilities Crossing Highway Right-Of-Ways.

Results for the 9000kgs and ~45000kgs per axle load considered the impacts of fluctuating hoop stresses or fatigue loading. This can be assumed to represent the case of loads sustained by regular vehicle traffic over the roadway and pipeline.

Results for the ~45000kgs per axle analysis displays an allowable loading factor of safety of 5 over what could be expected the normal vehicle use along the roadway.

Results for the ~90000kgs per axle analysis display a near maximum loading that can be accepted by the pipeline. In this case if a superload were to be overweight or given a permit to operate an axle load at greater than 9000kgs up to ~90000kgs per axle the pipeline is robust enough to carry that extreme load.

Analysis performed by Blair Warnock, P.Eng, Senior Pipeline Design Engineer, Enbridge Inc.



Pipelines Crossed by Equipment on Tires

Location:							
Description & Purpose		NPS 6 Windsor Line - Oversize Vehicle Load Analysis					
Province		ON		Permanent crossing?		Yes	
				Type		3rd Party	
Equipment:							
Label		SHL		Tire or ground bearing pressure, psi kPa		110 758	
Description		MTO limit of 9000kgs/axle under Fatigue/Cyclic loading		Distance between axles in set, in cm		48 122	
Axle Load, lb kg		19,841 8,998		Axle gauge, ft m		6.0 1.83	
# axles in set		3		Impact Factor		1.5	
				Imbalance Factor		10%	
Line(s) to be crossed:							
Line Name		6WL					
OD, in cm		6.625 16.8					
Wall thickness, in mm		0.189 4.8					
Pipe grade, ksi MPa		52 359					
Pressure, psi kPa		500 3447					
Long seam type		ERW					
Installation:							
Depth of cover, in cm		39 100					
Installation type		Settled					
Bottom Reaction Angle, deg		60					
Trench or bore width, in cm		7 17					
Soil Unit Weight, pcf kg/m ³		120 1922					
Soil Type		4					
Modulus of soil reaction E', psi kPa		250 1724					
Slab or Matting:							
Slab thickness, in cm		no slab					
Impact Factor on slab or mat							
Slab material							
Slab width across pipe, ft m							
Slab length along pipe, ft m							
Modulus of subgrade reaction k, pci MPa/m							
Maximum Hoop Stress, % SMYS:							
Calculated		26.3%					
Allowable		85%					
Fluctuating Hoop Stress, psi MPa:							
Calculated		4.2 28.7					
Allowable		20 138					
Requirements / Notes:							
Axle load for analysis of ~9000 kgs or MTO Road Legal Axle limit. Results show pipeline still remains below maximum allowable hoop stress limit and max allowable fluctuating hoop stress limit, which considers fatigue or cyclic loading which can be assumed to be representative of continuous vehicle traffic over the pipeline/roadway.							
Analyzed by: BNW 4/17/2020							

Pipelines Crossed by Equipment on Tires

Location:		Description & Purpose		NPS 6 Windsor Line - Oversize Vehicle Load Analysis			
		Province		ON			
				Permanent crossing?		Yes	
				Type		3rd Party	
Equipment:		Label		SHLx5		Tire or ground bearing pressure, psi kPa	
		Description		5 x MTO limit of 9000kgs/axle under Fatigue/Cyclic loading		Distance between axles in set, in cm	
		Axle Load, lb kg		99,000 44,898		Axle gauge, ft m	
		# axles in set		1		Impact Factor	
						Imbalance Factor	
						110 758	
						48 122	
						6.0 1.83	
						1.5	
						10%	
Line(s) to be crossed:		Line Name		6WL			
		OD, in cm		6.625 16.8			
		Wall thickness, in mm		0.189 4.8			
		Pipe grade, ksi MPa		52 359			
		Pressure, psi kPa		500 3447			
		Long seam type		ERW			
Installation:		Depth of cover, in cm		39 100			
		Installation type		Settled			
		Bottom Reaction Angle, deg		60			
		Trench or bore width, in cm		7 17			
		Soil Unit Weight, pcf kg/m ³		120 1922			
		Soil Type		4			
		Modulus of soil reaction E', psi kPa		250 1724			
Slab or Matting:		no slab					
		Slab thickness, in cm					
		Impact Factor on slab or mat					
		Slab material					
		Slab width across pipe, ft m					
		Slab length along pipe, ft m					
		Modulus of subgrade reaction k, pci MPa/m					
Maximum Hoop Stress, % SMYS:		Calculated		50.5%			
		Allowable		85%			
Fluctuating Hoop Stress, psi MPa:		Calculated		19.4 133.7			
		Allowable		20 138			
Requirements / Notes:		Axle load for analysis of ~45000kgs or ~5 x MTO Road Legal Axle limit of 9000kgs. Results show pipeline still remains below maximum allowable hoop stress limit and max allowable fluctuating hoop stress limit, which considers fatigue or cyclic loading which can be assumed to be representative of continuous vehicle traffic over the pipeline/roadway.					
		Analyzed by: BNW 4/17/2020					

Pipelines Crossed by Equipment on Tires

Location:		Description & Purpose		NPS 6 Windsor Line - Oversize Vehicle Load Analysis			
		Province		ON		Permanent crossing? No	
						Type 3rd Party	
Equipment:		Label		SHLx10		Tire or ground bearing pressure, psi kPa 110 758	
		Description		10 x MTO limit of 9000kgs/axle assumed Super Load		Distance between axles in set, in cm 157 400	
		Axle Load, lb kg		198,000 89,796		Axle gauge, ft m 19.7 6.00	
		# axles in set		1		Impact Factor 1.5	
						Imbalance Factor 10%	
Line(s) to be crossed:		Line Name		6WL			
		OD, in cm		6.625 16.8			
		Wall thickness, in mm		0.189 4.8			
		Pipe grade, ksi MPa		52 359			
		Pressure, psi kPa		500 3447			
		Long seam type		ERW			
Installation:		Depth of cover, in cm		39 100			
		Installation type		Settled			
		Bottom Reaction Angle, deg		60			
		Trench or bore width, in cm		7 17			
		Soil Unit Weight, pcf kg/m ³		120 1922			
		Soil Type		4			
		Modulus of soil reaction E', psi kPa		250 1724			
Slab or Matting:		no slab					
		Slab thickness, in cm					
		Impact Factor on slab or mat					
		Slab material					
		Slab width across pipe, ft m					
		Slab length along pipe, ft m					
		Modulus of subgrade reaction k, pci MPa/m					
Maximum Hoop Stress, % SMYS:		Calculated		77.1%			
		Allowable		85%			
Fluctuating Hoop Stress, psi MPa:		Calculated		N/A N/A			
		Allowable		20 138			
Requirements / Notes:		Axle load for analysis of ~90000kgs or ~10 x MTO Road Legal Axle limit of 9000kgs. Results show pipeline still remains below maximum allowable hoop stress limit. This load is considered to represent a superload or over weight vehicle permitted load.					
		Analyzed by: BNW 4/17/2020					



May 7, 2020

The Corporation of the County of Essex
360 Fairview Avenue West
Essex, Ontario
N8M 1Y6

Attention: Ms. Jane Mustac, P. Eng, County Engineer
Ms. Krystal Kalbol, P.Eng., Manager, Transportation Planning & Development

**RE: REVIEW OF ENBRIDGE SUBMISSION FOR NEW GAS LINE ON
COUNTY ROAD 46
Our Project No.: 20-163**

Ms. Mustac, Ms. Kalbol,

Subsequent to the request of your office we have undertaken a review of the Enbridge Pipeline vehicle loading analysis dated May 1, 2020 in addition to Ms. Kalbol's memo of April 27, 2020. The following will outline the results of our review.

1. Background

It is our understanding from the above noted documents (2) that Enbridge is preparing to replace 29 kilometers of high-pressure gas line with the County of Essex's right of way. This work will occur on County Road 46 within the Municipalities of the Town of Tecumseh and the Town of Lakeshore.

The April 27 memo notes the recommendation of the Transportation Association of Canada (TAC) guidelines for such works with specific reference to the minimum encased and non-encased depth of bury. Given the pressure we have confirmed that the following memo's values are consistent with our investigation results:

- Non-Encased – 1.5m below paved surfaces but not less than 1m below ground elevation
- Encased – 1.2m below paved surfaces but not less than 0.9m below ground elevation

Enbridge's documents (calculations) suggest a buried depth of 1m and included calculations per CSA Z662-15 *Oil and Gas Pipeline Systems*.

Both parties note the proposed construction will be located outside the current main roadway driving path but will come within 2m of the existing road edge. However, it is our understanding that the County Road 46 will experience road widening over the course of the pipeline's life placing the proposed service within the drive path. Moreover, the existing shoulder is considered a travelled portion based on use of this region for maintenance activities and other motorist access needs.

Page 2
May 7, 2020

2. Our Assessment

Our assessment included a review of the documents received and the TAC recommendations as they form an established standard for works within the right of way. We also assessed the results of the Enbridge analysis against loading analysis for buried pipes and conduits (consistent with the Canadian Highway Bridge Code) and fundamentals for buried structures.

3. Observations

The following observations were made specific to our assessment:

Calculation Specific

- The Enbridge calculations provided for a 10% wheel load imbalance and an impact factor of 1.5. Furthermore, their analysis calculated the resulting hoop stresses under a truck with an axial load of up to 198,000lbs (880kN), which is ten times greater than their reported standard load.
- The Enbridge calculations were based on the vehicle crossing over (perpendicular) to the service with a wheel to wheel center of 157" (4m).
- The higher end of the load analysis presented by Enbridge yields results in excess of that following the prescribed loading criterion set forth by the Bridge Code's CL-625ONT vehicle or any evaluation vehicle defined in CAN/CSA S6.
- The Enbridge analysis assumed a modulus of soil reaction of 250psi (1.724 MPa). Such a value would be consistent for a fine-grained soil with a liquid limit of less than 50. However, such values should be field verified by a qualified Geotechnical Engineer. Note, if the liquid limit was greater than 50 would zero (Bureau of Reclamation). Failure to confirm this value in situ would be considered contrary to good Engineering practices; moreover, should a lower value exist the capacity of the pipe could be in question.
- The density of the soil carried by Enbridge was 120 pcf which is reasonable for the regional clay soil conditions significantly changing the analysis results.
- Consideration, with respect to soil response, does not include areas that have been disturbed and are formed with non-native soil to form the road, driveways and road shoulders over the years, to name a few instances of disturbance.
- The analysis completed by Enbridge's Engineer was to Z662-15; however, there is a more current version of this standard at Z662-19.

Review of Relevant Standards and Guidelines

Transportation Association of Canada

- Section 4.11 of the TAC Guidelines for geometric design (TAC 2017) specifically speaks to the placement of utilities in the right-of-way, included in this list, found in Section 4.11.1 – *Technical Foundation* is “Gas Lines”. In this same section they note that the location of utilities is dependent on “several factors” inclusive of:
 - Designation of the road
 - Maintenance requirements
 - Public safety, and future stages improvements for the road.

(TAC 2017)

- Given the proposed long-term expansion of the right-of-way as per 4.12 of TAC 2017 best practices would call to “*Determine the initial requirements and select the dimensions so as to allow for future expansion*”, an action currently being under taken by the County as the designated Road Authority.
- TAC’s guideline for Underground Utilities Installation (March 2013) states in the forward:

“... the responsibility of road authorities includes operating the highway rights-of-way in a manner that ensures the safety, traffic-carrying ability and physical integrity of their installations. The presence of a utility within the right-of-way can affect these characteristics, so it is necessary for road authorities to reasonably regulate the presence of utilities.”

Such statements, place emphasis of the responsibility of the Road Authority (County) to ensure compliance with the recommendations set forward by industry, such as the TAC guidelines.

- The function of the TAC guidelines is to “*assist the various road authorities in establishing and administering uniform criteria for the accommodation of utilities crossing highway (and freeway) rights-of-way*” (TAC March 2013 – Underground Utilities Installation). As a member of the Association the County must as a measure of good practice assess, and as appropriate, apply the recommendations and guidelines of this organization.
- The “intended audience” for the TAC – Underground Utilities installation (TAC March 2013) includes “*Consulting engineers practicing in the highway/utility field*” however, such assessment was not observed from a review of the Enbridge submission suggesting this guideline was not referenced prior to submission.
- Per Clause 4.1.8 of TAC March 2013 the recommend values are presented in Table 1 of document, but this clause further states that:

“The minimum utility cover depths specified by a road authority may be greater when installed within freeway rights-of-way. The road authority may approve other protection designed by the utility in lieu of the minimum cover depth specified.”

By requesting compliance with Table 1 of the present document the County fails to create a condition of undo hardship on Enbridge, albeit, the County would be within its rights, as the Road Authority, to implement and mandate a standard requiring greater depths of bury then those in Table 1.

Page 4
May 7, 2020

- Provided Enbridge proceeds in accordance with Z662-19 and applies the 1.2m depth (discussion to follow under Z662-19), and following from TAC March 2013, the County could accept the 1.2m depth per Table 1 provided the main was encased. Such encasement would further protect the line from loading criterion and other hazards faced by underground utilities within the right-of-way.

CAN/CSA Z662-19 National Standard of Canada – Oil and Gas Pipeline Systems

- Following the latest Z662-19, within Table 4.9 – Cover and clearance, the applicable guidelines governing Enbridge specifically note a minimum depth of bury, “*below travelled surface (road)*” of 1.2m; a value which is more than that currently proposed by Enbridge.
- Specific to Z662-19 Clause 1.4 the statement is made that “*This standard is intended to establish essential requirements and minimum standards for the design, construction....*” Emphasis should be placed on the declaration of minimum, thus in the presence of other guidelines specific to the zone of construction the most stringent should be considered in the interest of best engineering practice and public safety.
- Clause 4.11.1 of Z662-19 notes that “*cover requirements for buried pipelines shall not be less than the values given in Table 4.9*” contrary to the proposal of Enbridge.

4. Recommendations

The following recommendations are based on our review and assessment:

Calculation Specific

- The ten times analysis performed by Enbridge was conservative seeing a maximum concentrated wheel load of 16.5 (1.5 x 1.1 x 10) times their base value. Such conservative approaches far exceed those prescribed in other standards.
- The analysis by Enbridge does support that the proposed material is able to carry the applied loads under hoop stress.
- Given that hoop stresses are the only analysis performed care should be given during construction to ensure that the bedding of the pipe is free of any large or stiff elements that may cause beam actions resulting in longitudinal and shearing stresses which, when combined with the hoop stress, (ie Van Mises Stress Theory) could result in a principal stress far in excess of that of the pipes capacity.
- There should be some geotechnical verification of the soil assumptions made, specifically the modulus of soil reaction.
- Care should be taken in confirming adequacy of the pipe in non-clay soils albeit the modulus of soil reaction and overall soil response would tend to improve in a granular system.

Page 5
May 7, 2020

Guidelines Review Discussion

The following discussion will set the design calculations aside and considering the applicable industry recommendations. Following the TAC Guidelines, outlined previously, such recommendations are formed based on the input of the industry and as such form the same value to practicing Engineers and Road Authorities as a given CSA (Canadian Standards Association) document. Consideration should also be given to the mission of the Transportation Association of Canada which is “*to promote the provision of safe, secure, efficient, effective and environmentally and financially sustainable transportation services in support of Canada’s social and economic goals*” (TAC Guidelines Dec 2011). The focus of the mission being in part “safe” and as such the recommendations are set to provide the best possible solutions for such safety. Moreover, TAC is a widely accepted authority in the industry and as such its standards and guidelines form the basis of good right of way management with the realm of engineering and roadway management.

Given the above, and the consideration that the proposed pipeline will lay within the driving surface within the life span of the proposed new construction the minimum depth measured from drive surface (or anticipated drive surface) should be 1.5m versus the proposed 1.0m depth if compliance with the TAC guidelines is to be consistently applied by the County within its right of ways.

Specific to Z662-19 Enbridge appears through the current proposal to have failed to meet the minimum standards set forth in the latest document. Moreover, as noted in observations the current standard provides only the minimum cover requirements and as such makes no consideration for assessment of other appropriate standards and guidelines. As such and in the presence of both Z662-19 and the current TAC standards the greater requirement of the two would be considered the most appropriate value.

With regard to liability, should in the unfortunate situation an event occur which creates a threat or risk to the public, specific to the proposed gas line, failure to adhere to the TAC recommendations could result in the County being in part liable for failure to follow best practices. Such legal discussions should obviously be had with the County legal team; however, failure to follow guidelines does create a situation of increased risk and liability.

Speaking to the previous point care by the County should also be taken to not deviating from the TAC standards as it is a standard adhered to by the County itself on all other projects inclusive its own. Failure to consistently follow an established standard with the County, and in general most every Road Authority, also increases liability.

Page 6
May 7, 2020

5. Summary and Conclusions

Following from the above, the calculations submitted by Enbridge do confirm structural capacity based on the assumptions made; however, from the second portion of the discussion, failure to address the risk imposed by deviating from a standard regularly applied by the County and other similar Authorities will incur increased liability in the short and long term conditions. Moreover, the proposed construction appears to be in contravention of the current standards governing the actions of Enbridge itself.

The situation specific to County Road 46 expansion within the pipeline's life span is further support to follow the current guidelines and maintain a depth of cover that represents the most conservative approach in the interest of public safety, specifically 1.5m as this would also be supportive of the statements made in Z662-19 and the TAC guidelines.

Following from the above, and in the interest of trying to validate the most appropriate action in the current condition one only need to assess the reverse condition. Under the current standards and guidelines the following depths of bury are recommended, TAC -1.5m and Z662-19 -1.2m; should the case have been 1.5m requirement by Z662 and TAC permitted a shallower bury of 1.2m Enbridge would have been remiss to construct their plant at the lesser depth of 1.2m and would not have been alleviated from their professional responsibility or the legal obligations by doing so. As such, in the interest of best engineering practices, and good right-of-way management, the County and Enbridge itself, must assess the condition not in isolation but against all appropriate guidelines to ensure the best end results. Blindly ignoring the recommendations of an origination such as the Transportation Association of Canada, and its guidelines, is tantamount to negligence on the part of any party doing so. The provisions previously noted in the recommendation discussion specifically noted that the 1.2m is a minimum prescribed in Z662-19 and not a mandated maximum. The function of the various standards and guidelines making declarations of minimum is the committee's means of ensuring that a responsible professional will follow their professional, ethical and legal obligations to ensure the public trust and protection by the application of all best practices.


Based on our review and in the interest of shielding the County from liability while maintaining a consistent application of policy, and in the interest of good engineering and right-of-way management practices, we formal recommend that Enbridge be directed to adhere to the requirements set forth by your office as the Road Authority; as such compliance with the TAC guidelines should occur without further discussion.

Page 7
May 7, 2020

6. Closing

We trust that the above meets your needs at this time. Should you have any questions or comments please do not hesitate to contact our office.

Yours Truly
Haddad, Morgan and Associates Ltd.



William Tape, Ph.D., P.E., P.Eng.
Senior Engineer