Staff Report

Development Services Department *www.kitchener.ca*

REPORT TO:	**Committee of the Whole**
DATE OF MEETING:	**March 20, 2023**
SUBMITTED BY:	**Carlos Reyes, Interim Director Engineering, 519-741-2200 ext. 7974**
PREPARED BY:	**Eric Riek, Project Manager, 519-741-2200 ext. 7330**
WARD(S) INVOLVED:	**Ward 4**
DATE OF REPORT:	**March 14, 2023**
REPORT NO.:	**DSD-2023-096**
SUBJECT:	**Biehn Drive and Sanitary Trunk Sewer Environmental Assessment**

RECOMMENDATION:

That Council directs staff to complete further studies to update the Biehn Drive and Trunk Sanitary Sewer Extension Class Environmental Assessment - Environmental Study Report , prepared by BT Engineering, dated January 18, 2023; and,

That Council directs staff to complete one additional consultation to be scheduled once the additional studies have been completed; and,

That Council directs staff to use the remaining balance of the budget approved in 2020 for this EA to complete the additional work; and further,

That staff reports back to Council with an updated Biehn Drive and Trunk Sanitary Sewer Extension Class Environmental Assessment (EA) Environmental Study Report in late 2023 or early 2024.

REPORT HIGHLIGHTS:

- The purpose of this report is to answer questions raised at the February 13, 2023 Community and Infrastructure Services committee and to provide recommendations for additional investigation and consultation (Geotechnical, Hydrogeological and Transportation).
- The key finding of this report is the recommendation of additional investigation and consultation to be completed and to update the Biehn Drive and Trunk Sanitary Sewer Extension Class Environmental Assessment (EA) – Environmental Study Report and Preliminary Design Report with the findings of those studies, which would typically take place after filing the EA.
- The financial implications are Biehn Drive and Sanitary Trunk Sewer Extension was included in the Development Charge Background Study, 2019. This project has full-funding available as of 2022 in the capital forecast and is fully funded by Development

Charges. Remaining balance of the budget approved by Council in 2020 is required to complete additional investigation.

- Community engagement included two virtual public information centres with the first meeting taking place April 20th, 2021. The second virtual public information centre took place on November 17th, 2021. In addition, the project was presented to the Kitchener Environmental Committee on June 17th, 2021 and October 21, 2021. The project was presented to the Regional Environmental Committee on November 29, 2021. Lastly, the project was presented to Community and Infrastructure Services Committee on February 13, 2023. One additional Public Information Centre is proposed once additional investigation is completed (late 2023/ early 2024).
- This report supports the delivery of core services.

EXECUTIVE SUMMARY:

The City of Kitchener (City) has undertaken a Schedule C Municipal Class Environmental Assessment (EA) Study to develop a transportation plan for the extension of Biehn Drive westerly to the Robert Ferrie Drive extension in the City of Kitchener. The Biehn Drive extension will include municipal services including a trunk sanitary sewer, storm sewer/ditches and watermain.

The following problem/opportunity was identified as part of the EA:

"Future development within the Doon South and Brigadoon communities requires a defined alignment for the extension of Biehn Drive to Robert Ferrie Drive as part of the area road network and to accommodate municipal services. The sanitary sewer network must connect to Biehn Drive."

To address this problem, the Study has developed and evaluated alternatives for the alignment of the Biehn Drive extension, intersection locations/type and municipal services while minimizing environmental, social, and cultural impacts of the project. Biehn Drive is a Major Collector Road in the City of Kitchener Official Plan. The previous sanitary sewer network has been constructed to accommodate the future service areas to connect directly to Biehn Drive. No other alternative exists for the sanitary sewer network other than to connect to Biehn Drive.

As a result of questions and concerns raised at the Community and Infrastructure Services Committee meeting on February 13th, 2023, staff are recommending the following studies be completed to support the decisions made and refine the preferred solution of Council consideration of the Biehn Drive and Sanitary Trunk Sewer Environmental Assessment (EA) Environmental Study Report:

- Scoped Environmental Impact Study to support geotechnical work (typically completed at detailed design);
- Detailed geotechnical and hydrogeological study to determine sewer installation method and impacts to groundwater (typically completed at detailed design);
- Complete an update to the Doon South Community and Broader Traffic Study (last completed in 2016) to confirm what future traffic projections would look like with or without Biehn Drive extension.

In addition to the studies mentioned above, staff proposes one additional Public Information Centre to take place prior to reporting back to Council in Winter 2023/2024. After this additional consultation is completed, the preferred solution will be confirmed taking into consideration the results from the addition investigation, input and comments received from the review agencies, Indigenous communities, and the Public, and after the evaluation of the net environmental effects.

BACKGROUND:

Since the mid-2000's the road network and municipal servicing for the Doon South and Brigadoon areas in the City of Kitchener have planned for area development and evolving transportation needs. Several planning documents including the Official Plan and Transportation Master Plan (TMP) have identified the need to extend Biehn Drive westerly to the Robert Ferrie Drive extension and ultimately to Strasburg Road.

The Biehn Drive Extension would be a major collector road, as identified in Schedule B of the City of Kitchener's Official Plan Amendment. This link would accommodate vehicles to and from the Brigadoon community and would help mitigate cut-through traffic on local streets within the community. A collector road collects traffic from local roads within the community and provides connectivity to high tier arterial roads including Strasburg Road.

Future development within the Doon South and Brigadoon communities requires a defined alignment for the extension of Biehn Drive to Robert Ferrie Drive as part of the area road network and to accommodate municipal services. The sanitary sewer network must connect to Biehn Drive.

To determine the road alignment, this Study has considered the natural, social environments and the future land use in the Study Area. The extension of Biehn Drive and the associated municipal servicing has been a longstanding part of the integrated plan for the Brigadoon neighbourhood.

The planned extension will improve local access to Strasburg Road to safely and reliably accommodate all modes of transportation including vehicular, pedestrians, and cyclists, and provide access to potential future transit. Defining the future road and municipal servicing plans concurrently allows subsequent land use plans to be completed by developers by providing certainty in the horizontal and vertical alignment of the municipal street Right-of-Way (ROW).

The EA Study provides the opportunity to: improve accessibility to the local community by providing additional network links; define a multi-modal transportation plan to support travel within the local neighbourhoods; accommodate the required and previously planned sanitary sewer extension; and allow development to proceed on lands that currently require the roadway ROW plan to be defined prior to developing the land use plan.

REPORT:

Municipal Class EA Process

This project was undertaken to satisfy the Provincial EA Act following the "Municipal Class

Environmental Assessment" process for a Schedule C project as amended by the Municipal Class EA 2015. This document specifies the procedures required to plan specific road projects according to an approved provincial planning process.

The Class EA process was undertaken in a series of phases commencing with problem identification and culminating in the filing of this Environmental Study report (ESR).

The Class EA process includes an evaluation of all reasonable alternatives and the selection of a preferred alternative(s) with acceptable effects (including avoidance and mitigation of any residual adverse effects) on the natural and social/cultural environments.

The Municipal Class EA process involves five phases:
Phase 1: Identify the Problem
Phase 2: Alternative Solutions
Phase 3: Alternative Design Concepts for the Preferred Solution
Phase 4: Environmental Study Report
Phase 5: Implementation

Current Environmental Assessment Status
Due to concerns received from the Public, staff is proposing to advance additional investigation and consultation earlier in the process to update and file the Environmental Study Report with the Ministry of Environment, Conservation and Parks for the mandatory 30-day review period which corresponds to Phase 4 in the Municipal Class EA process (**See Figure 1**).

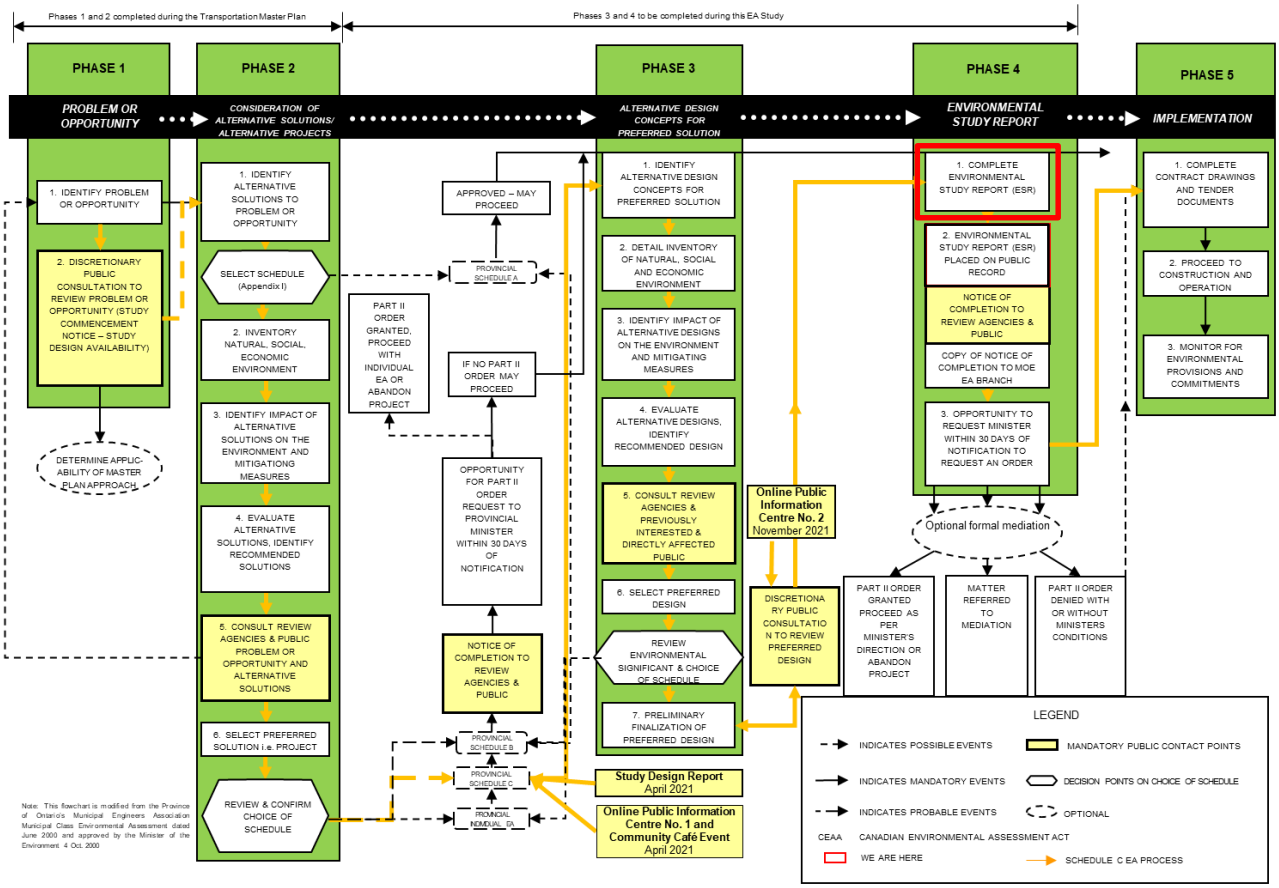

Figure 1 – Municipal Class EA Process Map

Council Discussion and Questions

The following questions were raised at the February 13th, 2023 Community and Infrastructure Services Committee Meeting:

1. **Question/Concern:** Alternative 4 scoring review was completed as requested, however, no changes were made to the Environmental Study Report. **Response:** While alternative 4 scored the highest for Natural Environment, that is only one factor out of six (6) that is considered. The evaluation considered all natural, social, cultural environmental performances as well as cost and transportation. It is typical that a preferred alternative in an Environmental Assessment would be a best-balanced solution providing reasonable transportation and municipal services while minimizing environmental effects and costs.

   In this technical evaluation Alternative 1 was considered a better-balanced solution considering all trade-offs. The overall scores of the competing alternatives is shown below (**Figure 14**-*from Environmental Study Report*) and the colour of each factor group illustrates where each option scored points in each criteria. Alternative 4 has the largest green (natural environment) performance as shown in the figure but poorer performance in other factor groups.

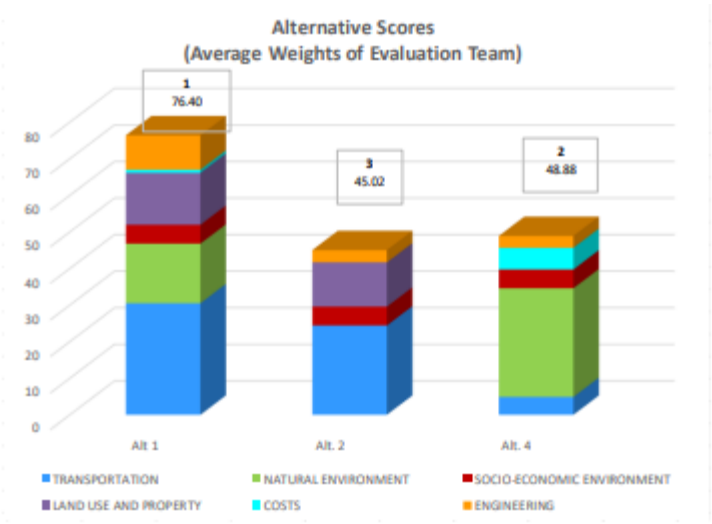

Figure 14: MATS Evaluation Ranking Results

Figure 2 – MATS Evaluation Ranking results Included in the ESR

Sensitivity testing was also completed to validate or test the weighting exercise which is explained in detail below.

To evaluate the alternatives using the short-listed criteria, the Evaluation Team members rated each global factor and sub-factor based on their knowledge and experience. It is noted that every person assigning weights may have different expertise (i.e. the Evaluation Team consists of a diversified team of professionals with varied backgrounds) and may allocate slightly different scores between each member. The Evaluation Team assigned percentage weights to each global factor and sub-factor were assigned by each project team member based on the findings of sub-studies, public comments, and whether the performance or impacts would be short term or long term.

Their individual weights are then averaged to determine the Evaluation Team weight for each global factor and sub-factor shown above. The sensitivity testing program was a method to assess the range of perspectives in the group and to test if judgements of individuals had a large variance or not. The testing considered the outcome of each factor group using the highest or lowest perspective of importance of anyone in the group. In this study the Alternative 1 was a robust solution ranking first in every test.

Table 5 on Page 42 of the Environmental Study Report is shown below for reference.

Sensitivity Tests

To validate the weighting exercise, a sensitivity testing program was undertaken to determine whether the Technically Preferred Alternative (TPA) would have changed if a particular factor group was assigned a higher or lower importance than the group average. This ensures greater confidence in the selection process. The three tests included:

- Average Evaluation Team weight
- Highest weight in a factor group by any Evaluation Team member
- Lowest weight in a factor group by any Evaluation Team member

The results of these tests are shown in **Table 5**. The green box shows the first rated alternative.

Table 5: Sensitivity Testing Results for Alignment Alternatives

Alternatives			**Alt. 1**	**Alt. 2**	**Alt. 4**
Ranking			**1**	**3**	**2**
Transportation	High	45%	1	2	3
	Low	20%	1	3	2
Natural Environment	High	40%	1	3	2
	Low	20%	1	2	3
Socio-Economic Environment	High	15%	1	3	2
	Low	10%	1	3	2
Land Use and Property	High	20%	1	2	3
	Low	10%	1	3	2
Cost	High	10%	1	3	2
	Low	2%	1	2	3
Engineering	High	15%	1	3	2
	Low	5%	1	3	2

The sensitivity test results showed that there were no trade-offs between the alternatives. **Alternative 1**: **Connect to Robert Ferrie Drive east of Hydro Tower**, was determined to be the preferred alignment alternative.

Table 1 – Sensitivity Testing Included in the ESR

What this demonstrates is that no one on that evaluation group considered Alternative 4 as the preferred alignment alternative.

2. **Question/Concern:** Method of construction for extending sanitary trunk sewer and watermain (open-cut, directional drilling, micro-tunneling, etc.). **Response:** Staff are recommending proceeding with a detailed geotechnical study which is required typically reaquired at and budgeted for in the detailed design stage. By completing this study in advance, the following questions will be answered:
    - Method of sewer construction

- Impacts to groundwater/ flooding concerns

To complete this geotechnical investigation, a scoped Environmental Impact Study must be completed in advance (Spring/Summer 2023). Limited tree removal will be required to access the lands with the B57 drill rig, see photo below for reference. Tree removal cannot take place during the bird nesting window (April 1st to August 31st); therefore, the geotechnical investigation will begin in September 2023.

B57 Drill Rig

3. **Question/Concern:** Does Biehn Drive need to be extended? **Response:** There have been numerous studies completed to support the need for extending Biehn Drive from the current terminus to Robert Ferrie Drive which are outlined in the Environmental Study Report. Despite all the previous studies recommendations to extend Biehn Drive, there are still questions about the need for the road extension.

   In response to these questions and concerns, staff proposes to complete an update to the Doon South Community and Broader Traffic Study (last completed in 2016) to confirm what future traffic projections would look like with or without Biehn Drive extension.

4. **Question/Concern:** Alternate routes for trunk sewer or alternative servicing options. **Response:** The Biehn Drive trunk sewer will service a large area of the City (128.9 hectares including rural, residential, and agricultural lands) by gravity, see **Figure 2** below for reference. This equates to approximately 2000 dwellings. Servicing by gravity is the most efficient and cost-effective means of providing a sanitary outlet for new construction.

   The only alternative to gravity drainage is to provide a pumping station that would pump sewage (via a forcemain) from a low point on the west side of the Provincially

Significant Wetland (PSW) to the existing trunk sewer on Biehn Drive. This forcemain would either be installed under the wetland or follow local streets (Robert Ferrie Drive to Caryndale Drive to Biehn Drive). Pumping stations are very expensive and carry a perpetually high operating and maintenance cost for the City. Further, with the changes from Bill 23, it is in the City's best interest to be fiscally responsible with Development Charge funds to ensure the money invested in new infrastructure is done so responsibly and as efficiently as possible.

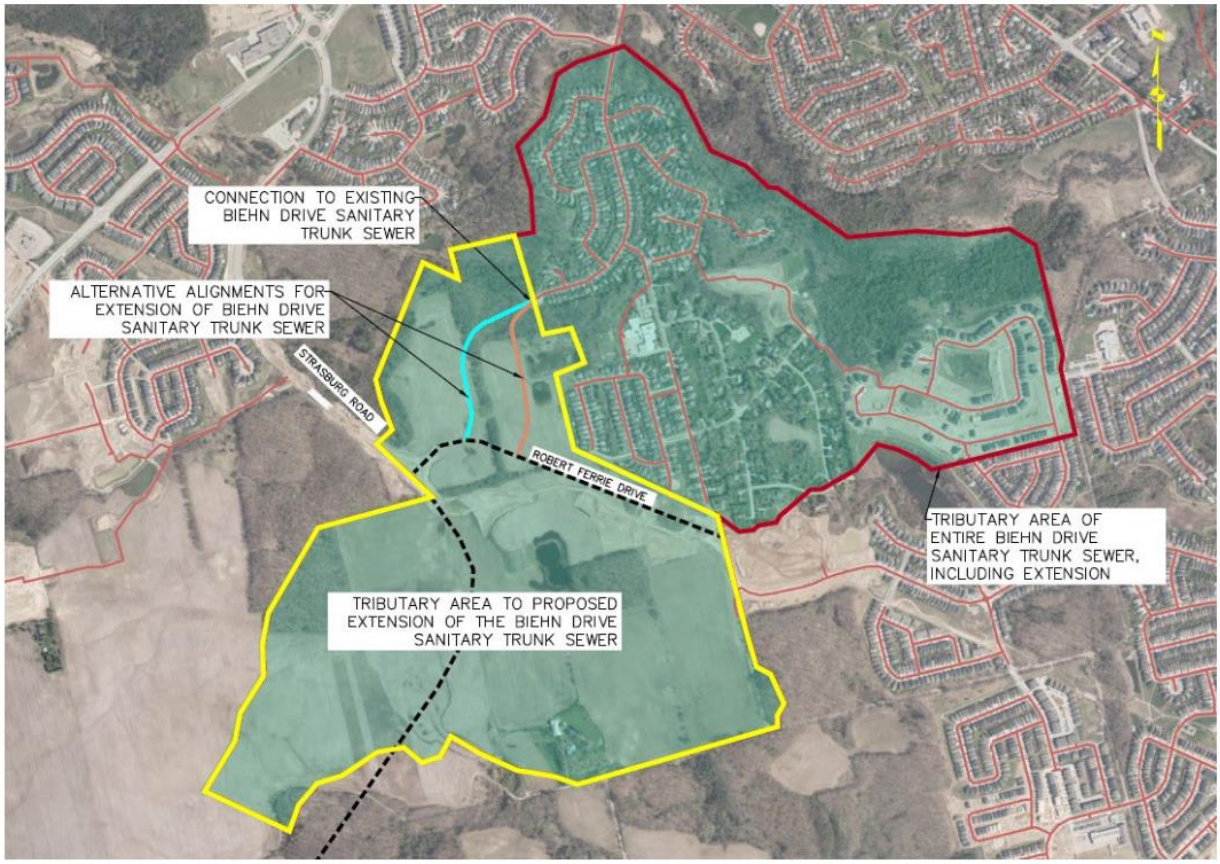

Figure 2- Biehn Drive Sanitary Sewer Catchment Map

Recommended Strategy and Next Steps

1. Scoped Environmental Impact Study which will include field investigations to be completed in the spring and summer of 2023 to review existing mapped natural features and identify additional features and constraints that should be considered during the evaluation of alternative designs. This site investigation will document the following beyond general natural heritage constraints: spring plants, tree assessment, spring birds and frog call surveys, bat roosting screening, incidental wildlife observation, and Species at Risk (SAR) potential habitat assessment. An additional field visit will be completed in the summer of 2023 to ensure that existing conditions are captured across multiple seasons.

   A Scoped Environmental Impact Study (EIS) will be prepared which will summarize existing conditions including constraints and opportunities in the Study Area, an assessment of potential impacts, mitigation measures, construction timing windows and a list of future studies, as well as permits and approvals that may need to be

obtained prior to additional geotechnical investigations. The report will inform the design team of natural heritage considerations in their selection of the preferred solution and design. The report will be distributed to MECP and GRCA as required in support of permits and approvals

2. Complete Geotechnical/Hydrogeological investigation which will advance six (6) boreholes to a depth of 8 metres within the wetland limits. Three (3) boreholes will be converted to monitoring wells to measure groundwater fluctuations. The boreholes will be advanced using a track-mounted drill-rig equipped with continuous flight solid/hollow stem augers and split spoon (SPT) sampling equipment.

3. Complete an update to the Doon South Community and Broader Traffic Study (last completed in 2016) to confirm what future traffic projections would look like with or without Biehn Drive extension.

4. Additional Consultation in Winter of 2023/2024

5. Update the Environmental Study Report taking into consideration the results from the additional investigation and consultation.

6. Final presentation of Environmental Study Report to Council in late 2023 or early 2024

STRATEGIC PLAN ALIGNMENT:

This report supports the delivery of core services.

FINANCIAL IMPLICATIONS:

Capital Budget – The recommendation has no impact on the Capital Budget. Funds are currently available from Development Charges.

Operating Budget – The recommendation has no impact on the Operating Budget.

In 2020, Council approved $565,000 for the Biehn Drive and Sanitary Sewer Extension - Municipal Class EA and Preliminary Design. On December 23, 2020, Council approved P20-043 (Professional Services Class EA & Preliminary Design for Biehn Drive Extension and Sanitary Trunk Extension (Current Terminus to Robert Ferrie Drive) with a total budget of $369,817.36. Staff recommends the use of the remaining balance ($187,486.83) to complete the additional work.

COMMUNITY ENGAGEMENT:

INFORM – This report has been posted to the City’s website with the agenda in advance of the council / committee meeting.

CONSULT – Community engagement included two virtual public information centres with the first meeting taking place April 20th, 2021. The second virtual public information centre took place on November 17th, 2021. In addition, the project was presented to the Kitchener

Environmental Committee on June 17th, 2021 and October 21, 2021. The project was presented to the Regional Environmental Committee on November 29, 2021. Lastly, the project was presented to Community and Infrastructure Services Committee on February 13th, 2023.

One additional Public Information Centre is proposed to take place in Winter of 2023/2024 after the additional studies are completed.

PREVIOUS REPORTS/AUTHORITIES:

- September 1989, City Council approved the Brigadoon Community Plan. The Community Plan was processed concurrently with amendments to the Official Plan which established a collector and arterial road network for the Community. The importance of connecting the Brigadoon Community to Strasburg Road was recognized and three collector road connections were proposed at that time including the extension of Biehn Drive. Approved transit routes included Biehn Drive, Strasburg Road and Huron Road. The Biehn Drive extension has been carried forward in all subsequent versions of the City of Kitchener Official Plan.
- February 1994, McCormick Rankin on behalf of the City of Kitchener completed the report "Doon South - Brigadoon Transportation Network and Corridor Study". The report recognized the need to comprehensively plan a road network to accommodate growth associated with a large geographic area. The process was undertaken in the form of the Environmental Assessment Act. The report recommended several interrelated transportation corridor network improvements and reaffirmed the need for the Biehn Drive extension. Kitchener Planning and Economic Development Committee approved the report and further recommendations dated June 20, 1994 which among other matters, directs an amendment to the Kitchener Official Plan to incorporate the collector road network which includes Biehn Drive.
- The Brigadoon Community Plan was updated and approved by Kitchener City Council on June 29, 2004. The updated Community Plan provides for the extension of Biehn Drive to Strasburg Road and recognizes Strasburg Road as a 26 metre wide secondary arterial road.
- In June 2013, the final "Kitchener Integrated Transportation Master Plan" was approved. The master plan informed the approval of the City's current "in effect" Official Plan. Biehn Drive extension is identified as a major community collector street. Biehn Drive is shown as extending in a southwesterly direction and connecting to Strasburg Road.
- City Planning Staff Report (CSD-14-037) prepared in support of the Official Plan Amendment (OPA) and environmental assessment (EA) for the Robert Ferrie Drive extension (June 2014) includes the following conclusion: *"In order to continue improving the traffic and transportation needs in the Brigadoon and Doon South communities the Transportation studies done as part of the Integrated EA and OPA process confirmed that the extension of Biehn Drive is necessary to meet the current and projected transportation needs of the Brigadoon/Doon South Communities. It is therefore also recommended that the EA process for the extension of Biehn Drive commence as soon as possible and further that it be concurrent with the EA for the extension of sanitary sewer services along Biehn Drive."*
- March 2019, LPAT's partial approval of Official Plan Amendment No. 103. The integrated transportation system policies of the Official Plan are supported by the City's Transportation Master Plan. Map 11 (Integrated Transportation System) of the in-effect Official Plan identifies the approved Robert Ferrie Drive alignment and confirms that Biehn Drive will be extended from its current terminus southerly and connect to Robert

Ferrie Drive. The final alignment of Biehn Drive is to be constructed within the corridor identified on Map 11.

- *Municipal Act, 2001*
- *Planning Act*

APPROVED BY: Justin Readman, General Manager, DSD

ATTACHMENTS:

Figure 1 - Borehole Location Plan