

**FUNCTIONAL SERVICING STUDY  
KWENDILL HOLDINGS  
INDUSTRIAL DEVELOPMENT  
KERR STREET  
TOWN OF COBOURG**

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## **INTRODUCTION**

Kwendill Holdings Ltd. is proposing to develop a vacant parcel of land as an industrial subdivision. The Legal Description of the lands is : Parts 6 & 8, Plan 39-R8306, Part of Park Lot 'L' and Part of Wellington Street, Part of the Glebe Lot and Part of Lots 1,2 and Block 'K' Caddy Plan, Town of Cobourg, County of Northumberland.

The subject property is located on the south side of the recent Kerr Street extension, between Division Street and D'arcy Street in the Town of Cobourg. The west boundary abuts the existing Home Hardware property, the east boundary is the existing Limpact property and the south boundary is the railway lands. Kerr Street was constructed with Municipal services. These include:

- A new storm sewer system. The storm sewer was not designed to accept any runoff from this development.
- 250mm sanitary sewer outletting into the existing sanitary sewer on D'arcy Street. The sanitary sewer does not extend the full length of the property (485m +/-). Only the eastern portion (200m+/-) can be serviced via the new sanitary gravity sewer.
- The existing 450mm watermain within the Kerr Street extension has been tapped and four (4) fire hydrants have been installed on the south side of Kerr Street, in front of the development land.
- Hydro/Bell lines have been relocated.
- Natural gas is not presently available

Kerr Street has been constructed as a 2-lane roadway. An additional 2 lanes and a centre median is approved for future construction.

## **PROPOSED DEVELOPMENT**

The property is a total 7.3 hectares in area, and seven (7) industrial lots are proposed on the site. The land west of the rail spur line will be severed, creating a 1.37ha parcel of land. Six (6) lots are proposed east side of the spur line. As illustrated, lots 1-6 vary in size from 0.71ha to 1.37ha in area. The lot lines will be finalized later, to suit the requirements of the purchaser.

## **DRIVEWAY**

All lots will have access onto Kerr Street. In the interim, access will be from both the east and the west direction. Once Kerr Street is fully constructed, westbound access will be limited, due to the proposed median. The Kerr Street design drawings illustrate a break in the median at West Street, across from proposed Lot 2, allowing traffic to turn left-in and left-out.

In order to provide a left-turn in and left-turn out for the industrial lots, a common driveway will be constructed parallel to Kerr Street across lots 1-6. In addition a driveway permitting right-in and right-out only, is proposed for Lot 1, Lot 3 & 4 and Lot 5 and 6..

### **STORMWATER MANAGEMENT**

A separate Stormwater Management Report has been prepared for the development. In summary:

- ❖ Stormwater from the development cannot be discharged into the new Kerr Street storm sewer system. Stormwater must be directed south, and through the existing box culvert under the main railway tracks. Stormwater is conveyed south and enters the storm sewer in the Mall (Mid-Town Creek Watershed).
- ❖ A central SWM facility will be constructed along the south property line to control discharge off site. The peak flow for the 2-yr storm event will be controlled to 50% of the peak pre-development flow and the 5-yr and 100-yr storm events will be controlled to 70% of their respective peak pre-development flows.
- ❖ The severed parcel will require the construction of a separate SWM facility on the lot, controlling discharge onto Lot 1 and through the central SWM facility.
- ❖ Each lot will require site plan approval. A SWM report for each lot will need to address the temporary and permanent Stormwater quality controls required.

### **SERVICING – Hydro, Bell, Gas, and Water**

Hydro and Bell are available for each lot, off the existing lines on the south side of Kerr Street. Both a 27.6kV and a 44kV hydro service line is available. Transformation up to 1000kVA can be serviced from the 27.6kV line and over 1000kVA from the 44kV line.

Gas is not presently available on Kerr Street. The gas main could be extended if necessary, but at the developers/owners expense. The extension will depend on Enbridge determining that the projected gas volumes warrant the service.

The existing 450mm watermain on the Industrial Park on the north side of Kerr Street has been stubbed with a 200mm line to the south boulevard at four (4) locations, c/w fire hydrants. The hydrants are located in front of the severed parcel and lots 1, 2 & 5. The severed parcel and lots 1-6 can be serviced off these stubs. The water demand (domestic and fire/sprinkler system) for each lot will need to be determined as part of the site plan and building approval.

## SANITARY SEWER

The Town of Cobourg engineering staff identified a potential sanitary sewer capacity restraint downstream of the proposed development, and requested flow monitoring at downstream manholes. The developer retained Flowmetrix Technical Services Inc. to carry out the necessary monitoring. Flow monitors were installed in 2 downstream manholes. Manhole COB-A on D'arcy Street and Manhole COB-B on University Avenue. The manhole locations are noted on the attached GIS map. A rain gauge was also installed on the roof of the Cobourg Water Pollution Plant at 420 King Street West.

Monitoring was carried out for 3 months, from April 2, 2020 to July 8, 2020. The results of the study are presented in the Cobourg Sewer Flow Monitoring Final Report, dated July 2020, prepared by Flowmetrix. A copy of the report was submitted to the Town of Cobourg Engineering department and is attached in the appendix. The monitoring measured the peak flows at 50.15 l/sec and 56.96 l/sec at COB-A and COB-B respectively.

The Town provided Dobri Engineering Ltd. access to their GIS mapping, plans of the existing sanitary sewers in the drainage area, plans of proposed upstream developments, sanitary sewer design sheets, and Sanitary Sewer Study reports dated August 1990 and March 1997 prepared by Totten Sims Hubicki.

An analysis of the data concluded that the downstream sanitary sewer capacity was restricted by the existing 375mm pipe at 0.27% (calculated from plans provided), having a pipe capacity of 94.80 l/sec. The peak sanitary flows were calculated for St. Joseph's School, Cobourg Community Centre, future County Townhouse development, Nickerson Woods subdivision, Kwendill industrial subdivision and the future Phase 1 Rondeau Subdivision. The sanitary sewer design sheet is attached.

The theoretical flows were added to the measured flow, resulting in a projected peak flow of 83.99 l/sec. The conclusion is that the existing sanitary sewer has the capacity for the Kwendill Industrial Subdivision.

The Town has installed approximately 400m of 250mm diameter gravity sanitary sewer from D'Arcy Street west. The sewer ends in front of Lot 3, near the centre line of the lot. The severed parcel and Lots 1 and 2 will need to be serviced by a sanitary forcemain. The forcemain from the severed parcel will need to be drilled under the rail spur line. The severed parcel and Lots 1 & 2 will require a sewage pump tank complete with a grinder pump and associated level controls and alarms.

Prepared by: Bruno Dobri, P.Eng.  
Dobri Engineering Ltd.



## **APPENDIX**



MONITORED MANHOLES

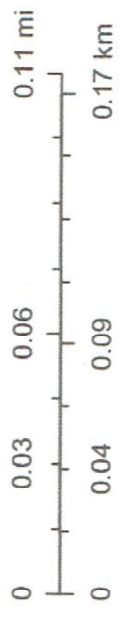
COB-A (0027) D'ARCY STREET  
 COB-B (0077) UNIVERSITY AVENUE

# ArcGIS Web Map



6/24/2020, 1:49:23 PM

1:4,514



- Pumping Station
  - 2019
  - 2020
  - 2021
  - 2022
  - 2023
  - 2021
  - Manhole
- 
- Subdivision Phases
  - 1
  - 1-1
  - 1-2
  - 1-8
  - 1A
  - 1B
  - 2
  - 2-1
  - 2-2
  - 2-3
  - 2A
  - 2B
  - 3
  - 3A
  - 3B
  - 4
  - 4A
  - 4B
  - 4C

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,  
 Web AppBuilder for ArcGIS  
 Town of Cobourg





		Pipe Capacity l/sec		Available Pipe Capacity	
		Full	80 %	Full	80 %
375 mm dia sanitary @	0.27 %	<b>94.80</b>	75.8	<b>42.23</b>	<b>23.3</b>
525 mm dia sanitary @	0.19 %	195.1	156.1		l/sec

ADDITIONAL FLOWS - FUTURE DEVELOPMENT

Cobourg County Townhouses				66 persons	
Increase from	18 to	22 units		1.38 l/sec	PEAK
Use 3 persons/residence at	450 l/day				
Nickerson Woods	23 lots 2.25 ha	3.3 per lot		75.9 persons	PEAK
				1.83 l/sec	Provided by Town
Russell Industrial Park	7.328 ha	Light Industrial @ Infiltration	35 cu.m/day/ha 0.72 l/mm dia/100m pipe/hr	11.87 l/sec 0.49 l/sec	

Flow from future developments, excluding Rondeau Phase 1      **Sub-Total**    15.57    l/sec    **Not including Rondeau Development**

Rondeau Phase 1      \*\*\*\*    **15.85**    Town allocation

**TOTAL ADDITIONAL FLOW**      31.42    l/sec

**The total flow in the 375mm sanitary pipe will be 83.99 l/sec**  
**The existing 375mm sanitary pipe has the capacity to add the sewage flow from the Industrial development.**  
**The 375mm section of sanitary sewer will flow at 89% capacity**