

**125-127 WILSON STREET
PERTH, ONTARIO**

SERVICING BRIEF

**PREPARED BY:
EASTERN ENGINEERING GROUP INC.
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PROJECT

Eastern Engineering Group Inc. was retained by Ekobuilt (Jaison Dolvane) to design site works for a new mixed residential and commercial development. The site will consist of one new building with 63 apartments on floors 2-5, 12 leasable commercial units on the ground floor and two rental units. The basement will be underground parking. A new surface parking lot at the east side of the building will accommodate approximately 51 spaces.



**FIGURE 1: LOCATION
125-127 WILSON STREET
PERTH, ON**

EXISTING CONDITIONS

The existing site comprises of two residential lots at 125 and 127 Wilson Street. These lots will be cleared in order to construct the new project. The two site areas are approximately 3608 m². Each residential lot is serviced with water (19mm) and sanitary services (150mm) from Wilson Street during the 2010 reconstruction of Wilson Street.

Existing Town of Perth services on Wilson include a 300mm dia storm sewer on the east side of Wilson along the curb line. The sanitary is a 250mm dia line at 1.48% which allows for a full flow of 73 L/s. The existing watermain on Wilson is a 250mm dia. PVC watermain. There are hydrants located on Welland Street (unopened road) and Wilson and just north of Elliot Street on the east side of Wilson.

Water flow data was not available at the time of report, but the Town has not indicated if there would be capacity issues with the proposed development.

PROPOSED SITE SERVICING

The new development will require a 200mm water service from Wilson Street. This will be a new connection and will require a road cut to install the service to the site. A second option is to connect to the existing 200mm watermain on Welland Street at the south side of the development.

The new development will require a 200mm sanitary service lateral to the site from Wilson Street.

The storm requirements for the site are to match pre and post development flows for stormwater management. There are no storm services to the site so the flows from the existing site are currently overland to the east along Elliot and Welland Streets. The existing storm on Wilson Street is only a 300mm dia sewer and would not support the flows from the site.

All connections would be designed to meet the Ontario Building Code and Town of Perth regulations for water and sanitary services.

DOMESTIC WATER REQUIREMENTS

Based on the Ministry of Environment Design Guidelines for Drinking Water system, the domestic water demand for residential is 450 L/day/ person. A peaking factor of 4 is used for the peak hour.

WATER DEMAND AND SUPPLY

The estimated demand for each residence (1.5 persons per unit) = $450 \times 1.5 \times 63$ units 45,525 L/day for the residential. For the development, this is 0.49 L/s.

The Peak domestic flow is calculated using $Q = \text{Population in 1000s} \times \text{flow} \times \text{peak factor} / 86.4$
 $Q = 95/1000 \text{ persons} \times 450 \text{ L/d/p} \times 4 / 86.4 = 1.98 \text{ L/s}$

The Peak Extraneous flow is $0.15 \times \text{the Area (3608 m}^2\text{)} = 0.054 \text{ L/s}$

The Commercial Daily flows are estimated at 28,000 L/ha/day. The commercial area on the site is $0.119 \text{ ha} \times 28000 = 3332 \text{ L/day} = 0.04 \text{ L/s}$

The approximate total demand requirements for the site would be 2.074 L/s or 179,194 L/day.

When water flows and pressures are provided, the report will be updated with water flows and fire protection values.

DOMESTIC SEWER DEMANDS

The domestic sewage flow from the site is calculated using Peak Population Flow, Peak Extraneous Flow, and peaking factor of 4.

LOCATION			INDIVIDUAL		Peaking Factor M	Peak Pop. Flow Q (p) (L/s)	Peak Comm. Flow Q (p) (L/s)	Peak extraneous flow Q (i) (L/s)	Peak design flow Q (d) (L/s)
STREET	FROM	TO	Pop.	Area A (hectares)					
Building 1	A	MH	95	0.3608	4	1.98	0.04	0.054	2.074

The peak sewage flow from the development is expected to be 2.074 L/s.

SANITARY SEWER FLOWS

The Wilson Street sanitary sewer is a 250mm dia line at 1.48% which allows for a full flow of 73 L/s. This would easily accommodate the flows from the proposed development.

STORM SERVICING AND STORMWATER MANAGEMENT

The site will be designed to allow for on site stormwater storage to meet the 100 year storm design criteria for a 5 year release rate. The stormwater will meet pre-development levels and have the flow from the property meet the pre = post for the 5-100 year storm events. There are storm sewers on Elliot and Welland that will be connected to with flow control and quality control design in place.

The storm design will aim for LID (low impact development) where possible. Underground, rooftop and surface storage will be employed to meet the storage requirements.

The building will have in internal sump pump system which will be directed to the sanitary sewer for the elevator pit and the underground parking drains. All surface grading will be done so no neighbouring properties are affected by any stormwater management designs.

CONCLUSION

The proposed site development of 63 apartments and 12 commercial suites will be able to be serviced for water demand, sanitary sewer capacity, and storm water storage and control. The existing services available on Wilson, Elliot and Welland Streets allow for connections to be made for the development.

Prepared by:

Eastern Engineering Group Inc.

Colin A. Jardine, P. Eng

