

# **THE CORPORATION OF THE MUNICIPALITY OF TEMAGAMI**

**BY-LAW NO. 07-717**

---

**Being a by-law to authorize the Mayor and Chief Administrative Officer/Clerk to execute an Agreement with Story Environmental Services for Consulting Services Contract No. 048-01 regarding the water infiltration in the sewer system in Temagami North.**

---

**AND WHEREAS** under Section 8. (1) (a) and (b) of the Municipal Act, 2001, S.O., 2001, c.25, as amended, the powers of a municipality under this or any other Act shall be interpreted broadly so as to confer broad authority on the municipality to enable the municipality to govern its affairs as it considers appropriate and to enhance the municipality's ability to respond to municipal issues.

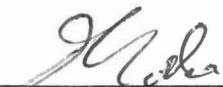
**WHEREAS** under Section 9 of the Municipal Act, 2001, S.O., 2001, c.25, as amended, a municipality has the capacity, rights, powers and privileges of a natural person for the purpose of exercising its authority under this or any other act;

**NOW THEREFORE the Council of the Corporation of the Municipality of Temagami hereby enacts as follows:**

1. That the Mayor and the Chief Administrative Officer are hereby authorized and directed to execute the agreement attached hereto as Schedule "A" to this bylaw.
2. This bylaw shall come into force and take effect upon final passing thereof.

BE TAKEN AS READ A FIRST time on this 24<sup>th</sup> day of May, 2007.

READ A SECOND AND THIRD time and finally passed this 14<sup>th</sup> day of June, 2007.

  
\_\_\_\_\_  
MAYOR

  
\_\_\_\_\_  
CAO/Clerk

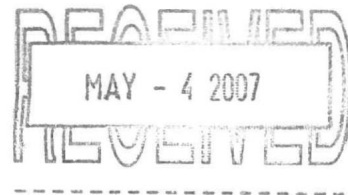


## **Story Environmental Services**

770 Lakeshore Rd., P. O. Box 716  
Haileybury, ON, POJ 1K0  
Telephone: (705) 672 - 3324  
Facsimile: (705) 672 - 3325

May 2, 2007

The Corporation of the Municipality of Temagami  
P.O. Box 220  
Temagami, ON, P0H 2H0



Dear Mr. Brian Koski - Chief Administrative Officer/Clerk

### **Re: Consulting Services Contract No. 048-01**

The Municipality of Temagami has requested that Story Environmental Services ("SES") conduct an Inflow/Infiltration Study ("I/I") of their sewer system infrastructure in Temagami North ("Site"). SES personnel attended a meeting on March 30, 2007 with municipal personnel and toured the said site. During these activities, SES personnel were briefed on issues concerning the differential in water flow between the treated water outflow from the water treatment plant versus the inflow from the sewage system. The concern is that extraneous water is inflowing (rain from roof drains/downspouts and groundwater from sump pumps) and infiltrating (groundwater through leaks in the sewer infrastructure - pipe, manholes and lift stations) into the sewer system and, thus affecting the capacity of the treatment plant.

Based on the information to date and the initial observations and measurements obtained at the site on April 11, 2007, SES recommends the following work plan to complete an I/I study at the site.

#### **Work Plan for I/I Study**

##### **1. Identify Collection System Problems**

- a) Obtain existing drawings, plans, etc.
- b) Review the existing system in detail (plans, drawings, etc.) and historical documents (i.e. downspout survey - completed by municipal employees, etc.);
- c) Review existing topographic maps and development plans;
- d) Review and analyze existing flow records such as plant influent data, pump station data, overflow locations and estimated amounts, etc;
- e) Divide the collection system into subsystems and identify the strategic manholes which are located at the outlet of each subsystem;
- f) Install flumes (weirs) and/or flow meters [doppler radar (flow) and ultrasonic pulse echo (depth) sensing technology] and monitor flows at the strategic manholes and compare them to the expected sewer flows from each of the subsystems;
- g) Identify the problem subsystems and determine if further study is needed; and

- h) Determine if the excessive flow problem is due to infiltration, inflow, or both, and determine the appropriate time period of the year to monitor the problem subsystems (not all tests can be done at the same time of year).

## 2. Investigate Inflow/Infiltration ("I/I") Problem

Conduct a physical inspection, review rainfall data, and, possibly, consider additional testing or inspection to further define the I/I problem.

### a) Physical Inspection

Conduct a physical inspection of the subsystem area that includes the following:

1. Inspect all the manhole walls and floor for groundwater infiltration, mineral deposits, and sand/silt deposits. Inspect all construction and pipe materials for misalignment, structural deformities, etc. SES and Municipality personnel have already conducted some of this work.
2. Prepare a manhole inspection report providing the manhole number, size, type of pipe, structural condition, amount of deposit, root growth, and other miscellaneous information.  
(If groundwater infiltration is suspected to be a problem, groundwater-monitoring wells may have to be installed at manholes or at other sites to evaluate the local groundwater conditions.)
3. Measure early morning flows (between 2 a.m. to 5 a.m.) at key manholes and at upstream manholes to identify infiltration. Subtract approximated domestic flow from the actual flow measurements to determine infiltration.

### b) Collection of Rainfall Data

Obtain rainfall information through the Ontario Clean Water Agency ("OCWA") as they have installed a local rain gauge as well as Environment Canada. (In the event there is no rainfall data available or the data is poor, we will need a municipal employee to collect the data from the OCWA installed rain gauge, either to provide raw data or to establish the basis for a correlating analysis of various adjacent areas that have available rainfall data.

This data will be used to calculate the possible contributions due to rainfall to the sewer system from the downspouts connected to the sewer.

### c) Possible Additional Testing / Inspections

Additional testing/inspections may be required to identify sewer sections with I/I problems. The use of the following techniques will be considered:

1. Smoke test - used to identify inflow sources such as catch basins, roof and other drains, crossing connections, manhole covers, and bad joints and leaks.
2. Dye/Salt Injection test - used in ditches, streams, or storm sewers located above or crossing the sanitary sewer system.

3. Exfiltration tests (air or water) - used to detect possible leakage in the sewer lines and manholes.
4. TV Inspection - used by itself or in conjunction with any of the above tests to determine the location, condition, and estimated flow rate of I/I sources. The Municipality has already completed some of this work.

### 3. Prepare a Plan and Field Report

- a) Prepare a plan that illustrates the location of all of the problem manholes along with the associated pipe sizes, estimated quantity of I/I and flow direction.
- b) Prepare an inspection report that compiles and analyzes all data and information collected in the field. All backup information, such as field notes and measurements, a summary of defective manholes and pipes, an estimate of rehabilitation cost, and an estimate of I/I reduction will be included in the report.

### 4. Conduct a Cost-Effectiveness Analysis

After all data and results have been analyzed and summarized, a economic analysis will be conducted to determine the cost of reducing I/I at various levels and evaluating options for reducing I/I by economically achievable means. This will help with the decision making process with respect to proceeding with I/I reduction and, thus help prioritize the associated tasks. The cost of reducing I/I will then be compared to the total cost of treatment of I/I flows at the treatment facility.

For various levels of I/I removal, determine the:

- a) Cost of treating existing I/I such as capital costs (replacing units, engineering, legal, administration, and contingency costs) and operation and maintenance costs;
- b) Cost of I/I reduction such as rehabilitation, repair, replacement, and engineering costs; and
- c) Total cost of treating and reducing I/I.

### 5. Survey Recommendations

Prepare a final report outlining the options and associated costs for reduction of I/I with an explanation of the basis for the recommendations with a short-term and long-term action plan and schedule.

### General Terms for Contracts

SES invoices monthly according to the attached fee and disbursement schedule. SES only charges for hours necessarily and actually expended.

Information obtained by SES, during the course of this work will be for the exclusive use of SES and will not be divulged to others without prior written consent from The Corporation of the Municipality of Temagami.

Payment for the work conducted by SES is due upon receipt of invoice. If payment is not received within 30 days of the invoice date, interest will be charged at a rate of 3% per month.

SES is conducting this work in good faith and with the utmost of professional responsibility on behalf of its client. At no time, can SES be held liable for errors or omissions, negligence, or misconduct, as a result of work conducted as part of this service contract, in excess of the final amount of this service contract.

If you are in agreement with the contents of this contract, please sign below and return the duplicate signed copy to SES.

Name:

BRIAN KOSKI

Title:

XT/J AA^/rre-^f.

Authorized Signatory:

z" [Signature] °

Date:

JULY 15, 2007

If you have any questions or concerns please contact me collect at (705) 672 - 3324.

Yours truly,

Ken Korman, P.Eng.  
Story Environmental Services

Maria Story, P. Eng.  
Story Environmental Services

Att.

## Story Environmental Services

### 2007 Fee and Disbursement Schedule

Effective: 01/01/07 to 31/12/07

Fees	Standard Hourly Rate
Professional Engineers	\$90.00
Technicians/Scientists	\$65.00
Drafting	\$65.00

#### Disbursements

Disbursements (printing, photocopying, binding, faxes, telephone, cellular, etc.) will be billed as 8% of SES's monthly professional fees.

Mileage:	\$0.34/km
Travel:	Invoiced at cost
Rented or Purchased Field Equipment:	Invoiced at cost plus 5%
Analyses:	Invoiced at cost plus 5%
Required Sub-Contractors:	Invoiced at cost plus 5%
Courier Invoices:	Invoiced at cost plus 5%

SES Equipment	\$ per Use	\$ per Day
pH Meter	25	50
Conductivity/DO Meter	25	50
Total Ammonia Meter	25	50
Chlorine Meter (free/total)	25	75
Turbidity Meter	25	50
Survey Equipment (level, rod, tripod)		50
Interface Probe		50

This schedule will be revised on an annual basis. If a contract extends from one year to the next, the new schedule will apply. At this time, a new schedule will be provided for your records