

THE CORPORATION OF THE CITY OF PETERBOROUGH

BY-LAW NUMBER 06-083

**BEING A BY-LAW TO ENTER INTO AN AGREEMENT WITH THE CITY OF PETERBOROUGH AND TRENT UNIVERSITY TO MONITOR MOSQUITO POPULATIONS IN MUNICIPAL STORM WATER PONDS.
(T-12-06)**

THE CORPORATION OF THE CITY OF PETERBOROUGH BY THE COUNCIL THEREOF HEREBY ENACTS AS FOLLOWS:

1. That the Mayor and Clerk be and they are hereby authorized to execute an agreement between the Corporation of the City of Peterborough and Trent University in the form attached hereby as Schedule "A", and to affix the Seal of the Corporation thereto.

By-law read a first, second and third time this 23rd day of May, 2006

(Sgd.) Sylvia Sutherland, Mayor

(Sgd.) Nancy Wright-Laking, Clerk

This AGREEMENT made in two original counterparts effective the 23rd day of May, 2006 (the "Effective Date").

BETWEEN:

TRENT UNIVERSITY
(the "University")

- and -

THE CITY OF PETERBOROUGH
(the "Sponsor")

WHEREAS the University is prepared to undertake a research project entitled "*Sampling storm water management ponds in Peterborough, Ontario to determine presence, abundance and identity of mosquito larvae and pupae*" as more particularly described in Appendix "A" (the "Project");

AND WHEREAS the Sponsor wishes to make a contribution to the costs of the Project;

The Sponsor and the University hereby agree as follows:

1. **Project.** The University accepts the Sponsor's support for the Project, which shall commence on or about May 15, 2006 and will be completed on or about September 30, 2006.
2. **Principal Investigator.** The investigator responsible for the direction and conduct of the Project shall be Dr. James Sutcliffe of Trent University's Department of Biology (the "Principal Investigator").
3. **Budget.** In consideration of the University carrying out the Project, the Sponsor shall pay the University the sum of \$27,405.00 as a contribution to the costs of the Project, all generally in accordance with the budget attached as Appendix "B".
4. **GST.** The sum to be paid by the Sponsor will not be subject to the Goods & Services Tax.
5. **Payment.** The sum set out in Paragraph 3 above shall be paid by the Sponsor upon signing this Agreement, by cheque for the full amount, payable to Trent University and addressed to Cathy Smith, Coordinator, Office of Research, 1600 West Bank Dr., Peterborough, ON K9J 7B8.
6. **Equipment.** The University will own any equipment or material purchased by or provided to the University as part of the Project.
7. **Report.** The University shall submit a final report describing the results of the research to the Sponsor upon completion of the Project.
8. **Intellectual Property.** The University shall own all intellectual property, including technical information, know-how, copyrights, models, drawings, specifications, prototypes, inventions and software developed by University personnel in performance of the Project in keeping with the University's internal policies.
9. **Publications.** The University may publish or disclose the research results arising from performance of the Project and shall acknowledge the support of the Sponsor in all such

publications. The University will provide a copy of any such publication to the Sponsor upon submission for publication.

10. **Limitation of Liability and Warranties.** The University shall not be liable for any delays in the performance of its obligations under this Agreement resulting from circumstances or causes beyond the University's control and in no case shall the University be liable for loss of business or profit or other indirect or consequential damage. The University makes no representations or warranties, express or implied as to: any matter whatsoever including, without limitation, the condition of the work or any invention(s), result(s), product(s), whether tangible or intangible, conceived, discovered, or developed under or as a result of this Agreement; or the ownership, merchantability, or fitness for a particular purpose of the Work or any such invention, result or product.
11. **Indemnification.** The Sponsor shall indemnify and save harmless the University including its directors, officers, employees, students or agents, against all costs, suits or claims on account of injuries (including death) to persons participating in the Project or damage to property, caused by agents or personnel of the Sponsor during the performance of the Agreement. The Sponsor hereby indemnifies and saves harmless the University, including its directors, officers, employees, students or agents, against all claims, losses, damages or expenses of any kind arising from the use by Sponsor, or its affiliates, customers or licencees, of any deliverable or intellectual property provided to the Sponsor by the University under this Agreement. The University hereby indemnifies the Sponsor including its directors, officers, employees, servants or agents against all claims, losses, damages or expenses of any kind arising from the negligence, willful neglect or malfeasance of the University (or those for whom in law it is responsible) with respect to this Agreement or the Project.
12. **Insurance.** Liability insurance for all parties will be \$2,000,000 over the term of the contract. Neither party will hold the other liable for injuries or loss of property not deemed to be their fault, unless by gross negligence. Any third party damages will be settled by the party responsible for that third party. No damages can be claimed later than one year after the termination of work.
13. **Term and Termination.** This Agreement will enter into force as of the Effective Date and will terminate on September 30, 2006.
14. **Survival.** The provisions of Paragraphs 7, 9, 10, 11, and 12 shall survive termination or expiration of this Agreement.
15. **No Use of Names.** Neither party will use the name of the other party, or of any member of the other party's personnel, in any advertising or publicity without the prior written approval of the other party's authorized representative. However, both parties may make the following information a matter of public record: names of Principal Investigators; Principal Investigator's department; University's name; Sponsor's name; Project title; Project duration; and, contract value.

16. **Notices.** Notices under this Agreement will be sent to the parties as follows:

(a) to the University:

i. for technical and scientific matters:

Dr. J.F. Sutcliffe
Dept. Biology
1600 West Bank Dr.
Peterborough, Ontario
K9J 7B8
e-mail: jsutcliffe@trentu.ca
phone: 705-748-1011 ext. 7265
fax: 705-748-1652

ii. for administrative matters:

Cathy Smith
Office of Research
1600 West Bank Dr.
Peterborough, Ontario
K9J 7B8.
e-mail: cjsmith@trentu.ca
phone: 705-748-1011 ext. 7496
fax: 705-748-1587

(b) to Sponsor:

i. for scientific/technical and administrative matters:

Mr. Peter Southall
Manager of Public Works
City of Peterborough
182 Townsend St.
Peterborough, ON
K9J 2K3
e-mail: psouthall@city.peterborough.on.ca
phone: 705-745-1386
fax: 705-743-3223

17. **Independent Parties.** The parties are independent parties and nothing in this Agreement shall constitute either party as the employer, principal or partner of or joint venture with the other party. Neither party has any authority to assume or create any obligation or liability, either express or implied, on behalf of the other.

18. **No Assignment.** Neither party may sell, assign, encumber, licence or otherwise transfer any of its rights, duties or obligations under this Agreement without the prior written consent of the other party, which consent may not be unreasonably withheld.

19. **Successors.** This Agreement shall bind and enure to the benefit of the parties and their respective heirs, successors and permitted assigns.

20. **Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein.
21. **Paragraph Headings.** Paragraph headings are provided for convenience and shall not be used to construe this Agreement.
22. **Entire Agreement.** This Agreement is the entire agreement of the parties and no change or modification shall be valid unless it is in writing and signed by both parties.

In witness whereof the parties agree to be bound by the terms of this Agreement.

FOR TRENT UNIVERSITY:

FOR THE CITY OF PETERBOROUGH:

I, the Principal Investigator, having read this Agreement, hereby agree to act in accordance with all the terms and conditions herein and further to agree to ensure that all University participants are informed of their obligations under such terms and conditions.

Appendix A

Date:

May 23, 2006

Project Title:

Sampling storm water management ponds in Peterborough, Ontario, to determine presence, abundance and identity of mosquito larvae and pupae.

Applicant:

Dr. James Sutcliffe, Professor of Medical Entomology, Trent University

Contact Information:

Telephone: 748-1011 ext. 7265, fax: 748-1157, e-mail: jsutcliffe@trentu.ca, mailing address: Department of Biology, Trent University, 1600 West Bank Drive, Peterborough, Ontario, K9J 7B8

Proposal:

We propose a mosquito larval sampling program for Peterborough's storm water management (SWM) ponds starting in mid May, 2006 and extending through to the end of the month of September (20 weeks).

The City's SWM ponds will be sampled on a weekly basis for mosquito larvae and pupae. Mosquito larvae and pupae from each pond will be counted and analyzed with respect to instar level. Pond characterizations with respect to site-specific factors such as general setting, surrounding vegetation and other ecologically relevant features will be updated from 2005. At each sampling, ponds will be evaluated for changes in factors that affect mosquito survival and development (e.g. water level, growth of aquatic vegetation, etc.).

A preliminary report of numbers of larvae and infestation levels (nil, light, moderate, heavy) for each pond will be forwarded directly to the Health Unit by Wednesday of the sampling week. A completed weekly sampling report including species identities and larval instar analysis will normally be forwarded to the City and Health Unit by Friday of the sampling week. If large collections result from some samplings, the maximum number of identifications from the corresponding pond will be limited to 20 individuals. Weekly reporting will be done on the spreadsheet supplied by the Ministry of Health and Long Term Care. A final full report collating data from larval collections by pond will be provided within a month of the completion of the sampling program. If aspects of the study are of broader interest, I may present them at scientific meetings and/or publish them in peer-reviewed scientific journals. All sources of financial and in-kind support for the project will be acknowledged in any internal or external reports that result from this work.

Methodology:

Sampling methods

Sampling methods used in this study will conform in general principles to well-accepted procedures of larval and pupal mosquito sampling described in Service (1993) and the New Jersey Mosquito Control Association's Guidelines for Mosquito Surveillance (O'Malley, 1989):

Larval and pupal sampling

Each SWM pond will be visited once per week. Any pond holding even a small amount of water will be sampled for mosquito larvae and pupae. Larger ponds will be sampled using a standard dip net (1 US pint) on an extensible handle. Depending on the size of the pond, several locations within it may be sampled according to protocols described by Ellis (2001). Mosquito larvae and pupae will be collected

alive in labeled vials. For each pond, a record will be kept of how many sites were sampled, how many dips were taken at each site, and how many of these dips were positive for mosquito larvae or pupae. This information will be used to develop larval density estimates (infestation levels).

Lab procedures

Field collected mosquito larvae and pupae will be kept on ice in coolers and returned to the Trent lab daily after sampling. The number of larvae in each developmental stage (stages 1 through 4) and pupae will be counted and recorded for each pond and each site within each pond. Fourth stage larvae will be killed immediately with hot water and preserved in 70% ethanol and representative samples will be stored appropriately (larvae in 70% ethanol, adults on entomological pins) for future reference.

Statistical treatment of data

Weekly reports will provide descriptive statistics relating infestation levels (nil, light, moderate, heavy) of ponds sampled as well as the number of each larval stage in each pond and the species identities for up to 20 larvae per pond per week. The final report will provide a more complete analysis of collection data including a complete seasonal tracking of infestation levels at each pond.

References:

- Ellis, R. (2001). *Municipal mosquito control guidelines*. Health Canada, Bureau of Infectious Diseases. 54pp.
- O'Malley, C. (1989). Guidelines for larval surveillance. Proceedings of the Seventy-Sixth Annual Meeting of the New Jersey Mosquito Control Association, Inc. pp. 45-55.
- Service, M.W. (1993). *Mosquito Ecology: Field Sampling Methods*. Elsevier, London, 988pp.

Appendix B

Budget:

<i>Miscellaneous equipment</i>	\$2,500
Some replacement of 2005 field equipment (larval dippers and extensible handles) and supplies (flashlight batteries, ice packs, data books); additional trays and emergence cages for rearing mosquito larvae and pupae)	
<i>Supplies and consumables</i>	\$3,000
vials (for preserved larvae), insect pins (for preserved adults), insect boxes (for pinned adults), fine forceps, ethanol preservative, photocopying, etc.	
<i>Personnel</i>	\$12,075
1.5 summer students to perform sampling, lab tasks, data entry, etc. (20 weeks x 35h/week x \$10/h plus 15% benefits)	
<i>Other</i>	
Vehicle rental (e.g. Dept. Biology Van)	\$2,000
<u>Budget sub-total</u>	<u>\$19,575</u>
<i>Overhead*</i>	\$7,830
<u>Budget total</u>	<u>\$27,405</u>

*40% overhead on service contracts is the new standard for all Ontario Universities, including Trent.