

Recent Events

By Martyna Tomczynski

The Muskrat Watershed Council 2016 Summer Science Sessions hosted on June 25 at the Cobden Legion brought together many members of the community and stimulated valuable conversation about Muskrat Lake and its surrounding watershed. The event was opened by members of the Muskrat Watershed Council who thanked our generous sponsors Jp2g Consultants Inc., SRB Technology, the Townships of Whitewater Region, Laurentian Valley, and Admaston/Bromley, Cobden Civitan Club, as well as our funding partners from the Great Lakes Guardian Community Fund and Canada Summer Jobs for their support in our ongoing mission to protect and maintain the health of the Muskrat Lake Watershed.

We were pleased to be joined by Algonquin Elder Harold (Skip) Ross, who shared his stories of growing up on the Petawawa River and the importance of appreciating the watershed for its cultural, spiritual, and economic value. Following



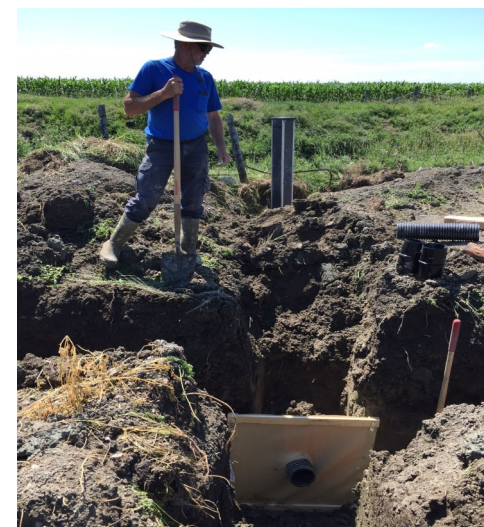
Michael Michalski,
Michalski Nielsen Associates, Ltd.

Mr. Ross was Michael Michalski of Michalski Nielsen Associates, Ltd., an environmental consulting firm out of Bracebridge, Ontario. Mr. Michalski is well known locally for his past work on the Muskrat Lake Watershed. For the 2016 Summer Science Sessions, Mr. Michalski spoke about his involvement on past remediation projects, which involved several water bodies experiencing similar issues to those on Muskrat Lake. He also spoke about his proposal for an environmental management plan to remediate Muskrat Lake. Muskrat Watershed Council and Algonquin College Applied Research summer co-op students Martyna Tomczynski, James Wheatley and Aarika Charlebois offered useful information to event attendees on best management practices and what they could do to improve water quality in their area.

It was evident that the event brought about a better understanding of the need to take action and that the Muskrat Watershed Council and our many partners need continuous community support as we undergo current projects and lay the foundation for future projects. The event also stressed Muskrat Lake as an environmental priority and that more government and private funding is necessary if we are ever going to tackle the remediation of Muskrat Lake. We thank everyone who came out that day and hope to see many more at our next 2016 Fall Science Sessions.

Agricultural News

It has been a busy year working on the agricultural side of the MWC. It has been wonderful to see how our peers are so open and willing to work with us. Farmers have implemented buffers and other best management practices, some on their own and at their own cost. Farmers are stewards of the land and realize how important water management is to us all.

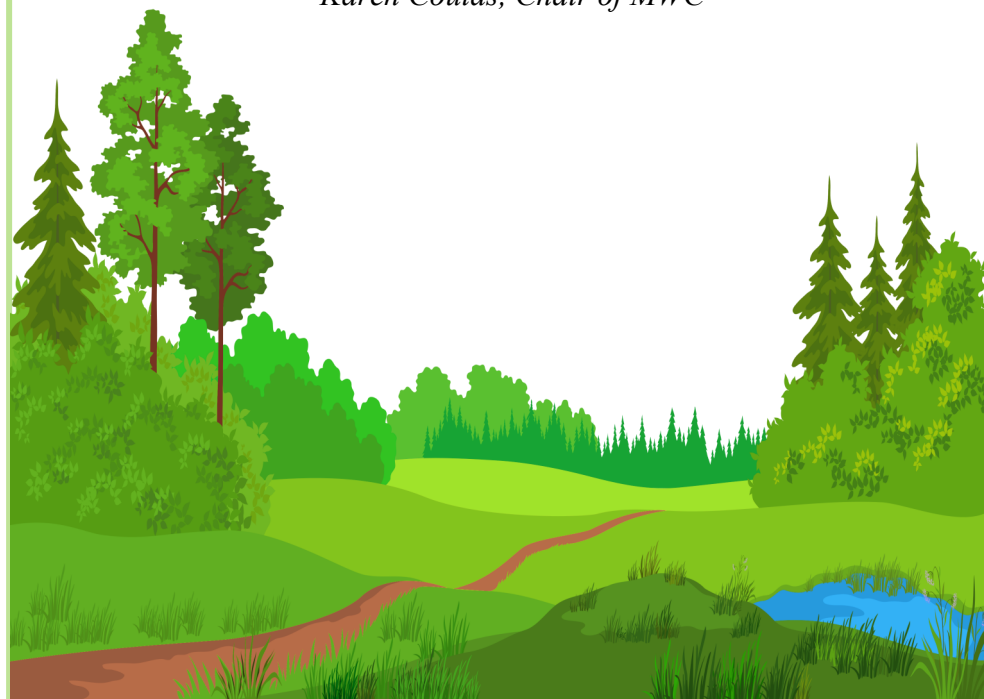


Drainage expert Peter Neill
installing a Controlled Tile Drain (CTD) structure.

The current controlled tile drainage project being executed by the Muskrat Watershed Council, Algonquin College in Pembroke, local farmers, OMAFRA, and other important community and government agencies, has been a year in the making. The diversity of partners on this project demonstrates the need for many types of knowledge and expertise on local environmental projects. We have had kitchen meetings, walked with farmers along their land with experts to discuss the project, and finalized details during the busy cropping season. It will be exciting to see it all come together.

We look forward to the next year, new projects, and working with amazing people. There is an old farm saying: "You can lead a horse to water, but you can't make him drink." If we all work together, at least he will be able to if he wants.

- Karen Coulas, Chair of MWC



Controlled Tile Drains in Renfrew County

By James Wheatley

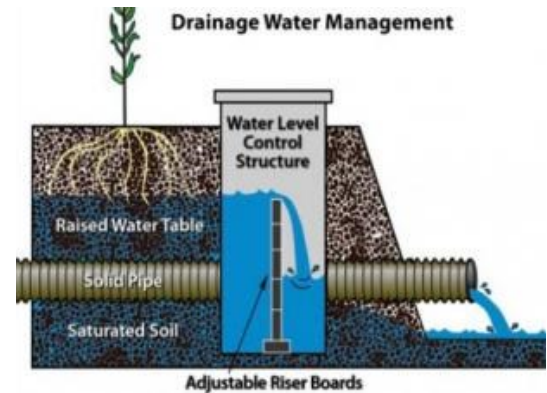
A controlled tile drain (CTD) is a structure installed near the outlet of a tile drain system to help hold back water in the field. There are a series of plates stacked inside the structure that work like a dam system. The number of plates stacked will determine how much water is held back within the soil matrix of the agricultural land. The CTD system will allow the farmer to control up to a certain point the amount of water his or her crops utilize throughout the growing season.

Algonquin College in Pembroke, in partnership with the Muskrat Watershed Council, the agricultural community, and other local partners, received funding to install CTD demonstration systems on 4 agricultural properties in Renfrew County. The installations are being funded by OMAFRA and the Great Lakes Guardian Community Fund.

On July 8, 2016, the first CTD was installed on J.T. Enright's property, followed by a second CTD install on Mr. Enright's property on July 11-12. Mark Sunohara, a Watershed Science Specialist from Agriculture and Agri-Food Canada provided preliminary training and guidance on the CTD systems, seeing as these CTD installations would be the first of their kind in Renfrew County. A local agricultural drainage specialist and contractor, Peter Neill, of Water Management Systems Inc. and the team from Algonquin College, which included Sarah Hall, James Wheatley, Aarika Charlebois, Martyna Tomczynski, and Julie Sylvestre, worked together in hot weather followed by heavy rainfall to install these very first CTD systems. Mr. Neill's knowledge and expertise made it that our first drainage installs proved to be a success! From July 19-21, 2 additional CTD's were successfully installed at Tim Egan's property. There is one CTD install remaining, which will occur this August, on Ron Raddatz' property.

Equipment was installed in the CTD's to track the height and rate of water flow coming from the outlet to understand the effectiveness of the CTD units. A monitoring program, which will comprise of sampling the drains attached to the CTD systems, as well as sampling above and below each CTD system, will help to track different water quality parameters, like phosphorus, turbidity, and conductivity, to draw comparisons and understand how much phosphorous is being held back. This data will help to understand and establish guidelines for how to use CTD's based on crop type and quantify potential yield increases for the farmer. It will also help to determine how much phosphorous is held back in the soil for nutrient uptake by plants rather than entering the water system at end-of-pipe. A weather station has also been installed at one of the sites in order to collect other parameters, such as wind, rain levels, temperature, and soil moisture.

While each individual property will have different conditions, being able to monitor this network over a period of time will provide neighbouring farmers with access to viable data to aid in their farming operations. This will also help other Renfrew County farmers in the future if they choose to retrofit their tile drain system to accommodate CTD units.



Adjustable boards are inserted to hold back water and raise the water table to saturate soil, and removed to allow water to flow.

Illustration: <http://cornandsoybeandigest.com/sustainable-agriculture/control-water-levels-and-nitrogen-tile-systems>

Understanding Water Quality

By Aarika Charlebois

It goes without saying that water is of great value because of its recreational purposes and environmental importance, but most importantly to ensure public health and safety. For these reasons, the MWC alongside Algonquin College, have been using sound scientific knowledge to understand the issues surrounding our watershed. Establishing a water quality monitoring network is a crucial step toward understanding watershed health. A great deal of the process involves looking at various indicators, which are particular parameters measured, that give an outlook on what could be happening in our waterways.

One of the most important indicators to monitor is phosphorus, a naturally occurring nutrient that is essential to all life to support healthy growth and development. Some phosphorus is necessary in lakes, but when concentrations exceed a certain level, it can fuel excessive plant and algae growth. This becomes most problematic when plants and algae die, as they consume oxygen in the water. Dissolved oxygen is another indicator to monitor in water because without enough oxygen



Algonquin College co-op students James Wheatley, Martyna Tomczynski and Aarika Charlebois collecting water quality data from a tile drain outlet.

in lakes, important fish species like lake trout won't survive.

Monitoring all these parameters helps to illustrate the bigger picture of how our activities are influencing our waterways and identifying the main contributing factors that may be putting our watershed's health at risk.

By understanding what's been occurring over time, you can work towards mitigating such factors, as well as developing solutions and successfully implementing best management practices. Water quality monitoring is an ongoing process that requires a lot of time, money, and expertise, – but it provides us with the kind of information required to make informed decisions on how to improve our watersheds.

Muskrat Watershed Council

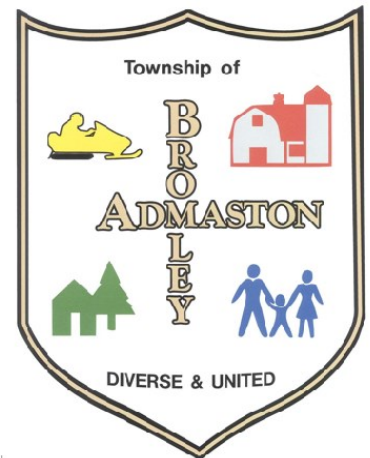


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