
APPENDIX 10

**Quinte Conservation Authority
Memorandum**

Memo

To: RV Anderson, Prince Edward County

From: Quinte Conservation

Re: Village of Wellington Master Servicing Plan

The following is a brief outline of comments for consideration in the Village of Wellington Master Planning exercise related to stormwater.

1. Process

We support the normal master drainage planning process which is to consider the various factors which include:

- Characterization of existing environmental conditions,
- Evaluation of the cumulative environmental impact from existing & planned development,
- Determination of the effectiveness of existing stormwater facilities at reducing negative impacts on the area,
- Review of official plans and current plans for future development within the study area,
- Complete necessary hydrology studies and modelling to establish a basis for the design of stormwater management facilities and recommendations for control of flooding as well as protection of water quality,
- Provision of preliminary designs for future stormwater management facilities that may be needed to control both existing and future landuse,
- Preparation of a strategy for implementation including phasing and financing of facilities maintenance and operation.

To help in the process we have prepared the following in summary of information that we offer. This includes:

- Drainage catchment areas for the Village,
- Floodplain mapping of Lane Creek,
- Source Water Protection Zones,
- Existing Stormwater Infrastructure,

2. Drainage Areas

The drainage areas for the Village Study were delineated using GIS and lidar mapping as illustrated by the attached map. This resulted in the delineation of 4 main catchments as follows:

- 1.) Lake Ontario,
- 2.) West Lake,
- 3.) Hubbs Creek,
- 4.) Lane Creek.

Lake Ontario & West Lake Catchments

Lake Ontario and West Lake are both considered sensitive receivers for different reasons. West Lake is sensitive to nutrients and Lake Ontario contains the drinking water intake for the Village. Storm water contains a variety of contaminants which includes nutrients that could adversely impact on both the water quality of West Lake and the drinking water for the Village. As such any stormwater that is being discharged to these water bodies is recommended as meeting the Ministry of the Environment Conservation and Parks (MECP) Level 1 stormwater discharge criteria.

Hubbs Creek

Hubbs Creek is a drainage course located along the northern limits of the Study boundary. This Creek drains in a westerly direction into Huycks Bay at an approximate distance of 7 kilometres. Huycks Bay is an embayment of Lake Ontario that has been separated from Lake Ontario by a Baymouth sand bar. There is no discrete outlet from the Bay to Lake Ontario however an outlet through the sandbar opens and closes as the water pressure in Huycks Bay builds up and breaks through the sandbar. In return the wave action of Lake Ontario fills this outlet back in to isolate the Bay. Huycks Bay has also been mapped as part of a large healthy Provincially Significant Wetland. For this reason Hubbs Creek is considered as a sensitive receiver and stormwater management facilities should be designed to achieve MECP Level 1 stormwater discharge criteria.

We do not have Floodplain mapping for Hubbs Creek or existing hydraulic models. As a result hydrologic modelling may be required to evaluate capacity for receiving additional stormwater.

Lane Creek

Lane Creek intersects through the middle of the Village of Wellington draining from the northeast to southwest. The Creek is approximately 8 kilometres in length draining through agricultural lands and the lower portion within the urban area of the Village. The Creek outlets into Lake Ontario, where Salmon have been known to migrate up stream in the spring of the year.

A watershed management study of Lane Creek was completed by Crysler & Lathem Ltd. (1979). This study indicated the existing creek and culverts had a conveyance capacity equivalent to the 30 year storm flood flow. Under the regional flood (as well as the 1:100 year) conditions the central business district of the Village would be subject to flooding and spilling would likely occur across the then CNR tracks (now the Millenium Trail). Options for alleviating this flooding potential were provided which included diverting excess flood flows around the Village (east of Belleville St.) This study is summarised in the following reports:

Lane Creek Village of Wellington Water Management Study – Crysler & Lathem Ltd. Consulting Engineers 1979.

Village of Wellington Lane Creek Diversion-Gore & Storrie Limited Consulting Engineers, December 1979.

In addition to this study Quinte Conservation possesses a Hec-Ras model of Lane Creek which may be used to assist in the hydraulic analysis of the Creek. However, this model will require updating to allow use for this exercise. We would recommend that the hydrology of Lane Creek be reviewed.

A review of the 1:100 year flood plain mapping for Lane Creek in comparison to the current channel indicates many inconsistencies and that the 1:100 year flood plain mapping will require updating. An example of one such area is provide in the illustration below showing the Wellington arena property with the 1:100 year flood plain in yellow and the creek denoted by the blue line which has been realigned after completion of flood plain mapping. It is clear that the two do not align.

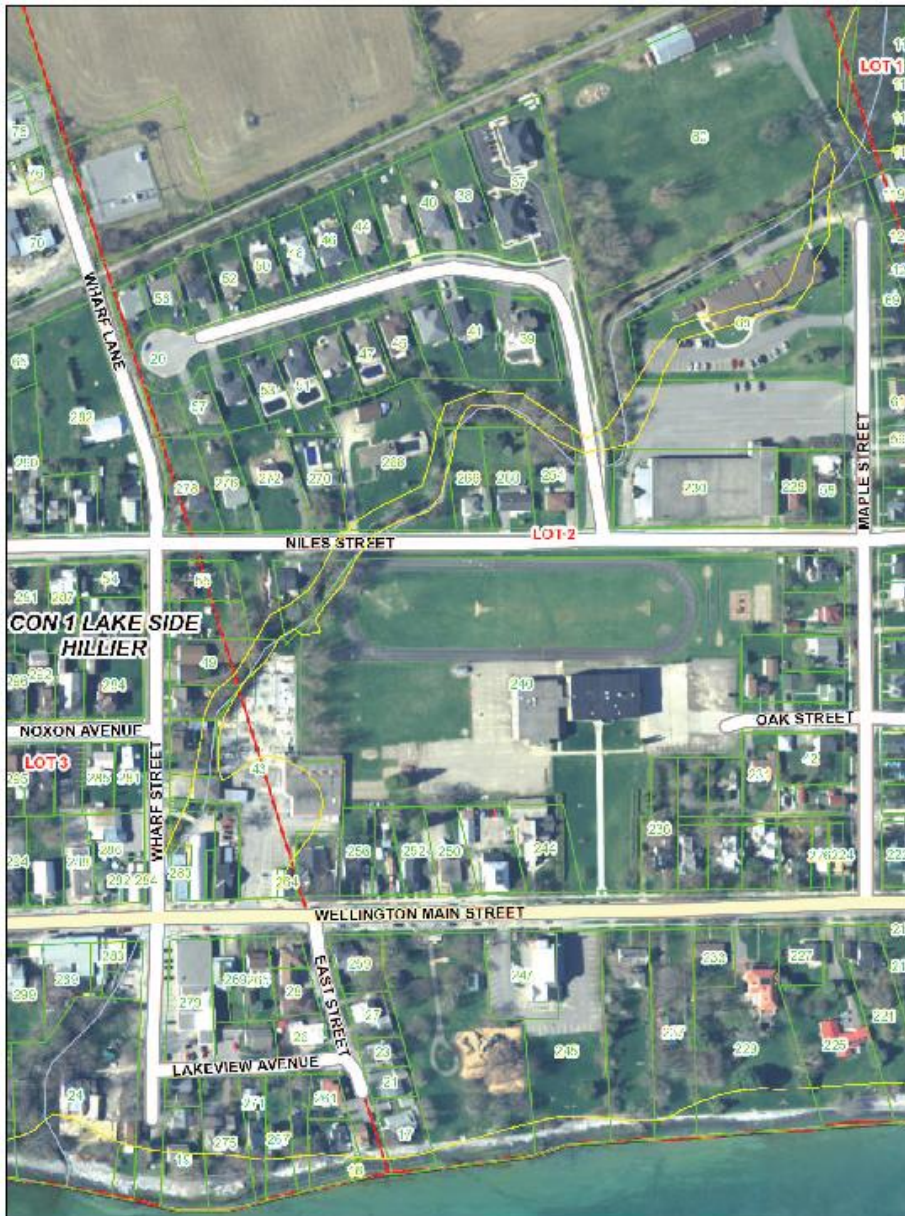


Figure 1 - Flood Plain Mapping of Lane Creek (1:100 year)

3. Source Water Protection

The Municipal water supply is obtained from an intake extending into Lake Ontario. Quinte Conservation has delineated the intake protection zones (IPZ) for this system as illustrated by the enclosed map showing the IPZ 1 (1 kilometre radius) and IPZ2 (2 hour time of travel).

The intake is located in Lake Ontario approximately 1.5 kilometres off shore in about 8.5 metres of water. As such the IPZ1 does not touch land and there are no significant drinking water threats. The IPZ2 extends up Lane Creek and takes in the storm sewer shed for the Village which is most of the developed portion of the Village. However since the intake is located at a relatively far distance offshore in deep water it is considered to have a low vulnerability. Regardless of this low vulnerability we would recommend that future planning consider protection of the municipal drinking water supply which would include treatment of stormwater to a minimum Level 1 treatment (as per the MECP stormwater guidelines).

4. Existing Stormwater Infrastructure

We have minimal information about existing stormwater infrastructure in the Village of Wellington. We were involved in the review of two stormwater facilities that have been constructed. One is at the Wellington on the lake development and the other at the Essroc (Lehigh) Arena. The latter is a lined facility that was constructed in this manner to prevent the migration of contaminants from a historic landfill site located adjacent to this pond.



KEY MAP

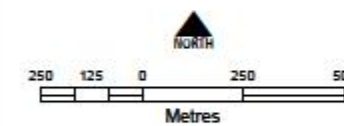


LEGEND

Drainage Basins

- Hubb's Creek
- Lane Creek
- Lake Ontario
- West Lake

- Area of Uncertainty
- Ward Division
- Watercourses



DEPARTMENT: **GIS**

TITLE: **WELLINGTON DRAINAGE BASINS**

SCALE: 1:14,000
 SHEET: 1 of 1
 DRAWING: C.D.
 CHECK: M.B.

Quinto Conservation is a registered charity under the provisions of the Income Tax Act (Canada). We are a not-for-profit organization and all proceeds from our activities are used to support our conservation programs. We are not responsible for any loss or damage to property or for any injury or death resulting from the use of our products or services. We are not responsible for any loss or damage to property or for any injury or death resulting from the use of our products or services. We are not responsible for any loss or damage to property or for any injury or death resulting from the use of our products or services.



Wellington Intake Protection Zones

Draft



Legend

- ★ Intakes
- Water Courses
- Roads
- Intake Protection Zone 2
- Intake Protection Zone 1
- Waterbody
- Wetland Area



Maple River, Niagara Region and Five Rivers Region Watersheds
 RR #3, 20th Old Highway #5, Belleville, Ontario, K8N 4Z2
 www.quinteconservation.ca, 613-288-3034

Produced by Quinte Conservation under license with the Ontario
 Ministry of Natural Resources. Copyright Quinte Conservation and
 the Quinte Public for Ontario, 2008. Data is projected to NAD 83
 UTM Zone 18N.

Agreeing using license
 Map data: Information Canada/Information
 Canada/Information Canada/Information Canada

This map is for informational purposes only. Quinte Conservation does not warrant the accuracy or quality of
 information, representations, data, drawings, forecasts, or other information contained on this document.