

# Shirley's Brook and Watts Creek Subwatershed Study

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Shirley's Brook and Watts Creek (inclusive with its tributary, Kizell Drain) flow into the Ottawa River and drain approximately 52 sq. kilometres of land in West Ottawa (formerly Kanata and Nepean). The combined catchments of these two systems form the main drainage areas for Kanata wards. The subwatershed study was completed in 1999 to ensure that planning for future development would proceed in an environmentally sound manner in keeping with the Official Plan.

The subwatershed planning process consisted of four main tasks:

1. Develop an understanding of the subwatershed features (natural and social/cultural) and how they function
2. Predictions of impacts on the natural environment from land use changes and development
3. Recommendations for possible ecological restoration and/or enhancement measures which could improve subwatershed features and functions
4. Development of an approach for managing development in the subwatershed with specific policies for natural heritage features and developable areas

The interdisciplinary team of Dillon Consulting was retained to conduct a comprehensive field investigation program and analysis for the following environmental components: land use, aquatic biology, terrestrial biology, geology, hydrogeology, surface water quality, hydrology, and stream morphology.

The fieldwork and analysis resulted in the identification of six main issues or problems as a result of human activities that may be magnified with new development unless management measures are taken. These key subwatershed issues are:

- **Flood and Erosion Problems** persist in susceptible areas of existing creeks taxing the capacity of existing infrastructure and impacting stream banks as a direct result of development.
- **Lack of a Comprehensive Stormwater Management (SWM) Strategy** has resulted from a multitude of earlier incompatible or absent stormwater measures executed on a site-specific basis only.
- **Poor Surface Water Quality** is evident and has resulted from uncontrolled polluted runoff and erosion due to existing agricultural and urban land uses.
- **Fish and Aquatic Habitat has been degraded** through polluted stormwater as well as the destruction of fish habitat and watercourse vegetation, which moderates water temperature and helps to filter pollutants.
- **The Loss of Terrestrial Habitat**, through the removal of woodland and wetland areas, has resulted in fragmentation of natural areas, decreasing biodiversity and the quality of habitat for wildlife.
- **Groundwater Supply** is important to base flow, which is necessary to maintain aquatic habitat and to help dilute pollutants that enter the watercourse.
- **Groundwater Quality** is susceptible to contamination due to a minimal overburden which results in short flow paths to bedrock groundwater.

## **Goals and Objectives**

Based on the key issues, the study team developed, in consultation with the public, goals and objectives, which will guide the development of the subsequent subwatershed, plan. These goals are as follows:

Goal 1 - To ensure the safety of subwatershed residents, users, property and natural resources with respect to natural hazards such as flooding and erosion

Goal 2 - To protect, maintain and enhance the warm water fishery and associated aquatic communities in Shirley's Brook, Watts Creek and Kizell Drain

Goal 3 - To protect, maintain and enhance the significant natural terrestrial features (land, forest and wildlife) and ecological functions of the subwatersheds

Goal 4 - To protect, maintain and enhance the quality and quantity of surface and groundwater resources in the subwatersheds

## **Recommended Subwatershed Plan**

The recommended Subwatershed Plan consists of six different, but interrelated management strategies, each comprised of a series of management measures/actions designed to:

- Protect and enhance the Subwatershed natural features and ecological functions
- Restore those features/functions that have been degraded
- Guide future development in a manner that will ensure the long-term health of the environment

Management strategies were developed in the following areas to address existing problems as well as preventing future ones:

- Natural Area Management – identification and level of protection recommended for terrestrial and aquatic habitats
- Flood Management – management of flood hazard
- Erosion Management – drainage network, stream channel protection and restoration; policy development
- Groundwater Quality and Quantity Management – development guidelines for private potable water supply
- Agricultural and Rural Land Management – Best Management Practices
- Urban Stormwater Management for New Development

Council approved the Shirley's Brook/Watts Creek Subwatershed Study (Dillon, 1999) and copies are available at the Beaverbrook and Hazeldean library branches.

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