



ses

school of environmental sciences

The PhD Thesis Examination for

Komathy Prapagar

will be held on

Friday, May 7, 2021

At 10:00 a.m. (9:00 am CST)

Quantifying the variability and dynamics of soil hydromorphism in the
riparian buffer systems

EXAMINATION COMMITTEE:

Dr Paul Voroney (Chair)

Dr Richard Heck (Advisor)

Dr Adam Gillespie (Internal-External)

Dr Naresh Thevathasan (Committee member)

Dr Ken Van Rees (External Examiner)

ADVISORY COMMITTEE:

Dr Richard Heck (Advisor)

Dr Naresh Thevathasan (Committee member)

Dr Asim Biswas (Committee member)

Everyone is welcome to attend.

Abstract

Soil redox (Eh) behaviour is fundamental in developing hydromorphic features such as gleying and mottling. Riparian zones are characterized by fluctuating soil moisture levels; consequently, the soils can exhibit considerable variability in soil redox conditions. As such, soil hydromorphism can vary with time and space. The frequency of soil redox changes is reflected on the dynamics of soil hydromorphism. The research goal was to explore the potential use of EM-38 electrical conductivity (EC) and magnetic susceptibility (MS) in field measurement combined with laboratory Fe oxide characterization to understand soil redox dynamics in the Riparian Buffer Systems. The current study finding suggests that soil redox condition is variable with time and space in the riparian buffer soils, which is reflected on soil magnetic susceptibility.