STAFF REPORT: ENGINEERING & PUBLIC WORKS SOLID WASTE DIVISION

REPORT TO:	**Infrastructure & Recreation Committee**
MEETING DATE:	**March 8, 2011**
REPORT NO.:	**EPW.11.024**
SUBJECT:	**Thornbury Wastewater Treatment Plant Solar Feasibility Study - Findings**
PREPARED BY:	**Jeffery Fletcher, Manager of Solid Waste and Environmental Initiatives**

A. Recommendations

THAT Council receive Report EPW.11.024, entitled "Thornbury Wastewater Treatment Plant Solar Feasibility Study – Findings" for information purposes.

B. Background

Arborus Consulting was contracted in September of 2010 to carry out a feasibility study to determine the feasibility for the construction and operation of a ground mounted solar facility at the Thornbury Wastewater Treatment Plant (TWTP) under the OPA's Feed-In Tariff (FIT) program. The first phase of the study has been completed which revealed that the existing system capacity is not able to accommodate the proposed project.

Project Size

The location of the proposed solar facility is Cell #3 of the Thornbury Wastewater Treatment Plant. Cell #3 has become redundant treatment capacity following a change in the treatment process at the plant and has been decommissioned. As can be seen in Attachment 1 the capacity on the solar facility is based on the concept of decommissioning, grading and providing drainage to the area of Cell #3. This area would then be fitted with 5,680 ground mounted 270 watt solar modules, resulting in a 1.5 Megawatt (MW) facility. A project of this size would supply enough energy to power 150 homes.

Consultation with the Utility

Hydro One Networks operates the feeder line in the area and were consulted with on the connection feasibility. An Initial Feasibility Assessment (IFA) was carried out with Hydro One for a 1.5MW facility. The purpose of the IFA is to determine to which feeder and station the project would connect. Hydro One's practice is to provide a proponent with appropriate station and feeder identification along with instructions on how to determine capacity for the proposed generator.

Arborus has determined with the information provided by Hydro One and a simple calculation that the Meaford transformer station which is part of the M1 feeder line has insufficient thermal capacity to accommodate the proposed 1.5MW solar project. The proposed power generation at the TWTP would be connected to a local feeder line (M1) for this area.

The feeder's capacity, for all sections of the feeder, is based on the conductor size, voltage, system strength and point of common coupling. According to Hydro One's information, the Meaford transformer station (TS) is the point in the local feeder system that limits the available thermal capacity. Due to the existing generators (FIT programs) connected and/or scheduled to be connected and the size of the station, capacity is unavailable for addition FIT projects.

Due to the size of the proposed generation (1.5MW) the power must be tested for back flow at the Meaford TS. The nearby Clarksburg Distribution Station (DS) does have the capacity to handle a project with a connection voltage that is associated with a 1 or less MW project. However even if the TWTP project was scaled down to 1MW, because the project would still connect on the M1 feeder connected to the Meaford TS that transformer station must have enough thermal capacity – and currently it does not for any new FIT projects.

Conclusion
There is insufficient capacity to connect another generator to the Meaford Transformer Station (the designated distribution route), unless capacity is increased or other generators reduce their size or retract their applications. The understanding of the other generation projects is that they are likely to follow through with their projects, as deposits have been made to advance the process.

Details of the proposed generators currently occupying station capacity are uncertain. However, the two largest projects are 9.9MW and 18MW in size and the latter of the two had only applied in May of 2010. This large 18MW project is occupying just over half of the Meaford Station's total capacity of 34MW.

There is an option to proceed with an application for a contract, which would then place the Town's project on a FIT Reserve List or be outright denied, depending on the distribution and availability tests. Notwithstanding, the potential for connection in the near term is unlikely. The application would cost $750 and a security of $30,000 would be required to move the application forward. Staff are not recommending moving forward with an application at this time. In discussions with the project consultant it is unlikely that capacity for a FIT project of this size will become available in the near term.

Staff will continue to check Hydro One's station capacity through data available on-line. If new capacity becomes available, Town Staff will consider making application and report to Committee and Council before proceeding.

C. The Blue Mountains' Strategic Plan

This project could have been part of the Goal to "preserve and enhance natural and environmental features…" and could have been part of the Action to "develop a municipal energy management plan".

D. Environmental Impacts

None at this time.

E. Budget Impact

The original project budget for this solar feasibility study was $13,000 plus HST. The complete study included additional phases and a detailed business case development. With the realization of the limitation of the local distribution capacity, only the first phase of the project was complete. The total invoiced for this work was $4,000 plus HST to be paid out of the working capital reserve as indicated in Report CAO.10.15 entitled "Feasibility Study for Solar Photovoltaic".

F. Attached

Attachment 1 – Concept Solar Site Plan

Respectfully submitted,

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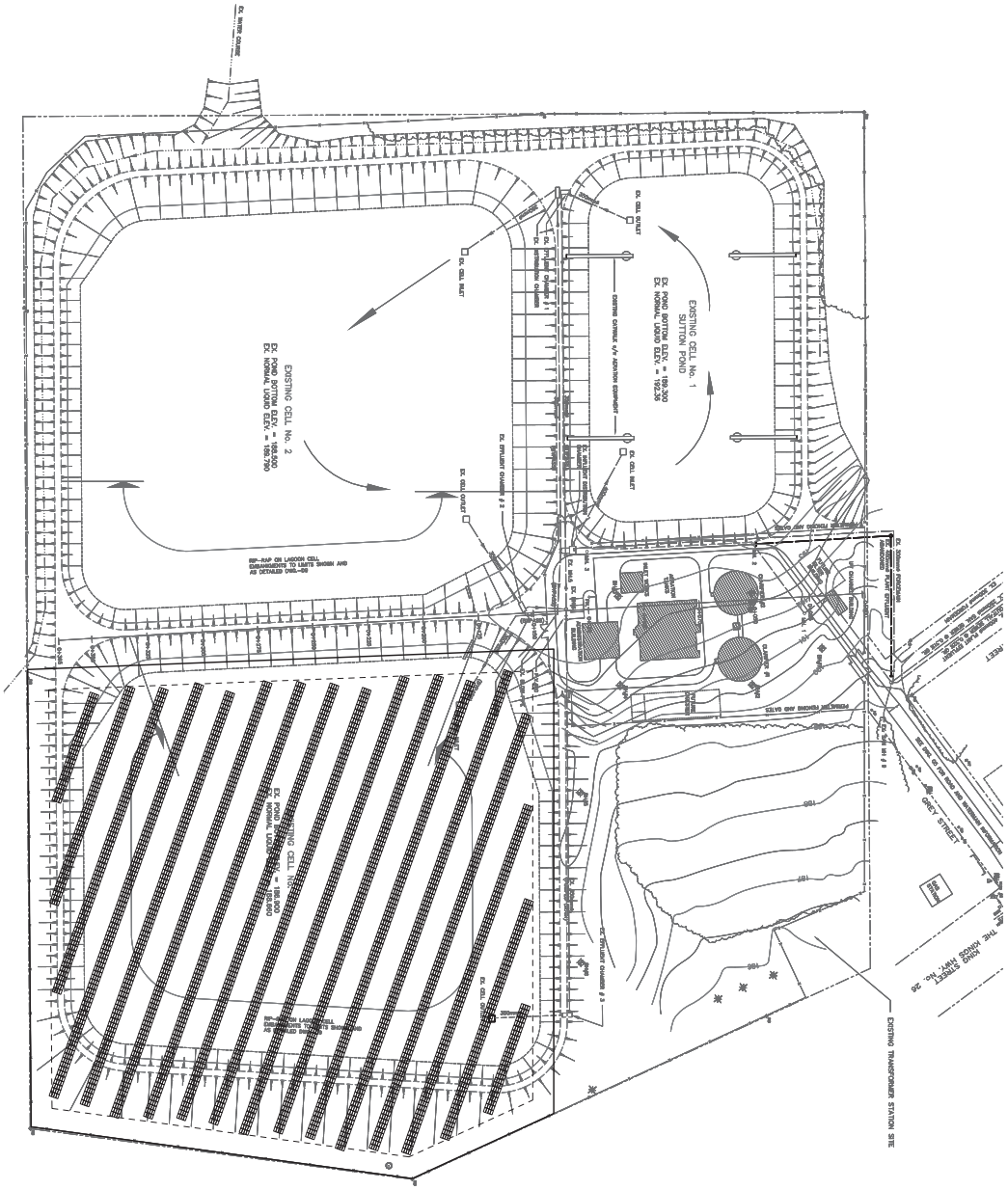

BLUE MOUNTAIN
SOLAR PROJECT
THORNBURY, ONTARIO

SOLAR SITE PLAN

REV. NO.	DATE	BY:	DESCRIPTION

SHEET DESCRIPTION

JOB NO. 738
DRAWN BY: CT
CHECKED BY: RH
CAD FILE: BMS-E.1.dwg
ISSUE DATE: 2010/11/08
SHEET NO.

E.1

SCALE=1:1000

Arborus CONSULTING