ECO-INDUSTRIAL SOLUTIONS LTD

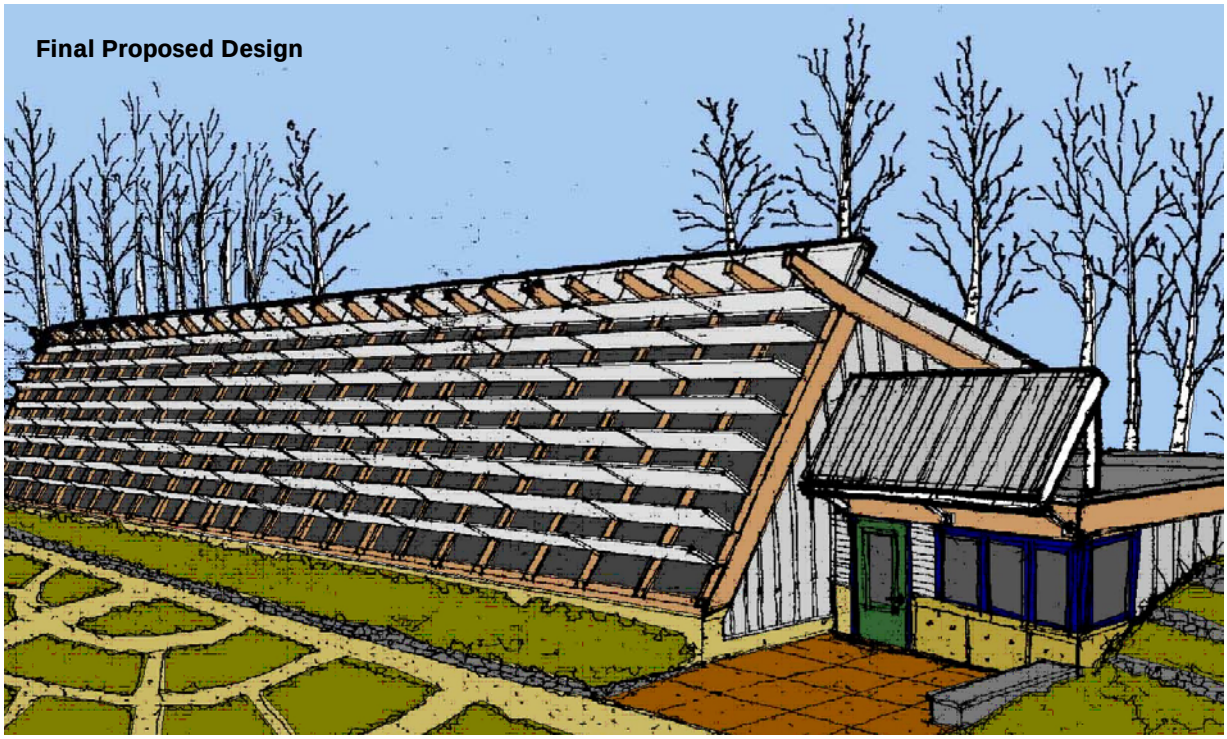
BRAZEAU COUNTY ECOLOGICAL WASTEWATER TREATMENT

GREEN INFRASTRUCTURE FEASIBILITY STUDY & EIN OPPORTUNITY ASSESSMENT

BRAZEAU COUNTY, ALBERTA, CANADA

Project Goal

Brazeau County, Alberta must install a new wastewater treatment system in the Hamlet of Cynthia (pop. 55). The County sought an ecological system - Solar Aquatics™ technology. This will be the first system of its kind in a Canadian cold climate application. The design is informed by an EIN approach, with the objective of **maximizing the value from this infrastructure investment** and **positioning the system as a sustainability catalyst in the community.**



Final Proposed Design

Work Completed To Date

Our team has completed the **feasibility study**, supported by Green Municipal Funds, to evaluate various design features for the proposed Cynthia SAS™. The feasibility study included a review of case studies; evaluation of new building design options; and evaluation of process changes to improve performance. The feasibility study also positioned the system as an "anchor tenant", around which several EIN opportunities were identified. The final product was a **completely redesigned system with greatly improved performance**.

SNAPSHOT

PROJECT SCALE

- Community
- Region

CLIENT

Brazeau County, pop. 13,000, in west-central Alberta. Includes several Hamlets, one of which is the Hamlet of Cynthia, where the new treatment facility will be located.

PARTNERS

- Eco-Tek Ecological Technologies Inc
- Brazeau County
- Hamlet of Cynthia
- Federation of Canadian Municipalities Green Municipal Funds
- Cobalt Engineering
- Alberta Environment

TECHNIQUE / TECHNOLOGY

- Multi-stakeholder process
- Solar Aquatics™ technology
- Workshop Design & Facilitation
- EIN and Demand Side Management opportunity assessment

Achievements

High Performance Building Design

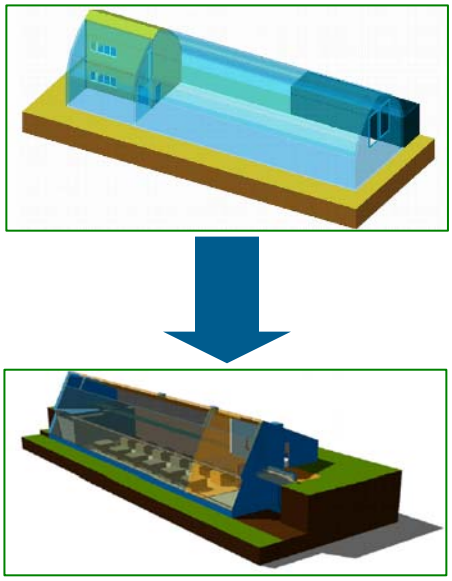
Detailed energy modeling influenced the design of a dramatically different green building, which is projected to consume **74% less energy** than other SAS™.

Renewable Energy System

There was also technical and community-wide support for an on-site geoexchange system, which has 1/5 the 25 year life cycle cost of the alternate boiler system.

Ecological Site Design

The system's location and footprint account for the site ecology. The building will be oriented to maximize passive solar gain, maximize plants exposure to sunlight, and significantly reduce energy consumption.



Reduced Footprint

The building will occupy a total footprint of only 264 m^2, which is **1/10 the size of a traditional lagoon system**.

EIN Opportunities = Added Revenues → Increased Return on Investment!

- Use of Treated Wastewater in Oil & Gas Sector – potential to sell treated wastewater to regional oil and (O&G) service companies that haul bulk water for industry use, displacing potable water. Potential revenues: $5,000 – $10,000 /y.
- Provision of Wastewater Treatment Services to Sewage Haulers –potential revenues: $35,000 to $66,000 per year.
- Research and Education Partnerships – It was recommended that the County seek to build research and education partnerships with local and provincial educational institutions with the objective to widely transfer new knowledge, improve the design and function of future SAS facilities, and become leaders in SAS research and development.

Photos Courtesy of EcoTek Ecological Technologies Inc

WHAT IS ECO-INDUSTRIAL NETWORKING (EIN)?

EIN embraces a systems approach and lessons from nature. In practice, EIN creates collaborative relationships (networks) between businesses, governments, and communities to more efficiently and effectively use resources, such as materials and energy, but also including land, infrastructure, and people.

In practice, this results in:

- "Waste = food" synergies
- Multi-objective infrastructure systems (utilities / services)
- Sustainable economic development;
- More efficient land use planning
- Green buildings, technologies & practices
- Greater returns for capital investment
- Leveraged partnerships between public and private organizations; and
- Integral consideration of ecological, social, and economic impacts

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