CITY OF SAULT STE. MARIE
CLASS ENVIRONMENTAL ASSESSMENT ADDENDUM

BIOSOLIDS MANAGEMENT STUDY
NOTICE OF FILING OF ADDENDUM

In June, 2015 the City of Sault Ste. Marie completed a Schedule B Class Environmental Assessment to address challenges in mitigating odours and disposing of biosolids in the working face at the landfill.

At the conclusion of the study process there was a clear preference to process the biosolids using **composting or alkaline stabilization with the proposed facility to be constructed at the landfill**. A final report (ie: Biosolids Management Study) was prepared which summarized the input received throughout the study and rationalized the design decisions made.

Since the completion of the final report, the City proceeded with a Request for Proposal Process (RFP) to select a preferred alkaline stabilization or composting technology vendor. That RFP process resulted in the receipt of two vendor submissions each proposing a distinct composting methodology. No submissions were received for alkaline stabilization. Furthermore, since the completion of the final report, the Province introduced the Food and Organic Waste Policy (Policy) which, in part, sets a target for larger municipalities in Northern Ontario for a "50% waste reduction and resource recovery of food and organic waste generated by single-family dwellings in urban settlement areas". This policy mandates the City of Sault Ste. Marie to collect and process Source Separated Organics (SSO) by approximately 2025.

An **ADDENDUM** has now been completed to the Biosolids Management Study Report to address the processing of SSO in addition to biosolids at the proposed facility. The addendum provides details on the proposed changes relative to the conceptual design documented in the original Report.

By this Notice, the Addendum is being placed on the public record for review in accordance with the requirements of the Municipal Class Environmental Assessment. Subject to comments received as a result of this Notice, the City intends to incorporate the proposed changes into the design of this project.

The project addendum is available at the locations noted below or on the City's website at the following address: https://saultstemarie.ca/biosolids

Interested persons should provide written comment to the Municipality or the Consultant via email or hardcopy at either of the addresses noted below within 30 calendar days from the date of this Notice.

City of Sault Ste. Marie Engineering Department
Fifth Floor, Civic Centre
99 Foster Drive,
Sault Ste. Marie ON P6A 5N1
Attention: Catherine Taddo P.Eng.,
Land Development & Environmental Engineer
c.taddo@cityssm.on.ca

AECOM (Consulting Engineers)
523 Wellington Street East
Sault Ste. Marie ON P6A 2M4

Attention: Rick Talvitie, P.Eng.,
Project Manager
rick.talvitie@aecom.com

If concerns arise regarding **the proposed revisions** which cannot be resolved in discussion with the municipality, a person or party may request that the Minister of Environment Conservation and Parks make an order for the project to comply with Part II of the Environmental Assessment Act (referred to as a Part II Order), which addresses individual environmental assessments. **Requests must be received by the Minister and Director at the addresses noted below within 30 calendar days of this Notice.** A copy of the request must also be sent to Catherine Taddo at the address noted above. If there are no requests received by July 14, 2022, the proposed amendments to the project may proceed to design and construction as presented in the planning documentation.

Minister
Ministry of the Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
Minister.mecp@ontario.ca

Director
Environmental Assessment Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto ON M4V 1P5
EABDirector@ontario.ca

This Notice issued June 9, June 11 and June 16, 2022.

Catherine Taddo, P.Eng.
Land Development & Environmental Engineer
City of Sault Ste. Marie

AECOM

BIOSOLIDS MANAGEMENT STUDY (CLASS EA)

ADDENDUM TO CONSIDER SOURCE SEPARATED ORGANICS AS AN ADDITIONAL FEEDSTOCK

The Corporation of the City of Sault Ste. Marie

60565655

November 2021

Delivering a better world

Statement of Qualifications and Limitations

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AECOM: 2015-04-13

Quality Information

Prepared by: Rick Talvitie, P.Eng.

Name, Title

Checked by: Muhannad Bagajati, P.Eng.

Name, Title

Revision History

Rev #	Revision Date	Revised By:	Revision Description
0	November, 2021	R.Talvitie	Addendum to the Biosolids Management Study dated March, 2015

Distribution List

# Hard Copies	PDF Required	Association / Company Name
1	✓	The Corporation of the City of Sault Ste. Marie
1	✓	AECOM Canada Ltd.

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1. BACKGROUND AND INTRODUCTION

The City of Sault Ste. Marie (City) has two wastewater treatment plants that currently generate approximately 10,000 wet tonnes of sewage sludge or biosolids annually. The biosolids are disposed of five days/week in the working face of the City's landfill. This management approach has been challenging primarily due to the semi-fluid nature of the biosolids (i.e. approximately 20-25% solids) and its odour. In addition, the challenges have been exacerbated over time as the proportion of locally generated Industrial, Commercial and Institutional (IC&I) waste exported to a northern Michigan landfill has grown to approximately 75%. This has resulted in significantly reduced quantities of solid waste available for mixing with the biosolids.

A Class EA was completed to address these challenges and recommended the construction of a composting or alkaline stabilization processing facility at the landfill to convert the biosolids to a stable dry material that could be used for landfill cover and/or other beneficial uses. The City is currently in the early stages of the facility design which included a request for proposal (RFP) process to select a suitable vendor with capabilities to process the biosolids. That RFP process resulted in the receipt of two vendor submissions each proposing a distinct composting methodology. No submissions were received for alkaline stabilization.

Given that both vendor submissions were proposing composting technologies, the City's Consultant, AECOM, suggested that the City may want to consider expanding the scope of the new Biosolids Management Facility to accept municipal source separated organics (SSO). This new requirement stems from the Food and Organic Waste Policy (Policy) issued by the province which, in part, provides direction to municipalities, to increase waste reduction and resource recovery from food and organic waste. The Policy set a target for larger municipalities in Northern Ontario for a "50% waste reduction and resource recovery of food and organic waste generated by single-family dwellings in urban settlement areas". The City of Sault Ste. Marie meets the thresholds in the current policy and based on the terms of that policy will be required to collect and process SSO by approximately 2025.

The City concluded that based on the potential cost savings and anticipated reduced environmental impacts associated with having one facility manage both feedstocks, consideration should be given to expanding the scope of the current biosolids processing facility to potentially include SSO.

This addendum has been prepared to address the potential addition of SSO as a feedstock to be processed in the same facility that is planned for processing sewage biosolids.

2. PROPOSED PROJECT CHANGES

Within this section, consideration is given to the anticipated waste collection changes and the additional facility capacity required for processing SSO.

2.1 Estimated Quantity of SSO/ Proposed Facility Capacity

It is anticipated acceptable SSO materials shall consist of but are not necessarily limited to:

- paper napkins, paper towels;
- loose shredded paper;
- cotton balls;
- greasy pizza boxes;
- microwave popcorn bags;
- corn stalks;
- house plants (soil removed);
- food scraps;
- fruit and vegetable peels;
- bones, meat and fish; and
- coffee grounds and filters.

The City of Sault Ste. Marie completed a comprehensive waste audit in 2006. In addition, there are a number of Ontario Municipalities that have SSO programs in place that have published their SSO data. The approach to estimating future quantities of SSO to be processed included consideration of these various sources.

Based on the residential waste audit data, the estimated quantity of residential SSO (single and multi-family) that may be available in the waste stream is approximately 5,600 tonnes annually. Assuming a capture efficiency in the range of 70% to 75%, the resultant quantity of SSO to be processed would be in the range of 4,000 tonnes per year.

Based on other SSO programs that are currently operating elsewhere in the province, approximately 50 kg of SSO is being collected per person per year, which when applied to the City's current population results in 3,700 tonnes of SSO per year.

As a third approach we considered the quantity of SSO collected in communities elsewhere in the province and compared it to the total residential waste collected (excluding leaf and yard) in those communities and then applied that proportion to the overall residential waste stream in Sault Ste. Marie (excluding leaf and yard). Based on this approach the estimated SSO to be processed in Sault Ste Marie was in the range of 4,300 tonnes per year.

Based on the foregoing analysis, capacity to accommodate approximately 4,000 tonnes of SSO annually is reasonable as it is midway between the 3,700 t to 4,300 t range noted above and reflects a capture efficiency in the range of 70 to 75% based on Sault Ste. Marie's residential waste audit data.

The values presented above reflect the current population. Population projections have been developed by the City. If we consider a planning period of approximately 20 years, the 2041 projected population, as presented in Table 1, is approximately 86,000. If the 4,000 tonnes identified in the previous paragraph is extrapolated to accommodate 86,000 people, the resultant capacity for planning purposes is approximately 4,700 tonnes annually.

Table 1: City of Sault Ste. Marie Population Projections Table Caption Title

	2006	2011	2016	2021	2026	2031	2036	2041	2046	2048
Sault Ste. Marie	74948[1]	75140[1]	73368[1]	74527[2]	75686[2]	79931[2]	83270[2]	85969[3]	88755[3]	89895[3]

Notes: 1. Census Data.
2. The City of Sault Ste. Marie Population, Housing and Employment Projections – Commercial and Industrial Land Needs Analysis Report – September 2018 .
3. Extrapolated from The City of Sault Ste. Marie Population, Housing and Employment Projections – Commercial and Industrial Land Needs Analysis Report – September 2018

Organic wastes are also generated from Industrial, Commercial & Institutional (IC&I) sectors. These sectors include food processing and packaging, hospitals, cafeterias, restaurants, convention centres, supermarkets, food transporters, etc.

It is very difficult to quantity the SSO that is available in the IC&I sector as there is no system in place to track IC&I waste quantities and types. Furthermore, it is very difficult to determine what capture efficiency could be achieved in this sector for several reasons:

1. Decisions in is sector are driven by cost. Proponents in this sector will only separate organics if it is cost effective or if they are mandated to do so. Even if they are mandated to do so, effective enforcement will likely be challenging.
2. Secondly, businesses and institutions will ensure their organic waste is collected and delivered to the lowest priced processing facility in the market much like what is currently being experienced with IC&I residual waste today (i.e. 75% of local IC&I waste exported to a northern Michigan landfill).
3. The ICI characterization is highly variable by community.

The Ontario Organic Waste Management Study (OOWM) 2013-2033 report showed a typical waste composition for the IC&I sector as shown in Table 2.

Table 2: IC&I Waste Composition

Composition	Percentage (%)
Food Waste	15
Leaf & Yard Waste	2
Paper	3
Wood	1
Garbage and Recyclables	79

In recent years approximately 75% of IC&I waste generated in Sault Ste. Marie was being exported and disposed of in a northern Michigan landfill. Based on historical waste quantities, the total estimated IC&I waste disposal quantities (i.e. disposed locally and exported) are likely in the range of 25,000 tonnes/year. If we focus on the food waste alone (i.e. assumed to represent approximately 15% of waste disposal) there may be approximately 3,750 tonnes of food waste through the IC&I sector. As noted in earlier paragraphs there will likely be significant challenges in achieving significant capture rates in this cost driven sector. As an example, the City of Guelph is currently processing approximately 10,000 tonnes of SSO annually and they estimated that approximately 10% of this quantity is originating in the IC&I sector.

Based on the analyses completed it is estimated that the City, with fairly aggressive capture efficiency targets, could collect approximately 4,000 tonnes of SSO annually with the current population and 4,700 tonnes annually with the projected 2041 population.

It is very difficult to speculate on the quantities that may be collected in the IC&I sector but the City of Guelph has reported that the IC&I sector may represent approximately 10% of the SSO quantity that they process.

A processing capacity of 5,000 tonnes/year is recommended and adopted in this addendum based on the following considerations:

- The quantities of SSO available in the IC&I sector are poorly defined and market specific information is difficult and costly to collect.
- The capture efficiency in the IC&I sector is also very difficult to predict as outlined in the foregoing paragraphs.
- The population growth is highly speculative as the City has not experienced any significant growth for many years.
- The suggested 5,000 tonnes/year capacity provides approximately 25% surplus capacity relative to current residential needs which could accommodate future growth and/or IC&I sector SSO.
- The facility design can be developed to accommodate a future phase if desired.

Therefore, for the purposes of this addendum the proposed facility would be expected to manage approximately 11,300 wet tonnes of biosolids and 5,000 wet tonnes of SSO annually which are the projected quantities over the 20 year planning period. In addition, based on the terms of the Food and Organic Waste Policy the facility is expected to process the two feedstocks separately.

2.2 Anticipated Waste Collection Changes

In addition to the proposed changes to the processing facility, there will also be a need to undertake changes to the curbside collection program in Sault Ste. Marie. The current collection program includes separate roll out carts for the collection of recyclables and solid municipal waste which includes organics. These carts are setout curbside on separate days each week.

The provincial mandate to collect and process SSO will result in a third waste stream to be collected curbside. It is anticipated that the City will introduce a third SSO container to be setout curbside. Although the City intends to undertake a waste collection study to identify a preferred waste collection approach, one strategy may include the collection of SSO and solid municipal waste each week in a split body collection vehicle with recyclables collected in a separate vehicle on a different day. The province is also currently proceeding with significant changes to recyclables collection and processing in the province. Under the proposed changes the City will no longer be responsible for the collection and processing of recyclables as it reverts to a producer responsibility. This means that companies producing the packaging materials will be responsible to collect and process the recyclable materials. Therefore, the future collection approach will also have to be aligned with the proposed provincial recyclables changes.

3. Proposed Design Concept

The originally proposed design concept that was presented in the final Biosolids Management Study that was completed in 2015 has been reproduced below. In addition to the original proposed design concept, we have also included a description of the proposed design concept with changes highlighted in red.

Original Design Concept:

- Construct an alkaline stabilization or composting facility at the City landfill site on Fifth Line;
- Use the processed material for daily, interim and final cover at the City landfill;
- Consider other beneficial use options for the processed material including agricultural land application, forestry applications, land reclamation, and blending with SSO or compost – these other options will be a function of the capacity to utilize all of the processed material at the landfill, market demand, financial viability, regulatory requirements, and potential liability; and
- Use of custom made transportation units (dump trailers or roll-off bins) to mitigate nuisance odours during transit.

Proposed Design Concept:

- Construct ~~an alkaline stabilization or~~ a composting facility at the City landfill site on Fifth Line (Note: although efforts were made to solicit proposals from both alkaline stabilization and composting technology vendors proposals were only received from composting technology vendors);
- Use the processed material for daily, interim and final cover at the City landfill (Note: based on the terms and constraints in the Food and Organic Waste Policy the proposed facility will process the SSO feedstock separate from the biosolids feedstock and the processed SSO will be used for City projects or marketed and will not be used for landfill cover);
- Consider other beneficial use options for the processed material including agricultural land application, forestry applications, land reclamation, and blending with SSO or compost – these other options will be a function of the capacity to utilize all of the processed material at the landfill, market demand, financial viability, regulatory requirements, and potential liability (Note: based on the terms and constraints in the Food and Organic Waste Policy the proposed facility will process the SSO feedstock separate from the biosolids feedstock and the processed SSO will be used for City projects or marketed and will not be used for landfill cover); and
- Use of custom made transportation units (dump trailers or roll-off bins) to mitigate nuisance odours during transit of the biosolids.
- The SSO is currently mixed with other municipal waste at source and is being transported to the landfill in waste collection vehicles. Under the proposed change the SSO will be separated at source by residents, collected curbside and delivered to the proposed facility for processing. The specific collection approach will be confirmed through a separate study

In summary, the proposed change consists of an expanded curbside collection program to collect source separated organics, delivering the SSO to the landfill site, expanding the proposed organics processing facility to accommodate 5,000 wet tonnes of SSO in addition to the originally planned 11,300 wet tonnes of biosolids. The two feedstocks will be composted separately to meet the terms and conditions of the Food and Organic Waste Policy but could be composted together in the future. The City is proceeding with this project addendum to meet the provincial mandate that requires the City to collect and process SSO by 2025.

4. Summary of Impacts and Mitigation Measures

The change to this project is being proposed by the City to comply with the provincial mandate that requires the City of Sault Ste. Marie to collect and process SSO.

Organic waste generated in households in Sault Ste. Marie is currently mixed with other solid municipal waste and collected curbside and delivered to the Fifth Line municipal landfill and disposed of in the working face. The proposed change, whereby organics will be separated by residents at source (i.e. Source Separated Organics or SSO) and setout in a separate collection container, collected curbside and delivered to the proposed processing facility at the landfill is not expected to have any significant adverse impacts. The collection of the SSO and residual solid municipal waste may occur in one "split body" collection vehicle that collects and stores both types of waste in separate compartments on the truck. Collection of SSO is currently being successfully implemented in many municipalities across the province and is not expected to have any significant adverse impacts. The routes travelled for the collection and delivery of SSO will not change as the mixed solid municipal waste is currently being delivered to the landfill site and the separated wastes (SSO and residual waste) will also be delivered to the landfill site.

The City has responded to the provincial mandate in an environmentally responsible manner which includes a proposal to construct one facility at the City's landfill site designed to process both biosolids and SSO feedstocks. These organic wastes are currently being transported and disposed of in the working face at the landfill site. The construction of one facility to manage and process both feedstocks reduces the environmental footprint, servicing requirements and capital and operations and maintenance costs. The addition of SSO as a feedstock and the resultant conversion of the SSO to a beneficial use product further reduces the reliance on landfilling and reduces the production of greenhouse gases and on-site odours. The additional feedstock and the need to manage and process both feedstocks separately will introduce some complexity to the operational requirements but both types of feedstocks are currently being composted in other jurisdictions across Canada and resources are available to ensure effective operations.

The proposed facility incorporates significant odour mitigation including an enclosed environment for the most odourous processes (ie. receiving, tipping, mixing and active composting phases) together with a biofilter to treat the odourous air prior to releasing it to the environment.

Currently, when the solid municipal waste inclusive of organics reaches the landfill it is being disposed of in the landfill working face. This generates odour and also generates odourous landfill gas over time. Under the proposed approach the SSO collection vehicle will enter the processing facility and will tip the waste in a fully enclosed facility where the odourous air is removed and directed to a biofilter for treatment prior to being released to the atmosphere. This approach is expected to have a positive impact on odour mitigation at the landfill.

In summary, the proposed project change is expected to have an overall beneficial environmental impact by reducing waste disposal, further mitigating on-site odours, reducing landfill gas and methane generation and complying with provincial mandates. In addition, the construction of one facility to process both feedstocks will result in reduced environmental impacts relative to the construction of two separate facilities. The project will adversely impact Municipal finances by increasing the overall capital cost and future O&M costs. The City has developed and is implementing a long-term business plan to adequately budget for the future expenditures. The processing of both feedstocks in one facility will result in reduced overall capital and future O&M costs relative to the operation of two facilities. As the project design continues to evolve, the estimated project cost will be updated periodically and the business and financing plan will be adjusted as necessary. Stakeholder will also continue to be apprised of changes to the project budget.