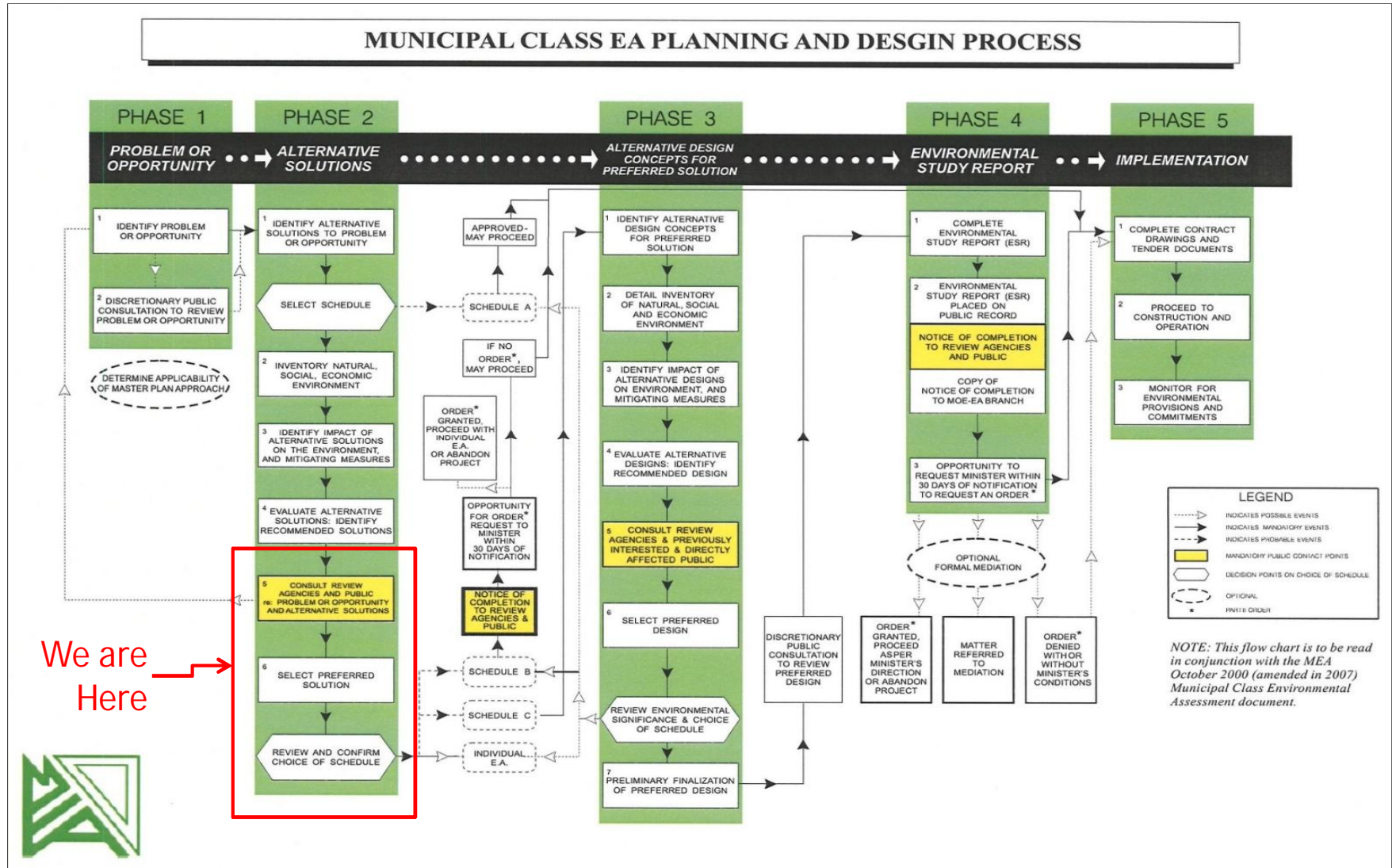


Alexandria Sewage Lagoon Treatment Facility
Municipal Class 'C' Environmental Assessment
Public Information Centre #1
Welcome!



Municipal Class Environmental Assessment Status



Study Overview

The Township of North Glengarry has initiated a Schedule 'C' Municipal Class Environmental Assessment for the proposed expansion of the Alexandria Sewage Lagoon Treatment Facility.

- The Alexandria Sewage Lagoon Treatment Facility is located east of the Town of Alexandria off of McCormick Road. The Alexandria Sewage Lagoon Facility is located approximately 1.8 km northeast from downtown Alexandria
- Owned and operated by the Township of North Glengarry (1962)
- The Township is currently exceeding its approved Ministry of Environment and Climate Change (MOECC) amended Environmental Compliance Approval (ECA) rated capacity
- Since 2008, the Township has taken steps to eliminate infiltration into the collection system such as spot repairs, lining, replacements, manhole sealing/replacements, etc. The Township has also invested into studies for the identification and removal of roof leaders and sump pumps (this summer).
- The lack of capacity is creating a barrier for growth and economic development in the Township



Existing Lagoon Facility

- The Alexandria Sewage Lagoon Facility is currently operating under MOECC Amended Environmental Compliance Approval (ECA) Reference Number 9324-8WKJD2, August 2, 2012
- Amended ECA for the existing Lagoon Facility has a rated Capacity of 3,237 m³/day
- 4-Cell Continuous Discharge Lagoon System (3 Facultative Lagoons and 1 Aerating Cell)
- Alum is added to the effluent flow from the aerated lagoon to control Phosphorus
- Effluent flows from lagoon C to B to A before flowing over an adjustable stop log weir
- Lagoon effluent flows by gravity to the disinfection process
- Disinfection is accomplished by chlorination which then goes through a dechlorination process
- Effluent from the dechlorination chamber flows into a facility perimeter ditch and ultimately to the Delisle River
- Bio-solids are currently treated in Geotubes

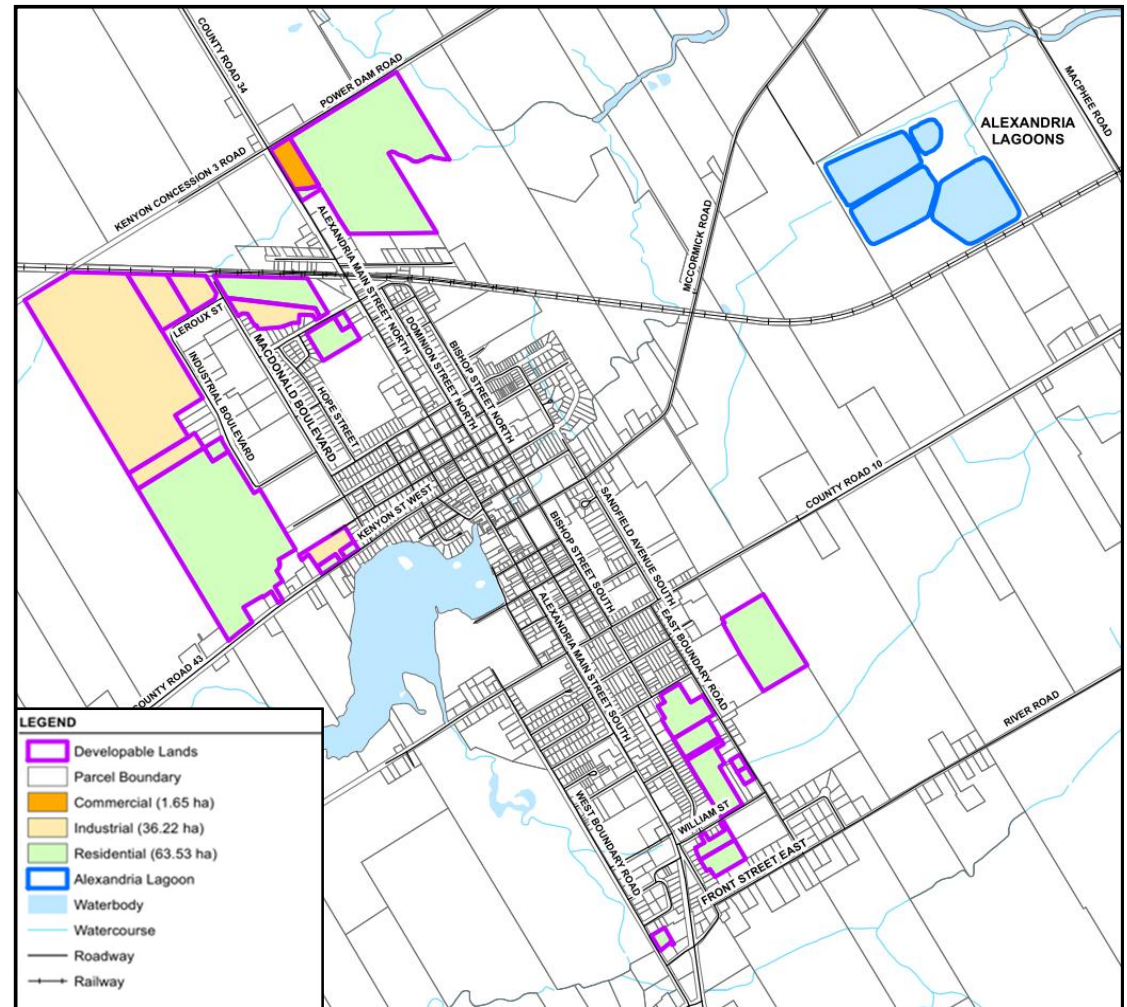


MOECC Compliance

- Annual average flows over the past three years have exceeded the rated capacity of the sewage lagoon (3,237 m³/day). Therefore, the facility has not been in compliance with the rated capacity identified in the amended ECA.
- The facility is generally in compliance with amended ECA effluent criteria limits for:
 - ❖ CBOD₅
 - ❖ Total Suspended Solids
 - ❖ Total Phosphorus
 - ❖ Total Residual Chlorine
 - ❖ pH
- With exception to a few exceedances in 2015 for CBOD₅, Total Suspended Solids, Total Phosphorus and Total Residual Chlorine.
- With a rated capacity of 3,237 m³/day and continuous discharge, the sewage lagoons have a total retention time of approximately 88 days. Therefore, the Alexandria Sewage Lagoon Facility is in compliance with MOECC current design guidelines which states that aerated facultative lagoons are to provide a minimum total retention time of 30 days.

Projected Growth of the Community

- The Township of North Glengarry aims to grow at a moderate pace with development taking place primarily in the urban areas
- Focus will be directed at sustaining the existing economic base, as well as new opportunities such as residential, light industrial and commercial developments
- The projected average day wastewater flow rate is 6,500 m³/d (next 50 years)



Problem/ Opportunity Statement

The Alexandria Sewage Lagoon Treatment Facility has exceeded its rated capacity. The lack of capacity is creating a barrier for growth and economic development within the Township. Therefore, the Township has initiated this Schedule 'C' Municipal Class Environmental Assessment to develop a plan to expand the Alexandria Sewage Lagoon Treatment Facility to address capacity issues and future growth.

Identification of Alternative Solutions

The alternative solutions identified for the expansion of the Alexandria Sewage Lagoon Facility are as follows:

Alternative 1: Do Nothing

Alternative 2: Use Existing Lagoon with no Upgrades

Alternative 2a: Off-site treatment of excess flows

Alternative 2b: Excess flow holding basin/additional lagoon

Alternative 2c: Construct a new Mechanical Treatment Facility on a New Site

Alternative 3: Upgrade Existing Lagoon

Alternative 3a: Enhance Lagoon Operations Only

Alternative 3b: Post Lagoon Effluent Treatment

Alternative 3c: Primary Treatment with Post Lagoon Treatment

Alternative 3d: Mechanical Treatment Facility Parallel to Lagoon Treatment (on-site)

Alternative 3e: Mechanical Treatment for "Excess Flow" and Polish Lagoon Effluent

Alternative 4: Build New Mechanical Treatment Facility

Screening and Assessment Methodology

Preliminary Screening – A long list of Alternative Solutions were evaluated for suitability based on technical/operation, environmental, and socio-economic advantages and disadvantages. Alternative Solutions that were unable to meet the Problem/Opportunity Statement and the screening criteria were not carried forward to the detail evaluation.

Long List of Alternatives

- Alternative 1: Do Nothing
- Alternative 2: Use Existing Lagoon with no Upgrades
 - Alternative 2a: Off-site treatment of excess flows
 - Alternative 2b: Excess flow holding basin/additional lagoon
 - Alternative 2c: Construct a new Mechanical Treatment Facility on a New Site
- Alternative 3: Upgrade Existing Lagoon
 - Alternative 3a: Enhance Lagoon Operations Only
 - Alternative 3b: Post Lagoon Effluent Treatment
 - Alternative 3c: Primary Treatment with Post Lagoon Treatment
 - Alternative 3d: Mechanical Treatment Facility Parallel to Lagoon Treatment (on-site)
 - Alternative 3e: Mechanical Treatment for “Excess Flow” and Polish Lagoon Effluent
- Alternative 4: Build New Mechanical Treatment Facility



Short List of Alternatives

- Alternative 3: Upgrade Existing Lagoon
 - Alternative 3b: Post Lagoon Effluent Treatment
 - Alternative 3c: Primary Treatment with Post Lagoon Treatment
 - Alternative 3e: Mechanical Treatment for “Excess Flow” and Polish Lagoon Effluent
- Alternative 4: Build New Mechanical Treatment Facility

Overview of Short Listed Alternative Solutions

Alternative 3b: Post Lagoon Effluent Treatment

- Existing lagoons have hydraulic capacity (>30 day retention at 6,500 m³/d), however cannot meet the higher level of treatment required by MOECC. Therefore, the lagoons would be modified and additional treatment systems would be added after the lagoon cells to polish the effluent discharging from the lagoons to meet the newly imposed MOECC effluent criteria.

Alternative 3c: Primary Treatment with Post Lagoon Effluent Treatment

- Similar to Alternative 3b, the lagoons would be modified and additional treatment systems would be added after the lagoon cells to polish the effluent. However, Alternative 3c includes headworks upstream of the aeration cell. The headworks would remove large debris pumped to the system (e.g. rags) and inert easily settle-able material (e.g. grit, solids, etc.).

Alternative 3e: Mechanical Treatment for “Excess Flow” and Polish Lagoon Effluent

- The existing lagoons have hydraulic capacity but not the ability to adequately treat the increased design flow. The lagoons would be modified (more air for organic control) and a Mechanical system would be added after the lagoons to polish the effluent from the lagoons to meet the newly imposed MOECC effluent criteria.

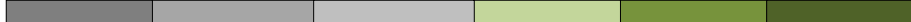
Alternative 4: Build New Mechanical Facility

- Decommission the existing Alexandria Sewage Lagoons and constructed a new full scale mechanical treatment plant. The facility would utilize biological and tertiary treatment while using the existing aeration cell for bio-solids storage. The existing lagoons would be decommissioned and repurposed.

| Impact | Evaluation Criteria | Alternative 3b: Upgrade Existing Lagoon – Post Lagoon Effluent Treatment | Alternative 3c: Primary Treatment with Post Lagoon Effluent Treatment | Alternative 3e: Upgrade Existing Lagoon – Mechanical Treatment for “Excess Flow” and polish Lagoon Effluent | Alternative 4: Build new Mechanical Facility |
|---|---|--|--|---|---|
| Technical/ Operation | Addresses current capacity constraints | Yes | Yes | Yes | Yes |
| | Achieves Effluent Design Objects set by MOECC | Yes | Yes | Yes | Yes |
| | Treatment Reliability and Ability to Handle Cold Weather Climate | Yes – Technologies exist for cold climates | Yes – Technologies exist for cold climates | Yes | Yes |
| | Ability to Treat Effluent Year Round | Yes | Yes | Yes | Yes |
| | Adequately Services Project Design Flow | Yes | Yes | Partially – Requires a more complex mechanical treatment system to handle excess flows | Yes |
| | Ability to Process Varying Design Flows | Yes - Can be designed to accommodate current and future flows | Yes - Can be designed to accommodate current and future flows | Yes - Can be designed to accommodate current and future flows | Yes - Can be designed to accommodate current and future flows |
| | Utilizes of Existing Assets | Yes - Utilizes all of the existing assets at the site (no decommissioning required; maximize use of existing infrastructure) | Yes - Utilizes all of the existing assets at the site (no decommissioning required; maximize use of existing infrastructure) | Partially - Still requires a more complex mechanical treatment plant to handle excess flows | No – Does not maximize the use of existing infrastructure. Existing system will need to be decommissioned |
| | Complexity of Operation of Treatment Technology | Less complex operations than a mechanical system. | Moderate - Not a conventional set up with primary treatment. Complexity of the system increase with the addition of solids treatment/separation in the headworks | Higher complexity of operation and maintaining compared to other passive wastewater treatment systems. Requires trained operator for the mechanical treatment | Higher complexity of operation and maintaining compared to other passive wastewater treatment systems. Requires on-site trained operator |
| | Complexity of Maintenance of Treatment Technology | Less maintenance requirements than mechanical systems. Reliable and mechanically simple | Less maintenance requirements than mechanical systems. Reliable and mechanically simple | More complex – Need to maintain two different treatment systems. | Higher complexity of maintaining compared to other passive wastewater treatment systems. |
| | Does it Fit within the Existing Property Limits | Yes - Based on preliminary observations and design work, it is unlikely additional land will be required to construct the expansion | Yes - Based on preliminary observations and design work, it is unlikely additional land will be required to construct the expansion | Potentially – Dependent on site layout and size of treatment units. Requires two systems to be placed on a parcel of land. | Potentially – Dependent on site layout and being able to abandon existing system and gain useable space |
| Overall Evaluation of Technical/Operation | | | | | |
| Natural Environment | Effect on Aquatic/Ecological Habitat - Construction and Operation | Potential impact – Achieves the proposed effluent criteria (subject to MOECC acceptance), however, may have a harder time achieving desired treatment objectives during winter. | Potential impact – Achieves the proposed effluent criteria (subject to MOECC acceptance), however, may have a harder time achieving desired treatment objectives during winter. | Minimal impact – Achieves the proposed effluent criteria (subject to MOECC acceptance) and therefore reducing the impact to the Aquatic/Ecological habitat. | Minimal impact – Achieves the proposed effluent criteria (subject to MOECC acceptance) and therefore reducing the impact to the Aquatic/Ecological habitat. |
| | Effect on Terrestrial Habitat- Construction and Operation | Potential impact to Terrestrial Habitat and SAR. Mitigation measure will need to be implemented in the detail design. The proposed system utilizes existing assets and post treatment systems will have a smaller foot print. Therefore, reducing the impact to terrestrial habitat. | Potential impact to Terrestrial Habitat and SAR. Mitigation measure will need to be implemented in the detail design. The proposed system utilizes existing assets and post treatment systems will have a smaller foot print. Therefore, reducing the impact to terrestrial habitat. | Higher impacts due the complexity of the system (i.e. requiring two treatment trains), additional space will be required which has a higher potential to impact the terrestrial habitat including SAR. | Potential impacts due the complexity of the system. Site will need to be decommissioned and repurposed for the mechanical treatment facility. Potential impacts to SAR. |
| | Effect on Vegetation - Construction and Operation | Minimal impact as the proposed system utilizes existing assets. Post treatment systems will have a smaller foot print and will be strategically place treatment units to reduce impact on vegetation and SAR. | Minimal impact as the proposed system utilizes existing assets. Post treatment systems will have a smaller foot print and will be strategically place treatment units to reduce impact on vegetation and SAR. | Potential impacts due the complexity of the system (i.e. requiring two treatment trains), additional space will be required which has a higher potential for removal of vegetation during construction. | Potential impacts due the complexity of the system. Site will need to be decommissioned and repurposed for the mechanical treatment facility. Potential impacts to SAR. |
| | Effect on Surface Water Quality | Improved | Improved | Improved | Improved |
| | Effect on Groundwater Quality | No Impact Anticipated - the sewage works treat the wastewater and discharges it to the surface water | No Impact Anticipated - the sewage works treat the wastewater and discharges it to the surface water | No Impact Anticipated - the sewage works treat the wastewater and discharges it to the surface water | No Impact Anticipated - the sewage works treat the wastewater and discharges it to the surface water |
| | Effect on Surrounding Agricultural Land | Lower impacts on adjacent landowners since the proposed system is utilizing existing assets. Mitigation measures to be put in place during detail design | Lower impacts on adjacent landowners since the proposed system is utilizing existing assets. Mitigation measures to be put in place during detail design | Moderate impacts on adjacent landowners due to increased noise/odour associated with mechanical treatment processes. | Moderate impacts on adjacent landowners due to increased noise/odour associated with mechanical treatment processes. |
| | Overall Evaluation of Natural Environment | | | | |
| Socio-Economic Environment | Ability to Meet Existing Community Wastewater Servicing Needs | Yes | Yes | Yes | Yes |
| | Ability to Meet Projected Community Growth Wastewater Servicing needs | Yes | Yes | Yes | Yes |
| | Affordability (Capital and Operating Costs) | Moderate | Moderate | High | Highest |
| | Overall Evaluation of Socio-Economic Environment | | | | |

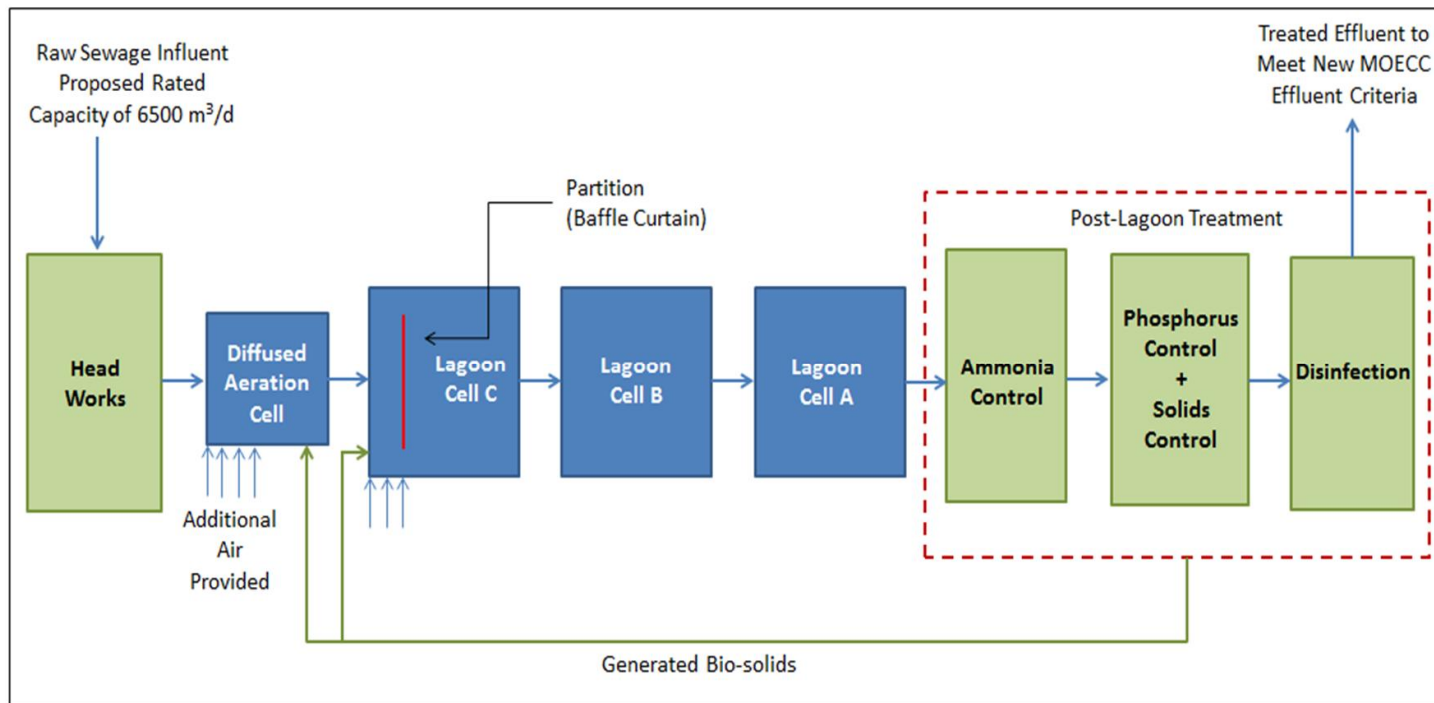
Less Favourable Impact

More Favourable Impact



Preliminary Preferred Alternative Solution

Alternative 3b: Post Lagoon Effluent Treatment was identified as the Preliminary Preferred Alternative Solution. The Preliminary Preferred Alternative Solution is the result of the detailed evaluation, in addition to input from the Technical Advisory Committee (MOECC and Raisin Region Conservation Authority) and Township Council.



Next Steps & Scheduling

| Milestone | Deadline |
|---|-----------------------|
| Phase 2 - Comment Period Expires | December 2, 2016 |
| 2 nd Mandatory Consultation with Public and Governing Agencies | December 5, 2016 |
| Technical Advisory Committee Meeting | December 7 or 8, 2016 |
| Public Consultation Centre #2 – Present Phase 3 | December 21, 2016 |
| Update to Council | January 4, 2017 |
| Phase 3 - Comment Period Expires | January 6, 2017 |
| Select Technically Preferred Conceptual Design | January 6, 2017 |
| Finalize Environmental Study Report | January 9, 2017 |
| 3 rd Mandatory Consultation - Notice of Study Completion | January 9, 2017 |
| Deadline for Comments and Part II Orders | February 7, 2017 |
| Letter to MOECC and Municipality Indicating Class EA has been completed | February 8, 2017 |

For further information on the expansion of Alexandria Sewage Lagoon Treatment Facility, please contact:

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