WELCOME

Public Information Centre #1

Town of Hanover

Hanover Wastewater Treatment Plant Upgrades

Hanover
Ontario, Canada

Schedule C Class Environmental Assessment

Ainley GROUP CONSULTING ENGINEERS PLANNERS

Class Environmental Assessment (EA) Process

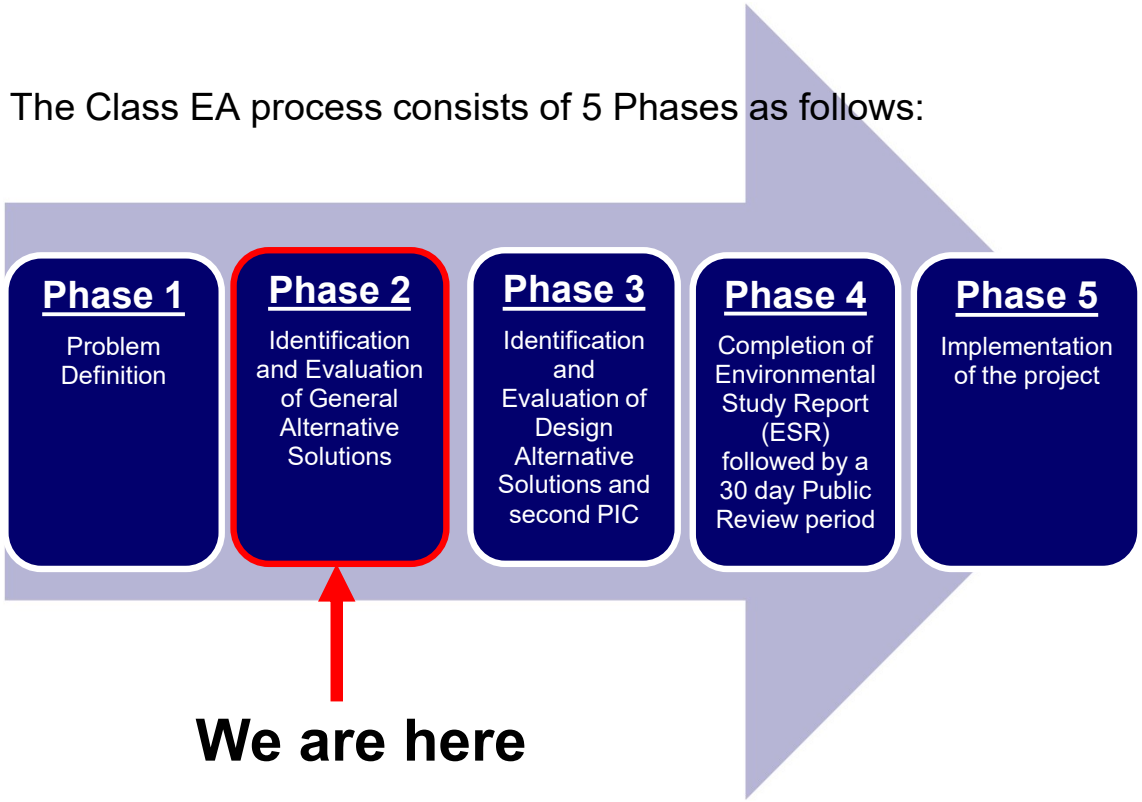
Key Principles of Class EA

- Consultation with affected parties early and throughout the process.
- Consideration of a reasonable range of alternatives.
- Consideration of effects on all aspects of the environment.
- Systematic evaluation of alternatives.
- Documentation & traceability.

Purpose of this Public Information Centre

- Review and update the problem statement (Phase 1) and evaluation of General Alternative Solutions (Phase 2);
- Confirm and present the preferred General Alternative Solution.

The Class EA process consists of 5 Phases as follows:



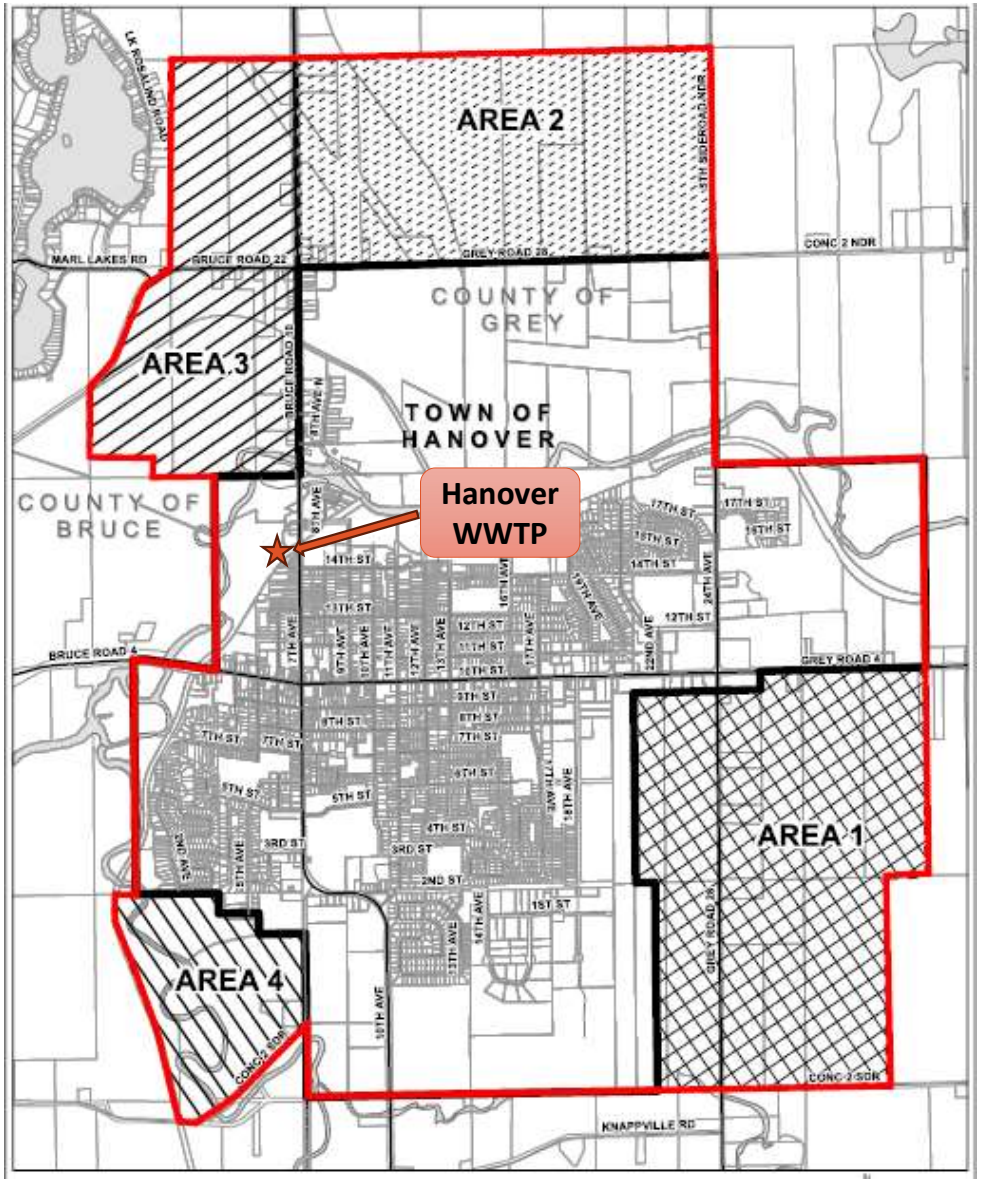
Problem/Opportunity Statement

Based on updated evaluation of the existing WWTP performance, condition and capacity, as well as existing and future wastewater flows from the service area, the Problem/Opportunity Statement is updated to include that:

- The historical Average Daily Flow (ADF) in the recent 6 years (2017-2022) has reached nearly 85% of plant's current rated capacity, resulting insufficient capacity to service future growth within the Town.
- The rate of development in Town of Hanover has accelerated and wastewater treatment capacity is essential to facilitating growth of the community.
- Additionally, there exists high Inflow and Infiltration (I&I) contribution to the plant.
- An additional wastewater treatment ADF capacity of 7,429m^3/d is needed to accommodate the projected 2052 growth.

Study Area

- The Study Area includes:
  - The current Town of Hanover urban area,
  - Two areas (area 1 and 2) in Grey County,
  - Two areas (area 3 and 4) in Bruce County.



Existing HWWTP Process Layout

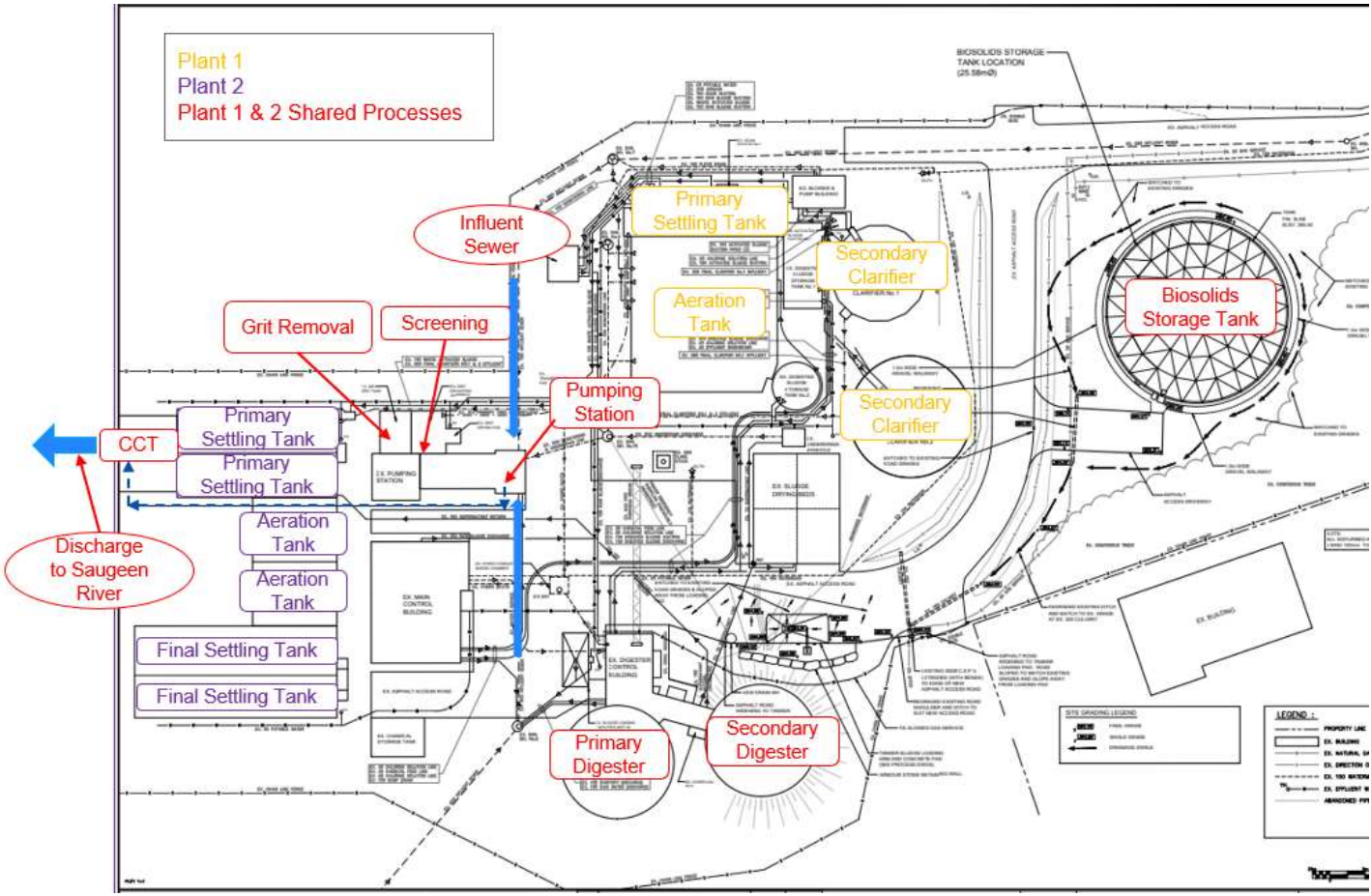
Existing Treatment Process Description

The collected sewage within the Town of Hanover is transferred to the HWWTP via two influent sewers (1 from north & 1 from south). The HWWTP was originally built in 1934, and has undergone 2 major expansions in 1960's and 1980's.

The following major systems are used in the plant:

- Screening – Mechanical screen and manual screen
- Aerated Grit Removal
- Primary Sedimentation
- Aeration – Coarse bubble aeration in Plant 1; mechanical aeration in Plant 2
- Secondary Sedimentation – Sludge collector mechanism
- Chlorine Contact Tank
- Solids Digestion – Anaerobic Digester
- Biosolids Storage and Disposal – Liquid Biosolids Storage Tank

Treated effluent is discharged to Saugeen River through an outfall after Chlorination.



Existing HWWTP Treatment Processes

Treatment Process		Basis of Design	Capacity (m^3/d)	
			Plant 1	Plant 2
Preliminary Treatment	Sewage Pumping Station	Peak Instantaneous Flow	19,613	
	Screening	Peak Instantaneous Flow	9,072	
	Grit Removal	Peak Hourly Flow	19,608	
	Primary Clarifiers	Peak Daily Flow	9,800	9,800
Secondary Treatment	Aeration	Average Daily BOD_5 Loading	866 m^3	884 m^3
	Secondary Clarifiers	Peak Hourly Flow	3,816	9,816
Disinfection	Chlorine Contact Tank	Peak Hourly Flow	19,608	
Sludge Management	Anaerobic Digesters	Maximum Monthly Mass Loading and Flow Rate	1,327 m^3	
	Biosolids Storage (incl. secondary digester)	Maximum Monthly Mass Loading and Flow Rate	6,679 m^3	

- The HWWTP operated under an Environmental Compliance Approval (ECA) issued by the Ministry of Environment, Conservation and Parks (MECP) that outlines strict requirements that the plant must meet.
- The HWWTP's rated Average Day Flow (ADF) capacity stated in ECA is 6,360 m^3/d.

Existing HWWTP Wastewater Flows

As part of this Class Environmental Assessment, historical wastewater flow assessment and future flow projection was conducted for the Hanover Wastewater Treatment Plant (HWWTP).

- ADF to the HWWTP is relatively constant.
- The historical ADF in the recent 6 years was 5,374.7 m^3/d, representing nearly 85% of plant's ECA Rated ADF capacity.
- The Town of Hanover has engaged in efforts to reduce inflow and infiltration (I&I).

Year	Average Day Flow (m^3/d)	Peak Day Flow (m^3/d)
2017	5,802.7	10,578.0
2018	5,619.0	17,541.0
2019	5,296.6	11,375.0
2020	5,055.6	11,962.0
2021	5,185.9	13,963.0
2022	5,288.7	10,294.0
Average	**5,374.7**	**12,618.8**

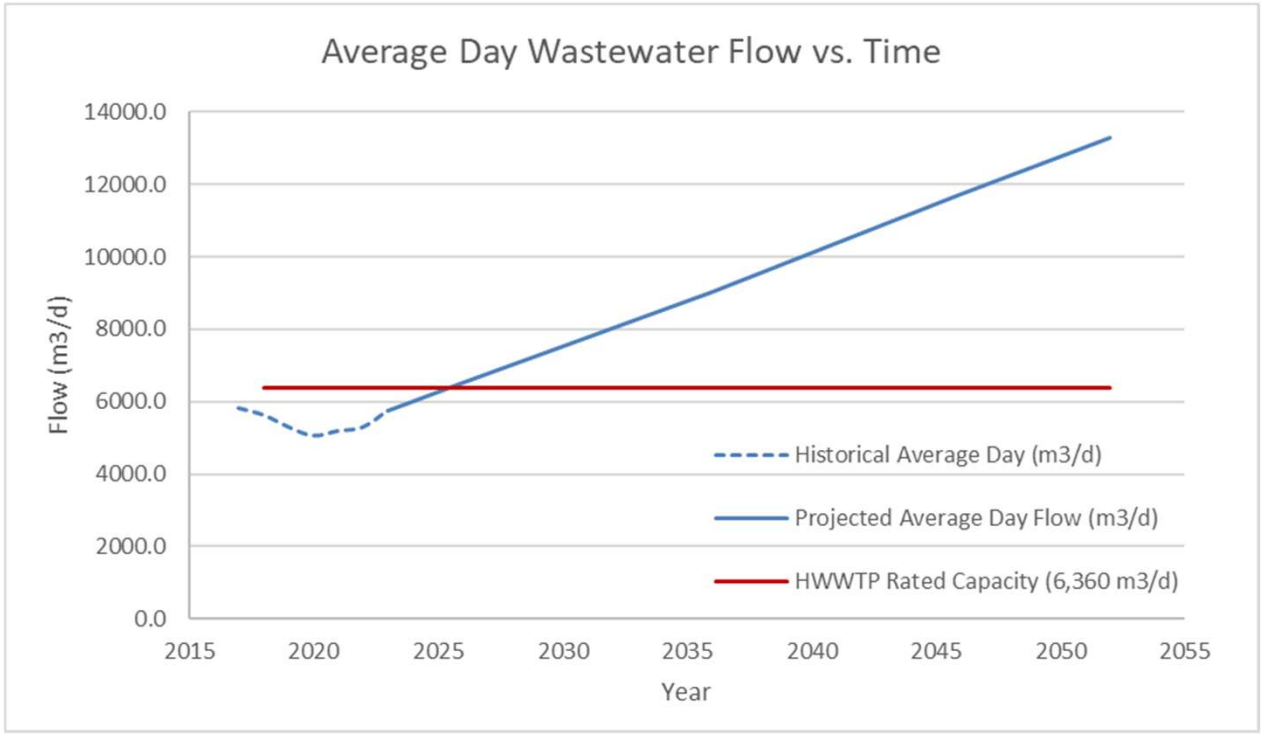
Plant Capacity Assessment

The unit process capacity was assessed to have a better understanding of the maximum treatment capacity within the existing processes.

Population and Flow Projections

As part of this Class Environmental Assessment, future population and flow projections were conducted for the Hanover Wastewater Treatment Plant (HWWTP).

- Development has been projected to proceed at a pace of 137 persons and 59 new jobs each year based on Official Plan Amendment #11. This leads to a total population growth of 4,242 and 1,824 new jobs by the year 2052.
- The 30-year projected growth (until 2052) will require a total treatment capacity (ADF) of 13,789 m^3/d.



Existing ECA Effluent Criteria

- ECA Effluent Concentration **Objectives & Limits**

Effluent Parameter	Averaging Calculator	Concentration Objectives (mg/L)	Concentration Limits (mg/L)
$CBOD_5$	Monthly Average Effluent Concentration	15.0	25.0
Total Suspended Solids	Monthly Average Effluent Concentration	15.0	25.0
Total Phosphorus	Monthly Average Effluent Concentration	0.8	1
E.coli	Monthly Geometric Mean Density	150 CFU/100 mL (May 15 – Sep 15)	200 CFU/100 mL (May 15 – Sep 15)
pH	Single Sample Result	6.5 – 8.5 inclusive	6.0 – 9.0 inclusive

- ECA Effluent Loading **Limits**

Effluent Parameter	Averaging Calculator	Loading Limits (kg/d)
$CBOD_5$	Monthly Average Daily Effluent Loading	159.0
Total Suspended Solids	Monthly Average Daily Effluent Loading	159.0
Total Phosphorus	Monthly Average Daily Effluent Loading	6.4

Effluent Concentration vs. ECA Requirements

Parameter	Max Month*	ECA Objective	ECA Limit
CBOD5 (mg/L)	**6.2**	15.0	25.0
TSS (mg/L)	**10.2**	15.0	25.0
TP (mg/L)	**0.4**	0.8	1.0
E.coli (CFU/100mL)	**60.6**	150	200
pH	**8.2**	6.5 – 8.0	6.0 – 9.5

*Average of maximum concentration in each year

- The historical (2018-2022) average effluent concentrations have been tested, with 86% below the $CBOD^5$ limits, 78% below the TSS limits, 77% below the TP limits, and 86% below the E.coli limits.
- pH is within the ECA limit range.

Long-Listed General Alternatives 1-4

Alternatives	Ability of Alternative to Address Problem/Opportunity Statement	Carried Forward?
Alternative 1 – Do Nothing	No changes from the existing conditions. Inconsistent with the Grey County and the Town of Hanover Official Plans. This alternative will not solve the problem, as it does not facilitate development. As such this is not a viable solution to address the problem/opportunity statement.	✖
Alternative 2 – Limit the Growth	Contrary to the provisions outlined in the Official Plans of Grey County and the Town of Hanover, this approach lacks compatibility with the Town's development needs. As such this is not a viable solution to address the problem/opportunity statement.	✖
Alternative 3 – I&I Reduction	The outcome of I&I reduction aimed at decreasing the overall wastewater flow to the HWWTP is uncertain. The impact may not be substantial enough to significantly decrease the overall flow. Additionally, the process is time-consuming and might not effectively address the treatment requirements in the near future. However, this alternative could be deemed a partial contribution to reducing the wastewater flow. As such this alternative is not a complete solution to address the problem/opportunity statement, however could be implemented in conjunction with the preferred alternative.	✖
Alternative 4 – Optimize Plant Operation	Implement measures to optimize and enhance the performance of the current unit processes within the HWWTP with the objective of expanding its capacity to treat larger volumes of wastewater flow. This alternative is not a complete solution to address the problem/opportunity statement, however could be implemented in conjunction with the preferred alternative.	✖

Long-Listed General Alternatives 5-9

Alternatives	Ability of Alternative to Address Problem/Opportunity Statement	Carried Forward?
Alternative 5 – Rebuild the HWWTP	Demolish the existing plant and construct a new WWTP at the same location. Wastewater treatment during the demolition process cannot be guaranteed to satisfy the treatment needs. As such this is not a viable solution to address the problem/opportunity statement.	✗
Alternative 6 – Expand and Upgrade the Existing WWTP	Expansion of the plant on the existing site will require additional land area. The availability of the land within the existing site footprint is constrained by floodplain and the Saugeen river, but expansion is feasible. As such this alternative provides a viable solution to address the problem/opportunity statement.	✓
Alternative 7 – Direct Future Wastewater Flows to Another Nearby WWTP	The feasibility of this alternative relies on the presence of a nearby WWTP capable of accommodating the wastewater flow from the Town of Hanover. Implementing this approach would require the transportation of wastewater over a considerable distance, and would require a willing recipient. This alternative presents significant challenges in terms of practical implementation. As such this is not a viable solution to address the problem/opportunity statement.	✗
Alternative 8 – Build a New WWTP at a Different Location	The certainty of acquiring suitable land for a new WWTP is not guaranteed. In addition, there are challenges and inefficiencies related to the diversion of existing sewers between two treatment locations and/or fully redirecting the existing collection system to a new location, however greenfield development is less costly than building within a constrained site. As such this alternative provides a viable solution to address the problem/opportunity statement.	✓
Alternative 9 – De-centralized WWTP	This alternative would involve the construction of an additional, or several additional WWTP to service new development. Current development plans do not account for on site wastewater treatment. This solution would require buy-in from all new developers and would likely deter development. In addition, long term operation of several wastewater treatment facilities would be onerous and costly. As such this is not a viable solution to address the problem/opportunity statement.	✗

Evaluation of Alternative Solutions

EVALUATION CRITERIA	ALT 6	ALT 8
Complexity	◕	◔
Compatibility with Current Policies and Regulations	◕	◔
Impacts to Property Owners	◕	◑
Impacts to Adjacent Business/Commercial Properties	◑	◑
Capital Costs	◕	◔
Addresses the Problem and Opportunity Statement	●	◕
Total Score	**19**	**12**

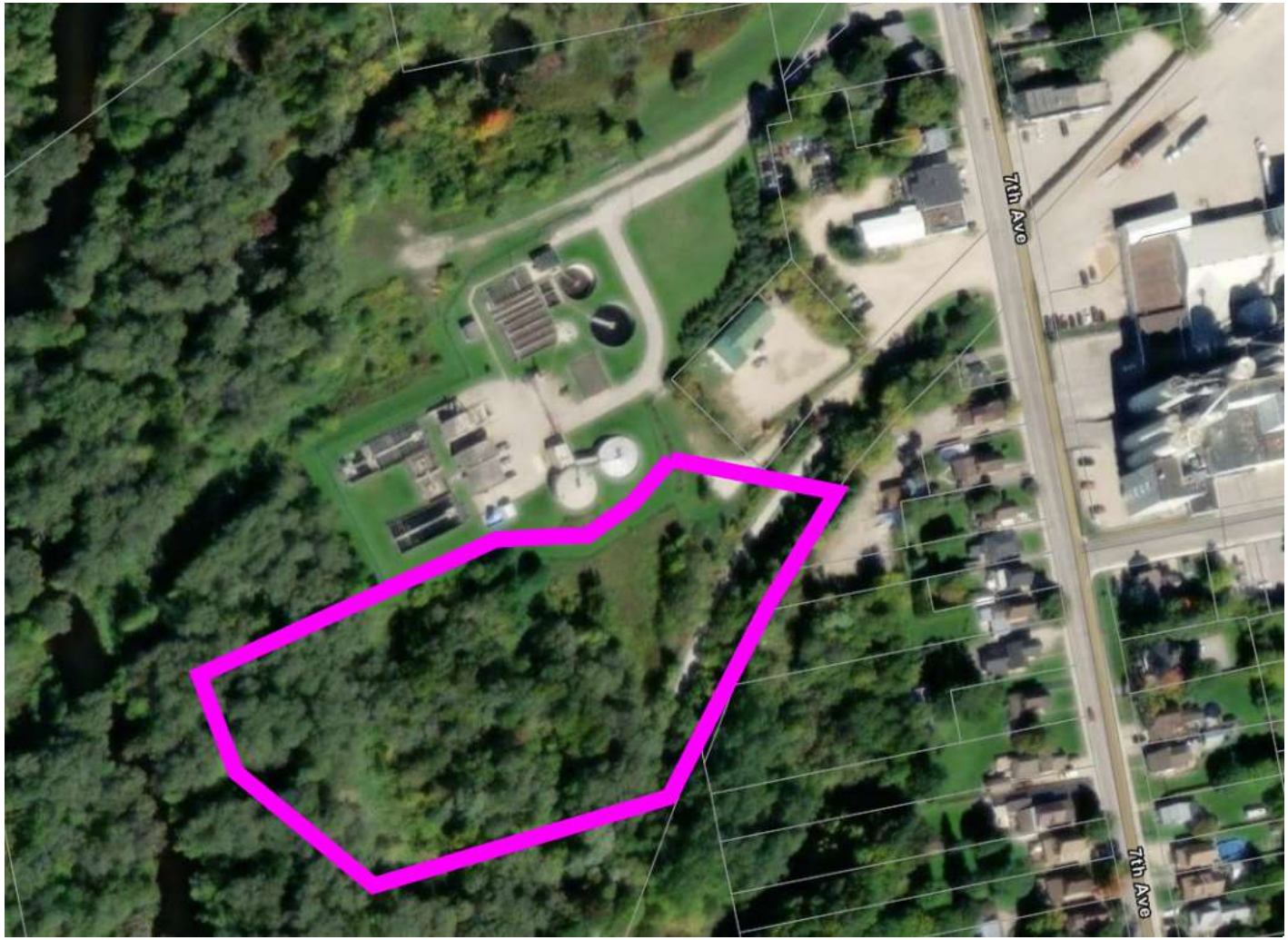
Note: A higher score indicates a more preferable option.

○ - Negative Impact
◔ - Some Negative Impact
◑ - Neutral
◕ - Some Positive Impact
● - Positive Impact

Alternative 6 – Expand and Upgrade the Existing WWTP is our preferred solution.

Conceptual Expansion Area of Preliminary Preferred Alternative

- The conceptual expansion area is situated on the southern side of the plant.
- This area is regulated by the Saugeen River Conservation Authority (SVCA). SVCA confirms that it is within the floodplain, and a portion of the area will be designated as a wetland.



Studies

As part of the Schedule C Class EA, several studies are anticipated be required in order to comply with Municipal Class Environmental Assessment process:

- **Assimilative Capacity Study (ACS):** A receiving water assessment to determine effluent criteria for point-source dischargers.
- **Archaeological Assessment:** Evaluate archaeological potential.
- **Cultural Heritage Assessment:** Evaluate the potential for built heritage resources and cultural heritage landscapes.
- **Natural Heritage Assessment / Environmental Inventory Study (EIS):** A desktop-level environmental screening and a baseline natural features assessment.
- **Floodplain Study:** Determine the current extent of flooding on the site.

Proposed Schedule for Completion of Class EA

- Comments on the PIC#1 material will be received by the Town's Project Team until June 7th, 2024.
- Upon completion of developing alternative design concepts for preferred solution, there will be a PIC#2.
- Following the review of all comments and issuance of the responses, where necessary, the Environment Study Report (ESR) will be prepared to document the Class EA process and will be made available for a mandatory 30-Day public review period.
- A Notice of Study Completion will be issued that will identify the final Preferred Solution along with initiating the start of the mandatory 30-Day public review period. Online links to the ESR document will be made available for simplification of access to the study materials.
- At the conclusion of the 30-Day public review period and assuming there are no Requests for a Section 16 Order, the Class EA process is considered complete and the project can then move forward to detailed design and construction.

Your Comment are Important to us

- Following this presentation we invite you to submit any comments by completing the Comment Sheet. Comment Sheets may be provided to either of the following members of the Project Team by June 7th, 2024:

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