

# **Schedule 'C' Municipal Class Environmental Assessment Study for Additional Groundwater Supply for the Inglewood Drinking Water System**

Public Information Centre #1

Thursday, June 20, 2024

5:00 pm to 7:00 pm

# Key Instructions for this Meeting

## Additional Groundwater Supply for the Inglewood Drinking Water System Class EA Study

1

### **Please Sign in**

Meeting is a “Drop-in” format

2

### **Review Display Materials**

Our representatives will be pleased to discuss the study, or any questions or concerns that you may have.

3

### **Complete a Comment Sheet**

Drop off your completed Comment Sheet in the Box tonight or return it as per instructions on the Comment Sheet by Friday, July 5, 2024

# Why Are We Here?

- Peel Region is undertaking a **Municipal Class Environmental Assessment Study** to identify infrastructure upgrades required to the Inglewood Drinking Water System.
- The objectives of this **Public Information Centre #1** are:



Introduce the project and provide background information

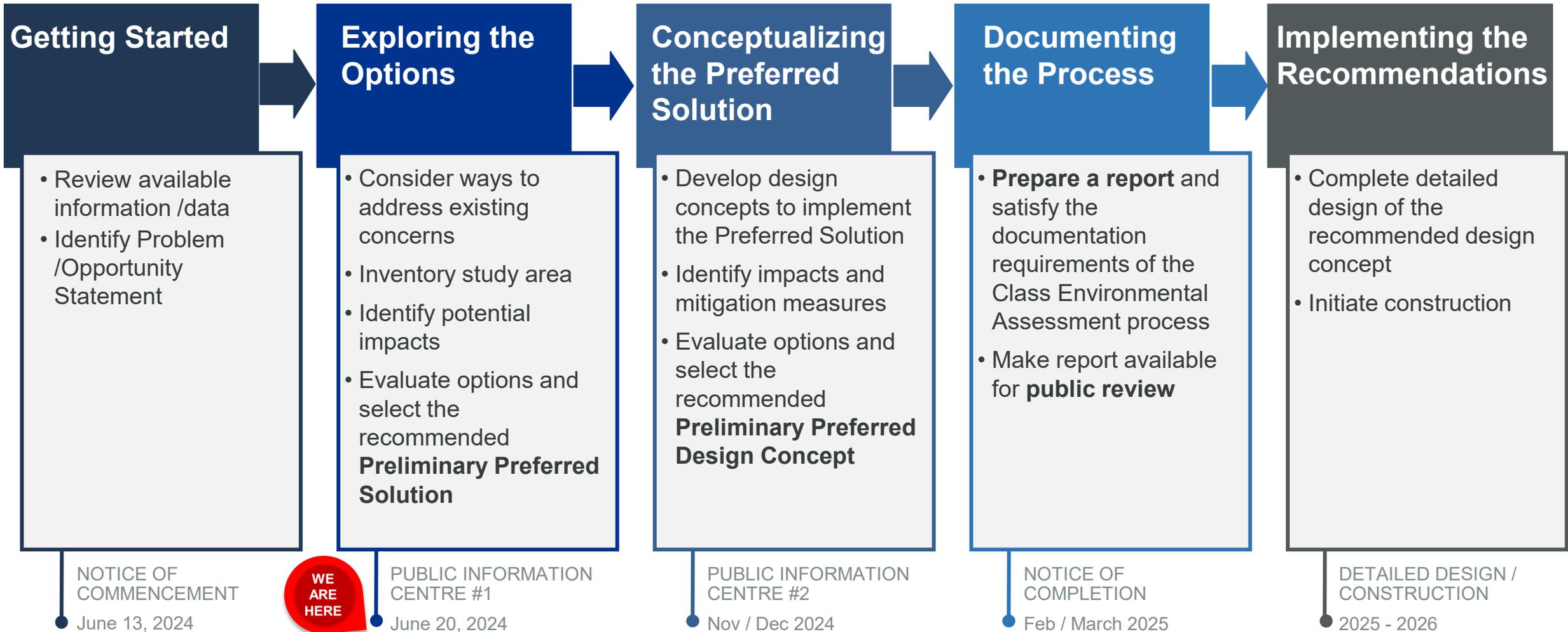


Present the decision-making process and preliminary options recommended for further investigation in the study



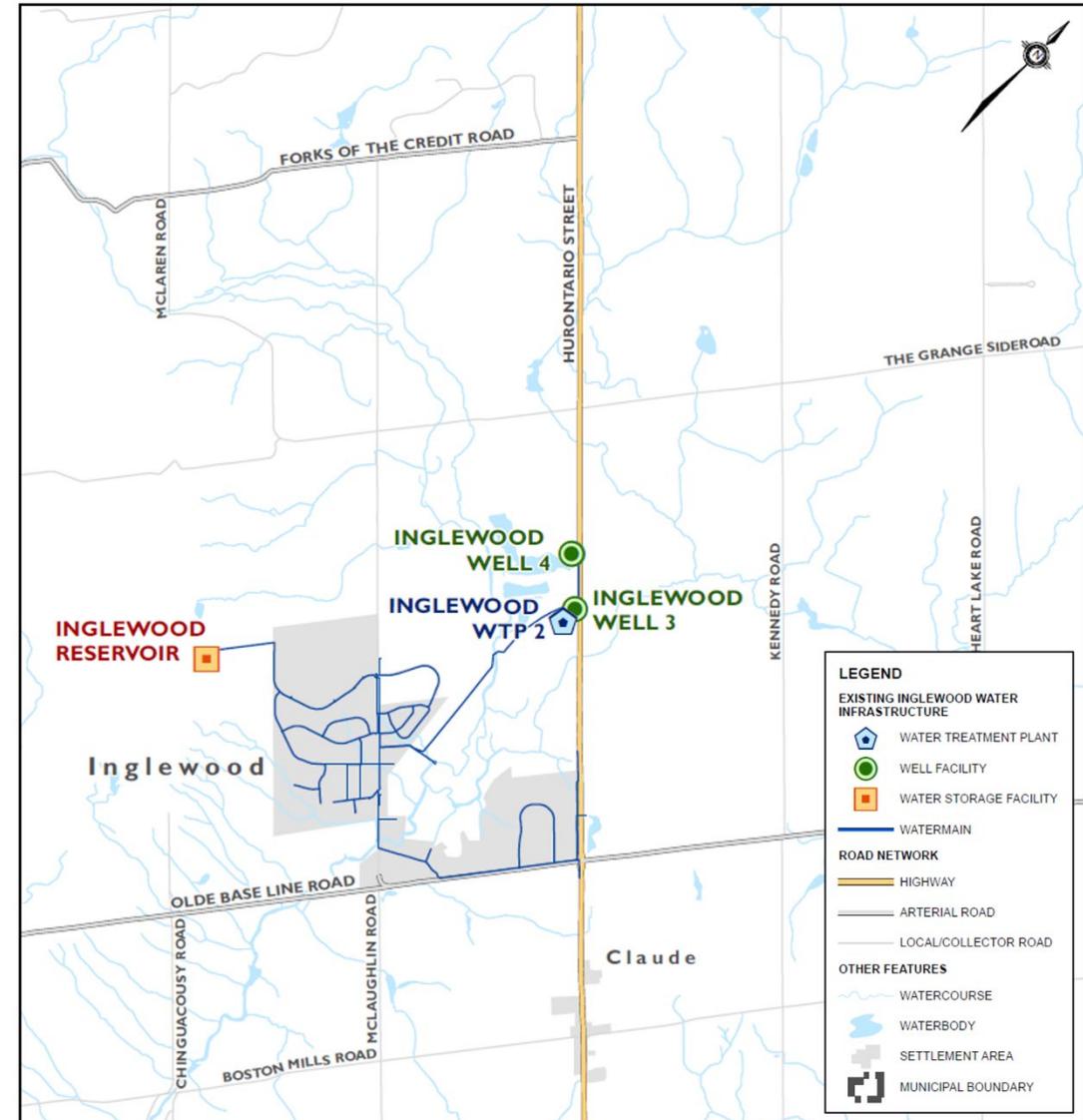
Provide an opportunity for the public to review project information and provide input to the Project Team

# Municipal Class EA Process and Timelines



# Overview of Inglewood Drinking Water System

- The Inglewood Drinking Water System is a groundwater-based system owned and operated by Peel Region.
- It supplies drinking water to the Village of Inglewood.
- Major infrastructure components:
  - 2 groundwater supply wells; Inglewood Well 3 & 4. Both supply wells draw groundwater from the same aquifer
  - 1 water treatment plant, Inglewood WTP 2
  - 1 water storage reservoir, Inglewood Reservoir
  - A distribution system of 15km of watermains. Due to ground elevation variations within the serviced area, the system feeds 2 separate Pressure Zones:
    - Zone 8C (267.5 m – 311 m)
    - Zone 9B (306 m – 331 m)





## Inglewood Water Treatment Plant

- Originally constructed in 1996. Expanded through the years to accommodate a treatment capacity increase and addition of a new supply well (Inglewood Well #4).
- Current treatment capacity: 1,300 m<sup>3</sup>/d (15 L/s).
- Treatment processes include iron removal and disinfection.



**Source – Wells 3 & 4**

Wells 3 & 4 were constructed in 1995 and 2015, respectively. The maximum combined water taking capacity from both wells is 1,296 m<sup>3</sup>/d (15 L/s).

Groundwater from the supply wells is pumped directly to the treatment plant for treatment.



**Treatment – Filtration**

Raw groundwater is filtered through greensand filters for iron removal.



**Treatment – Disinfection**

Filtered water is then chlorinated for disinfection.

### Distribution System

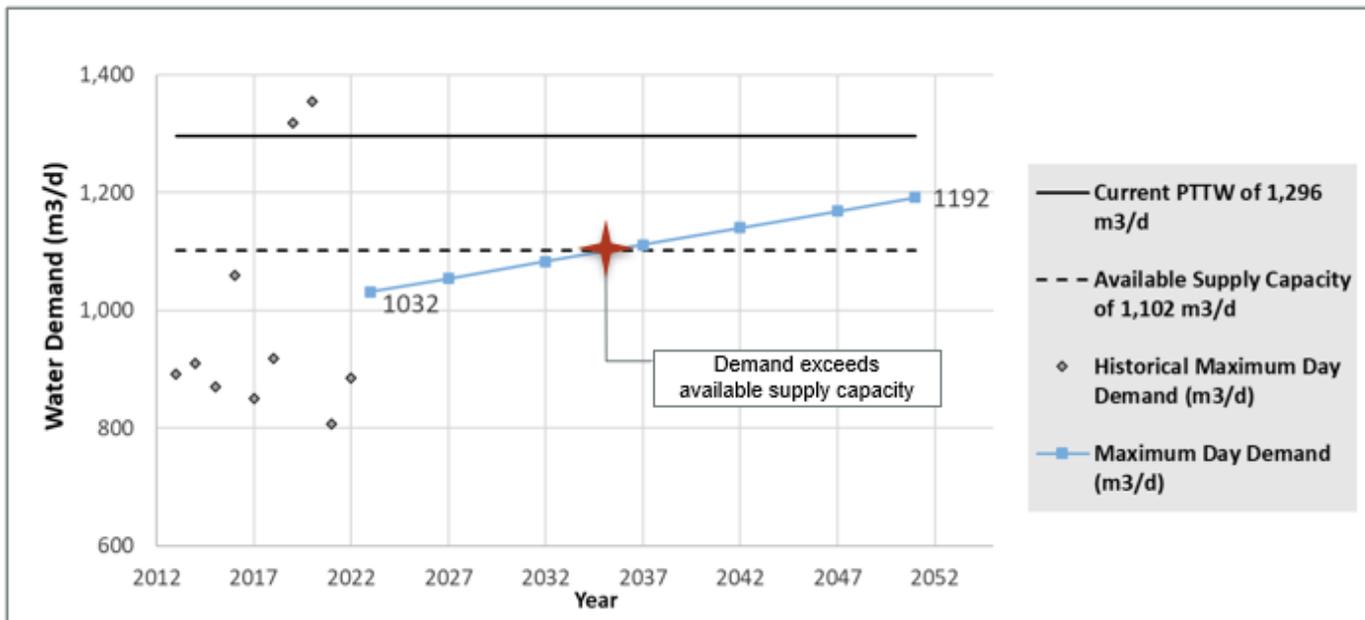
Treated water is pumped from the treatment plant into either the distribution system or the Inglewood Reservoir.

### Process Wastewater

Process wastewater/ sludge is hauled away from site.

# System Supply Capacity and Water Demands

Serviced Population and Water Demands	Existing 2023	Future 2051
 People	~1,025	~1,200
 Max. Day Demands (m <sup>3</sup> /d)	1,032	1,192



## What are the current conditions in the Inglewood Drinking Water System?

- Existing water taking capacity = 1,296 m<sup>3</sup>/d (15 L/s)
- 2023 water demands = 1,032 m<sup>3</sup>/d (12 L/s)

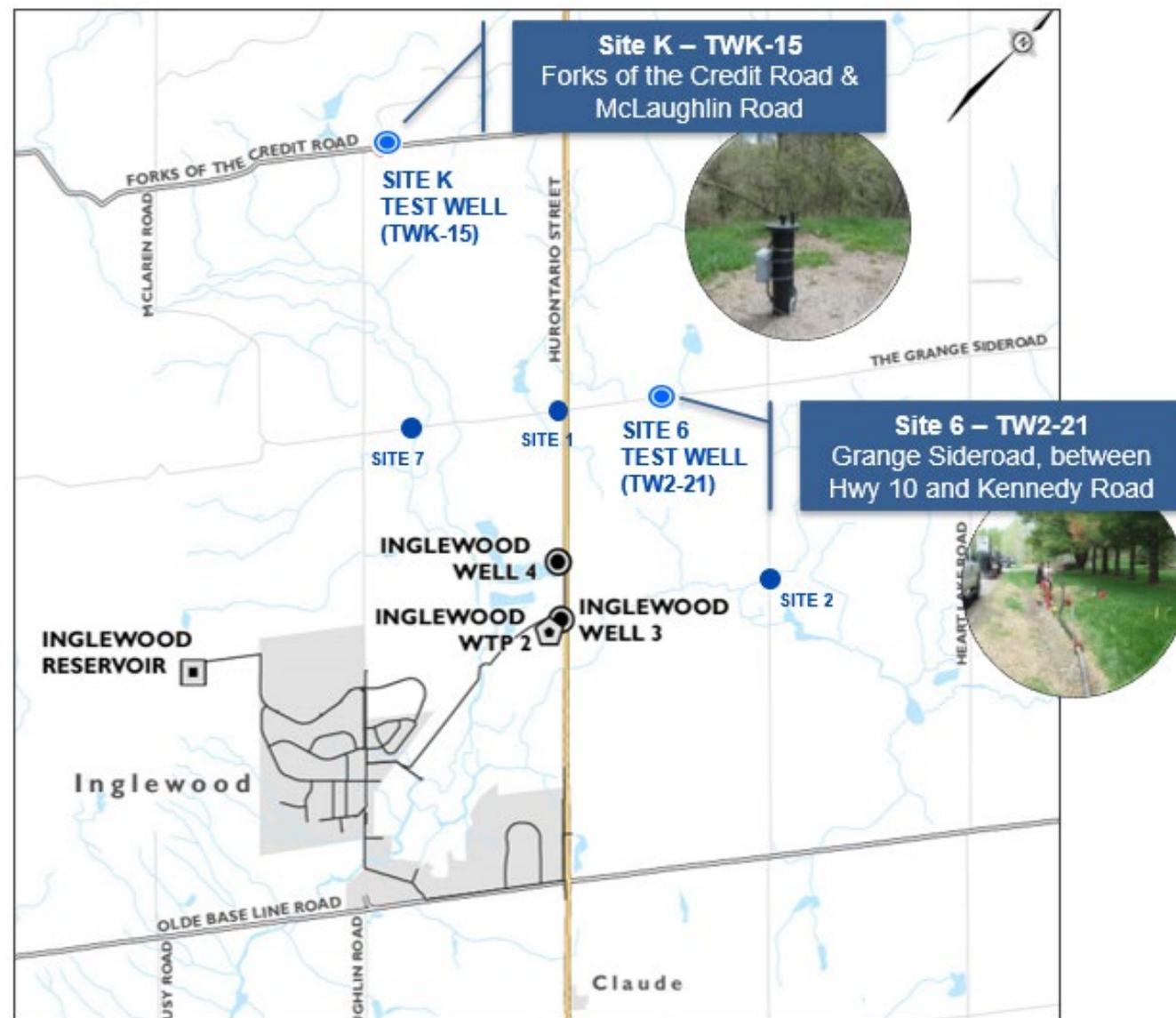
## What are the limitations in the system?

- Existing well pumping restrictions.
- Limited aquifer redundancy since both supply wells share the same aquifer.
- Projected water demands are expected to exceed the available supply capacity in the system.

# Previous Groundwater Exploration Programs

- Peel has investigated potential locations for new municipal supply sources in the Inglewood area.
- In 2015, Site K was identified to have favorable aquifer conditions in terms of water quality and quantity. Test well **TWK-15** was drilled and successfully tested in 2015.
  - **Site K** was considered as a potential location for a new municipal supply well in the 2016 Inglewood Class EA Study. Site K ranked in second place following the preferred site well location (now Inglewood Well #4).
- In 2022, 5 potential well site locations, including Site K, were identified (shown in blue in the map). Two (2) sites – Sites 1 & 6 were tested further, with the following results:
  - **Site 1** – produced limited quantity of water, not viable.
  - **Site 6** – Test well **TW2-21** was drilled and tested in 2022. Testing results showed favorable aquifer conditions in terms of water quality and quantity.

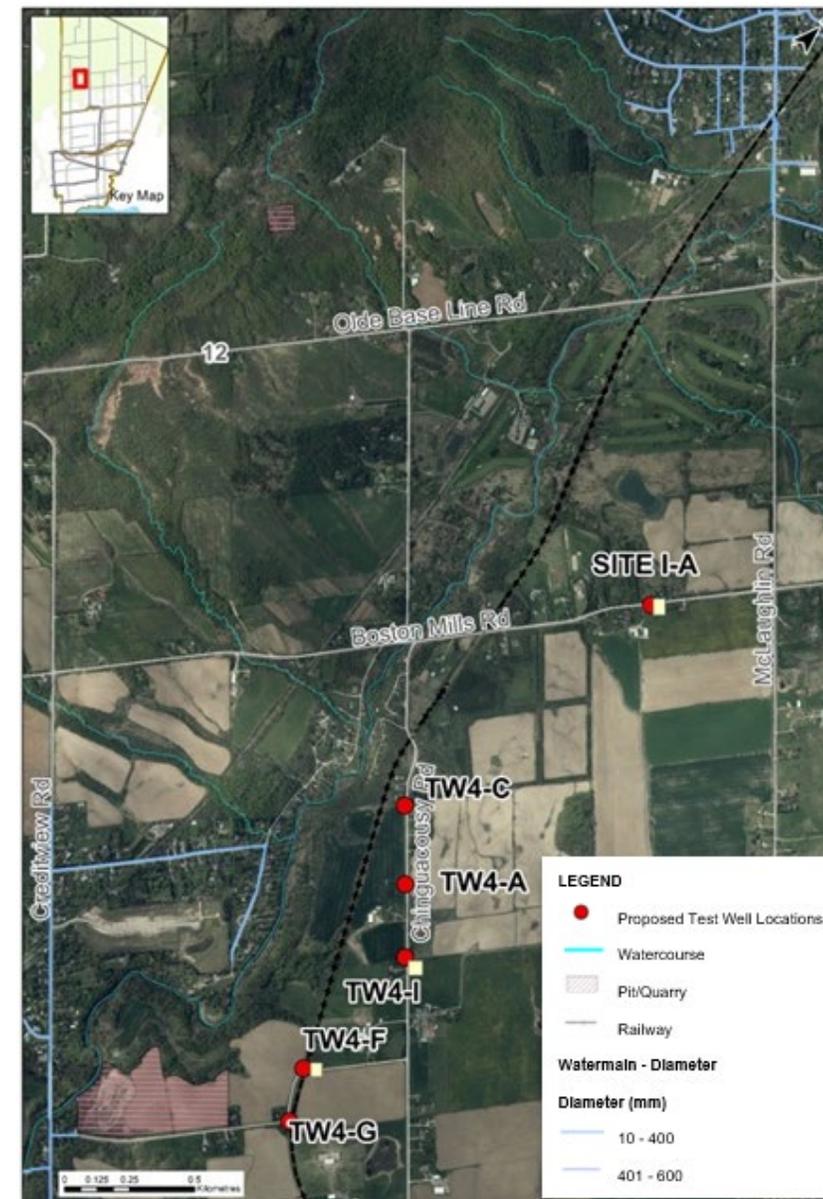
Test well testing of TWK-15 and TW2-21 showed favorable conditions for a new supply well at or in the vicinity of the test wells on Site K and Site 6, respectively. Site K and Site 6 are considered feasible locations for a new groundwater supply source.

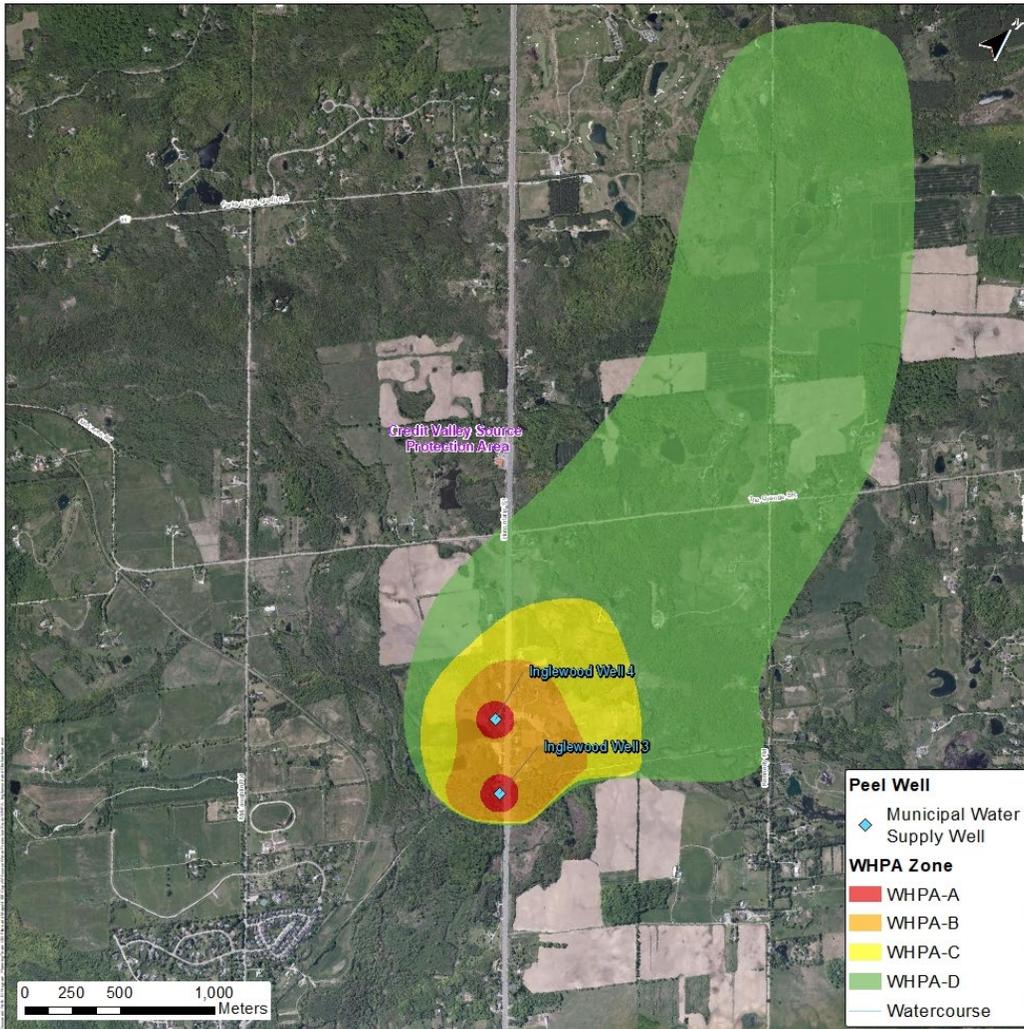


# 2024 Groundwater Exploration Program

- A separate Groundwater Exploration Program was initiated in 2024 to explore southern areas in Inglewood.
- A long list of six (6) potential test drilling locations, shown in red in adjacent map, was developed based on proximity to the buried bedrock valley.
- Three (3) locations were selected for test drilling based on the potential for water supply, site accessibility, technical feasibility and source water protection considerations. Order of test drilling preference:
  1. **Site I-A** – east of Boston Mills Road & McLaughlin Road intersection
  2. **TW4-I** – north of Chinguacousy Road & Station Road intersection
  3. **TW4-F** – east of Chinguacousy Road & Station Road intersection

Test drilling will commence in July 2024. The results will be considered in this Class EA study.





Inglewood Production Wells #3 and #4 – Limits of existing WHPAs for current permitted water taking capacity of 1,296 m<sup>3</sup>/d

- Wellhead Protection Areas (WHPAs) allow the Region to protect the short and long-term quality of the drinking water sources.
- WHPAs are created using a mathematical model that predicts the movement of groundwater from its source area to a municipal drinking water well.
- WHPA shape changes as new subsurface data are collected (e.g., thickness and continuity of sand aquifers), or as the future municipal pumping rates or future water supply wells change.
- Potential water quality threats to the source aquifer and mitigation measures are being considered as part of selecting and evaluating new well site locations.
- If a new municipal drinking water supply well is confirmed as part of the preferred recommended solution, new WHPAs will need to be delineated.

# Summary of Current Conditions



## Service Water Needs

Additional supply capacity is needed to meet future water demands and increase redundancy in supply to meet the long-term needs of the service area in a reliable and sustainable way.



## Enhancing Groundwater Supply

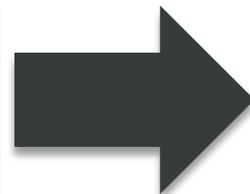
Two (2) test well sites, Site 6 and Site K, are considered viable options for a new municipal supply source. No interference to existing domestic wells or surface water features around the test wells was observed during testing. Additional test well sites in the southern areas of Inglewood may be further identified upon completion of the 2024 test drilling program.



## Infrastructure Needs

Construction of a new municipal supply well will require additional infrastructure to facilitate treatment and connection to the existing Inglewood Drinking Water System. Specific infrastructure needs will be explored and confirmed in the Class EA study.

## What's Next?



**The Region is undertaking this Class EA study to evaluate supply servicing alternatives and select the preferred solution.**

# Class EA Phase 1 – Problem / Opportunity Statement

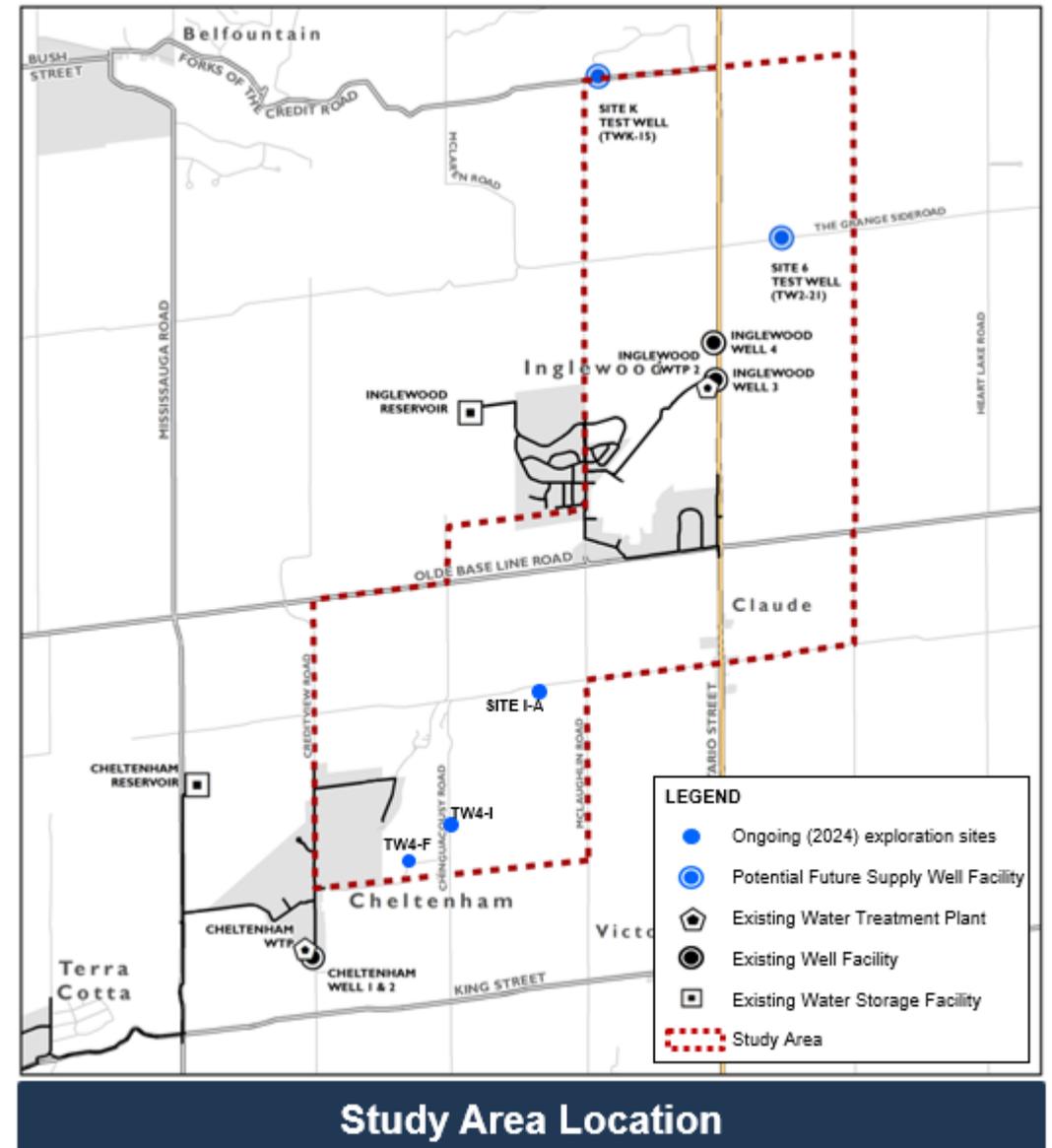
## Infrastructure improvements to the Inglewood Drinking Water System are required to:

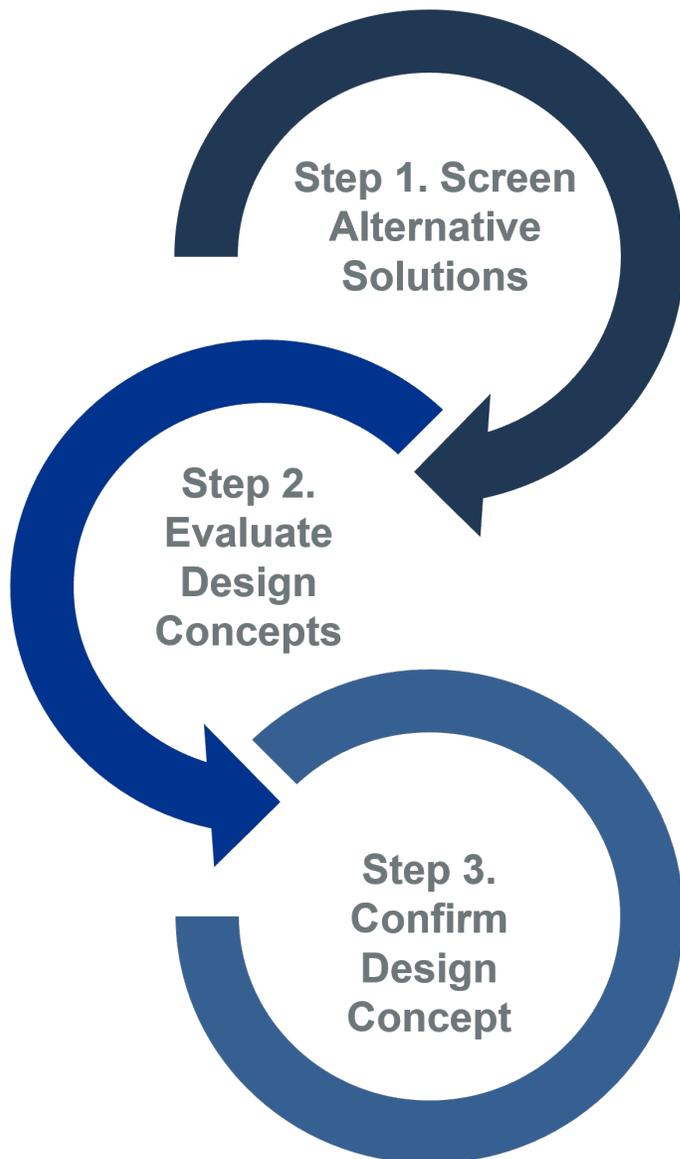
- Increase supply capacity and redundancy,
- Improve the security of water supply, and;
- Meet future water needs of the serviced area to 2051 while continuing to provide an appropriate level of service.

Two (2) potential sites (Site K and Site 6) have been identified to develop a new municipal production well.

Additional areas to the south of Inglewood may also be recommended subject to the results of the 2024 test drilling program.

The areas surrounding the potential sites, and the viability for property acquisition, will be assessed in the Class EA study.





## 1. Identify and Screen Alternative Solutions

- Alternatives to address the Problem/Opportunity Statement were identified and screened against “must-meet criteria”:
  - ✓ Potential to achieve long-term capacity needs and increase system redundancy
  - ✓ Ability to meet drinking water standards, policies and permitted land uses in the area
  - ✓ Ability to minimize constructability complexity and balance benefits and costs relative to other options
- Alternatives that meet the screening criteria are considered viable and recommended for further evaluation. Alternatives that don’t meet the criteria are eliminated.

**Preliminary Preferred Alternatives are being recommended for further evaluation. Results from Step 1 are presented in the following panels.**

## 2. Identify and Evaluate Design Concepts

- The Preliminary Preferred Alternative(s) are further developed into design concepts and evaluated against a range of criteria to maximize benefit and minimize impacts to:
  - ✓ Technical and Operational
  - ✓ Natural Environment
  - ✓ Community / Social
  - ✓ Cost

## 3. Confirm Preferred Design Concept

- A Preferred Design Concept is selected through the detailed evaluation process and recommended in the Class EA study for implementation.

**Steps 2 and 3 will be completed in the next phases of the Class EA study. Results to be presented at second PIC.**

# Step 1 – Identification of Alternative Solutions

## Alternatives

1. **Do Nothing** – status quo, no changes to existing system

2. **Limit Community Growth** – to the extent of the existing capacity in the system

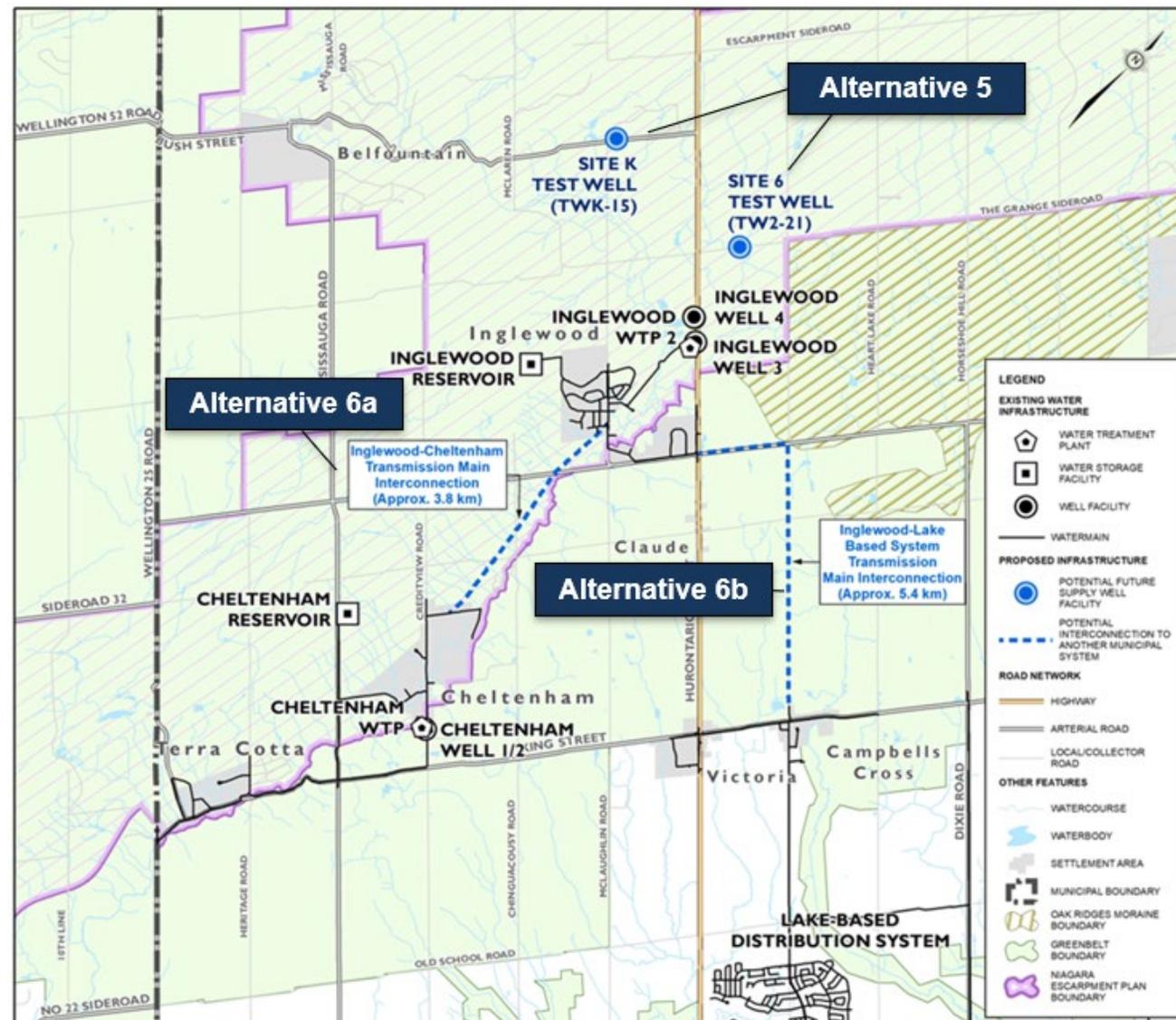
3. **Reduce Water Demands** – through implementation of water conservation measures

4. **Increase Capacity of Existing Inglewood DWS Infrastructure** – through retrofits/upgrades of existing water infrastructure

5. **Increase Capacity through addition of New Infrastructure to the Inglewood DWS** – addition of new municipal groundwater source to the system

6a. **Increase Capacity through an Interconnection to the Cheltenham Water Distribution System**

6b. **Increase Capacity through an Interconnection to the Region's Lake-based Water Distribution System**



# Alternative Solutions – Screening Results

Alternative Solution	Preliminary Screening Assessment	Recommendation
1 <b>Do Nothing</b>	<ul style="list-style-type: none"> <li>Does not meet future water demands or address limitations in redundancy and security of water supply.</li> </ul>	Not Recommended
2 <b>Limit Community Growth</b>	<ul style="list-style-type: none"> <li>Does not address limitations identified with redundancy and security of water supply.</li> <li>Not in compliance with Peel’s Official Plan and Places to Grow policies or the principles of Peel’s Growth Management Strategy.</li> </ul>	Not Recommended
3 <b>Reduce Water Demands</b>	<ul style="list-style-type: none"> <li>Does not address limitations identified with redundancy and security of water supply but mitigates long-term supply capacity concerns by promoting water conservation, system efficiency and reduction in non-revenue water.</li> </ul>	To be considered along with Preferred Alternative Solution(s).
4 <b>Increase Capacity of Existing Inglewood DWS Infrastructure</b>	<ul style="list-style-type: none"> <li>Contributes to an increase in supply capacity through ongoing efforts to remove current pumping restrictions.</li> <li>Does not address limitations identified with aquifer redundancy and security of water supply.</li> </ul>	To be considered along with Preferred Alternative Solution(s).
5 <b>Increase Capacity through addition of New Infrastructure to Inglewood DWS</b>	<ul style="list-style-type: none"> <li>Contributes to an increase in supply capacity while increasing redundancy and security of water supply with addition of a new supply well.</li> <li>Two potential test well sites (Site K and Site 6) have been identified with similar treatment and operational needs to that of the existing system. Additional site(s) identified through the 2024 exploration efforts in southern areas of Inglewood will also be considered.</li> </ul>	<b>Recommended</b>
6a <b>Increase Capacity through an Interconnection to the Cheltenham WDS</b>	<ul style="list-style-type: none"> <li>Provides an opportunity to increase supply capacity and aquifer redundancy.</li> <li>Maximizes use of existing infrastructure and adds to the operational flexibility.</li> </ul>	<b>Recommended</b>
6b <b>Increase Capacity through an Interconnection to Regional Lake-based WDS</b>	<ul style="list-style-type: none"> <li>Contributes to an increase in supply capacity, redundancy and security of water supply but conflicts with current planning policies of the Greenbelt Plan, Town of Caledon Official Plan and Places to Grow polices.</li> </ul>	Not Recommended

# Summary of Screening Results – Preferred Alternative Solutions

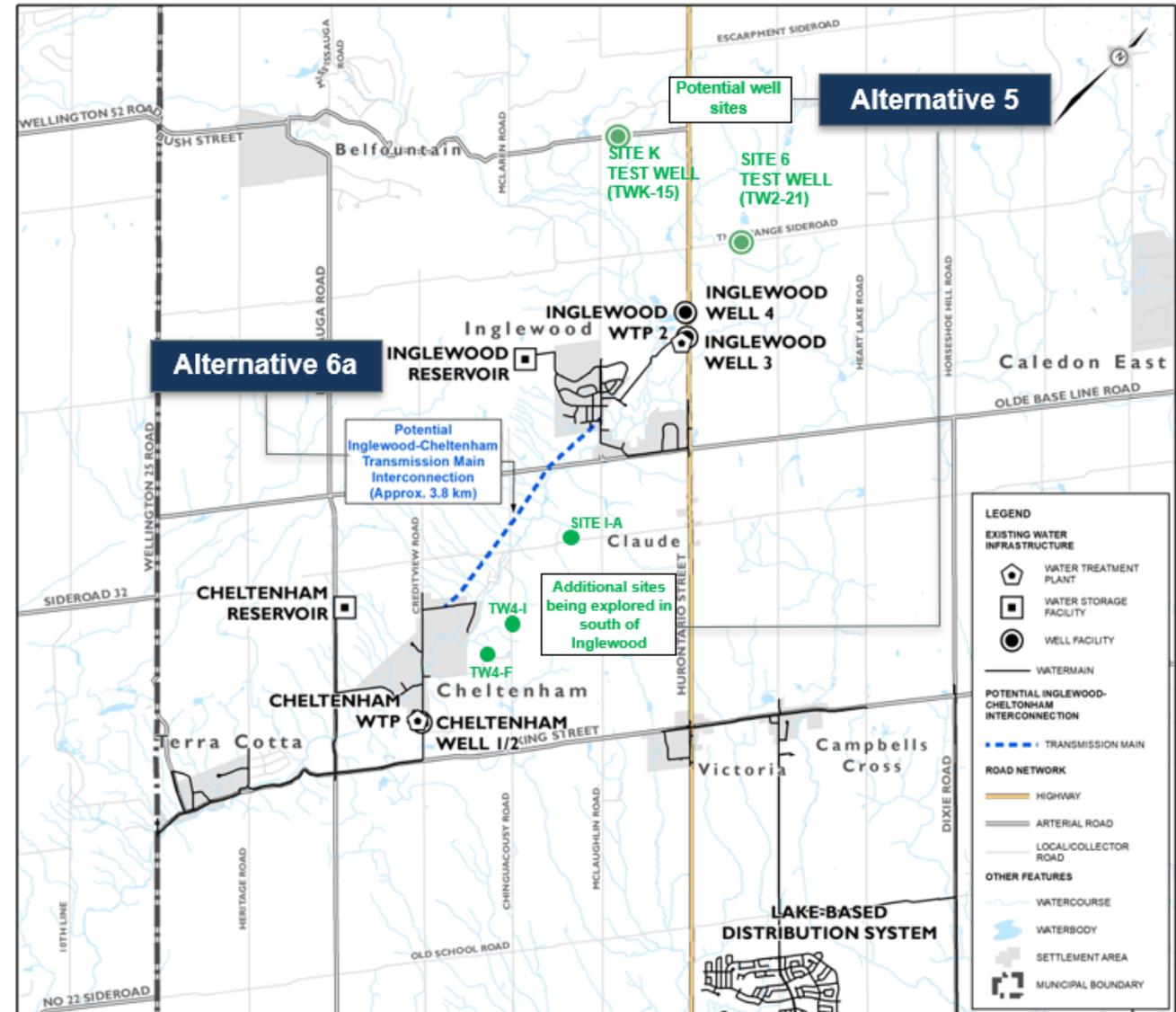
## Preliminary screening has short-listed two (2) alternative solutions for further analysis:

### Alternative 5: Increase Capacity through addition of New Infrastructure to the Inglewood DWS

- Construction of a new municipal supply well on a new well site. Well site locations include Site K, Site 6, and potentially an additional site in south of Inglewood, as shown in the adjacent figure. Latter to be confirmed through 2024 well drilling program. Property acquisition for the new supply well site most likely required.
- Additional infrastructure needs will be established in the next steps of the Class EA study.

### Alternative 6a: Increase Capacity through an Interconnection to another Municipal System – Interconnection to Cheltenham Water Distribution System

- Construction of a new interconnecting transmission main between Inglewood and Cheltenham WDS.
- Additional infrastructure needs will be established in the next steps of the Class EA study.



# Summary of Screening Results – Additional Recommendations

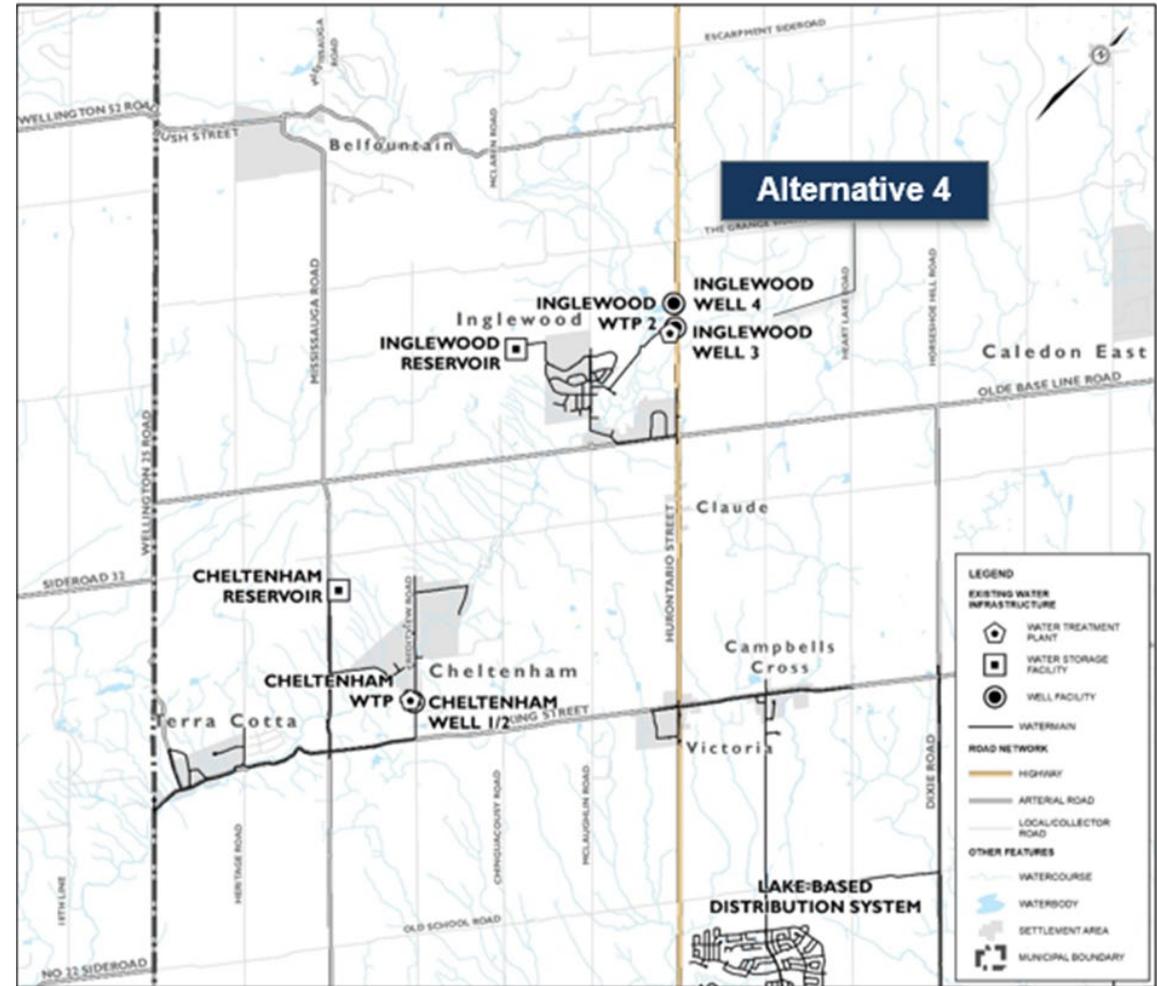
**Two (2) additional alternative solutions are recommended for further consideration alongside the preferred recommended solution. These are:**

## **Alternative 3: Reduce Water Demands**

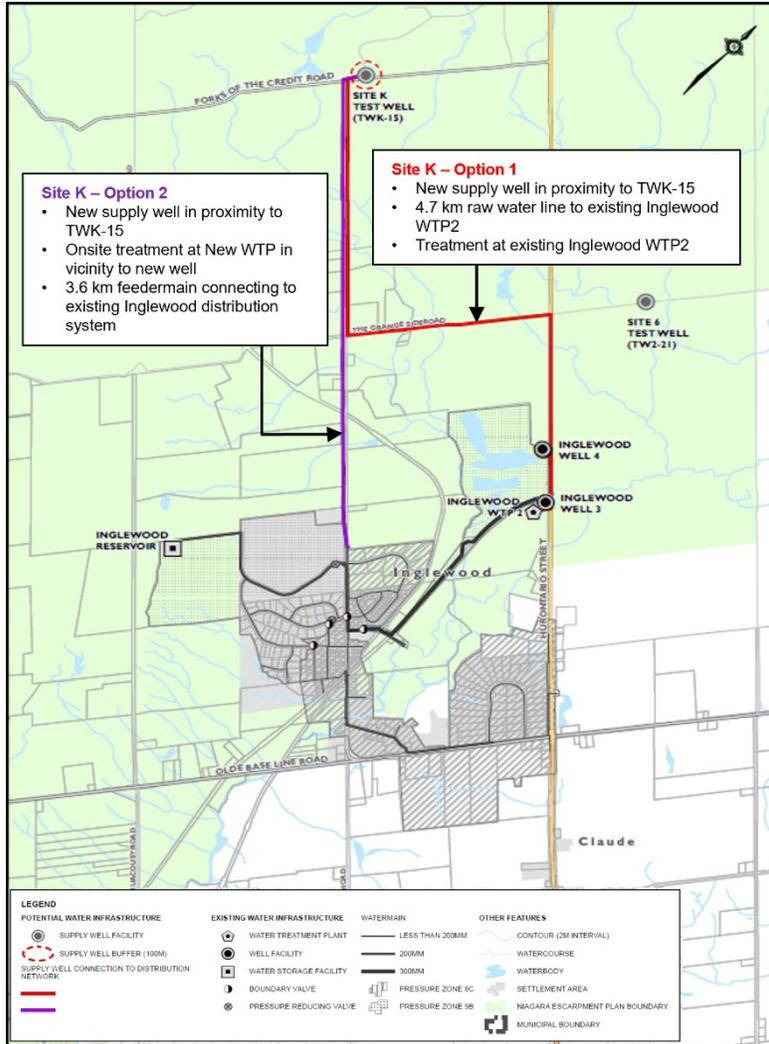
- Reduction in water demands through implementation of conservation measures and strategies to investigate and reduce non-revenue water in the Inglewood Drinking Water System.

## **Alternative 4: Increase Capacity of Existing Inglewood DWS Infrastructure**

- Potential increase in combined permitted water taking capacity of 1,296 m<sup>3</sup>/d from the existing Inglewood production wells #3 and #4 by removing current pumping restrictions.
- Peel will soon initiate consultation with regulatory agencies to seek relief from current restrictions.



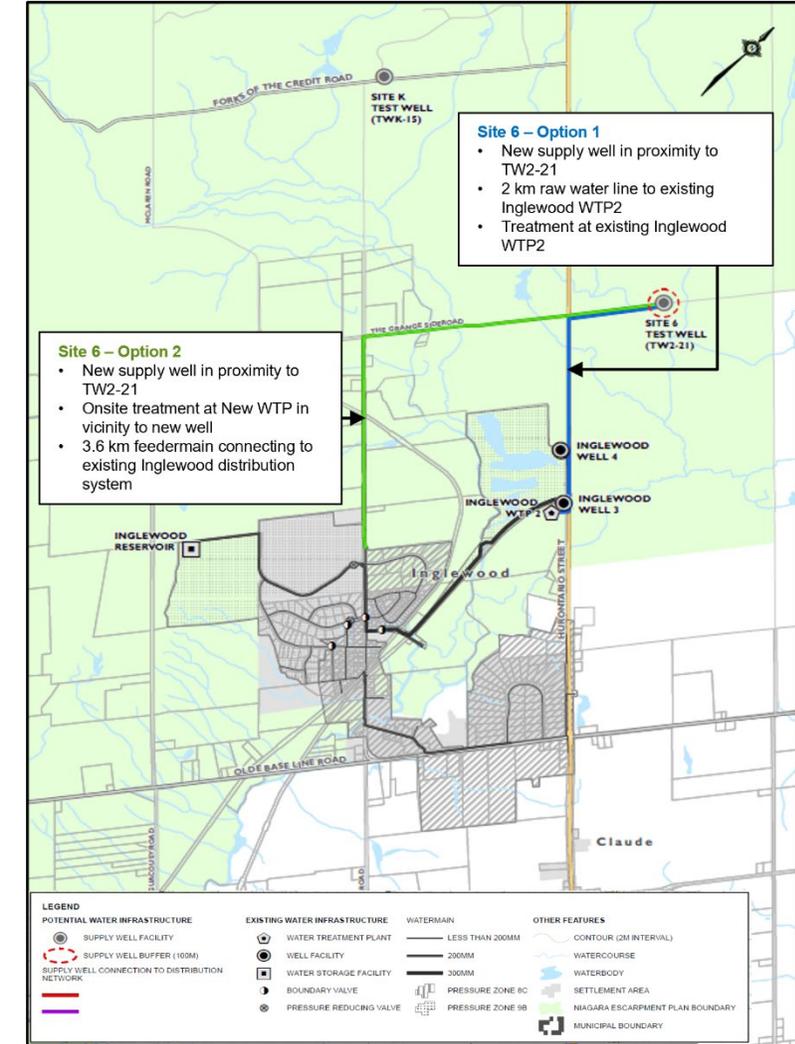
# Alternative Design Concepts – Alternative 5. Increase Capacity through addition of New Infrastructure



Preliminary design concepts have been developed to represent potential implementation scenarios for a New Municipal Supply Well in or around Site K (left figure) and Site 6 (right figure). They include:

- **Option 1** – Direct connection from the new supply well site to the existing Inglewood Water Treatment Plant for treatment prior to distribution.
- **Option 2** – Direct connection from the new supply well site to the existing Inglewood distribution system. This option involves construction of a new water treatment plant at or in the vicinity of the new supply well.

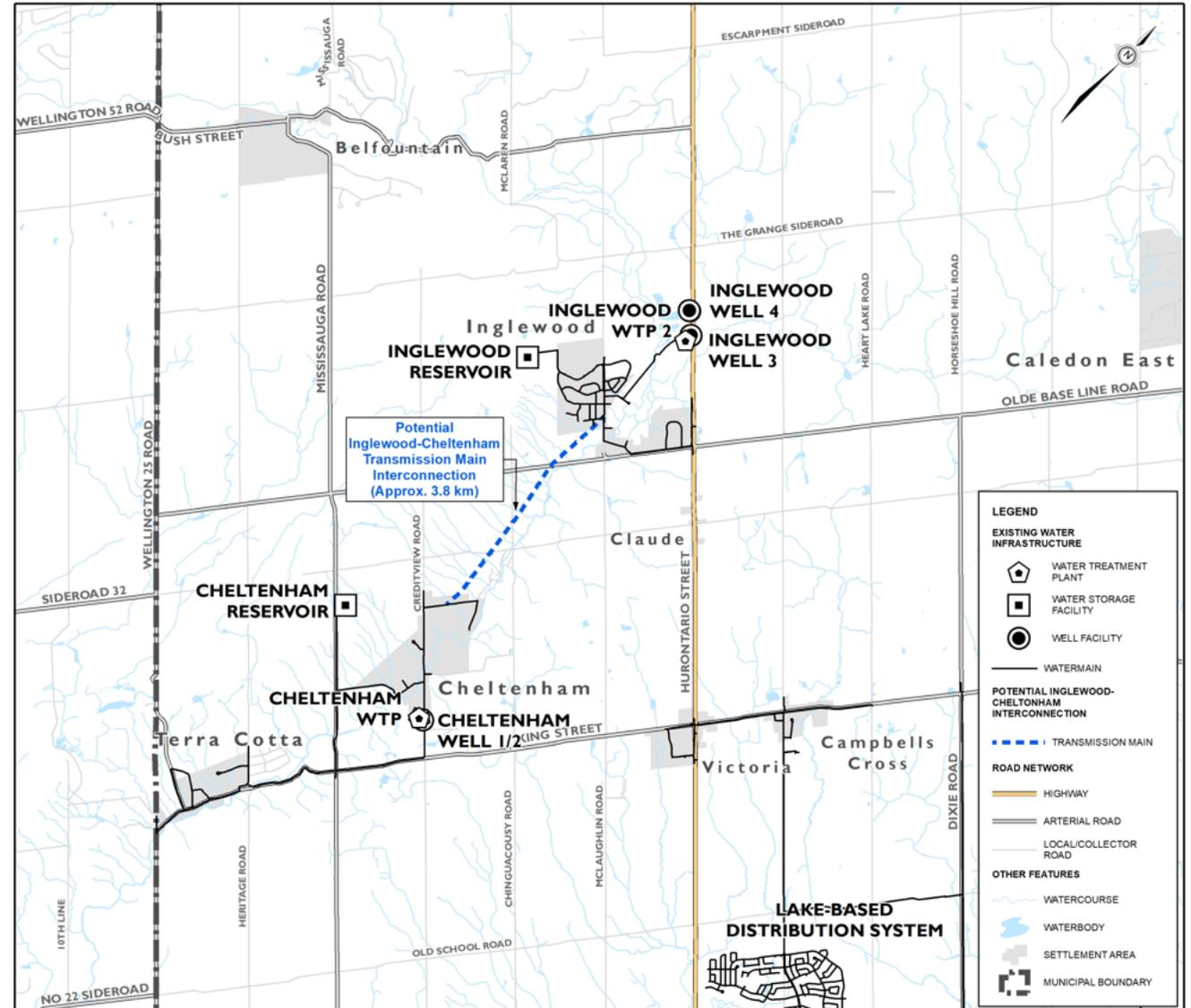
Additional concepts will be developed for any successful test well site(s) that may be identified through the 2024 test well drilling program.



# Alternative Design Concepts – Alternative 6a. Increase Capacity through Interconnection to the Cheltenham System

## Key components:

- Existing water infrastructure from both Inglewood and Cheltenham Drinking Water Systems will remain operational.
- Systems to be interconnected through a new transmission main.
  - A preliminary route for the transmission main along the Caledon Trailway Path (shown in the adjacent figure) has been established.
- Additional key infrastructure components for supply, treatment and distribution will be confirmed in the next stages of the study.



# Evaluation Criteria

Evaluation criteria will be used to assess the different options. The criteria below will be updated, as necessary, based on your input from this Public Information Centre and used to evaluate alternative design concepts.

## Technical and Operational Criteria

- Constructability
- Complexity of construction
- System reliability and flexibility
- Complexity of operation
- Need for permits and approvals
- Legal/Jurisdictional/Land acquisition requirements



## Natural Environmental Criteria

- Impact to existing natural environment
- Impact on surface and groundwater resources, including private supply wells, and source water protection areas
- Compatibility and conformity with existing and future land uses
- Potential impacts on climatic conditions and project vulnerability to climate change



## Financial Criteria

- Life cycle costs, including Capital and Operation and Maintenance Costs



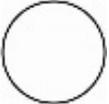
## Socio-Cultural Criteria

- Potential short- and long-term disruption to local users and existing uses
- Potential impact to archaeological and cultural heritage features



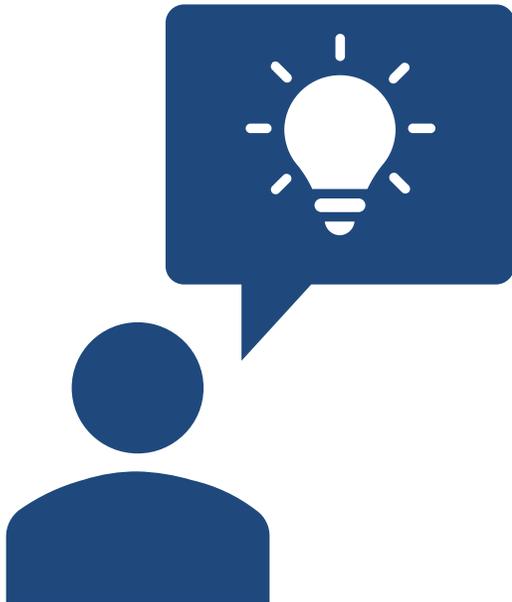
# Scoring Approach

Alternatives are assessed relative to each other, and assigned a score based on potential net impact and available mitigation measures. Scores are based on the following scoring approach:

				
Potential impacts are significant, implementation of substantial mitigation measures are required. Risk cannot be completely eliminated.	Potential impacts are major, implementation of extensive mitigation measures required to reduce/eliminate risks.	Potential impacts are moderate, implementation of many mitigation measures required to reduce/eliminate risks.	Potential impacts are minor and can be easily mitigated through implementation of standard mitigation measures.	Potential impacts are negligible, no mitigation required.

Least Preferred

Most Preferred



- Additional test well sites will be confirmed with the results of the 2024 Groundwater Exploration Program.
- Feasibility of property acquisition will be assessed in the study. Discussions with private property owners have been initiated.
- Desktop studies have been completed to support the characterization of the study area. Additional studies and field investigations will be completed as required. Findings from these studies will be used to support the recommendations of the study.
- Alternative design concepts will be conceptualized further to establish infrastructure needs, and the associated potential impacts, mitigation measures and life cycle costs.
  - ✓ Design concepts will be evaluated in detail against criteria shown in Slide 20.
  - ✓ The design concept that scores the highest will be selected as Preliminary Preferred and recommended for implementation.
- Results from these activities, including the Preliminary Preferred Design Concept will be presented at a second Public Information Centre for review and feedback.

# Thank you for Participating!

## After this first PIC, the Project Team will:

- Review and consider input received during the Public Information Centre #1.
- Confirm the recommended Alternative Solutions and further develop alternative design concepts.
- Continue discussions with property owners to assess the viability of property acquisition to accommodate new municipal infrastructure.
- Continue with the next phases of the study and hold Public Information Centre #2 to present study recommendations.



## Stay Involved!

Please complete the Comment Form by  
**Friday, July 5, 2024**



## Project Information

- For more information about this project, please visit our webpage:

<https://www.peelregion.ca/construction/environmental-assessments/inglewood-groundwater-based-drinking-water-system-additional-groundwater-supply/>

- Should you have any questions or comments at any time during the project, please contact:

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