MUNICIPALITY OF
South Bruce

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Municipal Class Environmental Assessment for a New Water Storage Facility (Teeswater)

PUBLIC INFORMATION CENTRE

SEPTEMBER 4, 2024

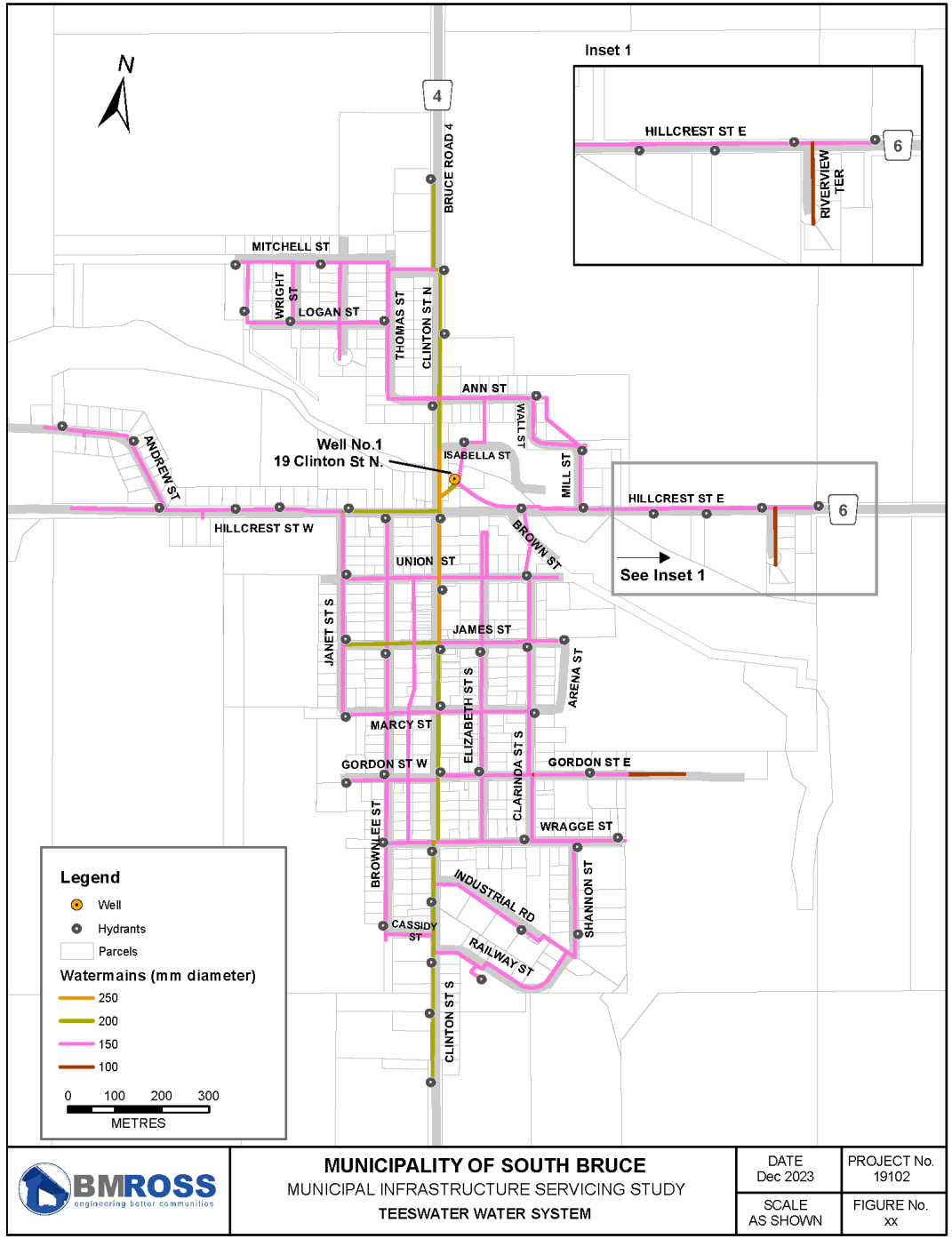
Agenda

1. Review of Teeswater Drinking Water System
2. Identified Issues
3. Municipal Class Environmental Assessment (MCEA) Process
4. Phase 1 – Identification of the Problem/Opportunity
5. Phase 2 – Identify Alternative Solutions
6. Phase 2 – Evaluate Alternative Solutions
7. Preliminary Preferred Solution
8. Questions and Comments

Teeswater Drinking Water System

- System operates under Drinking Water Works Permit (DWWP) No. 095-202, Municipal Drinking Water License (MDWL) No. 095-102, and Permit to Take Water (PTTW) No. 3848-9KCPAX.
- System supplied by one (1) groundwater well, drilled in 1996. It is an artesian well located north-east of the intersection of County Road 4 (Clinton St. North) and County Road 6 (Hillcrest St. East).
  - Pumphouse contains three high lift pumps, one emergency fire pump, and a sodium hypochlorite disinfection system.
- Approximately 11 km of watermain and approximately 500 connections servicing approximately 1,000 persons.

Teeswater Drinking Water System



Teeswater Drinking Water System Capacity

- Rated capacity of treatment and high-lift system is 2,160 m^3/day per MDWL, but PTTW limits takings to 1,600 m^3/day.
- Short-term supply capacity of well is greater (i.e., 3,900 L/min per PTTW).
- No redundancy or standby source of raw water.
- No water storage, so there is no redundancy for provision of treated water.

- Ministry of Environment, Conservation and Parks (MECP) Design Guidelines for Drinking Water Systems – 2008, recommend a standby well and storage facility to provide redundancy in drinking water systems.

Current and Future Demands

Year	Maximum Day Demand (m^3/day)
2021	742
2022	831
2023	637
Maximum	**831**

- Well supply and treatment sized for maximum day demand.
- Short-term peaks are even greater. Storage typically used to attenuate such peaks.

- 22 vacant serviced lots
- Approved development: 270 units, mix of single detached units, 45 semis, 112 townhouses
  - Equivalent to 219 single detached units (i.e., Equivalent Residential Units, ERUs)
- Proposed development: 60 ERUs
- Above represents an estimated additional demand of 551 m^3/day, for a total projected future committed demand of 831 + 551 = 1,382 m^3/day.

Storage Needs

- MECP Design Guidelines recommend storage for:
  - A: Peak flow equalization → 25% of maximum day demand
  - B: Fire flow protection → flow rate and duration are linked to population
  - C: Emergencies → 25% of (A + B)

Customer Scenario	Volume Recommended For: (m^3)			
	Equalization	Fire Protection	Emergency	**Total**
Existing	208	467	169	**844**
Existing + Commitments	318	610	232	**1,160**
Existing + Commitments + Proposals	345	647	248	**1,240**

Current Issues

System lacks redundancy in terms of both supply of raw water and treated water.

Population growth will increase water needs.

To address these issues, the Municipality of South Bruce has initiated a Municipal Class Environmental Assessment.

Municipal Class Environmental Assessments (MCEA)

- The MCEA is the planning and approval process for municipal road, **water,** wastewater and stormwater projects.
- Municipalities must follow the MCEA process to meet the requirements of the Environmental Assessment Act.
- The MCEA process includes:
  - Consultation
  - Consideration of alternative solutions
  - Identifying impacts of the alternative solutions
  - Documenting the decision-making process.

MCEA Process

Schedule B EAs must complete Phase 1 and 2

1. Define the problem or opportunity
2. Evaluate alternative solutions and impacts. Select preferred solution.
3. Evaluate alternative design concepts and selection of preferred solution
4. Preparation Environmental Study Report for public and government agency review
5. Implementation of the solution and monitoring of impacts

Schedule C EAs must complete all the phases

MCEA Phase 1 – Define the Problem or Opportunity

The existing water supply for the community of Teeswater is a single well with no standby source. The system also does not contain any treated water storage infrastructure. Additional supply and storage capacity are needed to meet Ministry of Environment, Conservation and Parks design recommendations for the existing service population and future needs.

Phase 2 – Identify Alternative Solutions

1. Construct a new well and storage facility at a new site.
2. Construct a standby well at the current well site and a water storage facility at a new site.
3. Obtain supplemental water from an alternative source.
4. Limit water usage and community growth.
5. Do nothing.

Alternative 1: New well and storage facility at a new site

- Requirements for a new well site include:
  - Availability of three phase power
  - Adequate property size (minimum of 60 m x 60 m)
  - Consideration of impacts related to Source Water Protection
  - Proximity to existing water infrastructure
  - Good access for operators
  - Minimal interference with existing wells (Municipal and private)
- Multiple sites (public and privately owned) investigated (on Clinton St., Janet St., at the community centre/fairgrounds).
  - Issues with thin overburden, potential site contamination, well impacts on adjacent properties
  - No suitable new well site could be identified
- **Given this, this alternative was not considered further.**

Alternative 2: Use existing well site and new site for water storage facility

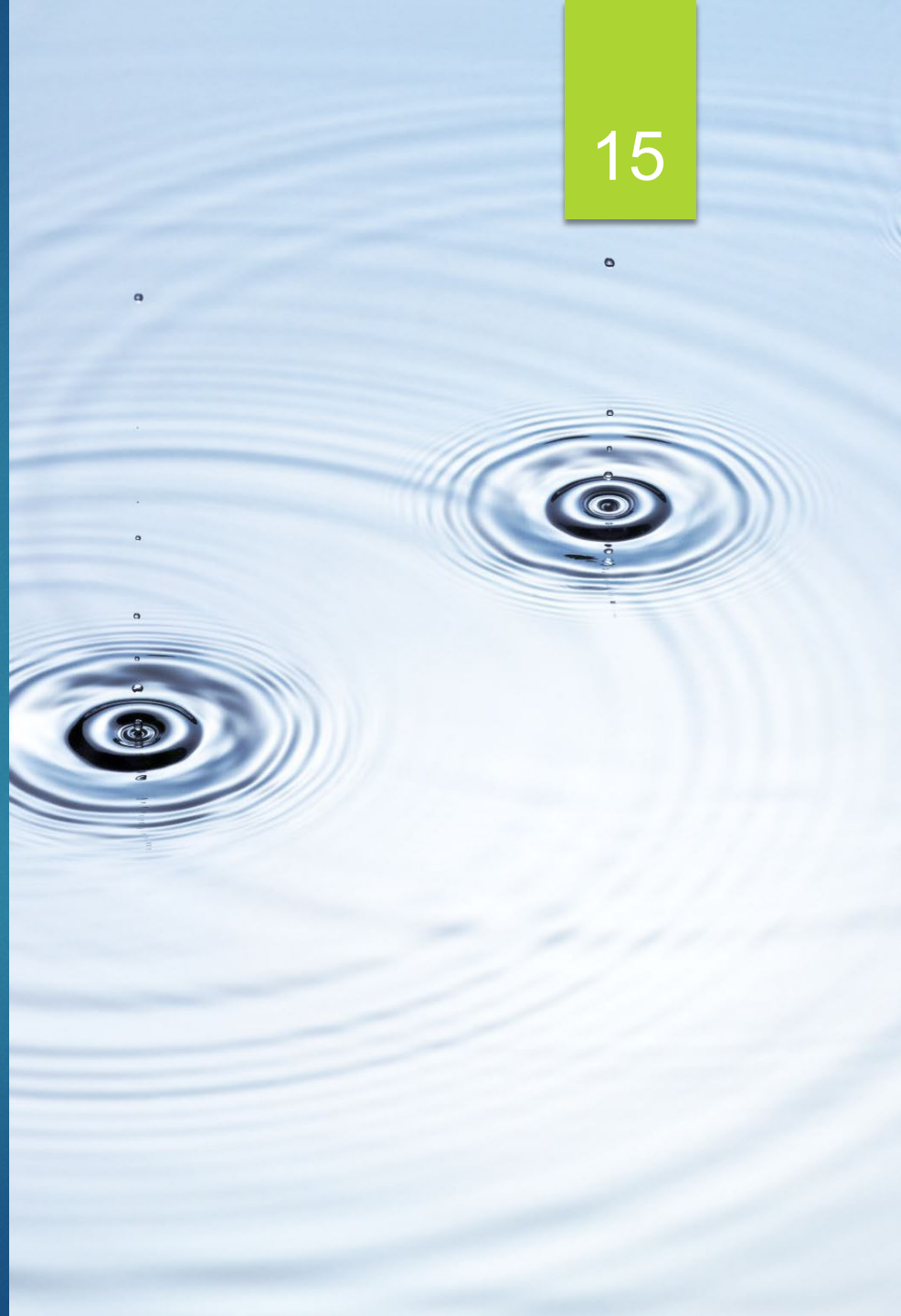
This alternative involves:

- Constructing a standby well at the existing well site
- Constructing a water storage facility at a new site

Site identified for new storage facility is north of the track at the Teeswater-Culross Community Centre.

Alternatives 3, 4 and 5

- 3. Obtain water from an alternatives source.
  - There is not a practical alternative source of water in close proximity that would be economically feasible to utilize.
  - Not considered practical or feasible.
- 4. Limit water usage and community growth.
  - Is contrary to provincial and local policies around growth and does not address the issue of a lack of redundancy for existing residents.
  - Not considered practical or feasible
- 5. Do Nothing.
  - Does not address the lack of redundancy for existing and future residents. However, this alternative is always considered through the EA process for comparison and in case the other alternatives cannot be implemented.



Evaluation of Alternative Storage Types

Type of Facility	Advantages	Disadvantages	Example
Reservoir	• Can be expanded • Minimal visual impact	• Higher energy and annual maintenance costs • Require pumps to maintain pressure • Requires standby power • Have larger footprint	
Elevated Tank (ET) Preferred Storage Type	• Gravity storage • Energy efficient • Can be a focal point in the community • Small footprint	• Not expandable • Shadowing and visual impacts • Recoating maintenance cost	
Standpipe & Booster Pumping Station	• Energy efficient • Small footprint	• Not expandable • Shadowing and visual impacts • Not as cost efficient, and mechanically more complex, relative to ET	

Considerations for Site for New Elevated Storage Facility

- Need to purchase property
- Impact to adjacent properties
- Significant natural and/or cultural features present
- Disruption of natural features
- Impact on future development
- Visibility for economic development
- Connection to trunk water distribution mains
- Space for construction
- Geotechnical feasibility

Potential Site for Elevated Water Storage Facility

Probable Project Costs

- Probable costs:
  - Elevated tank: $6,900,000
  - Standby well + connections: $400,000
  - Watermain connection: $250,000
  - Engineering, hydrogeological, geotechnical fees: $900,000
  - Total: $8,450,000
- Grant received: $3,413,580
- Net cost: $5,036,420

- Portion of project costs attributable to future growth could be recovered through development charges.

Preliminary Evaluation of Potential Impacts

Criteria	Potential Impact	Potential Mitigation Measures
Natural	• Construction related activities will result in removal of vegetation, including local removal of trees. • Deleterious materials could be released to Teeswater River during the construction phase. • Limited wildlife habitat present given surrounding urban uses.	• Implement sediment and erosion control measures to minimize potential impacts to the Teeswater River. • Remove trees outside of nesting periods.
Social	• Adjacent properties will be impacted by shading. • New facility will provide treated water storage. • New facility may be a visual intrusion for adjacent property owners. • Adjacent property owners may be impacted by increased noise and local traffic during construction.	• Localized construction-related impacts will be limited to the construction period. • Limited noise or traffic impacts when in operation.
Cultural	• Low potential for local heritage and archaeological resources.	
Economic	• High capital costs.	• Grant funding helps reduce costs. • Future growth could contribute through development charges.
Technical	• Will provide redundancy in the drinking water system. • Will provide capacity for next 50 years. • Will increase system resiliency for increased water use associated with climate change related drought conditions.	

Next Steps

- Review feedback and incorporate feedback received at PIC.
- Prepare Screening Report.
- Present draft Screening Report with preferred solution to Council.
- Finalize Screening Report and issue Notice of Completion.
- Design Phase
  - Confirm size
  - Select appearance (colour, logos)
- Apply for Approvals
- Construction

Questions and Comments

Further questions or comments can be submitted to:
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