



Date: Wednesday, November 15, 2023

From: Kevin Verkindt, Manager of Engineering and Infrastructure

Subject: Water and Wastewater Master Servicing Plan Phase Two Draft Report

Report DEV2023-58

This document and its attachments are public and available in an accessible format upon request.

Recommendation

That Council receive report DEV2023-58 for information.

Background

In summer 2023, Council received a delegation seeking connection extension of the East Linton system to south of Indian Creek. Staff were directed to bring back information on this and suggested that this best be done on an update on the East Linton Servicing Master Plan.

Staff presented Staff Report [OPS2021-21](#), Comprehensive Water and Wastewater Master Plan to Committee of the Whole (COW) on May 5, 2021 with a recommendation to retain GSS Engineering Consultants Ltd. (GSS) to complete the Municipal Class Environmental Assessment (MCEA) of a long term water and wastewater master plan for the East Linton study area. The recommendation was adopted and approved with Council on May 12, 2021.

Development in the Township is limited by access to services. At a fundamental level, development requires access to water and the ability to manage wastewater.

Traditionally in the Township, waste water has been managed through the provision of individual septic systems, and water has been provided through municipal wells (lake based and ground water based) or individual private wells. While these forms of servicing are common, they limit development types as they require larger residential lot areas for septic systems, and larger setbacks to implement private wells.

In addition, as growth impacts the municipality it becomes increasingly environmentally sustainable, financially sustainable and from a public health perspective, increasingly



beneficial, to supply municipal services to properties. Ultimately, municipal servicing can reduce environmental impacts, achieve greater cost efficiency and provide for more accessible, and alternative density of housing developments.

Mixes of housing stock types addressing a range of affordability types, rely on increased density of development forms, which in turn, rely on access to municipal servicing.

East Linton is one of the primary settlement areas in the Township and offers the greatest current development and intensification potential in the Township. Over coming years, East Linton, between Grey Road 1 and the shore, north of Indian Creek and south of Ishwar Drive holds the greatest potential for growth in coming decades, indeed, currently more than 1,000 units are approved at an early stage in this area, reflecting a 20% growth in residential properties for the Township over coming decades.

Much of this development is reliant on services, both water and wastewater.

The Township has a water system servicing East Linton, that draws lake water and distributes this through water mains. This system has been put in over many years and parts of the system relies on older infrastructure associated with systems that pre-date the current East Linton supply.

The Township also has a wastewater treatment facility at Cobble Beach, though this has not yet been assumed by the Township, which will provide waste water services to some parts of East Linton over coming years.

Services are expensive; they are expensive to install and expensive to maintain. The systems are usually found underground, and under municipal roads, as such they are easily overlooked. However, these services and the maintenance, renewal, replacement and expansion (as required) are primary municipal responsibilities. Servicing also directs future development, which can at times be several decades out; in short, investment and understanding services today directs, dictates and contains (or enables) development, growth and community change for many years to come.

The purpose of a Master Plan in respect to these services is to assess what is currently in place, what is needed in order that that system can grow and accommodate growth, and to project what growth is expected to occur and how the Township can ready and prepare itself for this growth to come. The Master Plan is also critical in defining the financial impacts of servicing and securing funds such as through connection fees and Development Charges (not in place currently, but under consideration in the future) to help offset and fund such improvements.

The East Linton Plan focuses on three key areas:

- 1) Short to medium term water needs in East Linton. In essence, this is a review and assessment of the existing East Linton System, Indian Creek to Ishwar Drive



as to their suitability to support current growth plans for the area and sustainable operations and maintenance.

- 2) Short to medium term wastewater needs in East Linton. This is a review of wastewater capacity to meet the needs of Cobble Beach, and planned development between Church Side Road East and Alexandria.
- 3) Longer term water needs for continued growth between Springmount and East Linton through Brooke and along the shoreline to Indian Creek. It is noted that the Master Plan at this time does not consider wastewater needs in this area, which will need to be addressed over time.

The objectives of the Master Plan are to:

- i. Review and confirm existing water demand within the East Linton water system including average day and maximum day water demand.
- ii. Determine how much water treatment and supply capacity remains to service additional development in the East Linton service area;
- iii. Provide a condition assessment of the water system assets including the raw water supply, water treatment, water storage and the watermain distribution system;
- iv. In concert with estimating remaining water treatment and supply capacity for further development, assess the remaining capacity of the Cobble Beach wastewater system, including implications to the East Linton water system if the wastewater system is expanded to service development outside of Cobble Beach.

The master planning process identifies alternative solutions that will fulfill the objectives and will provide justification for recommended projects and programs for the short-term and long-term water and wastewater needs.

Analysis

East Linton Water Distribution System

The current water distribution system includes watermains with a total length of approximately 23,250 m. The dominant pipe size is 200 mm diameter watermain (8") with a total length of 9,932 m with the second most common watermain size being 150 mm \varnothing (6") with a total length of 4,898 m. Overall pipes sizes range from 75 mm \varnothing (3") up to 350 mm \varnothing (14").

Normally, watermains of this size are capable of providing modest fire flows, particularly where the service area has individual residential homes of modest size. However, this would be the case in compact subdivision type developments with interconnected



streets providing significant watermain looping. In developments with significant watermain looping, the flow of water to a particular fire hydrant(s) will flow from various watermains within a looped system which minimizes pressure losses in any particular pipe.

However, in the case of the East Linton water system, there is very little looping and the flow of water down a single pipe for a long distance is common. For instance, to supply water to the Indian Acres area of the water system (south end of distribution system) water travels over 2 km through a single 200 mm \varnothing (8") watermain (from the water treatment plant at East Linton Sideroad south to Indian Acres Road. This long stretch of single pipe results in significant pressure loss especially when high fire flows are conveyed over this length of pipe. This significant pressure loss results in much reduced flow rates being available for fire flows.

There are six (6) main watermain upgrades rated from highest priority (Phase 1) to lowest priority (Phase 6) in order to improve fire flows in the overall system. The 6 main watermain upgrades can be found in Appendix B of the Draft Comprehensive Water and Wastewater Master Plan.

The main purpose of a MCEA is to identify and evaluate possible alternative solutions to the problem(s) and/or opportunities identified in the objectives of the Draft Comprehensive Water and Wastewater Master Plan. Reasonable potential solutions to the problem(s), including the 'do nothing' alternative, are considered. The potential to support future growth and to maintain the sustainability of the East Linton System are beyond the capacity of the existing treatment facility and intake.

Alternative Solutions

Based on this initial screening, two (2) alternatives will be carried to detailed evaluation:

- Alternative 1 - Construct New Water Plant Adjacent to Existing Water Plant
- Alternative 2 - Construct New Water Supply Intake Pipe and New Water Treatment Plant at the Sarawak Family Park

A brief description of the two (2) alternatives are provided below:

Alternative 0 – Do nothing

Under this alternative, no new supply would be built. This alternative would not address the existing supply deficit; the already draft plan approved development will exceed the existing capacity of the system. Growth would be limited and there would be challenges supplying adequate water under fire or emergency situations. There are no upgrade



costs associated with this alternative; however, it has not been carried forward as it does not address the issue.

Alternative 1 – Construct New Water Plant Adjacent to Existing Water Plan

This alternative option would expand the water supply and treatment capacity of the East Linton water system and proposes to construct a new water treatment plant adjacent to the existing water treatment plant site. With this alternative, a new raw water pumping station and marine intake pipe is proposed adjacent to the existing raw pumping station and intake pipe.

Each treatment building would have a nominal rated treatment capacity of 2,600 m³/day, with a combined nominal capacity of 5,200 m³/day.

The above buildings would feature two (2) membrane treatment units, and as noted at least 2 high lift pumps each. This would allow one membrane treatment unit and one high lift pump to be out of service at any time such that 75% (3,900 m³/day) of the nominal capacity of 5,200 m³/day is available as “firm” capacity. Enough UV disinfection units (and other equipment) would also be provided to provide the firm capacity with one of the UV units to be out of service.

The estimated future, maximum day water demand is 3,500 m³/day. The above rated, “firm” capacity of 3,900 m³/day would satisfy the future maximum day water demand.

At this time, it appears that there is sufficient room at the existing treatment plant site to construct another similar size treatment plant.

Alternative 2 – Construct New Water Supply Intake Pipe and New Water Treatment Plant at the Sarawak Family Park

The alternative option is to consider a new water intake and new water treatment plant at the Sarawak Family Park.

A new treatment plant would be constructed of similar size to the existing treatment plant as well as a new 500 mm diameter underwater (marine) intake pipe. The treatment plant would contain the raw water pumping facilities within the treatment plant building.

This alternative would allow the new treatment plant to be built independently to the existing treatment plant and would ensure the existing water system operated normally during the construction phase of the new facilities.



Financial Impact

No financial impacts at this time. Any financial impacts would be subject to budget approval in future years.

Strategic Priorities

Foster Economic Growth

The Township of Georgian Bluffs strives to retain, expand, and attract new businesses that support employment opportunities, promote a diversified economy, support value-added agriculture and capitalize on the Township's strengths, defining natural resources, while protecting the natural environment.

Demonstrate and Enhance Environmental Stewardship

The Township of Georgian Bluffs strives to become a leader in Environmental Stewardship by reducing energy consumption, reducing solid waste, increasing diversion rates of recyclable materials, and lessening the environmental impact of existing and future infrastructure through innovation and upgrading.

Conclusion

The Master Plan will follow the principles of integration and innovation to guide its decision-making process.

Key features of a Master Plan include:

- addresses the key principles of successful environmental planning;
- allows for an integrated process with other planning initiatives;
- provides a strategic level assessment of various options to better address overall system needs and potential impacts and mitigation;
- is generally long term;
- takes a system wide approach to planning which relates infrastructure either geographically or by a particular function;
- recommends an infrastructure master plan which can be implemented through the implementation of separate projects; and
- includes a description of the specific projects.

Respectfully Submitted:

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Niall Lobley

Acting Chief Administrative Officer, Director of Community Services & Operations



Report Approval Details

Document Title:	Water and Wastewater Master Servicing Plan Phase Two Draft Report.docx
Attachments:	- Committee of the Whole Presentation - East Linton Master Servicing Study.pdf
Final Approval Date:	Nov 9, 2023

This report and all of its attachments were approved and signed as outlined below:

Niall Loble, Director of Community Services