



Clair-Maltby

Transform. Connect. Community.

June 24, 2021 Open House
Water & Wastewater Servicing Session
2:00 pm

Servicing: Water & Wastewater





Land Acknowledgement

As we gather, we are reminded that Guelph is situated on treaty land that is steeped in rich indigenous history and home to many First Nations, Inuit and Métis people today.

As a City we have a responsibility for the stewardship of the land on which we live and work.

Today we acknowledge the Mississaugas of the Credit First Nation of the Anishinaabek Peoples on whose traditional territory we are meeting.



Agenda

Session 1 – Overview

Session 2 - Servicing: Water & Wastewater

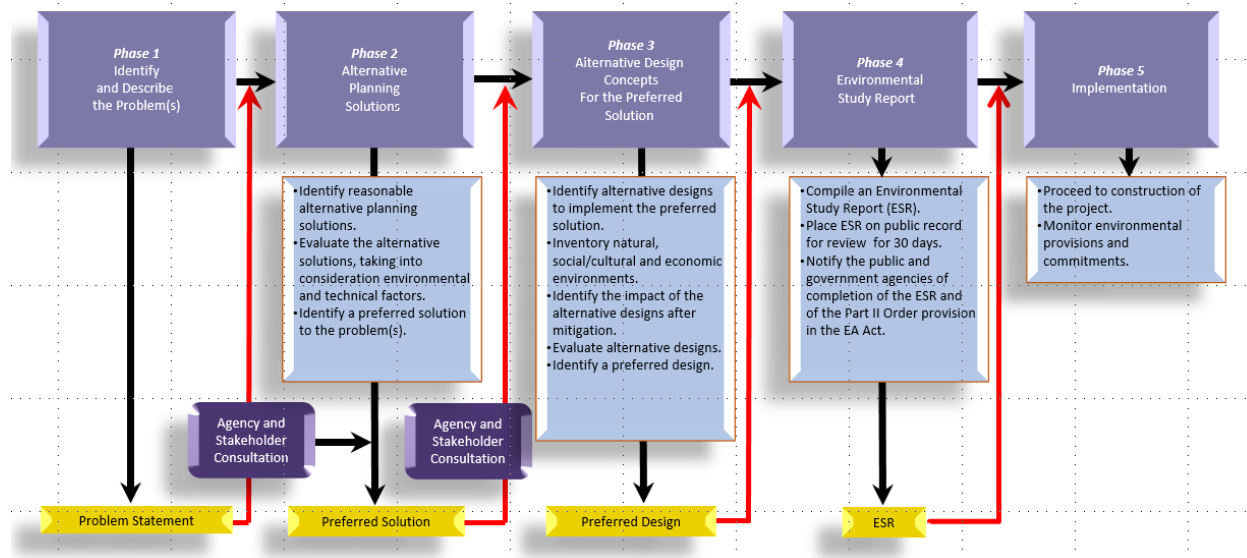
Session 3 – Environment and Stormwater Management

Session 4 – Overview + Land Use and Parks

Session 5 – Mobility

Water & Wastewater

- This presentation is about water & wastewater servicing which was studied as part of the Master Environmental Servicing Plan (MESP), which was undertaken in accordance with MCEA process
- The MESP has followed Phases 1 and 2 of the Class EA process and identifies a series of servicing projects that will be required to service the Clair-Maltby SPA.





Draft MESP Summary

- MESP has determined preferred servicing strategies for:
 - **Water & Wastewater;**
 - Stormwater management, and
 - Mobility (transportation)
- for the Clair-Maltby SPA preferred land use plan.

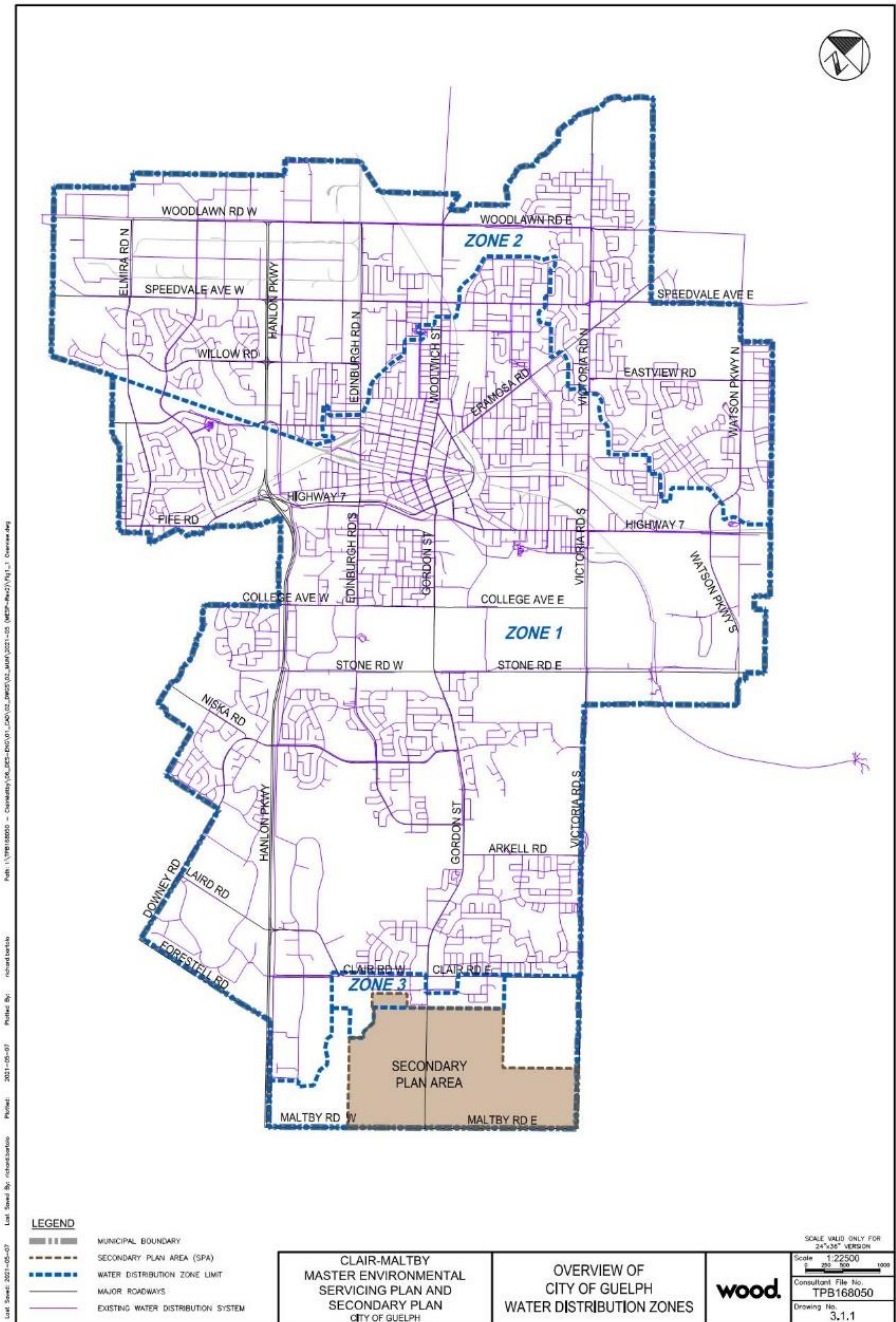


Water Servicing

- Water servicing for the Clair Maltby Secondary Plan (CMSP) lands is proposed to be provided by a system of water distribution mains, an above-ground reservoir, and a transmission main bringing water from the Clair Booster Pump Station to the new above-ground reservoir, with associated hydrants, valves and appurtenances as required.

Water Servicing Existing System

- The CMSP lands are higher in elevation than much of the rest of the City.
- The City's water distribution system is currently being expanded in the south side of Guelph through a new pressure zone (Zone 3) that will operate at elevations that are suitable for the CMSP Lands.
- As demand increases in Zone 3, it will require water storage to meet mandated operating requirements.





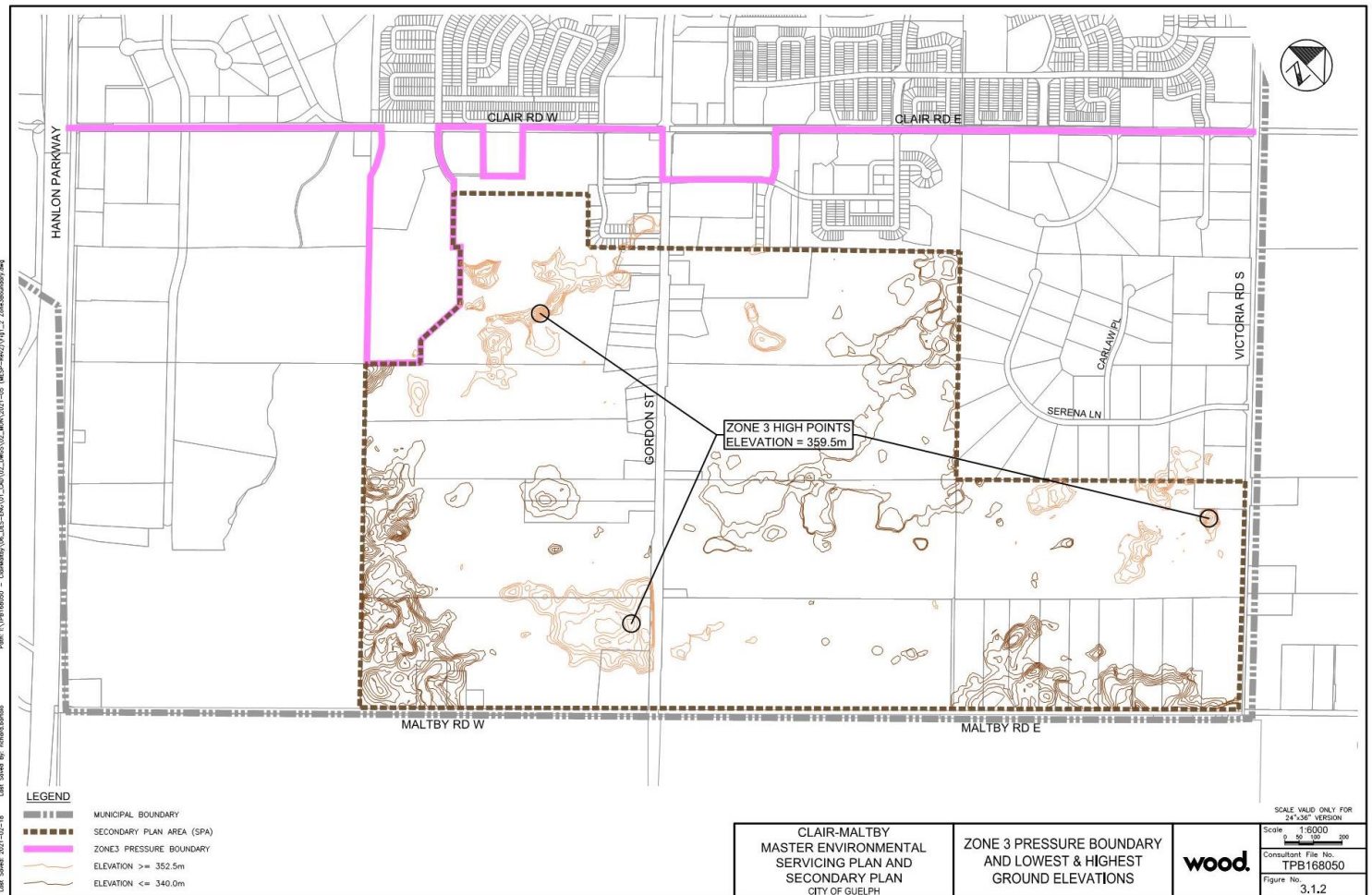
Water Servicing

Storage Reservoir

- A 5ML storage reservoir will be required at one of the high points within the CMSP Lands.
- Three potential locations were considered for the water storage reservoir
 - Location 1 in the northern portion of the lands near Gordon Street,
 - Location 2 in the southwest portion of the lands near Gordon Street and Maltby Road,
 - Location 3 in the eastern portion of the lands near Victoria Road.

Water Servicing

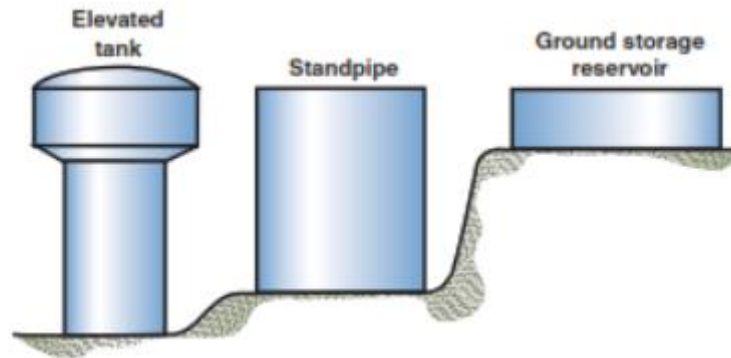
Alternative Storage Locations



Water Servicing

Water Storage Options

- Elevated storage which is operated by gravity



- Subsurface storage which requires a suitably sized pumping station



Water Servicing Evaluation Criteria

Evaluation	Criteria
Social/Cultural Environment	Impacts or opportunities created by the alternative as related to the people and their current or historic relationship with the study area.
Economic Environment	Capital, operation and maintenance costs associated with an alternative.
Natural Environment	Impacts or opportunities that an alternative may have related to the natural environment (i.e., fisheries, wildlife, water quality, etc.).
Functional (Technical) Environment	Considers the ability of the alternative to address the Problem Statement and how it may impact existing physical systems. These include ease of maintenance, impact to existing infrastructure, ability to utilize available capacity in the existing infrastructure, capability of phased implementation, and ability to be implemented in concert with wastewater servicing, stormwater servicing and mobility

Water Servicing Evaluation Matrix

Table 3.1.17. Comparative Evaluation Matrix – Above Ground Tank

Category	Criteria	Criteria Indicator	Do Nothing	Limit Community Growth	Above Ground Tank – Location 1 Cost Option 1(a)	Above Ground Tank – Location 2 Cost Option 1(b)	Above Ground Tank – Location 3 Cost Option (c)
Natural Environment	Terrestrial/Aquatic Environment Resources	Potential adverse effects on ecological sensitive lands, impacts to water bodies and aquatic species.	No impact as no new lands will have to be developed or utilized.	Minimal impact as watermains would be aligned along proposed road network. Overall smaller network and therefore less impact. ●	Minimal impact as watermains would be aligned along proposed road network. ●	Minimal impact as watermains would be aligned along proposed road network. ●	Minimal impact as watermains would be aligned along proposed road network. ●
Social, Cultural Environment	Impact on Local Residents and Businesses	Cultural Heritage and Archaeology	No impact as no servicing will be provided.	Moderate impact for connection to the existing Clair Booster Pump Station. ●	Moderate impact for connection to the existing Clair Booster Pump Station. ●	Moderate impact for connection to the existing Clair Booster Pump Station. ●	Moderate impact for connection to the existing Clair Booster Pump Station. ●
Social, Cultural Environment	Sustainable Growth	Impacts on Adjacent Properties	No impact to adjacent properties as no servicing will be provided.	Limited impact to adjacent properties due to limited growth and greenfield development. ●	Limited impact as most of the development is expected to be greenfield development. ●	Limited impact as most of the development is expected to be greenfield development. ●	Limited impact as most of the development is expected to be greenfield development. ●
Social, Cultural Environment	Reliability	Impact to adjacent properties.	Not applicable	Dependent on whether storage would be above or below ground. ●	Reasonably reliable due to above ground tank. ●	Reasonably reliable due to above ground tank. ●	Reasonably reliable due to above ground tank. ●
Social, Cultural Environment	Regulatory Environment	Compliance with provincial/municipal regulations and standards	Not applicable	Complies with guidelines. ●	Complies with guidelines. ●	Complies with guidelines. ●	Complies with guidelines. ●
Social, Cultural Environment	Land use	Impact on surrounding land use.	No impact on surrounding land use	Construction Impacts, Visual Impact of aboveground storage tank ●	Construction Impacts, Visual Impact of aboveground storage tank adjacent to park, school and existing residential. ●	Construction Impacts, Visual Impact of aboveground storage tank. Location 2 is adjacent to large demand non-residential user compared to Location 1 which is next to a park and school. ●	Construction Impacts, Visual Impact of aboveground storage tank ●



Water Servicing

Preferred Storage Option

- Elevated storage and underground storage with a pumping station were assessed for all three geographic locations for storage
- All scenarios were evaluated using Social/Cultural, Economic, Natural and Functional (Technical) Environment criteria.
- The preferred alternative proposes an elevated 5ML Storage reservoir at location 2, near the corner of Gordon Street and Maltby Road
- In this application the above-ground ground storage offered significant advantages in reliability (gravity versus mechanical equipment), capital cost and operating costs, as well as impact to the environment due to the smaller footprint of the facility.

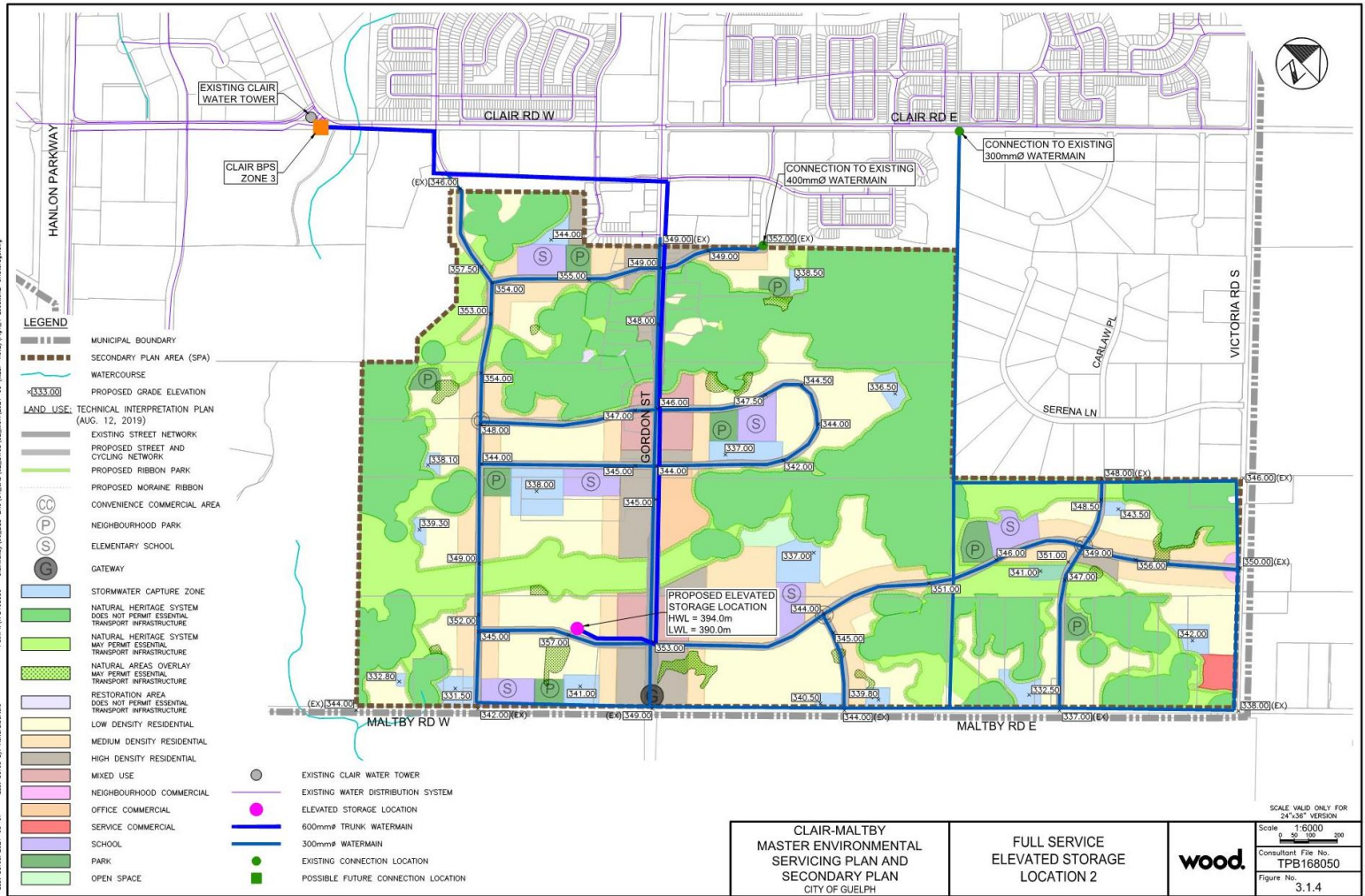


Water Servicing

Preferred Storage Option Cont'd

- For the location of the above-ground storage site, Location 3 is the most expensive in terms of both capital and operating costs. Location 1 and Location 2 both offer similar system reliability, performance, as well as similar capital and operating costs.
- Location 1 has the disadvantage of its' visual proximity to a park and school, while Location 2 offers the advantage of a more central location to the CMSP development as compared with the other two locations identified.
- Additionally, Location 2 is closer to a large non-residential commercial center and would facilitate in meeting the higher fire flow requirements or this land-use.
- As a result, Location 2 was deemed to be the preferential location for above-ground storage.

Water Servicing Preferred Storage Option





Water Servicing

System Components

- All new collector and arterial roads shown in the land use plan will be serviced with 300 mm distribution mains;
- Distribution mains will be looped (no dead ends)
- Transmission mains will be constructed along major system connections (Pump to Storage) and distribution mains will be connected to the transmission mains at suitable locations.
- As noted, the preferred alternative uses an elevated 5ML Storage reservoir at location 2, near the corner of Gordon Street and Maltby Road

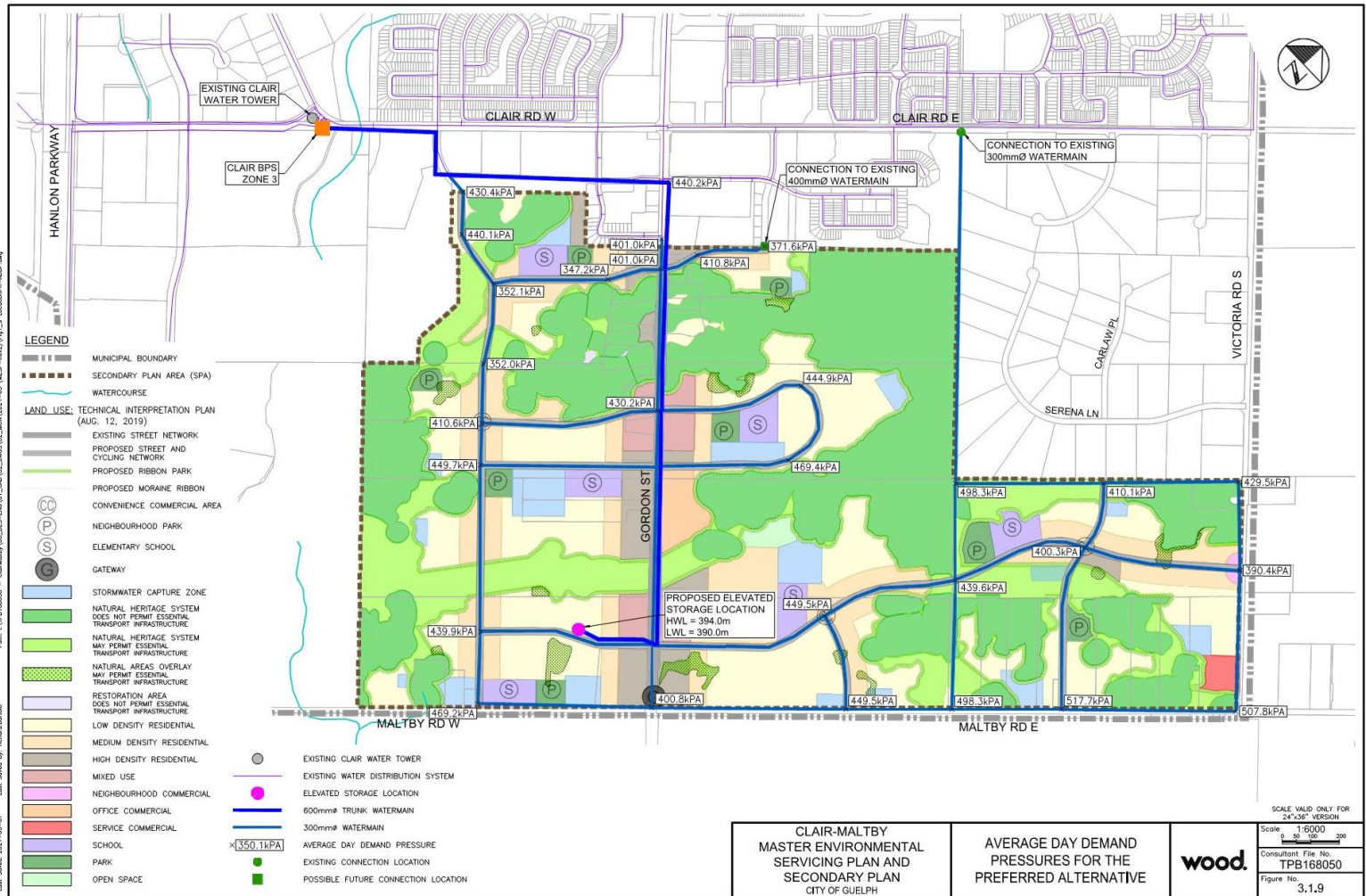


Water Servicing

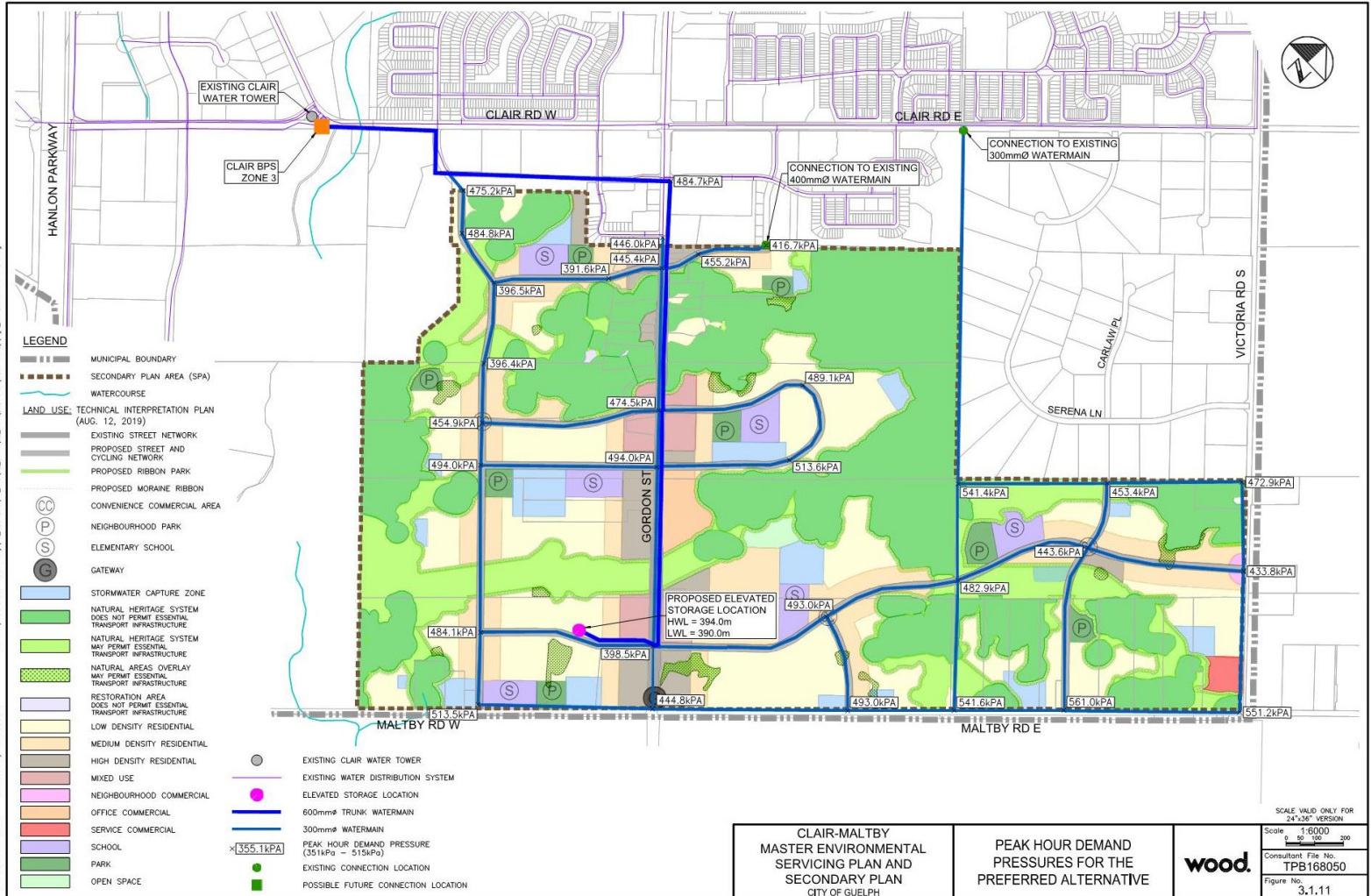
System Performance

- **Average Day Demand** - The pressures range from a maximum of 517 kPa (75 psi) to a minimum of 347 kPa (50 psi), which are within the acceptable range.
- **Fire-flows under Maximum Day Demand** – the available fire flows meet the requirements established in the MECP fire flow guidelines, the “Water Supply for Public Fire Protection” published by the Fire Underwriters Survey, and the Fire flow guidelines provided in the Guelph Master Servicing Plan, 2008.
- **Peak Hour Demand** - The pressures range from a maximum of 561 kPa (81psi) to a minimum of 391 kPa (56 psi), which are within the acceptable range.

Water Servicing Average Day Demand



Water Servicing Peak Hour Demand





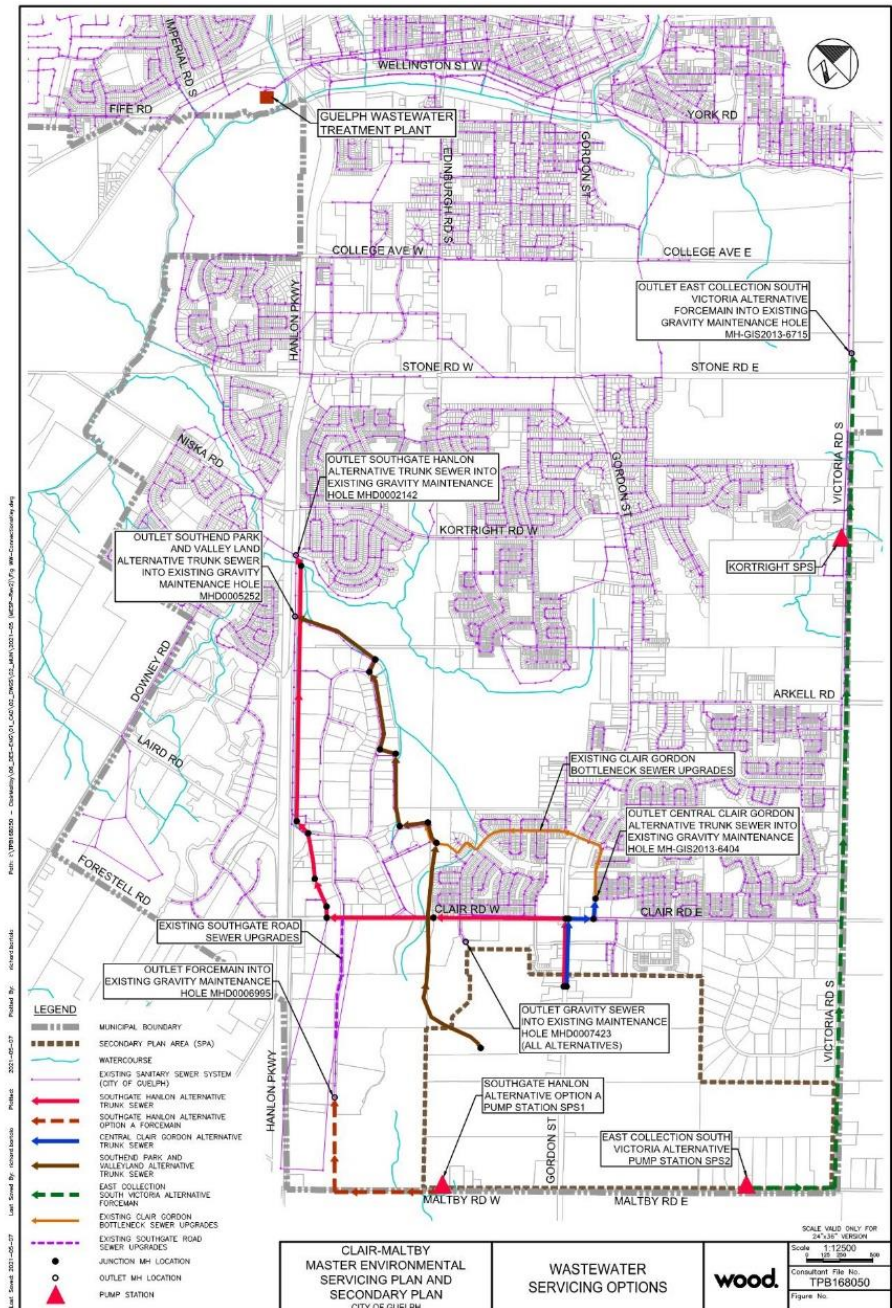
Wastewater Servicing

- The wastewater servicing for the proposed land uses within CMSP lands is proposed to be provided by a system of wastewater gravity mains, sanitary pump stations and sanitary forcemains.
- A new trunk sewer is proposed along Gordon Street to Clair Road, Laird Road and north to connect into the Hanlon Trunk system.

Wastewater Servicing

Existing System

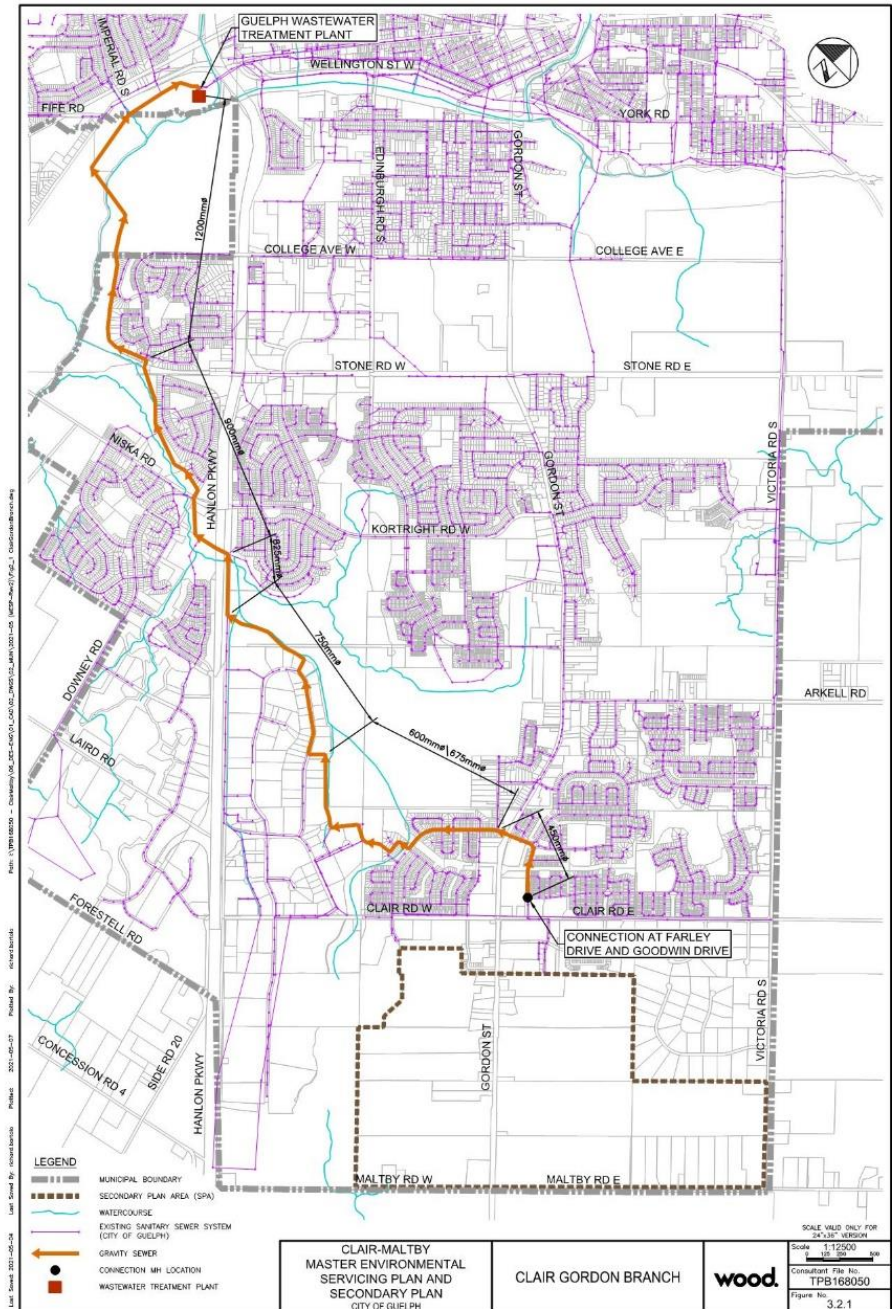
- Before evaluating internal servicing options for the CMSP Lands, routing options for conveying the flows to the Guelph Wastewater Treatment Plant were assessed
- Three main Receiving Branches were considered potentially available to receive all or part of the wastewater flow from the CMSP area. Their estimated available capacities at various points along the trunk sewers were investigated.



Wastewater Servicing

Clair Gordon Branch

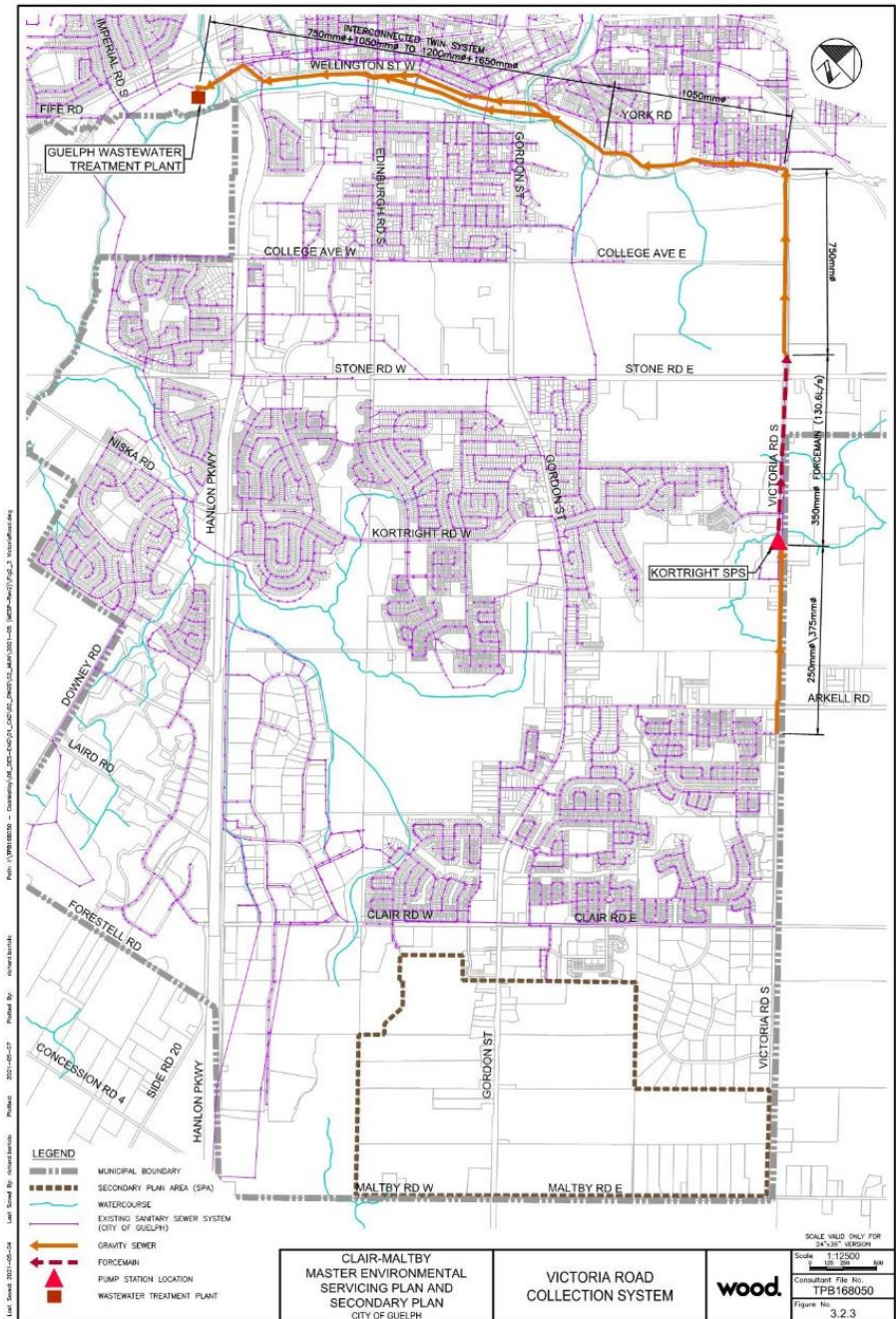
- The Clair-Gordon Receiving Branch sewer is a collection system which begins at the Farley Drive and Goodwin Drive intersection and runs north to Clairfields Drive and west to the industrial park near Kirkby Court, eventually connecting to the trunk sewer at the Hanlon Road, north of the industrial park.
- Local sewers range in size from 450 mm diameter at the southernmost connection point and increase to 1200mm diameter prior to the Treatment Plant.
- This 450 mm pipe segment can accept 40 per cent of the Clair-Maltby flows without causing surcharging downstream



Wastewater Servicing

Victoria Road Branch

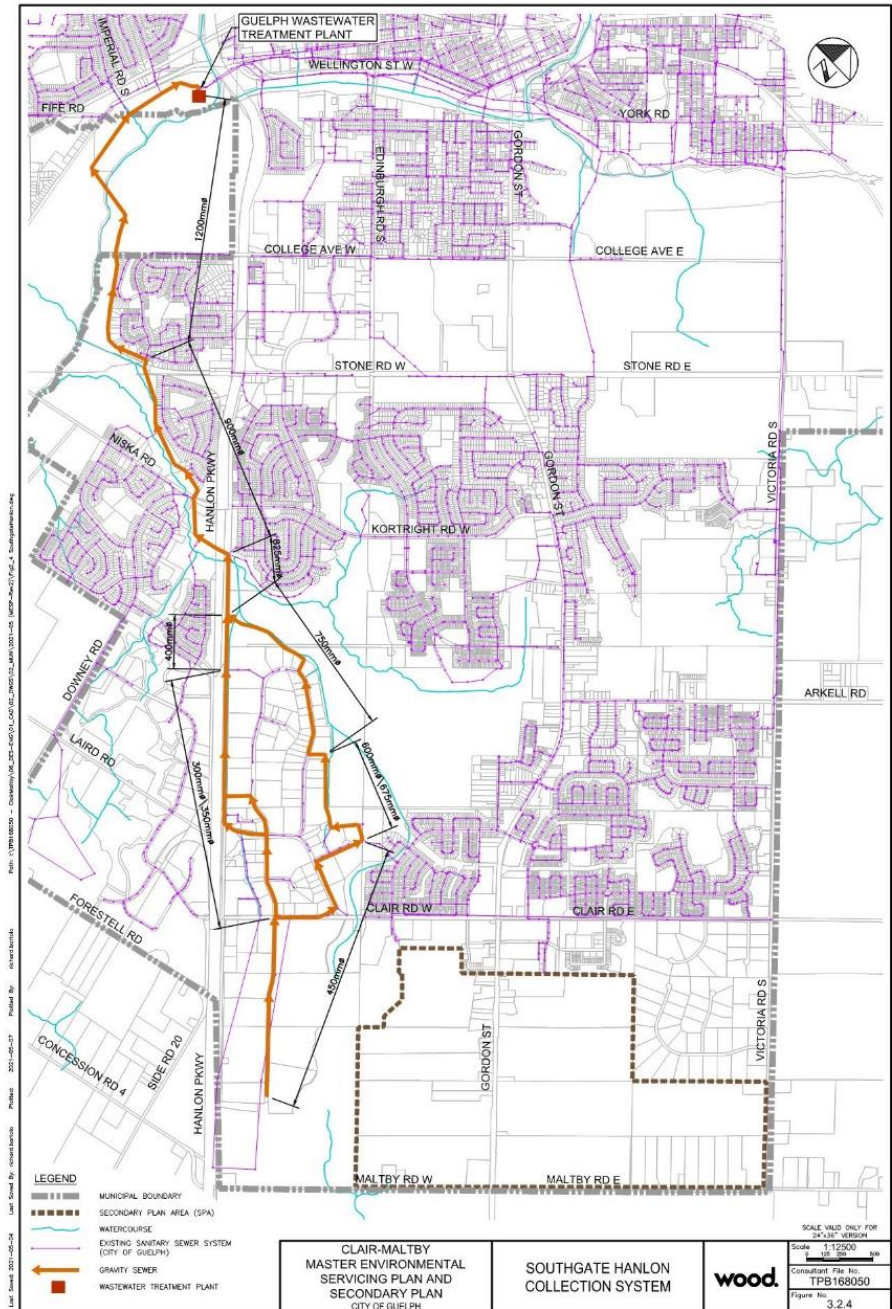
- The Victoria Road Branch is a collection system located South-East of Victoria Road South and Arkell Road
- Local sewers along Victoria Road range in size from 200 mm diameter at the connection point and increase to 375mm diameter prior to the Kortright East Sewage Pumping Station.
- This 375 mm pipe segment can accept 40 per cent of the Clair-Maltby demands without causing surcharging downstream



Wastewater Servicing

Southgate Hanlon Branch

- The Southgate Hanlon Branch is a collection system located South-East of Southgate Drive and Clair Road W.
- The collection system discharges to the same trunk as the Clair-Gordon collection system.
- Local sewers range in size from 300mm diameter (450 mm diameter at the southernmost connection point) and increase to 1200mm diameter prior to the Treatment Plant.
- This 450 mm pipe segment can accept 10 per cent of the Clair-Maltby demands without causing surcharging downstream





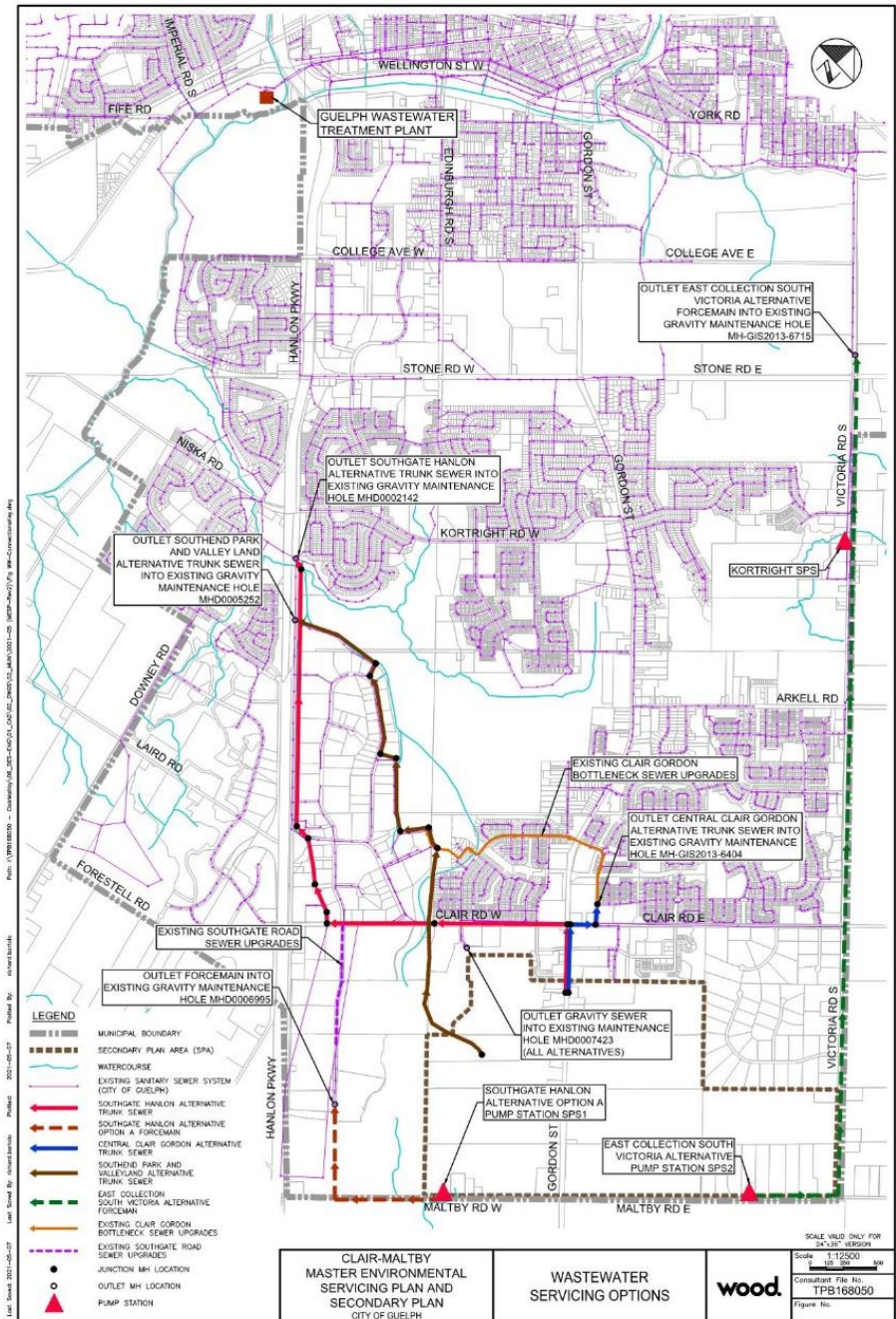
Wastewater Servicing Evaluation Criteria

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Wastewater Servicing

Receiving Branch Preferred Option

- Extending a new 525mm diameter trunk sewer to connect to the Southgate Hanlon Receiving Branch at a Maintenance Hole North of the Industrial Park was determined to be the preferred option. This Maintenance Hole is able to accept 100 per cent of the Clair-Maltby flows without causing surcharging downstream
- The new 525mm Trunk sewer will run north along Gordon St, West Along Clair Rd and north along Hanlon Parkway to connect to a Maintenance Hole north of the industrial park as shown in Red on the adjacent figure





Wastewater Servicing

Internal Servicing Concept

- The preliminary grading along the roads was initially established for the stormwater servicing; this was used to evaluate the internal sanitary servicing within the CMSP lands.
- The elevations vary from a maximum of 357.5m to 331.5m above sea level.
- In general, the topography of the lands is very undulating making it a challenge to optimize wastewater servicing.
- Based on the topography of the subject lands, the area can be generally demarcated into three distinct catchments, with each having its controlling low point. These three low points represent good/preferred candidate locations for sewage pump stations.

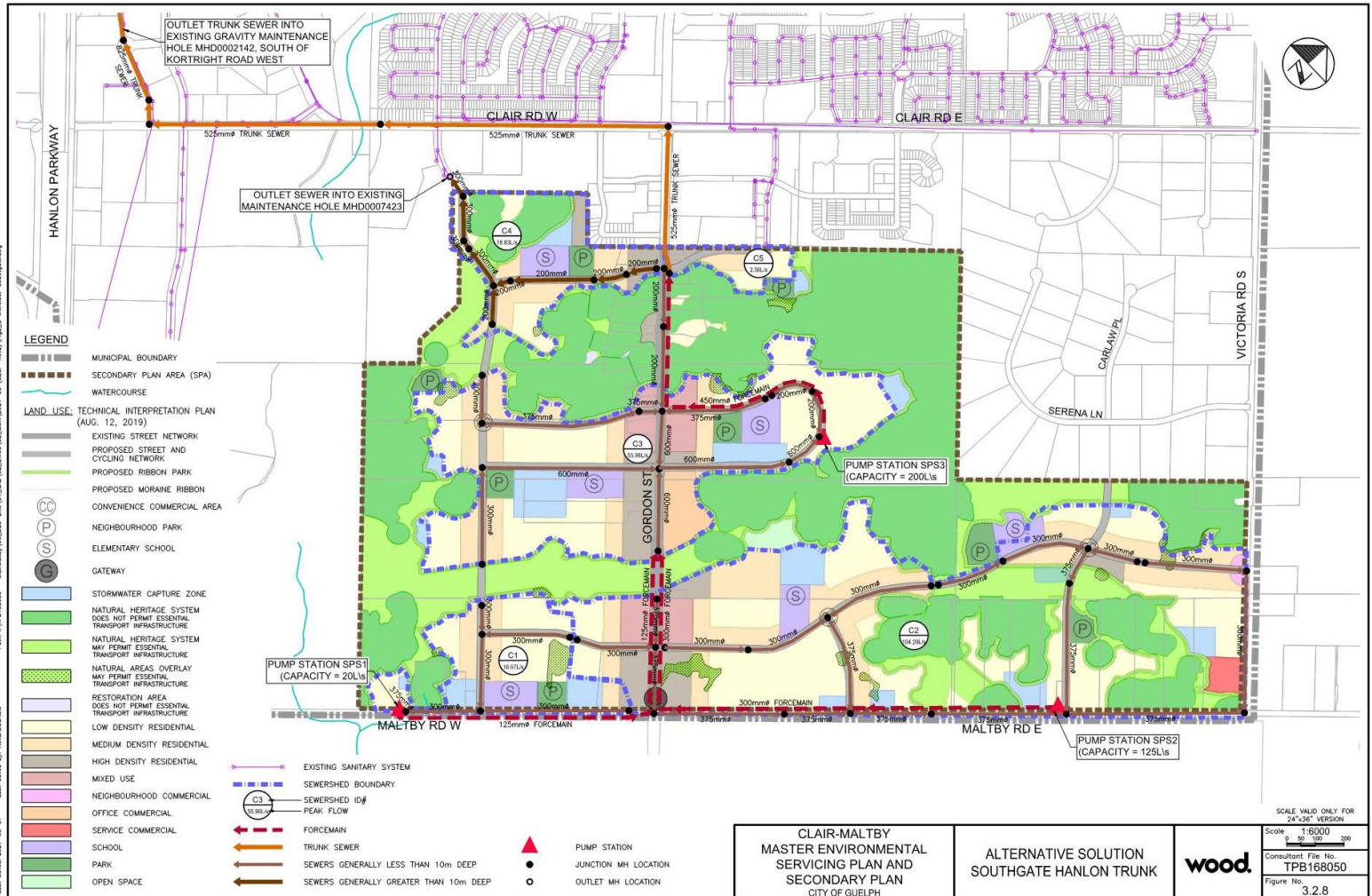


Wastewater Servicing

Internal Servicing Concept

- Three main catchment areas have been identified, each draining to a sewage pumping station.
- Gravity Sewers within Catchments 1, 2 and 3 will deliver sanitary flows to the three proposed sewage Pumping Stations.
- In addition to the three main catchment areas, areas on either side of Gordon Street, immediately south of Clair Road have been classified as two smaller catchments, each capable of draining by gravity to existing sewers. These are defined as Catchments 4 and 5.
- The areas west of Gordon Street (Catchment 4) is proposed to drain to the Poppy Drive sewer, and those to the east of Gordon Street (Catchment 5) would connect to the Hawkins Drive sewer.

Wastewater Servicing Preferred Option





Wastewater Servicing

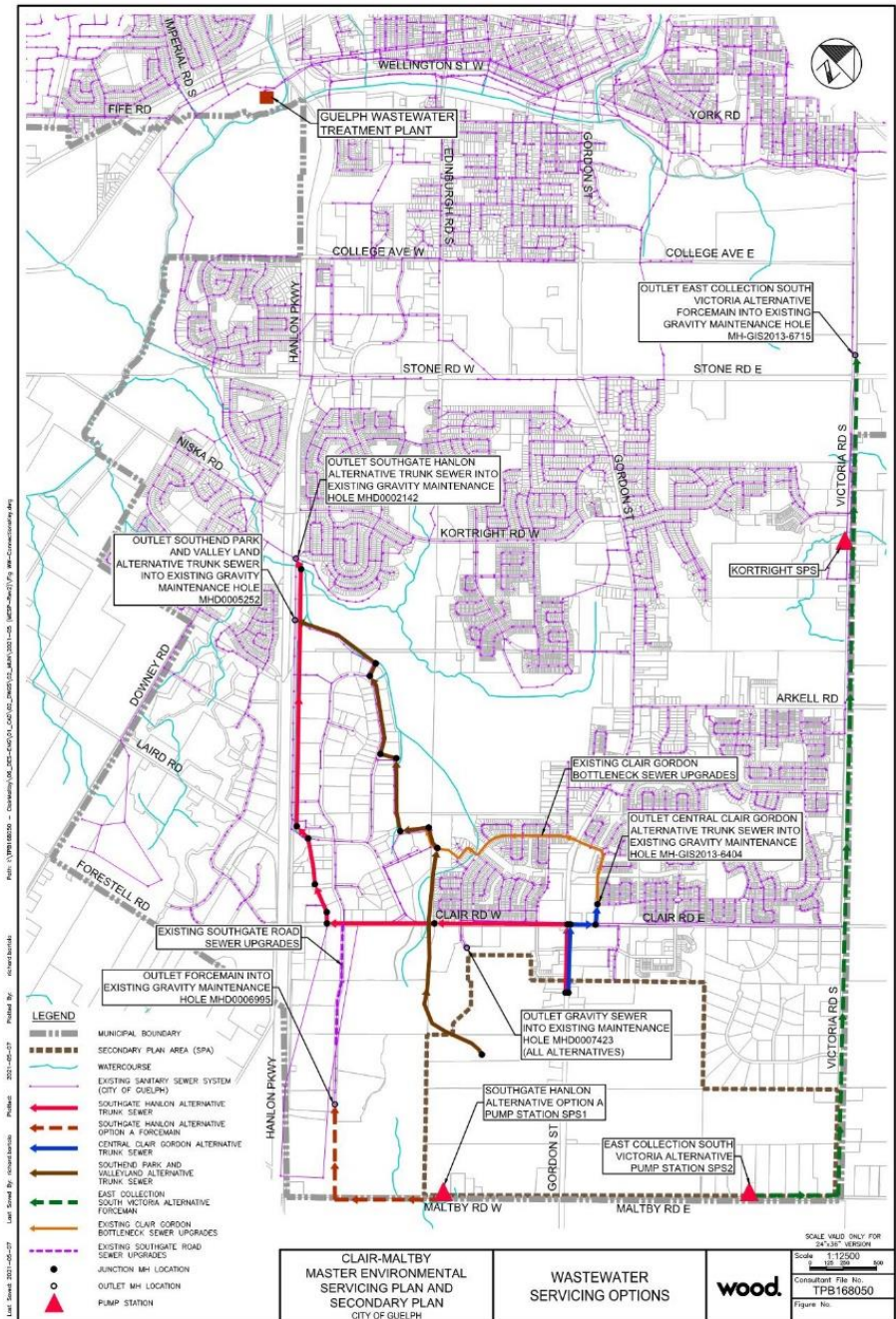
Preferred Option

- All scenarios were evaluated using Social/Cultural, Economic, Natural and Functional (Technical) Environment criteria.
- The preferred option features the following:
 - Catchment 4 and Catchment 5 drain by gravity to existing sewers on Poppy Drive and Hawkins Drive
 - Catchment 1, Catchment 2 and Catchment 3 drain by gravity to their respective Sewage Pumping Stations.
 - The flows from Catchments 1 and 2 are pumped north to Catchment 3.

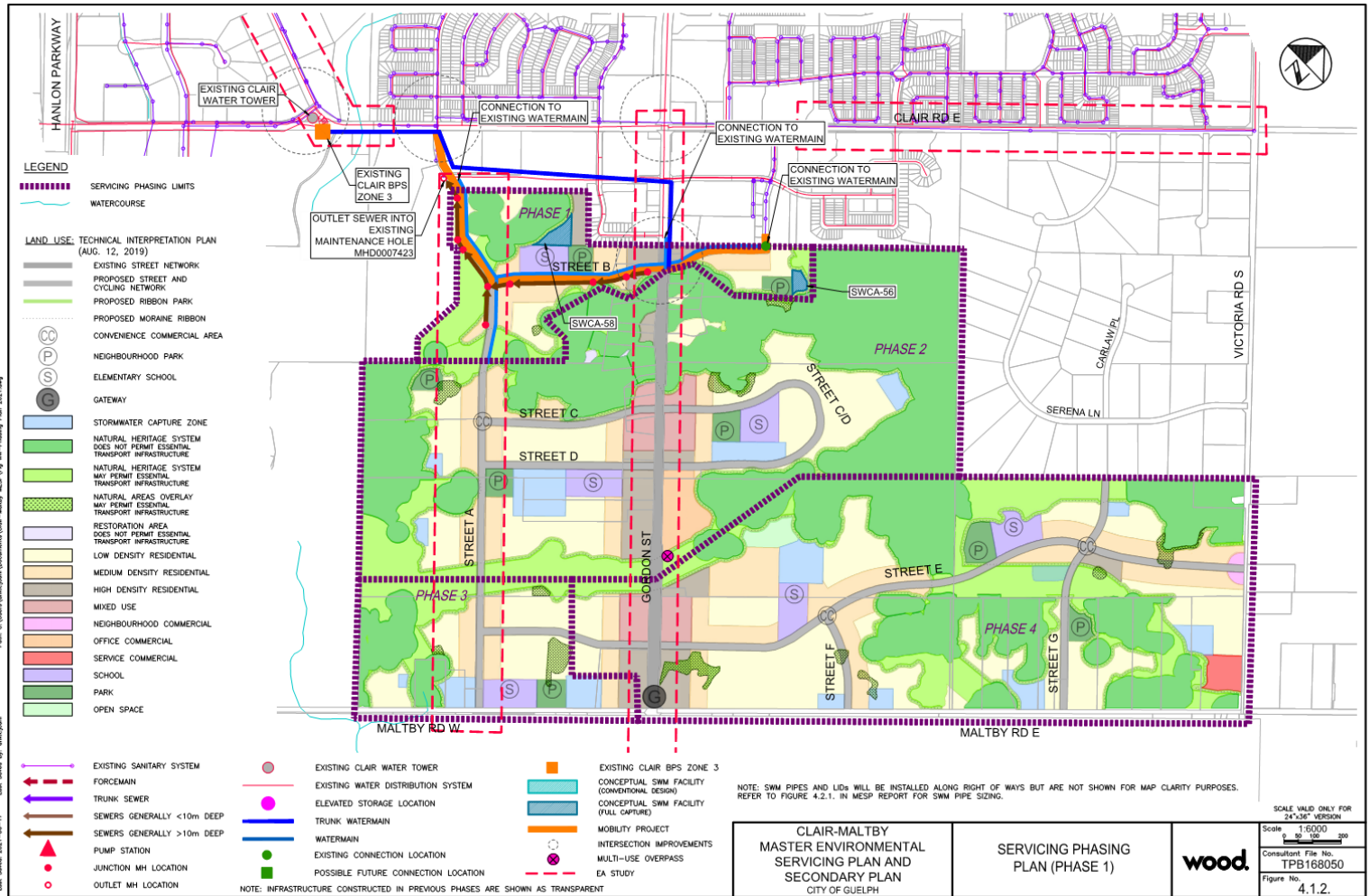
Wastewater Servicing

Preferred Option (Cont'd)

- The Sewage Pumping Station in Catchment 3 Pumps north to a new 525mm diameter Sanitary Trunk Sewer.
- The new 525mm Trunk sewer will run north along Gordon St, West Along Clair Rd and north along Hanlon Parkway to connect to a Maintenance Hole north of the industrial park as shown in Red on the adjacent figure

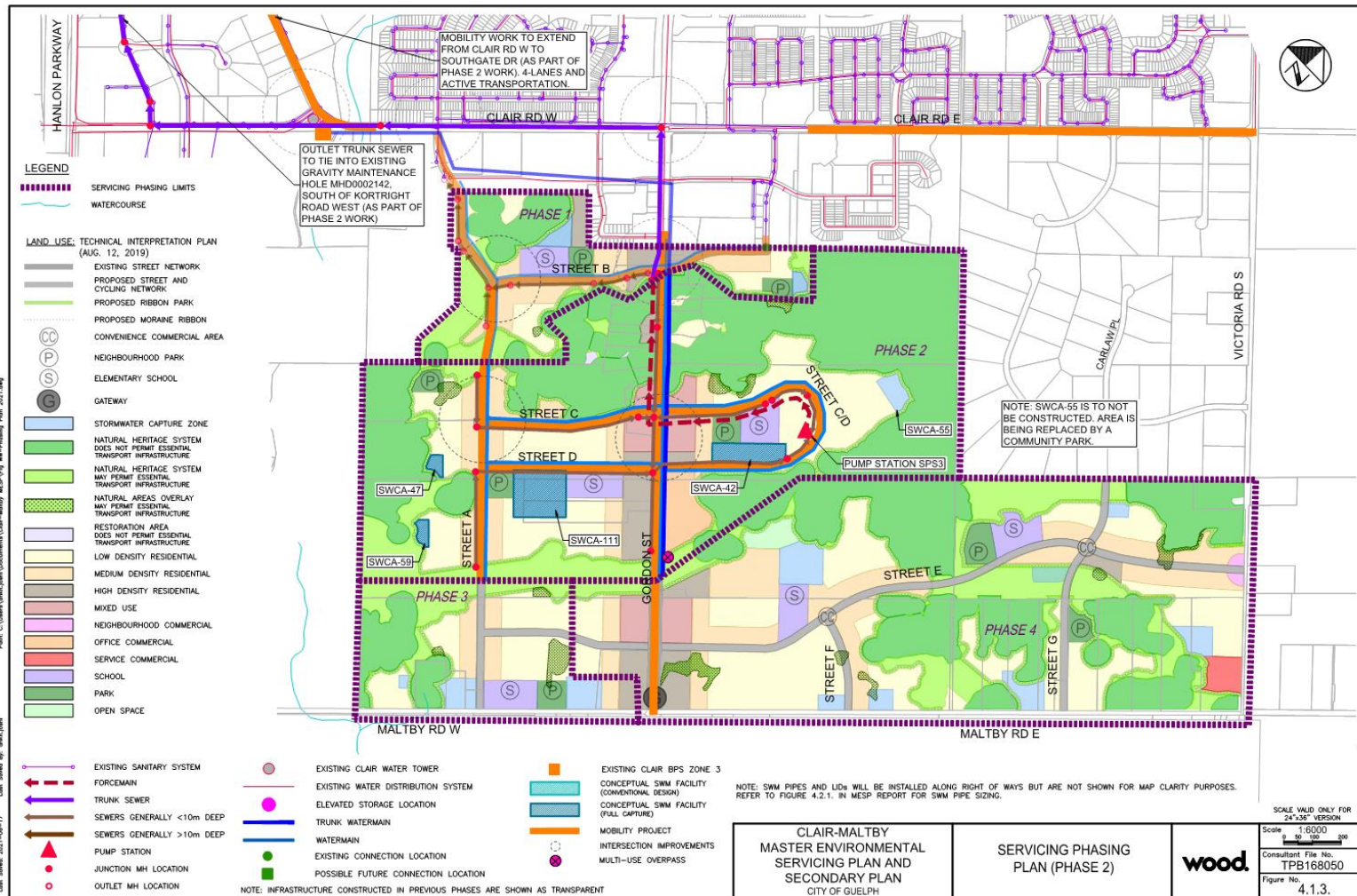


Water and Wastewater Servicing Phase 1

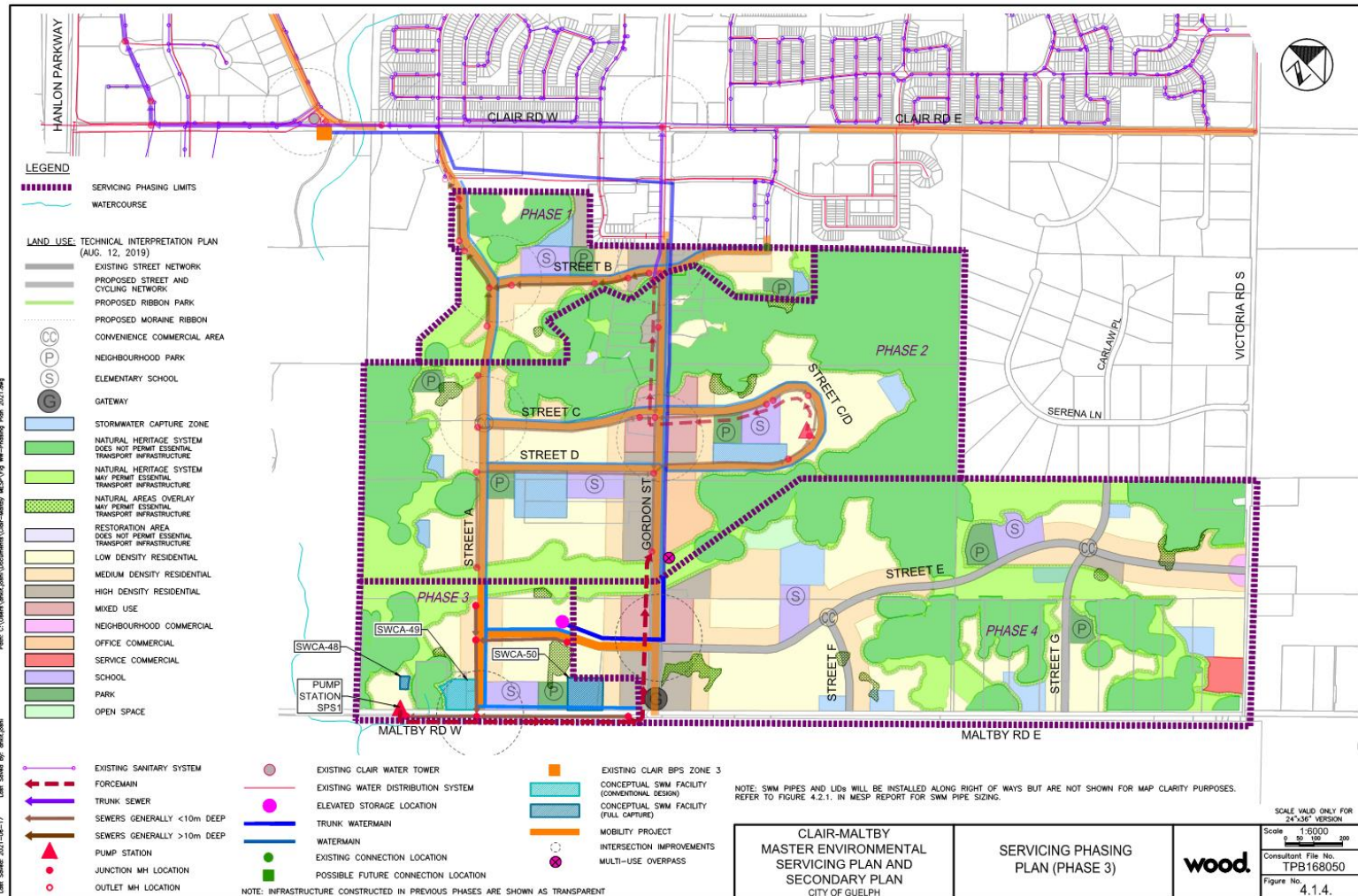


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Water and Wastewater Servicing Phase 2



Water and Wastewater Servicing Phase 3





Water and Wastewater Servicing

Phasing

- Phasing of the development will generally align with the Wastewater Servicing and will be sequential from downstream to upstream, i.e. North to South.
- Phase 1 will consist of Catchments 4 and 5, gravity sewers to existing services. The water distribution system will include construction of a portion of the water transmission main from the Clair Maltby Water Booster Station.
- Phase 2 will include gravity sewers to Sewage Pumping Station 3 (SPS3), the downstream trunk sewer to the receiving branch and a forcemain from SPS3 to the Trunk Sewer. The water distribution system will include construction of a portion of the water transmission main from the Clair Maltby Water Booster Station.
- Phase 3 will include gravity sewers to Sewage Pumping Station 1 (SPS1), and a forcemain from SPS3. The water distribution system will include construction of the remaining portion of the water transmission main from the Clair Maltby Water Booster Station and the Water Storage Tank.
- Phase 4 will include gravity sewers to Sewage Pumping Station 2 (SPS2), and a forcemain from SPS2. The water distribution system will connect to the water transmission main from the Clair Maltby Water Booster Station and the Water Storage Tank.



THANK YOU

Questions?

haveyoursay.guelph.ca/Clair-Maltby

- Provide your thoughts and ideas on the 'Idea Boards' until August 8, 2021
- Ask Questions
- Attend our virtual office hours
- email us at clair-maltby@guelph.ca