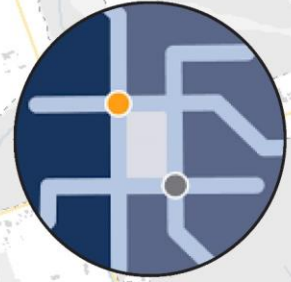


**CONFIDENTIAL**



# **Appendix E: Functional Servicing Background Report**

**Southeast Courtice Secondary Plan  
and Environmental Assessment**

Municipality of Clarington, Ontario

May 1, 2020

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## E. Functional Servicing Background Report

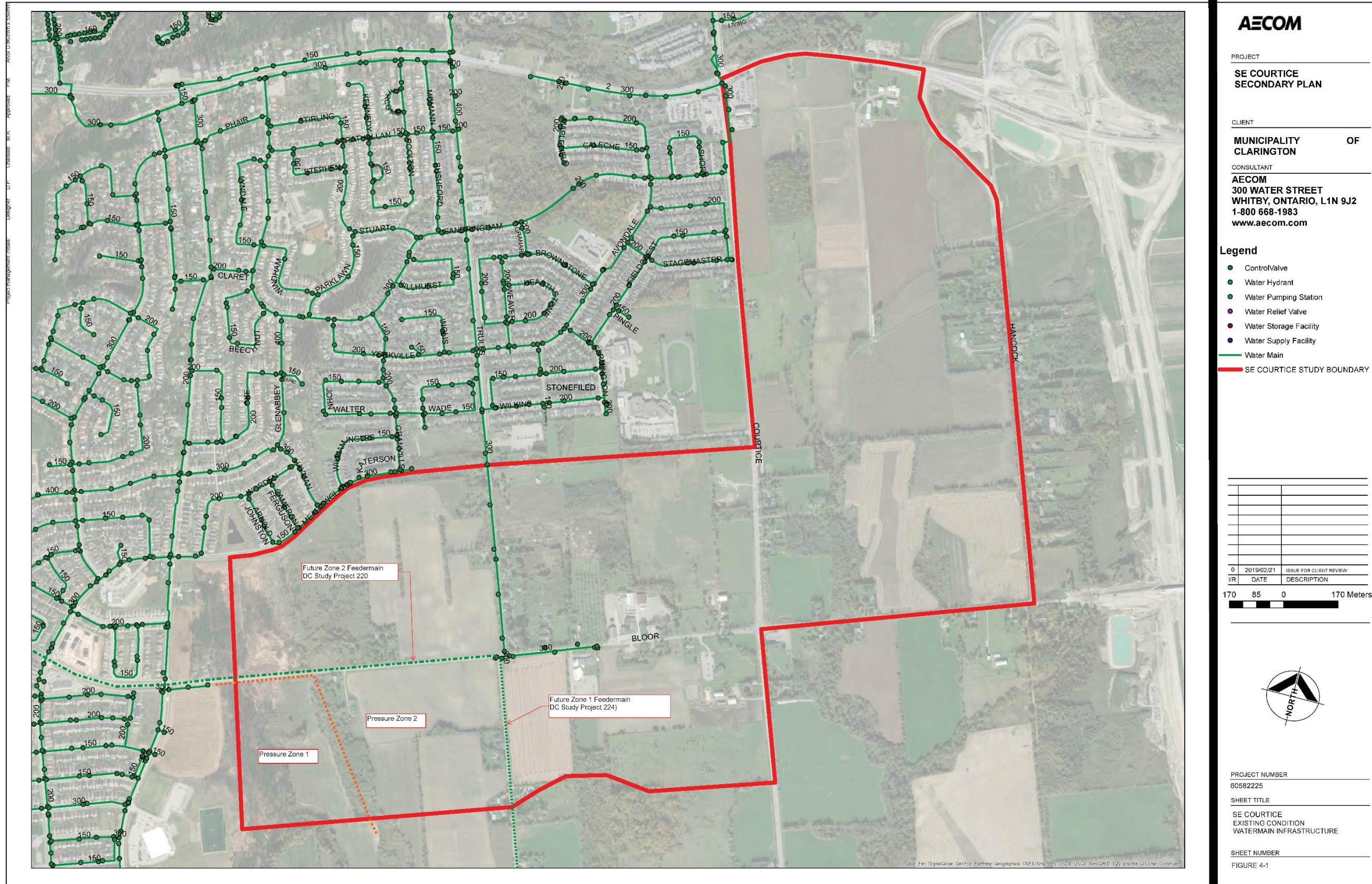
### E.1 Key Take-Aways

- ✦ The study area is currently serviced by a 300 mm water main located along Trulls Road and Bloor Street as shown on **Figure E-1**. The existing watermain is a dead end main and its primary function is to service existing residential and institutional uses in the study area.
- ✦ The study area is serviced by two pressure zones. Pressure zone 1 services approximately 4 ha of the southwest corner of the study area located south of Bloor St. The remainder of the study area is serviced by pressure zone 2. The boundary location is shown on **Figure E-1**.
- ✦ The future extension of watermains needed to service the Study Area will be implemented by means of future approved development applications and will generally consist of 300 mm watermains constructed within the future municipal roadways and existing Regional road as required to achieve connectivity and looping needs.
- ✦ The study area is not currently serviced by any existing sanitary sewers.
- ✦ All new development will need to design and construct local sanitary sewer systems that connect to the future trunk / sub-trunk sanitary sewers being planned / designed / constructed by the Region and more specifically as identified in the Region's 2018 Development Charge Study
- ✦ The future extension of local sanitary sewers needed to service the Study Area will be implemented by means of future approved development applications and will generally consist of 200 mm to 300 mm sanitary sewers constructed within the future municipal roadways and existing Regional roadways as required to connect to available outlets.
- ✦ The Region of Durham's 2018 Development Charges Study identifies the trunk water / wastewater infrastructure needed to provide servicing capacity to the study area.
- ✦ The future extension of planned watermain and sanitary sewer infrastructure will need to be located in either municipal / regional road allowances or servicing easements, no such infrastructure shall be located on private or municipal laneways.
- ✦ The lands identified as Special Policy Area A107-8 on Map A2, Land Use, Courtice Urban Area of the Municipal Official Plan are located outside the Study Area, on west side of Bloor Street and north of the future extension of Meadowglade Avenue, however these lands will need to be serviced by the planned infrastructure improvements of the Study Area.

### E.2 Purpose

The purpose of this Functional Servicing Report is to develop an understanding of existing conditions, constraints and opportunities within the study area and ultimately develop a Water and Wastewater servicing plan, identify the how the servicing needs will be the key driver for the phasing of the Study Area.

Figure E-1: Existing Watermain



## E.3 Existing Conditions

The Study Area of the SE Courtice Secondary Plan is located in the Courtice Urban Area. The Land Use Plan, Map A2, of the Municipalities Official Plan proposes an Urban Residential use bounded by Regional Corridors along Bloor Street, Courtice Road and Highway 2 as well as Environmental Protection Areas.

The study area is for the most part not currently serviced however the Region of Durham is actively planning, designing and constructing trunk infrastructure that when implemented will connect the Study Area to the Regions water and wastewater infrastructure.

We have completed high level review of opportunities and constraints related to the servicing of the Study Area with water / wastewater infrastructure. We have consulted with Regional Staff and referenced the following information in the completion of the review of the opportunities and constraints.

- Map A2 Courtice Urban Area Land Use Plan
- Available contour mapping of the study area
- Region of Durham Sanitary Sewer Mapping
- Region of Durham Water Distribution Mapping
- Region of Durham Conceptual Engineering Drawings for the Courtice Trunk Sewer Project
- Region of Durham – Regional Development Charge Background Study, March 27, 2018.

### E.3.1 Watermain Infrastructure

The study area is currently serviced by a 300 mm water main located along Trulls Road and Bloor Street as shown on **Figure E-1**. The existing water is a dead end main servicing existing residential and institutional uses in the study area.

The study area is serviced by three water pressure zones. Water pressure zone 1 services approximately 4 ha of the southwest corner of the study area located south of Bloor St. Water pressure zone 3 services approximately 15 ha of the north east corner of the study area and more specifically west of Hancock Road and north of the future extension of Meadowglade Road. The remainder of the study area is serviced by water pressure zone 2. The boundary location between water pressure zones 1 and 2 is shown on **Figure E-1**.

The Region's 2018 Development Charges Study was reviewed to determine current plans for servicing growth in the study area.

Appendix F of the Region's Development Charge (DC) Study identifies the following planned water supply system projects, as shown on **Figure E-2**, that will need to be implemented to service new development in the study area.

**Figure E-2: Watermain Projects, Appendix F, 2018 DC Study**



Development Charge Study Project 220 is a Zone 1 feedermain to be constructed in 3 phases. Phase 1 is from 400 m south of Energy Drive to 100 m north of Energy Drive. Phase 2 is from 100 m north of Energy Drive to the intersection of the Baseline Road and Courtice Road. Phase 3 is along Baseline Road from Courtice Road to Trulls Road and along Trulls Road from Baseline Road to Bloor Street.

Development Charge Study Project 224 is a Zone 2 feedermain on Bloor Street from Townline Rd to Trulls Road.

### **E.3.1.1 Future Watermain Routes**

The future extension of watermains needed to service the Study Area will be implemented by means of future approved development applications and will generally consist of 300 mm watermains constructed within the future municipal roadways and existing Regional Roads as required to achieve connectivity and looping needs.

The Region has confirmed that there is water supply capacity planned for the development of the study area in accordance with the growth assumptions of the Regional Official Plan.

### E.3.2 Sanitary Sewer Infrastructure

The study area is not currently serviced by any existing sanitary sewers. All new development will need to design and construct local sanitary sewer systems that connect to the future trunk / sub-trunk sanitary sewers being planned / designed / constructed by the Region and more specifically as identified in the Region's 2018 Development Charge Study.

Appendix G of the Region's Development Charge (DC) Study identifies the following future sanitary sewage system projects, shown on **Figure E-3**, that will need to be implemented to service new development in the study area.

**Figure E-3: Sanitary Sewage Projects, Appendix G, 2018 DC Study**



Development Charge Study Project 210 is a trunk sanitary sewer along Baseline Road from Courtice Road to Trulls Road and along Trulls Road from Baseline Rd to Bloor St. The DC Study shows capital funding for construction in 2019. From AECOM's meeting with the Region we understand that the project is still in the design phase. Construction will follow-upon completion of the design and subsequent tendering for construction. This project must be constructed and commissioned prior to developing following lands in the study area:

- The lands west of Trulls Road; and
- The lands on east side of Trulls Road to the topographic highpoint located approximately 350 m east of Trulls Road.

The future trunk sanitary sewer along Trulls Road will be very deep and constructed by means of tunneling and as such future development in the study area will need to construct local sanitary sewers that collect and convey sewage to a future maintenance hole that will be located at the intersection of Bloor St and Trulls Road. This maintenance hole will be implemented as part of the Regions construction project and the Region advised that it will be deep enough to service the west study area by gravity.

Development Charge Study Project 234 is a sub-trunk sanitary sewer located along an easement on the north side of the CPR tracks from Trulls Road to Courtice Road and from Courtice Road from the north side of the CPR tracks to Bloor St. This sanitary will service the east end of the study area. The implementation of Project 234 will be impacted by the following items and as such its timing of completion is subject to more variables than the implementation of Project 210 that will service the westerly study area:

- a) Acquire easements and permissions to construct future sewer on private / public properties;
- b) Co-ordinate and integrate design of the sewer with the development of the future GO Station by Metrolinx;
- c) Consultation with CPR regrading setbacks and potential conditions of approval;
- d) Evaluating alternative alignments to that identified in the DC study. Although the 2018 DC Study suggests the future sub-trunk sanitary sewer be located in an easement along the north side of the CPR tracks, it is possible that the sanitary sewer could also be located within a future municipal road on the employment / industrial lands south of the study area or through the GO Station lands;
- e) Complete the detailed design, tender and construction phases; and
- f) Submission of development applications within and external to study area to trigger and drive implementation forward.

Refer to **Figure E-4** and **Figure E-5** for the existing conditions and future sanitary sewer projects required to service the study area.



Figure E-4: Existing Sanitary – North

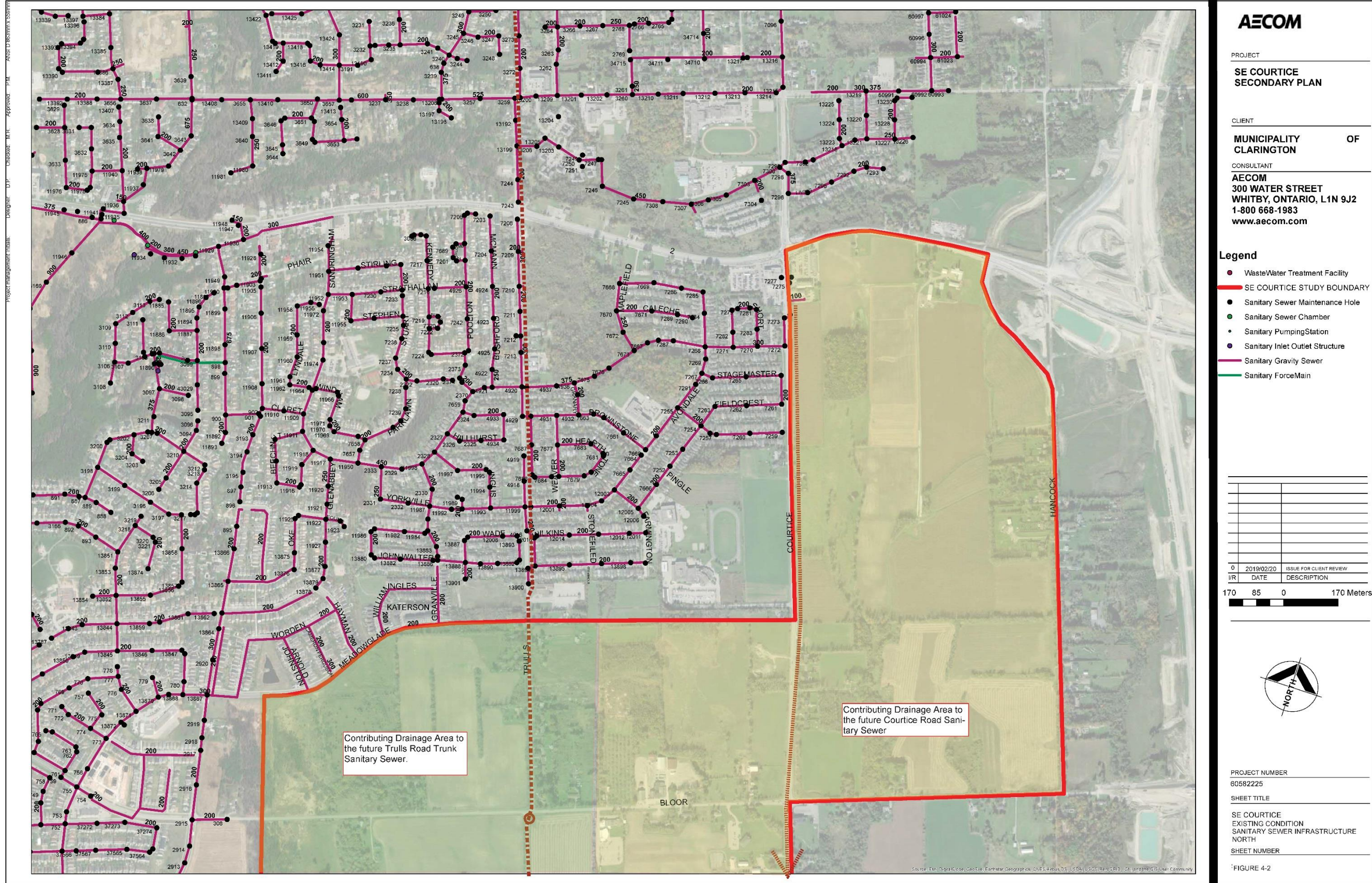
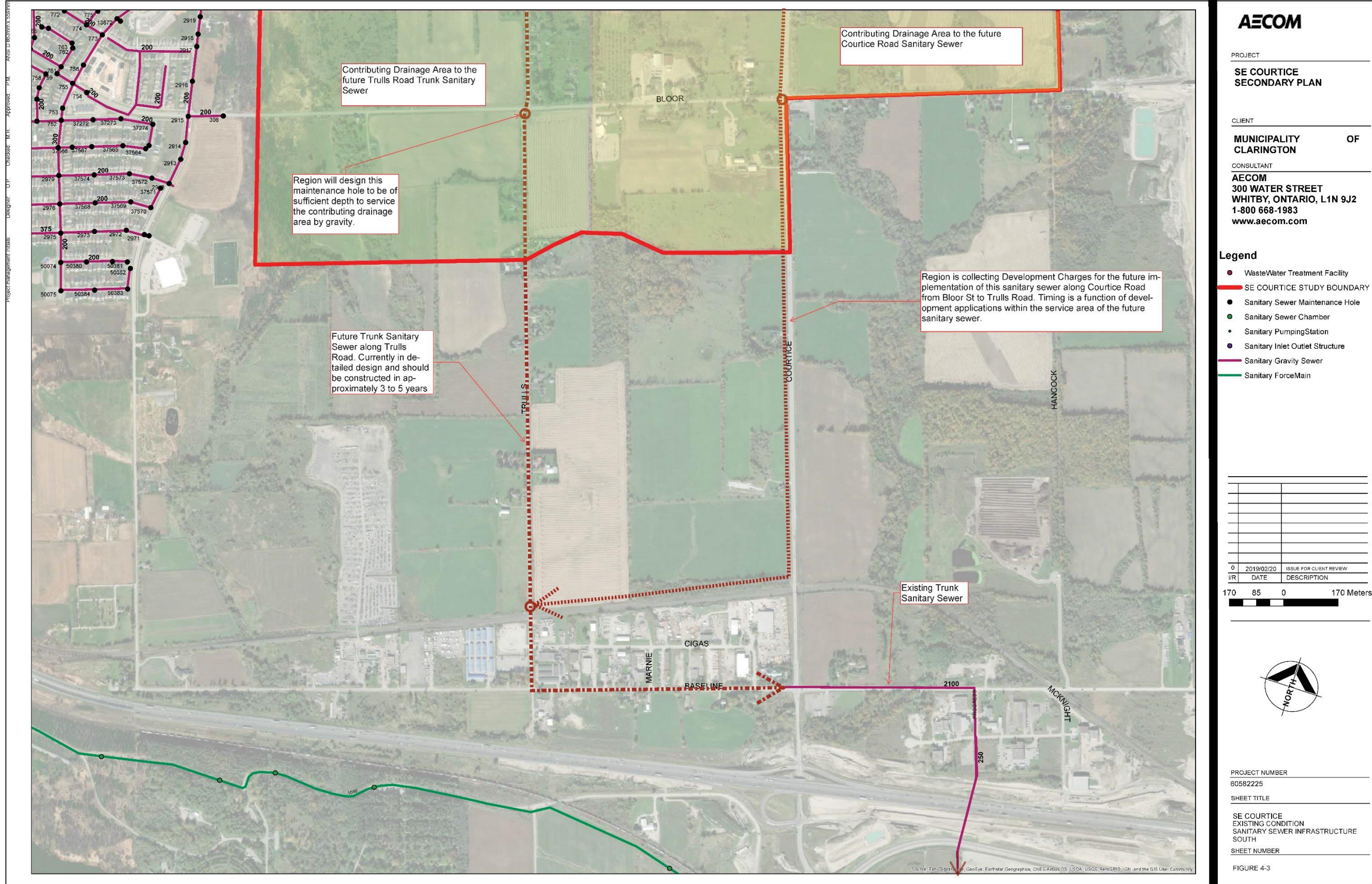


Figure E-5: Existing Sanitary – South



### E.3.2.1 Future Sanitary Servicing Routes (Trunk and Local Sanitary Sewers)

The 2018 Development Charges Study provides guidance and direction with regard to the location of planned sanitary outlets for the study area.

The Region has confirmed that there is sanitary sewage capacity planned for the development of the study area in accordance with the growth assumptions of the Regional Official Plan.

The future extension of local sanitary sewers needed to service the Study Area will be implemented by means of future approved development applications and will generally consist of 200 mm to 300 mm sanitary sewers constructed within the future municipal roadways and existing Regional Roads as required to connect to available outlets.

The Region is constructing the Courtice Trunk Sanitary Sewer along Trulls Road by means of tunneling and as such the trunk sanitary sewer is deep and planned maintenance holes are spaced far apart. Generally local sanitary sewers will be planned to connect to the Trunk Sanitary Sewer at the existing maintenance holes constructed by the Region. If an applicant proposes to add a new connection to the existing Trunk Sanitary sewer to reduce the length of the local collection sanitary sewer then the applicant shall discuss and initiate the approval process of such a connection with the Regional staff at the pre-consultation meeting of the planning approval process.

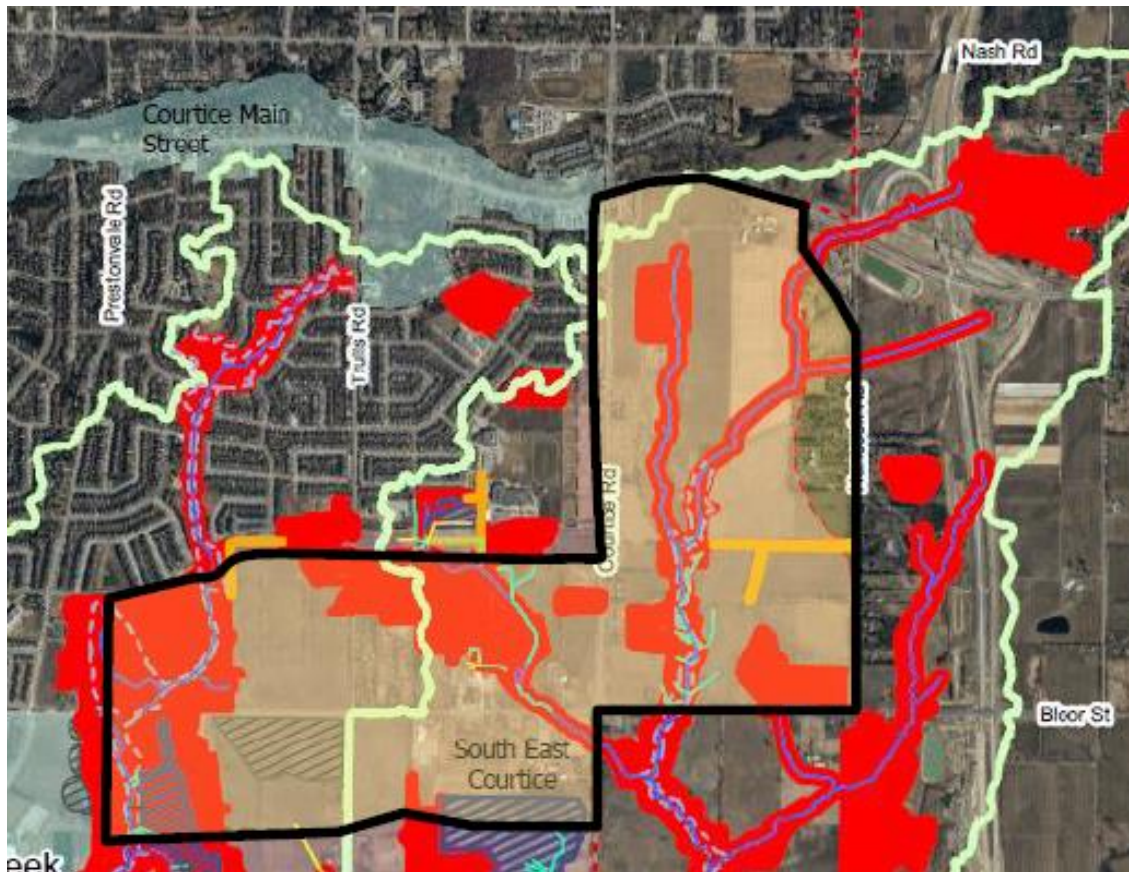
The Region requested that Special Policy Area A107-8 as shown on Map A2, Land Use, Courtice Urban Area of the Municipal Official Plan be brought into the study area. This area will be serviced with the same water / sanitary infrastructure planned for the Study Area.

### E.3.3 Storm Sewer and Stormwater Management Infrastructure

The study area is currently being used for agricultural purposes and will see a significant change in imperviousness which, unless mitigated, will increase surface water runoff as it is developed. The study area, as illustrated in **Figure E-6**, is 25% within the Robinson Creek Watershed (to the west) and 75% within the Tooley Creek Watershed (to the East) and there is currently no stormwater infrastructure within the SECSP, although minor online ponds are noted in the headwater areas of Tooley Creek in the NW corner of its west tributary.

All new development will need to design and construct minor/major drainage systems (storm sewers/overland flow routes) to provide site drainage. As well, the impacts of increased runoff due to increased imperviousness will have to be mitigated. These impacts include water quantity increase in magnitude, frequency and duration that affects both water levels, velocities and bank shear stress and water quality degradation typically manifested by increased TSS and Phosphorus loadings.

Figure E-6: Study Area and Drainage



### E.3.3.1 Future SWM Facilities and Storm Sewer System– SWM Ponds and LID

The impacts of increased imperviousness on runoff will be mitigated by reducing imperviousness through: appropriate land use designations; the use of Low Impact Development (LID) measures; and Best Management Practices (BMPs), including end-of-pipe (EOP) SWM Ponds, as identified by government agencies including DFO, MECP, MTO, MNRF, CLOCA, Durham and Clarington.

The *Robinson Creek and Tooley Creek Subwatershed Study (SWS)*, Phase 1 Report - Final Draft provides guidance and recommendations for planned developments in the study area.

It is recommended that applicants of future development applications review the findings and recommendations of the SWS and be prepared to discuss and seek feedback on:

- How their planned development will consider the recommendation that Low Impact Development (LID) practices including lot level source control and conveyance control within the road allowances and rights-of-way be considered to ensure that planned activities will have minimal impact on surface water resources and contribute to the maintenance of groundwater resources. These practices should be modelled via a continuous hydrologic model simulating average, wet and dry years in order to complete a robust analysis of water balance within the subwatersheds and

such model should be maintained by the Municipality and shared with the applicants for continuous updating.

- The status of the Municipalities analysis of the benefits of reducing the number of SWM ponds (quantity) in the lower reaches of Tooley Creek and utilizing over control (in the upper subwatershed areas) over control as a component of the preferred management plan.
- If opportunities exist to implement headwater protection measures as a means to contribute to the maintenance of baseflow and associated water quality, fisheries, ecological, and natural heritage benefits.
- The need for climate change scenarios to be incorporated into both single event and continuous hydrologic modelling for future scenarios in order to ensure community and infrastructure resiliency of the planned infrastructure.
- The need for detailed geotechnical field investigations commissioned by the applicant to establish conclusive long term stable slope (LTSS) setbacks consistent with the provincial MNR (2002) guidelines.

It is acknowledged that the implementation of LID measures is currently a work in progress in terms of finding common ground on the planning, design, approval, construction and operation of LID's. Reaching common ground on all aspects of the design, compliance monitoring and standard approaches to correct non-compliance conditions is an important next step in the acceptance of the implementation of LID measures. This is an issue all Municipalities are dealing with and to ensure a consistent approach is taken to establish common ground it is recommended that the Municipal Engineers Association be the forum for establishing common ground and that the following committees of the MEA be tasked with the goal of establishing common ground.

- **MEA / MECP Liaison Committee:** Liaises with Ministry of the Environment staff on issues, difficulties, and policy development; and
- **Development Engineering Committee:** Inter- municipal peer group sharing issues, methods, and standards for land and services development.

It is recommended that the above committees take the lead in drafting policies, design guidelines and monitoring practices and procedures for managing the risks of implementing LID measures upstream of the EOP facilities and more specifically what measures need to be taken to ensure corrective actions can be implemented in the event the Owner is in non-compliance with the MECP ECA conditions of approval. Anticipated LID measures will be provided in the SWS study and currently include, but are not limited to: Soil Amendments, Perforated Pipe Systems, Permeable Pavements, Enhanced Swales, Bioretention & Bioswales, Soakaway Pits, Infiltration Trenches and Chambers, Green Roofs and Rainwater Harvesting.

Until such time that the above noted LID policies, guidelines, practices and procedures are in place the status quo of designing EOP facilities to address current SWM requirements should continue to be the path forward for the approval of SWM requirements and the planning, design and implementation of LID measures upstream of the EOP facilities should focus on locating, constructing and landscaping the LIDs such that the potential for their operation to be perceived to be a nuisance is mitigated and public awareness / acceptance of such facilities can be fostered.

Initial locations of EOP SWM facilities are provided in **Figure E-7** and reflect topographic and drainage area requirements. Further modifications to size and location are anticipated, based on the outcome of the SWS.

**Figure E-7: Initial SWM Pond Locations**



### E.3.4 2018 Development Charges Study

The growth assumptions in the Development Charges study are consistent with the Regional Official Plan (ROP), which is based on population and employment forecasts set out in Schedule 3 of the Growth Plan for the Greater Golden Horseshoe. To meet the 2031 forecasts in the Growth Plan, the Region has planned for a total of 872,350 people and 312,480 jobs by 2028.

The growth assumptions for Clarington are captured in Appendix A of the DC Study and as follows:

**Table E-1: Residential Dwelling Unit Growth for Clarington**

2018 to 2023	2023 to 2028	2018 to 2028
6,806	6,722	13,528

Source: Appendix A, Region of Durham DC Study, Table A-8

**Table E-2: Residential Population Growth for Clarington**

2018 to 2023	2023 to 2028	2018 to 2028
15,768	14,251	30,019

Source: Appendix A, Region of Durham DC Study, Table A-9

**Table E-3: Employment Growth Forecast for Clarington**

2018 to 2023	2023 to 2028	2018 to 2028
5,030	4,200	9,230

Source: Appendix A, Region of Durham DC Study, Table A-17

**Table E-4: Non-Residential Floor Space (m<sup>2</sup>) Growth Forecast for Clarington**

2018 to 2023	2023 to 2028	2018 to 2028
414,600	359,800	774,300

Source: Appendix A, Region of Durham DC Study, Table A-18

#### E.3.4.1 2018 Development Charges Study – Intensification Policy

Appendix D to the DC Study addresses the Regions Intensification Servicing Policy. Highlights of the policy are provided below:

The population forecasts contained in Appendix A of the DC Study have distributed 40% of the population growth in the urban areas throughout the built-up areas, based on density considerations for key structural elements of the Regional Official Plan (e.g., Urban Growth Centres, Regional Centres and Corridors, Commuter Stations and Waterfront Places).

Overall servicing of this intensification is captured in the water supply and sanitary sewerage analyses contained in Appendix F and Appendix G of the DC Study. However, even though the forecasted growth has been targeted to strategic areas on an average density basis,

intensification projects may occur at specific locations at a density beyond the average estimated for a broader area, such as a Regional Corridor. In these instances additional development charge works may be required to service the specific sites.

Because the location of intensification projects and the associated required development charge works are site or area specific, they cannot be predicted with certainty in advance. Therefore, it is necessary to include an allowance for such works required to support intensification and to reaffirm a policy to provide access to these allowances, based on the costs of recent experiences in Durham Region.

In order to address the difficulty in anticipating where Regional development charge works will be required for intensification projects, Regional Council approved the intensification servicing policy in 2013 which created an intensification allowance within the sanitary sewage development charge quantum calculation.

Under the approved policy, developers apply to use the funds in this allowance if their proposed development meets the following conditions:

- The proposed development is located within the existing built-up area.
- The proposed development requires a development charge sanitary sewage work that is not already listed in the projects included in Appendix G.
- All local works as defined in Section 3.0 of this Appendix are to be funded by the developer.
- The development includes new housing for at least 1,000 people.

Regional Council approval is required for all expenditures from this allowance. For future updates to the development charge by-law, actual sanitary sewage development charge servicing costs within the built-up area would be continuously monitored and included in future analyses contained within Appendix D of the DC Study, and the charge per person updated.

The Region's intensification servicing policy is only applicable to residential development within the built-up area, whether the development proceeds by plan of subdivision or condominium, consent or issuance of a building permit on an existing vacant parcel or redevelopment site.

## **E.4 Policy Direction**

The Function Servicing report has given consideration to policies that speak to:

- The sequential phasing of development within the study area;
- The efficient use and extension of all infrastructure and services, in particular, optimizing the use of existing infrastructure and services; and
- Minimizing the financial implications to the Municipality of servicing, operating and cost recovery

Appendix B of the Municipality of Clarington Official Plan sets the following estimated unit targets for the Southeast Clarington Secondary Plan Area.



**Table E-5: Estimated Unit Targets for the Southeast Courtice Secondary Plan**

Low	Medium	High	Total
573	594	1,010	2,177

## E.5 Linkages to other Supporting Studies

The Transportation Network for preferred land use plan will drive the phasing and staging of the local services given the transportation corridors function as servicing corridors.

The SWS and Stormwater Management Plan provide guidance on the design of planned stormwater management measures needed to mitigate the impacts of development.

## E.6 Opportunities/Constraints & Related KPIs

Refer to Section E.1 Key Take-Aways, for a summary of the water / wastewater infrastructure opportunities and constraints within the study area.

The KPIs for the servicing is related to the success of achieving the policy objectives as set out in Section E.4.

## E.7 Recommendations

- ✦ The construction of the Regional trunk watermain along Bloor Street west of Trulls Road and along Trulls Road south of the Bloor Street and the Regional Trunk sanitary sewer (Courtice Trunk Sanitary Sewer) along Trulls Road will create the opportunity to implement approved development plans within the Study Area.
- ✦ The construction of the Regional South-East Sub Trunk sanitary sewer along Courtice Road, south of the Study Area, will create the opportunity to implement approved development plans in the easterly portion of the study area.
- ✦ The local water distribution system will be extended from the trunk watermain sequentially as development is approved and implemented.
- ✦ Applicants should use the Pre-Consultation meeting of the planning approval process to confirm the current status of the Region’s implementation of the trunk watermain / sanitary sewer infrastructure for their planned developments.
- ✦ Applicants should use the Pre-Consultation meeting of the planning approval process to discuss with the Region the status of available water and sanitary capacity. The Region notes that the status changes as development applications are submitted and that sanitary capacity is allocated on a first come first serve basis at the time of signing a development agreement.
- ✦ The location of linear infrastructure within the planned arterial, collector and local road roads will need to be compliant with the current standard cross-sections of both the Municipality and the Region. Applicants should use the Pre-Consultation meeting of the planning approval process to discuss the approval process for any non-standard road cross-sections. 13.3.