Water and Wastewater Servicing Study

PURPOSE:

This document provides guidance for the completion of a Water and Wastewater Servicing Study which may be required for the submission of an application under the *Planning Act*. All Water and Wastewater Servicing Studies shall follow the requirements referenced in this document.

The Water and Wastewater Servicing Study provides information to identify any necessary improvements to municipal sewer and water servicing infrastructure required to support the proposed development. Mitigation measures to minimize negative impacts should also be identified.

In general, Functional Servicing Reports are prepared for large Site Plans, Draft Plans of Subdivision/Condominium and Zoning By-law Amendments (ZBA) to evaluate and to determine the overall impact of proposed land use changes or development on the trunk and local municipal service capacities such as: water treatment plant, water distribution systems and pressure zones, pump stations, wastewater treatment plants, trunk sewers, topography, grading, and stormwater management facilities. For larger Site Plans including those with ZBA's, City staff may request a Functional Servicing Report. Please see the Functional Servicing Report Terms of Reference for more details.

For smaller Site Plans, and typically those without Zoning By-Law Amendments, as an alternative to the Functional Servicing Reports, City staff has discretion to request a stand-alone Stormwater Management Report and stand-alone Water and Wastewater Servicing Study. A Water and Wastewater Servicing Study can be submitted as separate reports. Please see the Stormwater Management Report Terms of Reference for Stormwater Management Reports.

For small Site Plans, a Water and Wastewater Servicing Study are required to determine the overall impact of development on the trunk and local municipal service capacities such as water distribution systems and pressure zones, pump stations and trunk sewers. The Water and Wastewater Servicing Study should identify any necessary improvements to municipal servicing infrastructure required to support the proposed development. Mitigation measures to minimize negative impacts should also be identified.

City staff may also utilize the report to evaluate the financial and infrastructure implications of the proposed land use change or development.

A Water and Wastewater Servicing Study is typically required as part of the following development application types:

- Site Plan Control (small projects - subject to staff request); and/or,
- Consent to Sever.

PREPARED BY:

A Water and Wastewater Servicing Study must be prepared by a consultant registered as a Professional Engineer (P.Eng.) in the province of Ontario. The consultant must affix their stamp and seal and specifically identify the engineer who prepared the work. The consultant is expected to be a professional engineer experienced in civil and municipal engineering.

CONTENTS:

Water and Wastewater Servicing Studies are based on established municipal engineering design principles, applicable guidelines, regulations, and by-laws, as well as information available from the City. Section B.8.13 of the City Comprehensive Development Guidelines provides some guidance.

The level of information required with the Water and Wastewater Servicing Study will vary depending on the specific application and size of development. Typically, the studies are required to address the following components:

- Sanitary Sewer System and Demands;
- Watermain Distribution System and Demands;
- Required and Available Fireflow;
- Phasing of Development; and,
- Financial implications.

Please note sometimes a subsequent phase is integral to the overall level of service (LOS), rendering the interim level of service in the initial phase much lower and possibly not meeting regulations than the ultimate level of service.

A Water and Wastewater Servicing Study should include the following:

1. Plans showing:
    - Development Concept(s);
    - Water Servicing - Include thematic mapping and labels for municipal water mains that are required through FORM 1- RECORD OF WATERMAINS AUTHORIZED AS A FUTURE ALTERATION to be constructed/new, and to be abandoned/removed/decommissioned;
    - Wastewater Servicing; and,
    - Existing and Proposed Utilities.
2. Descriptions of:
    - Existing Site Conditions;
    - Water Servicing Demands, Capacities and Hydraulic Analysis;
    - Fireflow Calculations;
    - Wastewater Demands, Capacities and Analysis; and,
    - Development Phasing and Staging.

Other Permit Requirements:

Typically, for small Site Plans, the Water and Wastewater Servicing Study are circulated internally for review. However, the Proponent is responsible for obtaining any other permits and approvals from some or all of the following agencies:

- Conservation Authorities (Hamilton, Grand River, Niagara Peninsula, or Halton);
- Ontario Ministry of Transportation;
- Ontario Ministry of the Environment, Conservation and Parks;
- Ontario Ministry of Natural Resources;
- Niagara Escarpment Commission;
- Federal Department of Fisheries and Oceans; and,
- Environment Canada (Federal)
- Utilities (Gas, Hydro, Telephone, Street Lighting, Cable/TV/Internet)
- Permission and Agreement to construct within an Existing Municipal Easement.

Scope Verification:

The applicant is encouraged to discuss the need, scope and the proposed servicing concepts and design assumptions with City staff prior to preparing the assessments.

OTHER INFORMATION:

City of Hamilton – Comprehensive Development Guidelines and Financial Policies Manual

https://www.hamilton.ca/build-invest-grow/planning-development/planning-policies-guidelines/comprehensive-development

City of Hamilton – Site Plan Guidelines

https://www.hamilton.ca/build-invest-grow/planning-development/planning-policies-guidelines/site-plan-guidelines

City of Hamilton – Watermain Fire Flow Requirement Design Guidelines Policy (2019)

Ministry of the Environment, Conservation and Parks (formerly Ministry of the Environment) – Design Guidelines for Drinking-Water Systems (2008)

https://www.ontario.ca/document/design-guidelines-drinking-water-systems-0

Fire Underwriters Survey (FUS) – Water Supply for Public Fire Protection (2020)

Water Supply for Public Fire Protection in Canada 2020.pdf (SECURED)

Ontario Building Code (OBC)

https://www.ontario.ca/page/ontarios-building-code

City of Hamilton – Fireflow Policy (PW19096)

REVIEWED AND APPROVED BY:

Development Planning, Planning and Economic Development Department

Development Approvals, Planning and Economic Development Department

CONTACT:

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APPENDICES:

Water and Wastewater Servicing Study – Summary Checklist

Water and Wastewater Servicing Study – Standard Format for Table of Contents

Water & Wastewater Generation Assessments – Summary Checklist

The form is to be completed by the Professional that prepared the Water & Wastewater Generation Assessment.

Use of the form by the City of Hamilton is not to be construed as verification of engineering/scientific content.

Refer to the Terms of Reference for the Water & Wastewater Generation Assessment:
Link to Terms of Reference

If any of the requirements listed below have not been included in the water & wastewater generation assessment report, the report will be considered incomplete.

Study Information	Notes	Page # & Section # of Report	Report Includes this Information City Staff (Check)
Site Address			
Property Owner			
Project Description			
Land Use			
Date Prepared:			

Prepared By:			

Summary of Key Information:

Item	Study Information	Notes	Page # & Section # of Report	Report Includes this Information City Staff (Check)
1.	Have the subject lands been clearly identified?			
2.	Has a Location Plan been included? Does the Location Plan clearly identify the property limits, owner(s), adjacent land uses and/or Owner(s)?			
3.	References to documents or policies that govern the development.			
4.	Have any relevant Master Servicing Plans been discussed or referenced?			
5.	Has a record of consultation with City of Hamilton regarding site specific issues and constraints been included?			
6.	Has a water servicing plan been completed? Does the Assessment include			

	discussion of both domestic and fire water servicing demands, details, impacts and analysis? Does the Assessment include thematic mapping and labels for Municipal water mains that are required through FORM 1- RECORD OF WATERMAINS AUTHORIZED AS A FUTURE ALTERATION to be constructed/new, and to be abandoned/removed/decommissioned.			
7.	What is the required fire flow (RFF) under OBC?			
8.	What is the City's Target Available Fire flow? See Policy PW19096.			
9.	Does the available fire flow meet or exceed the larger required fire flow (the larger flow from #7 and #8)?			
10.	Does the residual pressure remain above 140kPa for all fire flow scenarios?			
11.	Has a Watermain Hydraulic Analysis Report (WHAR)			

	been completed for the proposed development? Does the Assessment include reference to, or details of the WHAR?			
12.	Has an existing and proposed sanitary drainage plan been completed? Does the Assessment include discussion of sanitary servicing demands, details, impacts and analysis?			
13.	Does the Assessment discuss geotechnical, hydrogeological issues?			
14.	Does the Assessment discuss short term and long term groundwater dewatering quantities and quality? Is groundwater maintained on-site or proposed for discharge to sewer? Has a capacity assessment been provided for receiving system?			
15.	Does the Assessment identify additional permits or approvals that may be required from various agencies?			

16.	Does the Assessment provide conclusions and recommendations specific to the adequate provision of municipal services for the subject lands including municipal water and sanitary servicing?			
17.	Has the Assessment been completed in accordance with Ontario Building Code (OBC) Part 8 Guide for Sewage Systems?			
18.	Has the Assessment been sealed by a licensed Professional Engineer?			

Qualified Professional who completed this report summary:

Name:_____

Email:_____

Phone:_____

Date:_____

Signature and Stamp:_____

Guideline for Applicants completing the Summary Checklist for Water & Wastewater Generation Assessments

Site Address: Provide municipal address, or lot and concession.

Owner: Provide company name if applicable and name of key contact person.

Project Description: provide brief description – e.g. 20 Ha residential subdivision.

Land Use: e.g. Residential, industrial, commercial/ mixed use residential and commercial.

Prepared By: provide name of consulting firm that completed the study.

1. **Have the subject lands been clearly identified?** List whether report includes legal and physical description of the subject lands.

2. **Has a Location Plan been included? Does the Location Plan clearly identify the property limits, owner(s), adjacent land uses and/or Owner(s)?** List whether the report includes a Location Plan**.**

3. **References to documents or policies that govern the development.** List in the Assessment any relevant planning and/or engineering documents and policies that govern the development.

4. **Have any relevant Master Servicing Plans been discussed or referenced?** List in the Assessment, any relevant servicing studies.

5. **Has record of consultation with City of Hamilton regarding site specific issues and constraints been included?** List whether any consultation has been held with the City and include reference in the Assessment.

6. **Has a water servicing plan been completed? Does the Assessment include discussion of both domestic and fire water servicing demands, details, impacts and analysis?** Confirm that a water servicing plan has been included in the Assessment.

7. **What is the required fire flow (RFF) under OBC?** List the maximum required fire flow per Section A-3 (Appendix A) of the OBC.

8. **What is the City's Target Available Fire flow? See Policy PW19096.** List the maximum Target Available Fire Flow per the City's Policy PW19096.

9. **Does the available fire flow meet or exceed the larger required fire flow (the larger flow from #7 and #8)?** Do the values clearly demonstrate that all maximum fire flows can be met?

10. **Does the residual pressure remain above 140kPa for all fire flow scenarios?** Ensure this is true for all modelled junctions and fire flow scenarios.

11. **Has a Watermain Hydraulic Analysis Report been completed for the proposed development? Does the Assessment include reference to and details of the WHAR?** Confirm whether a WHAR has been completed.

12. **Has an existing and proposed sanitary drainage plan been completed? Does the Assessment include discussion of sanitary servicing demands, details, impacts and analysis?** Confirm whether the Assessment includes sanitary servicing analysis and details.

13. **Does the Assessment discuss geotechnical, hydrogeological issues? Confirm whether the Assessment includes geotechnical and hydrogeological considerations.** Yes/No.

14. **Does the Assessment discuss short term and long term groundwater dewatering quantities and quality? Is groundwater maintained on-site or proposed for discharge to sewer? Has a capacity assessment been provided for receiving system?** Provide discussion within the Assessment with respect to groundwater containment, management and disposal.

15. **Does the Assessment identify additional permits or approvals that may be required from various agencies?** Provide a section in the Assessment that identifies approval requirements.

16. **Does the Assessment provide conclusions and recommendations specific to the adequate provision of municipal services for the subject lands including municipal water, sanitary and storm servicing?** Provide clear

conclusions and recommendations with respect to provision of municipal services.

17. **Has the Assessment been completed in accordance with Ontario Building Code (OBC) Part 8 Guide for Sewage Systems?** Yes/No

18. **Has the report been sealed by a licensed Professional Engineer? Confirm that the Assessment has been sealed.** Yes/No.