

SANITARY SEWER DESIGN BRIEF



**PROJECT NAME AND PROJECT NUMBER OR IDENTIFICATION #
MUNICIPALITY/CITY**

FOR

PROPONENT

Prepared By:

Name of Consulting Company or Division & Section Name

Authors Name and Title

Address

City/Town, ON

Postal Code

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PROJECT AND PROCESS DESCRIPTION

Project and Process Description must comply with Schedule 1 of Reg. 255/11 made under Environmental Protection Act, R.S.O. 1990, c. E.19; The description¹ shall include a brief description of the undertaking (e.g. street name(s); subdivision name, municipality)

Example: (any or all of the paragraphs below where applicable)

Example for an Engineering and Construction project:

The Sanitary Sewer Replacement project (under PR-ZZZZ) will service existing drainage area on Third Line in the Town of Oakville. The design for the proposed works is for replacement of existing sewerage works for the collection of up to 132.6 L/s of sanitary sewage to service an area of 180.23 ha comprised of a mixture of light residential, light commercial and light industrial contributions. The proposed works are summarized below:

sanitary sewers and/or forcemains on [Street Name(s)] from approximately [X] metres north/east/south/west of [Street Name] to approximately [X] metres north/east/south/west of [Street Name], discharging to [existing sewers, forcemain, SWM facility, etc.] located [location];

Example for a development project:

The project will service the proposed XYZ Subdivision (under DO -XXXX) in the Town of Oakville. The design for the proposed sewage works is for the collection of up to xxx.x L/s of sanitary sewage to service an area of xxx.xx ha comprised of a mixture of light residential, light commercial and light industrial contributions. XYZ Subdivision – Phase I is bounded by future residential development UVW to the north, RST on the west, ABC Subd on the east, and Dundas Street to the south. The proposed sewage works are summarized in the table below:

Pipe Diameter (mm)	Total Length (m)	Streets
200	1945.5	Basil Crescent, Fiddlehead Lane, Foxglove Gate, Goldenrod Place, Nightshade Gate, Northumberland Court, Thistle Heights

Examples continue for both types of projects:

The proposed sanitary sewer design is an extension of the existing wastewater collection system that conveys sanitary sewage flows, inclusive of future developments to the west, to the existing sanitary manholes, which include MHs located along BBB Boulevard. The sewage will be ultimately conveyed to the JJDDD sanitary sewage pumping station and ultimately received by the RRROHHH Wastewater Treatment Plan (WWTP) for final treatment before discharging to Lake Ontario.

The proposed sewage works will include approximately 1,400m of 375mm diameter and 110m of 525mm diameter sanitary sewer on Third Line. The works will run 24/7 and convey sewage to Oakville Southwest Wastewater Treatment Plant (WWTP) for final discharge to Lake Ontario.

Additional example lines for sewage works involving forcemain:

The proposed sewage works will include approximately 1,400m of 400mm diameter forcemain on Third Line discharging to an existing maintenance hole (MH RMOH ID#) 50 m west of the intersection with XYZ Street. The works will run 24/7 and convey sewage to Oakville Southwest Wastewater Treatment Plant (WWTP) for final discharge to Lake Ontario.

¹ Ontario Regulation 255/11, Applications for Environmental Compliance Approvals, sets out prescribed requirements for a complete application for an ECA.

This site is not located within the Oak Ridges Moraine Conservation Plan or the Niagara Escarpment areas.²

The sewage works is located within an existing municipal right of way. Zoned as low density residential and institutional³ the site is abutted by residential lands and located within an existing municipal right of way.

The project consists of pre-approved activities under the Environmental Assessment Act, as a Schedule A, Municipal Class, Wastewater project.⁴ A Public Information Centre was held on date (e.g. February 10, 2016) at the Town of Halton Hills, Council Chambers, 1 Halton Hills Drive, Town of Halton Hills (Georgetown).

1.0 PROBLEM STATEMENT & ELIGIBILITY OF THE PRE-AUTHORIZED CONDITIONS

Introduce the project, including the scope and purpose, location, background, discuss the alternatives, and project rationale.

Example:

The XYZ Limited – Phase I lands, owned by ABC Corporation, is proposing a residential development on XXX ha of land in the Town of AAA, Regional Municipality of Halton. The proposed subdivision will require new sanitary sewage works to be operated and maintained by the Region of Halton and Town of AAA.

The following Sanitary Sewer Design Brief is submitted to demonstrate general conformance with Region of Halton Linear Design Manual, MECP design criteria, the requirements of Conservation Halton (CH), and the Ministry of Environment Conservation and Parks (MECP) in preparation for the Environmental Compliance Approval application.

State explicitly that the proposed alterations under this project will not have or be any of the following otherwise these are not pre-authorized and could not be processed under Form SS1.

- pass under or through a body of surface water unless trenchless construction methods are used, or the local conservation authority has authorized the alternative construction method*
- sewers with a nominal diameter greater than 750mm*
- forcemains with a nominal diameter greater than 350mm*
- connect to another municipal sewage collection system*
- create a new discharge point to the natural environment*
- be part of undertaking under Sect. 16⁵ of the EAA (e.g. project has an individual EA)*

Proposed alterations that are not pre-authorized shall seek amendment to the CLI ECA that will have to be submitted directly to MECP for approval.

Example:

None of the sewers or proposed works under this project passes under or through a body of surface water. The sanitary sewers range in size from 200mm to 450mm and none greater than 750mm. There is no forcemain included in this project (or forcemain is not greater than 350mm in nominal diameter). The proposed works do not connect to another municipal sewage collection system nor create a new discharge point to the natural environment. The proposed sewage works are not part of undertaking which is under Sect. 16 of the EAA. For these reasons, the proposed alterations are pre-authorized under the CLI ECA.

² Ministry of Municipal Affairs and Housing: February 2005. The Greenbelt Plan, Appendix I - Schematic showing natural system connections among the Protected Countryside, Niagara Escarpment and Oak Ridges Moraine.

³ Town of Halton Hills: Comprehensive Zoning By-law 2010-0050 (as amended). Accessed online Feb. 19, 2015 http://www.haltonhills.ca/bylaws/pdf/Schedule_A03-1_Georgetown.pdf.

⁴ Municipal Engineers Association: 2011. Municipal Class Environmental Assessment: pg 1-10, A.1.b.8.

⁵ The Minister of the Environment, Conservation and Parks has the authority and discretion to make an Order under section 16 of the Environmental Assessment Act for the proponent of a project to go through the Class Environmental Assessment (Class EA) process.

2.0 PROPONENT & OPERATING AUTHORITY

Describe the proponent of the project and the operating authority for the works. If the owner is an individual or corporation proof of legal name is required, such as the Articles of Incorporation.

Example for development project: The proponent is the Derry Green Subdivision on behalf of Region of Halton.

The Operating Authority for the sanitary sewer works is:

***The Regional Municipality of Halton
1151 Bronte Road, Oakville ON, L6M 3L1***

Example: The proposed sewage works will include approximately 24m of 375mm diameter and 11m of 525mm diameter sanitary sewer on Third Line. The works will run 24/7 and convey sewage to Oakville Southwest Wastewater Treatment Plant (WWTP) for final discharge to Lake Ontario.

3.0 OFFICIAL PLANS AND ZONING

Describe the approved land-use designations based on the latest office consolidation of the Regional and Local Official Plans. Identify any constraints under those designations that are pertinent to the project.

Example: The project area is designated as Urban Area under the Regional Official Plan and designated as Residential under the Local Official Plan. Infrastructure is a permitted use under both the regional and local official plans.

Describe the relevant zoning for the project site/area. The relevant zoning map must be attached with the project site/area clearly indicated (hatched or on a distinguishable colour).

Example: The proposed sanitary sewage works is located within an existing municipal right of way. Zoned as low density residential and institutional⁶ the site is abutted by residential lands and located within an existing municipal right of way.

4.0 PROVINCIAL PLANS

Describe conformity with provincial plans and policies, including the Greenbelt Plan, the Niagara Escarpment Plan and others that may apply based on location.

Example: This site is not located within the Greenbelt Plan or the Niagara Escarpment Plan areas.⁷

If a Niagara Escarpment Planning and Development Act (NEPDA) permit is required it must be described and attached to the design brief.

5.0 ENVIRONMENTAL LEGISLATIONS

Describe compliance with environmental legislation or legislation is not applicable, including the Environmental Assessment Act and the Environmental Bill of Rights, and others that may apply.

⁶ Town of Halton Hills: Comprehensive Zoning By-law 2010-0050 (as amended). Accessed online Feb. 19, 2015 http://www.haltonhills.ca/bylaws/pdf/Schedule_A03-1_Georgetown.pdf.

⁷ Ministry of Municipal Affairs and Housing: February 2005. The Greenbelt Plan, Appendix I - Schematic showing natural system connections among the Protected Countryside, Niagara Escarpment and Oak Ridges Moraine.

Example: The project consists of pre-approved activities under the Environmental Assessment Act, as a Schedule A, Municipal Class, Wastewater project.⁸

If the project is exempt from the EAA, describe the pertinent regulations and sections providing the exemption.

The project is not considered a class of prescribed instrument under the EBR as this does not create a new discharge point to the natural environment (unless it discharges directly to the environment or water body).

The project involves (or does not involve, as the case may be) drainage works as defined⁹ under (or not) the Drainage Act. As such, approval of the petition under the Drainage Act has been obtained, as applicable, or the Drainage Act is not applicable.

6.0 MECP Approvals

Describe compliance with Ontario Water Resources Act with regards to Environmental Compliance Approvals. e.g. is this an amendment to the CLI ECA, are portions of the project exempt, describe approval of downstream systems.

The proposed sewage works are modifications to an existing wastewater collection system. These works are covered and fall under the terms and conditions permitted under the Consolidated Linear Environmental Compliance Approval for the Regional Municipality of Halton, ECA No. 004-W601, issued September 27, 2022, specifically Schedule D.

7.0 CONSULTATION

Describe consultation required and/or completed for the project, including an assessment of the need for indigenous consultation. Where appropriate provide reference to consultations completed under the Environmental Assessment Act and/or Planning Act, including the Region Official Plan, Water and Wastewater Master Plan, and/or Planning Act application.

Example: A Public Information Centre was held February 10, 2016 at the Town of Halton Hills, Council Chambers, 1 Halton Hills Drive, Town of Halton Hills (Georgetown).

The project is listed on the schedule to the Notice of Completion for the Sustainable Halton Water and Wastewater Master Plan, which underwent significant consultation with agencies and interested parties as outlined in the completed report.

In addition, describe how the proposed alterations will not impact Indigenous treaty or asserted rights with respect to the conditions below. In each of these, state explicitly and cite the base document to support the statement:

- whether the project is on Crown land or would alter access to Crown land;
- whether the project is in an open or forested area where hunting, trapping or plant gathering occur;
- whether the project involves clearing of forested lands unless the clearing has been authorized by relevant municipal, provincial, or federal authorities;
- whether the project alters access to a water body;
- whether the proponent is aware of any concerns from Indigenous communities about the proposed project & these concerns have not been resolved;
- whether the conditions respecting indigenous consultation in relation to the project were placed in another permit or approval and have not been met
- whether the proposed alterations do not involve concerns regarding treaty rights or asserted rights that have been raised by one or more Indigenous communities that may be impacted by the alterations

⁸ Municipal Engineers Association: 2011. Municipal Class Environmental Assessment: pg 1-10, A.1.b.8.

⁹ "drainage works" includes a drain constructed by any means, including the improving of a natural watercourse, and includes works necessary to regulate the water table or water level within or on any lands or to regulate the level of the waters of a drain, reservoir, lake or pond, and includes a dam, embankment, wall, protective works or any combination thereof; ("installations de drainage")

Alteration is not authorized under CLI ECA for projects that impact Indigenous treaty rights or asserted rights as detailed above as per Sect.3.11 of Schedule D of the CLI ECA. This means that Form SS1 could not be used and the application has to be submitted directly to the Ministry (MECP). As per Sect 3.13 of the CLI ECA Schedule D, the alteration shall not proceed unless:

- a) Approval for the Alteration is granted by the Ministry (i.e., a Schedule C Notice); or,
- b) The (MECP) Director provides written notice that the Alteration may proceed in accordance with conditions in Schedule D of the CLI ECA

8.0 LAND OWNERSHIP OR CONSENT

Describe who owns the land on which the project will be located, and under what authority the works have been authorized by the owner.

Example: The sewage works will be located in an existing municipal right-of-way owned by the local municipality. The works are authorized through a municipal consent process and will be subject to a road cut permit requirement. The authorized municipal consent is attached to the design brief, the road cut permit will be secured by the contractor completing the work.

Example for development projects:

The proposed sanitary sewage works will be entirely located in a land owned by the developer and none in an existing municipal right-of-way owned by the local municipality.

If permitting is required for crossing or encroachments on provincial highways, railways, or pipelines the method and status of consent must be described also.

9.0 CONSERVATION AUTHORITY

Describe whether the project is located within the regulation limit of a conservation authority, what consultation occurred with the conservation authority, and if permits are required for the project.

Example: The sewage works were reviewed with the Credit Valley Conservation Authority (or Conservation Halton), who provided confirmation that the works are not located within regulation limit under Ontario Regulation xxxx.

Example: The sanitary sewer was not specifically discussed with the Conservation Authority. However, the work is being integrated into the urbanization of Main Street which has undergone consultation with the Conservation Authority.

Example: “Phase 2 of the Mattamy – Bayview-Lexis development is within the jurisdiction of Conservation Halton. The sewage works are not located within regulation limit under Ontario Regulation 162/06 as confirmed by Conservation Halton.”

[IMS comments: We do not need justification as to why the clearance certificate is not needed i.e. Section 4.6 of the ECA Application Form. Any reference to this Section 4.6 of the ECA Application should be deleted. The bolded statement is what is consistently used in our Design Report for all Halton Region projects.]

10.0 SOURCE WATER PROTECTION

Describe what source water protection plan area the works are located within, whether there are vulnerable areas within the project area, and a determination of whether the works constitute a significant threat. Fill-out the Source Protection Screening Form, circulate to the Regional Source Protection Staff for signoff, and attach in the ECA (Form SS1) application (package).

Example: The works are located within the Hamilton/Halton Source Protection Plan area and cross a significant recharge area. The project was submitted to the Risk Management Official for review as part of the design process. The completed Source Protection Screening¹⁰ Form was returned confirming that the works are not a significant threat to municipal drinking water sources. The source protection screening form is attached (as Appendix F).

11.0 CRITERIA FOR SANITARY SEWER DESIGN FLOWS

Explain briefly the basis of the design or the applicable provisions of the Region of Halton Linear Design Manual (most recent version) particularly with respect to the population density, per capita wastewater generator rate, peaking factor used and how this design bases satisfy the minimum requirements set by the MECP Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alteration Authorized under Environmental Compliance. Furthermore, document the reasons and explain briefly how the design is consistent with, or otherwise addresses, the design objectives contained within the MECP Design Guidelines for Sewage Works, as amended.

Sanitary Drainage Area Plan and Sanitary Sewer Design Sheet submitted for review to be sealed and signed by a P.Eng (section 53 of R.R.O. 1990, Reg. 941, made under the Professional Engineers Act, R.S.O. 1990, c. P.28).

Sanitary Drainage Area Plan must also satisfy Site Plan requirements outlined in O. Reg. 255/11 made under Environmental Protection Act, R.S.O. 1990, c. E.19 (municipal boundaries, NEPA or Protected Countryside within 125 m).

Example:

The design is for replacement of existing sewerage works for a service area of 180.23 ha comprised of a mixture of light residential, light commercial and light industrial contributions, as illustrated in the Sanitary Drainage Area Plan, drawing #XX of the engineering plans and specifications.

Example:

The design is for a new sewage works servicing a drainage area of xx.x ha under the proposed development comprised of a mixture of residential, light commercial and industrial contributions.

Standard densities in Tables 3-1 and 3-2 of the Region LDM are used (or higher than typical densities are used as these are available in a Development Charge Study circa YYYY by XYZ Consulting, etc).

The sanitary sewer flows for the proposed development have been calculated in accordance with the Region of Halton's Linear Design Manual Version 5.0 design criteria. The formula to calculate the design flow is:

$$\text{Design Flow} = \text{AverageDry Weather Flow} \times \text{Harmon peaking factor} + \text{Infiltration Allowance}$$

The per capita wastewater generation rate of 275 L/person/day used is within the rate specified in the MECP Design Criteria of 225-450 L/person/day for residential land use. The Inflow and Infiltration Rate Allowance of 0.286 L/s/ha is close but slightly more conservative¹¹ than the Design Criteria value of 0.28 L/s/ha.

Population totals were calculated using Region of Halton standard land use densities and multiplied by corresponding land use areas. The peaking factor was determined using the Harmon Formula.

¹⁰ The Source(water) Protection Screening Form shall be completed by the proponent and be circulated to the Regional Source Protection Staff for sign-off.

¹¹ Everything else being equal, the use of higher I&I factor will result in a larger size sewer.

The sanitary flows have been calculated using Halton Region's design criteria specifically the LDM as indicated above and in accordance with MECP Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alteration Authorized under Environmental Compliance, MECP Design Guidelines for Sewage Works 2008, *for the collection of up to 132.6 L/s of sanitary sewage* as summarized in the Sanitary Sewer Design Sheet, drawing #XX of the engineering plans and specifications.

12.0 DESIGN ITEMS

Describe how the design conformed to MECP Design Criteria¹² for Sanitary Sewers, Storm Sewers and Forcemains for Alteration Authorized under Environmental Compliance and aligns with the intents of the MECP Design Guidelines¹³ (latest version) and comply with the Region of Halton Linear Design Manual, standards and bylaws. Describe conformity, or where gaps exist the rational (deviation memo should be attached). Attach design checklist.

Example:

The items considered in the design of the proposed works were taken from the Linear Design Manual (LDM Version 5.0), MECP Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alterations Authorized under Environmental Compliance, and the MECP Design Guidelines for Sewage Works, as amended, where applicable. The design checklist summarized the checks made item-by-item based on the aforementioned criteria. Items that deviated from the LDM are supported by a Design Deviation Memo signed off by the Commissioner of Public Works Department (or designate).

The Pipe Data Form, Sections 1.0 to 4.0 and 7.0, has been completed and attached as Appendix F - **PIPE DATA FORM (PIBS 6238e)**.

13.0 OPERATIONAL AND CONSTRUCTABILITY REVIEW

State that the operations and maintenance group has been involved in the design and that all anticipated operational and maintenance issues such as flushing and repairs of service laterals including constructability have been addressed or resolved.

Example for a development project: The Water and Wastewater Systems Services Division of the Region's Public Works (PW) Department have reviewed the engineering drawings during the design process. The comments have been addressed and the PW One Window Clearance has been obtained for this project.

14.0 CONTINGENCY PLAN FOR POSSIBLE OVERFLOWS

State that there is a contingency plan for possible overflows, if the project involves forcemain or siphon.

The contingency plan is attached as Appendix H.

15.0 DOWNSTREAM CAPACITY

Describe the flow path and receiving plant of the sewage works, and how capacity of the downstream systems (receiving sewers, pumping station, etc) and including the wastewater treatment plant has been verified.

Proponent must verify capacity of downstream systems to accommodate the design flows. Describe how this has been demonstrated (eg. Allocation letter, modelling, preceding planning exercises, masterplan, ASP, FSR, business case, etc).

¹² Design shall conform, as a minimum, to the MECP Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alteration Authorized under Environmental Compliance

¹³ Design shall be consistent, or otherwise addresses, the design objectives contained within the MECP Design Guidelines for Sewage Works, as amended

Example: The capacity of the downstream system was verified during the preparation of the Functional Servicing Report (FSR) and the Area Servicing Plan (ASP). The comments from the Region of Halton staff on the ASP and FSR for Derry Green Business Park particularly regarding downstream capacity have been addressed.

16.0 TECHNICAL DESCRIPTION

Include a draft Environmental Compliance Approval based on the following format for a technical description of the works (For Application to Amend CLI ECA only)

[the establishment of, or modifications to existing] wastewater infrastructure Works located in the [town/city], consisting of the following:

sanitary sewers and/or forcemains on [Street Name(s)] from approximately [X] metres north/east/south/west of [Street Name] to approximately [X] metres north/east/south/west of [Street Name], discharging to [existing sewers, forcemain, SWM facility, etc.] located [location];

1.

List of Attachments

- A. **Zoning Map (project extent highlighted)**
- B. **Notice of Completion (e.g. W/WW Master Plan)**
- C. **PIC Notice**
- D. **Municipal Consent**
- E. **CA Clearance Letter/Permit**
- F. **Pipe Data Form (PIBS 6238e)**
- G. **Contingency Plan for Possible Overflow (if forcemain or siphon)**
- H. **Environmental Compliance Approval (draft, for ECA Amendment only)**