Ontario

DRINKING WATER WORKS PERMIT

Permit Number: 052-201
Issue Number: 5

Pursuant to the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32, and the regulations made thereunder and subject to the limitations thereof, I hereby issue this drinking water works permit under Part V of the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32 to:

Municipality of Middlesex Centre

10227 Ilderton Road, RR 2
Ilderton, ON N0M 2A0

For the following municipal residential drinking water system:

Middlesex Centre Distribution System

This drinking water works permit includes the following:

Schedule	Description
Schedule A	Drinking Water System Description
Schedule B	General
Schedule C	All documents issued as Schedule C to this drinking water works permit which authorize alterations to the drinking water system

Upon the effective date of this drinking water works permit # 052-201, all previously issued versions of permit # 052-201 are revoked and replaced by this permit.

DATED at TORONTO this 4th day of February, 2022

Signature



Aziz Ahmed, P.Eng.
Director
Part V, *Safe Drinking Water Act*, 2002

Schedule A: Drinking Water System Description

System Owner	**Municipality of Middlesex Centre**
Permit Number	**052-201**
Drinking Water System Name	**Middlesex Centre Distribution System**
Permit Effective Date	**February 4, 2022**

1.0 System Description

1.1 The following is a summary description of the works comprising the above drinking water system:

Overview

The **Middlesex Centre Distribution System** consists of six (6) different sub-systems (Arva, Ballymote, Delaware, Denfield, Ilderton, and Komoka) obtaining water either directly from the Lake Huron Primary Water Supply System (LHPWSS) or from the City of London Distribution System served by LHPWSS.

The Lake Huron Primary Water Supply System (087-101) supplies drinking water to the municipalities of:

- Bluewater (045-101 Hensall Distribution System and 045-102 Bluewater Lakeshore Drinking Water System),
- South Huron (054-101 South Huron Distribution System),
- Lambton Shores (049-101 East and West Lambton Shores Distribution System),
- North Middlesex (002-101 North Middlesex Distribution System),
- Lucan Biddulph (050-101 Lucan Biddulph Distribution System),
- Middlesex Centre (052-101 Middlesex Centre Distribution System),
- Strathroy-Caradoc (058-101 Strathroy-Caradoc Distribution System), and
- City of London (006-101 City of London Drinking Water System).

The City of London Drinking Water System obtains water from 087-101 Lake Huron Primary Water Supply System and 048-101 Elgin Area Primary Water Supply System.

ARVA DISTRIBUTION SUB-SYSTEM

Pumping Station

Waterworks Building

Location	21466 Richmond St
UTM Coordinates	NAD 27: UTM Zone 17: 476300.00 m E., 4765600.00 m N
Equipment	One (1) vertical in-line, manually started, booster pump rated at 4500 L/min
	Two (2) (duty and standby) metering pumps each capable of dosing at a rate of 1.4 L/hr of sodium hypochlorite for rechlorination, if required
Notes	The water supply is obtained from a 1050 mm diameter pipeline from the London distribution system
	100 mm diameter bypass line equipped with a 100 mm bypass valve

BALLYMOTE DISTRIBUTION SUB-SYSTEM

Valve Chamber

Location	2576 Highbury Ave
UTM Coordinates	NAD 83: UTM Zone 17: 480301 m E, 4768157 m N
Equipment	A rechlorination injection point for a portable chlorine feed system
Notes	The water supply is obtained from a 300 mm diameter distribution line in the London distribution system
	100 mm diameter bypass line equipped with a 100 mm bypass valve

DELAWARE DISTRIBUTION SUB-SYSTEM

Delaware Rechlorination Facility

Location	969 Gideon Dr.
UTM Coordinates	NAD 83: UTM Zone 17: 467722 m E., 4754626 m N
Equipment	Two (2) (duty and standby) metering pumps each capable of dosing at a rate of 4.4 L/hr of sodium hypochlorite for rechlorination
	A chemical storage tank
Notes	The water supply is obtained from a 300 mm diameter distribution line in the London distribution system
	100 mm diameter bypass line equipped with a 100 mm bypass valve

Delaware Standpipe

Location	11229 Longwoods Rd.
UTM Coordinates	NAD 83: UTM Zone 17: 466,675 m E., 4,750,600 m N
Description	Standpipe complete with valve house
Capacity	An 8.53 m diameter and 37.4 m high glassed fused to steel standpipe, having a total volume of 2,140 m^3, and an approximate working volume of 400 m^3 between the high water level of and low water level.
Notes	• The standpipe complete with a mixing system, a 200 mm diameter inlet/outlet pipe, a 250 mm diameter overflow pipe, and a 150 mm diameter drain pipe, discharging overflow and drain into a rip rap area. • Associated piping, valves, electrical and mechanical equipment, and instrumentation and operation control in the valve house. • Provision for connecting to portable emergency power. The below works are anticipated to be completed in summer 2022. • Addition of two (2) (one duty and one standby) peristaltic metering pumps each capable of dosing at a maximum rate of 220 L/hr of sodium hypochlorite for secondary disinfection, if required, complete with chlorine residual analyzers for monitoring and control and a day tank.

Delaware Booster Pumping Station

Location	22280 Komoka Road
UTM Coordinates	NAD 83: UTM Zone 17: 465,500 m E., 4,754,075 m N
Equipment	Two (2) variable frequency drive (VFD) in-line booster pumps (one duty, one standby) each rated at 13 L/s at 12 m TDH.
	Bypass line complete with actuated valve to permit for flow from the Kilworth-Komoka Distribution System under low demand conditions without the pumps in operation.
	Pressure relief line from the discharge header to the suction header.
	SCADA system and flow and pressure monitoring.
	Standby Power The facility is connected to the existing emergency generator at the Komoka WWTP.
Notes	The Delaware Booster Pumping Station is anticipated to be completed in summer 2022.

DENFIELD DISTRIBUTION SUB-SYSTEM

Booster Pumping Station and Rechlorination Facility

Location	23856 Denfield Rd
UTM Coordinates	NAD 27: UTM Zone 17: 465050.00 m E., 4774710.00 m N
Equipment	A 130 m^3 on ground storage tank
	Two (2) fixed speed pumps rated at 3.8 L/s at 42.2 m TDH and One (1) variable speed pump rated at 40 L/s at 46 m TDH
	Three (3) hydropneumatic tanks each approximately 1,741 L
	One (1) chemical pump panel for two (2) sodium hypochlorite pumps each rated at 4.9 L/hr metering into the supply prior to the storage tank
	One (1) chemical pump panel for two (2) sodium hypochlorite pumps each rated at 0.41 L/hr metering into the discharge header to the distribution system
	One (1) sodium hypochlorite day tank used for both pre- and post- storage dosing
	PLC and autodialer, with transmitters for incoming and discharge flow rates, chlorine residuals and pressure
	A transfer switch to allow for the connection of a portable generator
Notes	Control valve connecting the Booster Pumping Station to the Lake Huron Primary Water Supply System

ILDERTON DISTRIBUTION SUB-SYSTEM

Pumping Station

Waterworks Building

Location	13467 Ilderton Rd
UTM Coordinates	NAD 27: UTM Zone 17: 469980 m E., 4769860 m N
Equipment	Three (3) vertical turbine pumps (two duty, one standby) each rated at 17 L/s at 59 m TDH installed with variable frequency drives (VFD)
	Two (2) (one duty and one standby) metering pumps each capable of dosing at a rate of 7.5 L/hr of sodium hypochlorite for secondary disinfection if required
Notes	The water supply is obtained via connection to the Lake Huron Primary Water Supply System (LHPWSS).
	Incoming supply to building consists of main 300mm feed which reduces to 200 mm complete with control valve, bypass piping and related appurtenances.
	One (1) 80 kW standby diesel generator complete with diesel fuel tank.
	All piping and appurtenances, miscellaneous valves, SCADA and control instrumentation, electrical/mechanical services, HVAC system, on-line analyzers and flow monitors.

Reservoir

Location	13467 Ilderton Rd
UTM Coordinates	NAD 27: UTM Zone 17: 469980 m E., 4769860 m N
Description	Under-ground reservoir below the Ilderton Pumping Station building
Capacity	455 m^3
Notes	

Ilderton Water Tower

Location	22821 Hyde Park Road in Ilderton
UTM Coordinates	
Description	Elevated storage tank, 300 mm diameter watermain on Hyde Park Road
Capacity	a 15.3 m nominal diameter steel tank on a concrete pedestal, having a working storage capacity of 2,050 m^3 between high water level of 335.1 m AMSL and low water level of 324.1 m AMSL.
Notes	• complete with a 300 mm diameter inlet/outlet pipe and a 200 mm diameter overflow pipe discharging overflows into an overland flow rip rap spillway; • a valve room located at pedestal ground floor level housing various control valves, piping, flowmeter, alarming system and control instrumentation, complete with lighting, heating and ventilation; • access ladder and platform located on the underside of the steel tank, and all other items necessary to have a complete and operable elevated storage tank.

KILWORTH-KOMOKA DISTRIBUTION SUB-SYSTEM

Reservoir

Location	171 Queen Street Komoka
UTM Coordinates	NAD 83: UTM Zone 17: 464350.00 m E., 4756110.00 m N
Description	On-ground storage tank 20.43 m diameter and 8.7 m high
Capacity	2,817 m^3 and 2718 m^3 useable capacity
Notes	

Booster Station and Rechlorination Facility

Location	Booster pumping station located adjacent to the reservoir
UTM Coordinates	NAD 83: UTM Zone 17: 464350.00 m E., 4756110.00 m N
Equipment	One (1) rechlorination facility consisting of four (4) (2 duty and 2 standby) metering pumps and two (2) sodium hypochlorite storage tanks.
	Two (2) booster pumps each rated at 53.7 L/s at a TDH of 34.3 m and equipped with variable frequency drive
Standby Power	150 kW diesel generator set
Notes	SCADA System

Intermediate Booster Pumping Station

Location	166 Railway Ave.
UTM Coordinates	NAD 83: UTM Zone 17: 465080.00 m E., 4755760.00 m N
Equipment	One (1) in-line pump equipped with VFD and rated at 91.2 L/s at a TDH of 20.2 m
	SCADA system and flow and pressure monitoring
Notes	Pump configured to start only in periods of high flow in Kilworth

Komoka Water Tower

Location	10073 Oxbow Dr.
UTM Coordinates	NAD 83: UTM Zone 17, 464347.9944 m E., 4756220.977 m N
Description	1,500 m^3 storage volume

Instrumentation and Control

SCADA System

Description	Middlesex Centre Distribution System
Notes	The Municipality of Middlesex Centre SCADA system is currently a distributed SCADA System with two (2) SCADA hubs at 22280 Komoka Road (Komoka WWTF) and at 147 Meadow Creek Drive (Ilderton WWTP). The Komoka location is equipment with HMI desktop server, and Historian desktop server. There is local data collection at each site via operator interface terminal or Endress and Hauser paperless recorder. Some servers/computer are utilizing the Windows Server 2003 R2 32bit within the overall SCADA. Windows XP SP3 32bit Komoka BPS, Ilderton BPS, Denfield BPS, Delaware Re-Chlorination, SCADA Software varies per site, Rockwell FactoryTalk View V5.1 at 22280 Komoka Road, Ilderton BPS, Komoka BPS, Denfield BP, Delaware Re-Chlorination has a local Data Collector – Dell Workstation Historical data is collected four (4) methods 1. Remotely via Rockwell FactoryTalk Historian V2.2, VantagePoint reporting tools. 2. Remotely via Inductive Automation collection, eRIS eporting tools. 3. Locally via Endress and Hauser paperless recorders. REMOTE SITES: Ballymote, Birr, and Arva BPS are connected to remote historical database via FieldCare software. This software must be continually running to allow Ignition Historian to log the same data set that the E&H paperless recorder is logging.

Fuel Oil Systems

Ilderton Reservoir and Pump Station

Location	13467 Ilderton Rd NAD27:UTM 17:469980 m E.,4769860 m N
Description	External 80 kw standby diesel generator with diesel storage of 813.9 litres
Fuel Type	Diesel
Source Protection Area	Upper Thames River Source Protection Area and St. Clair Region Source Protection Area
Notes	

Kilworth - Komoka Booster Station & Rechlorination Station.

Location	171 Queen Street, Komoka NAD 83: UTM Zone 17: 464350.00 m E., 4756110.00 m N
Description	150 kW diesel generator with 1,137 liters storage
Fuel Type	Diesel
Source Protection Area	Upper Thames River Source Protection Area
Notes	

Denfield Booster Pumping Station and Rechlorination Facility

Location	23856 Denfield Rd NAD 27: UTM Zone 17: 465050.00 m E., 4774710.00 m N
Description	62.5 kW Portable trailer unit with diesel generator. Storage tank volume unknown
Fuel Type	Diesel
Source Protection Area	Ausable Bayfield Source Protection Area
Notes	

Watermains

1.2 Watermains within the distribution system comprise:

1.2.1 Watermains that have been set out in each document or file identified in column 1 of Table 1.

Table 1: Watermains

Column 1 Document or File Name	Column 2 Date
MC_Distribution_Mapping_2020.pdf	May 14, 2020

1.2.2 Watermains that have been added, modified, replaced or extended further to the provisions of Schedule C of this drinking water works permit on or after the date identified in column 2 of Table 1 for each document or file identified in column 1.

1.2.3 Watermains that have been added, modified, replaced or extended further to an authorization by the Director on or after the date identified in column 2 of Table 1 for each document or file identified in column 1.

Schedule B: General

System Owner	**Municipality of Middlesex Centre**
Permit Number	**052-201**
Drinking Water System Name	**Middlesex Centre Distribution System**
Permit Effective Date	**February 4, 2022**

1.0 Applicability

1.1 In addition to any other applicable legal requirements, the drinking water system identified above shall be altered and operated in accordance with the conditions of this drinking water works permit and the licence #052-101.

1.2 The definitions and conditions of licence #052-101 are incorporated into this permit and also apply to this drinking water system.

2.0 Alterations to the Drinking Water System

2.1 Any document issued by the Director to be incorporated into Schedule C to this drinking water works permit shall provide authority to alter the drinking water system in accordance with the applicable conditions of this drinking water works permit and licence #052-101.

2.2 All documents issued by the Director as described in condition 2.1 shall form part of this drinking water works permit.

2.3 All parts of the drinking water system in contact with drinking water that are added, modified, replaced, extended shall be disinfected in accordance with a procedure approved by the Director or in accordance with the applicable provisions of the following documents:

a) Until August 2, 2022, the ministry's Watermain Disinfection Procedure, dated November 2015. As of August 3, 2022, the ministry's Watermain Disinfection Procedure, dated August 1, 2020;
b) Subject to condition 2.3.2, any updated version of the ministry's Watermain Disinfection Procedure;
c) AWWA C652 – Standard for Disinfection of Water-Storage Facilities;
d) AWWA C653 – Standard for Disinfection of Water Treatment Plants; and
e) AWWA C654 – Standard for Disinfection of Wells.

2.3.1 For greater clarity, where an activity has occurred that could introduce contamination, including but not limited to repair, maintenance, or physical / video inspection, all equipment that may come in contact with the drinking water system shall be disinfected in accordance with the requirements of condition 2.3. above.

2.3.2 Updated requirements described in condition 2.3 b) are effective six months from the date of publication of the updated Watermain Disinfection Procedure.

2.4 The owner shall notify the Director in writing within thirty (30) days of the placing into service or the completion of any addition, modification, replacement, removal or extension of the drinking water system which had been authorized through:

2.4.1 Schedule B to this drinking water works permit which would require an alteration of the description of a drinking water system component described in Schedule A of this drinking water works permit;

2.4.2 Any document to be incorporated in Schedule C to this drinking water works permit respecting works other than watermains; or

2.4.3 Any approval issued prior to the issue date of the first drinking water works permit respecting works other than watermains which were not in service at the time of the issuance of the first drinking water works permit.

2.5 The notification required in condition 2.4 shall be submitted using the "Director Notification Form" published by the Ministry.

2.6 For greater certainty, the notification requirements set out in condition 2.4 do not apply to any addition, modification, replacement, removal or extension in respect of the drinking water system which:

2.6.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03;

2.6.2 Constitutes maintenance or repair of the drinking water system; or

2.6.3 Is a watermain authorized by condition 3.1 of Schedule B of this drinking water works permit.

2.7 The owner shall notify the legal owner of any part of the drinking water system that is prescribed as a municipal drinking water system by section 2 of O. Reg. 172/03 of the requirements of the licence and this drinking water works permit as applicable to the prescribed system.

2.8 For greater certainty, the owner may only carry out alterations to the drinking water system in accordance with this drinking water works permit after having satisfied other applicable legal obligations, including those arising from the *Environmental Assessment Act*, *Niagara Escarpment Planning and Development Act*, *Oak Ridges Moraine Conservation Act, 2001* and *Greenbelt Act, 2005*.

3.0 Watermain Additions, Modifications, Replacements and Extensions

3.1 The owner may alter the drinking water system, or permit it to be altered by a person acting on the owner's behalf, by adding, modifying, replacing or extending a watermain within the distribution system subject to the following conditions:

3.1.1 The design of the watermain addition, modification, replacement or extension:

a) Has been prepared by a licensed engineering practitioner;

b) Has been designed only to transmit water and has not been designed to treat water;

c) Satisfies the design criteria set out in the Ministry publication “Watermain Design Criteria for Future Alterations Authorized under a Drinking Water Works Permit – June 2012”, as amended from time to time; and

d) Is consistent with or otherwise addresses the design objectives contained within the Ministry publication “Design Guidelines for Drinking Water Systems, 2008”, as amended from time to time.

3.1.2 The maximum demand for water exerted by consumers who are serviced by the addition, modification, replacement or extension of the watermain will not result in an exceedance of the rated capacity of a treatment subsystem or the maximum flow rate for a treatment subsystem component as specified in the licence, or the creation of adverse conditions within the drinking water system.

3.1.3 The watermain addition, modification, replacement or extension will not adversely affect the distribution system’s ability to maintain a minimum pressure of 140 kPa at ground level at all points in the distribution system under maximum day demand plus fire flow conditions.

3.1.4 Secondary disinfection will be provided to water within the added, modified, replaced or extended watermain to meet the requirements of O. Reg. 170/03.

3.1.5 The watermain addition, modification, replacement or extension is wholly located within the municipal boundary over which the owner has jurisdiction.

3.1.6 The owner of the drinking water system consents in writing to the watermain addition, modification, replacement or extension.

3.1.7 A licensed engineering practitioner has verified in writing that the watermain addition, modification, replacement or extension meets the requirements of condition 3.1.1.

3.1.8 The owner of the drinking water system has verified in writing that the watermain addition, modification, replacement or extension meets the requirements of conditions 3.1.2 to 3.1.6.

3.2 The authorization for the addition, modification, replacement or extension of a watermain provided for in condition 3.1 does not include the addition, modification, replacement or extension of a watermain that:

3.2.1 Passes under or through a body of surface water, unless trenchless construction methods are used;

3.2.2 Has a nominal diameter greater than 750 mm;

3.2.3 Results in the fragmentation of the drinking water system; or

3.2.4 Connects to another drinking water system, unless:

a) Prior to construction, the owner of the drinking water system seeking the connection obtains written consent from the owner or owner’s delegate of the drinking water system being connected to; and

b) The owner of the drinking water system seeking the connection retains a copy of the written consent from the owner or owner's delegate of the drinking water system being connected to as part of the record that is recorded and retained under condition 3.3.

3.3 The verifications required in conditions 3.1.7 and 3.1.8 shall be:

3.3.1 Recorded on "Form 1 – Record of Watermains Authorized as a Future Alteration", as published by the Ministry, prior to the watermain addition, modification, replacement or extension being placed into service; and

3.3.2 Retained for a period of ten (10) years by the owner.

3.4 For greater certainty, the verification requirements set out in condition 3.3 do not apply to any addition, modification, replacement or extension in respect of the drinking water system which:

3.4.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or

3.4.2 Constitutes maintenance or repair of the drinking water system.

3.5 The document or file referenced in Column 1 of Table 1 of Schedule A of this drinking water works permit that sets out watermains shall be retained by the owner and shall be updated to include watermain additions, modifications, replacements and extensions within 12 months of the addition, modification, replacement or extension.

3.6 The updates required by condition 3.5 shall include watermain location relative to named streets or easements and watermain diameter.

3.7 Despite clause (a) of condition 3.1.1 and condition 3.1.7, with respect to the replacement of an existing watermain or section of watermain that is 6.1 meters in length or less, if a licensed engineering practitioner has:

3.7.1 inspected the replacement prior to it being put into service;

3.7.2 prepared a report confirming that the replacement satisfies clauses (b), (c) and (d) of condition 3.1.1 (i.e. "Form 1 – Record of Watermains Authorized by a Future Alteration" (Form 1), Part 3, items No. 2, 3 and 4); and

3.7.3 appended the report referred to in condition 3.7.2 to the completed Form 1,

the replacement is exempt from the requirements that the design of the replacement be prepared by a licensed engineering practitioner and that a licensed engineering practitioner verify on Form 1, Part 3, item No. 1 that a licensed engineering practitioner prepared the design of the replacement.

3.8 For greater certainty, the exemption in condition 3.7 does not apply to the replacement of an existing watermain or section of watermain if two or more sections of pipe, each of which is 6.1 meters in length or less, are joined together, if the total length of replacement pipes joined together is greater than 6.1 meters.

4.0 Minor Modifications to the Drinking Water System

4.1 The drinking water system may be altered by adding, modifying or replacing the following components in the drinking water system:

4.1.1 Coagulant feed systems in the treatment system, including the location and number of dosing points:

a) Prior to making any alteration to the drinking water system under condition 4.1.1, the owner shall undertake a review of the impacts that the alteration might have on corrosion control or other treatment processes; and

b) The owner shall notify the Director in writing within thirty (30) days of any alteration made under condition 4.1.1 and shall provide the Director with a copy of the review.

c) The notification required in condition 4.1.1 b) shall be submitted using the "Director Notification Form" published by the Ministry

4.1.2 Instrumentation and controls, including new SCADA systems and upgrades to SCADA system hardware;

4.1.3 SCADA system software or programming that:

a) Measures, monitors or reports on a regulated parameter;
b) Measures, monitor or reports on a parameter that is used to calculate CT; or,
c) Calculates CT for the system or is part of the process algorithm that calculates log removal, where the impacts of addition, modification or replacement have been reviewed by a licensed engineering practitioner;

4.1.4 Filter media, backwashing equipment, filter troughs, and under-drains and associated equipment in the treatment system;

4.1.5 Spill containment works; or,

4.1.6 Coarse screens and fine screens.

4.2 The drinking water system may be altered by adding, modifying, replacing or removing the following components in the drinking water system:

4.2.1 Treated water pumps, pressure tanks, and associated equipment;

4.2.2 Raw water pumps and process pumps in the treatment system;

4.2.3 Inline booster pumping stations that are not associated with distribution system storage facilities and are on a watermain with a nominal diameter not exceeding 200 mm;

4.2.4 Re-circulation devices within distribution system storage facilities;

4.2.5 In-line mixing equipment;

4.2.6 Chemical metering pumps and chemical handling pumps;

4.2.7 Chemical storage tanks (excluding fuel storage tanks) and associated equipment; or,

4.2.8 Measuring and monitoring devices that are not required by regulation, by a condition in the Drinking Water Works Permit, or by a condition otherwise imposed by the Ministry.

4.2.9 Chemical injection points;

4.2.10 Valves.

4.3 The drinking water system may be altered by replacing the following:

4.3.1 Raw water piping, treatment process piping or treated water piping within the treatment subsystem;

4.3.2 Measuring and monitoring devices that are required by regulation, by a condition in the Drinking Water Works Permit or by a condition otherwise imposed by the Ministry.

4.3.3 Coagulants and pH adjustment chemicals, where the replacement chemicals perform the same function;

a) Prior to making any alteration to the drinking water system under condition 4.3.3, the owner shall undertake a review of the impacts that the alteration might have on corrosion control or other treatment processes; and

b) The owner shall notify the Director in writing within thirty (30) days of any alteration made under condition 4.3.3 and shall provide the Director with a copy of the review.

c) The notification required in condition 4.3.3 b) shall be submitted using the "Director Notification Form" published by the Ministry

4.4 Any alteration of the drinking water system made under conditions 4.1, 4.2 or 4.3 shall not result in:

4.4.1 An exceedance of a treatment subsystem rated capacity or a treatment subsystem component maximum flow rate as specified in the licence;

4.4.2 The bypassing or removal of any unit process within a treatment subsystem;

4.4.3 The addition of any new unit process other than coagulation within a treatment subsystem;

4.4.4 A deterioration in the quality of drinking water provided to consumers;

4.4.5 A reduction in the reliability or redundancy of any component of the drinking water system;

4.4.6 A negative impact on the ability to undertake compliance and other monitoring necessary for the operation of the drinking water system; or

4.4.7 An adverse effect on the environment.

4.5 The owner shall verify in writing that any addition, modification, replacement or removal of drinking water system components in accordance with conditions 4.1, 4.2 or 4.3 has met the requirements of the conditions listed in condition 4.4.

4.6 The verifications and documentation required in condition 4.5 shall be:

4.6.1 Recorded on "Form 2 – Record of Minor Modifications or Replacements to the Drinking Water System" published by the Ministry, prior to the modified or replaced components being placed into service; and

4.6.2 Retained for a period of ten (10) years by the owner.

4.7 For greater certainty, the verification requirements set out in conditions 4.5 and 4.6 do not apply to any addition, modification, replacement or removal in respect of the drinking water system which:

4.7.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or

4.7.2 Constitutes maintenance or repair of the drinking water system, including software changes to a SCADA system that are not listed in condition 4.1.3

4.8 The owner shall update any drawings maintained for the drinking water system to reflect the modification or replacement of the works, where applicable.

5.0 Equipment with Emissions to the Air

5.1 The drinking water system may be altered by adding, modifying or replacing any of the following drinking water system components that may discharge or alter the rate or manner of a discharge of a compound of concern to the air:

5.1.1 Any equipment, apparatus, mechanism or thing that is used for the transfer of outdoor air into a building or structure that is not a cooling tower;

5.1.2 Any equipment, apparatus, mechanism or thing that is used for the transfer of indoor air out of a space used for the production, processing, repair, maintenance or storage of goods or materials, including chemical storage;

5.1.3 Laboratory fume hoods used for drinking water testing, quality control and quality assurance purposes;

5.1.4 Low temperature handling of compounds with a vapor pressure of less than 1 kilopascal;

5.1.5 Maintenance welding stations;

5.1.6 Minor painting operations used for maintenance purposes;

5.1.7 Parts washers for maintenance shops;

5.1.8 Emergency chlorine and ammonia gas scrubbers and absorbers;

5.1.9 Venting for activated carbon units for drinking water taste and odour control;

5.1.10 Venting for a stripping unit for methane removal from a groundwater supply;

5.1.11 Venting for an ozone treatment unit;

5.1.12 Natural gas or propane fired boilers, water heaters, space heaters and make-up air units with a total facility-wide heat input rating of less than 20 million kilojoules per hour, and with an individual fuel energy input of less than or equal to 10.5 gigajoules per hour; or

5.1.13 Emergency generators that fire No. 2 fuel oil (diesel fuel) with a sulphur content of 0.5 per cent or less measured by weight, natural gas, propane, gasoline or biofuel, and that are used for emergency duty only with periodic testing.

5.2 The owner shall not make an addition, modification, or replacement described in condition 5.1 in relation to an activity that is not related to the treatment and/or distribution of drinking water.

5.3 The emergency generators identified in condition 5.1.13 shall not be used for non-emergency purposes including the generation of electricity for sale or for peak shaving purposes.

5.4 The owner shall prepare an emission summary table for nitrogen oxides emissions only, for each addition, modification or replacement of emergency generators identified in condition 5.1.13.

Performance Limits

5.5 The owner shall ensure that a drinking water system component identified in conditions 5.1.1 to 5.1.13 is operated at all times to comply with the following limits:

5.5.1 For equipment other than emergency generators, the maximum concentration of any compound of concern at a point of impingement shall not exceed the corresponding point of impingement limit;

5.5.2 For emergency generators, the maximum concentration of nitrogen oxides at sensitive receptors shall not exceed the applicable point of impingement limit, and at non-sensitive receptors shall not exceed the Ministry half-hourly screening level of 1880 ug/m^3 as amended; and

5.5.3 The noise emissions comply at all times with the limits set out in publication NPC-300, as applicable.

5.6 The owner shall verify in writing that any addition, modification or replacement of works in accordance with condition 5.1 has met the requirements of the conditions listed in condition 5.5.

5.7 The owner shall document how compliance with the performance limits outlined in condition 5.5.3 is being achieved, through noise abatement equipment and/or operational procedures.

5.8 The verifications and documentation required in conditions 5.6 and 5.7 shall be:

5.8.1 Recorded on “Form 3 – Record of Addition, Modification or Replacement of Equipment Discharging a Contaminant of Concern to the Atmosphere”, as published by the Ministry, prior to the additional, modified or replacement equipment being placed into service; and

5.8.2 Retained for a period of ten (10) years by the owner.

5.9 For greater certainty, the verification and documentation requirements set out in conditions 5.6 and 5.8 do not apply to any addition, modification or replacement in respect of the drinking water system which:

5.9.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or

5.9.2 Constitutes maintenance or repair of the drinking water system.

5.10 The owner shall update any drawings maintained for the works to reflect the addition, modification or replacement of the works, where applicable.

6.0 Previously Approved Works

6.1 The owner may add, modify, replace or extend, and operate part of a municipal drinking water system if:

6.1.1 An approval was issued after January 1, 2004 under section 36 of the SDWA in respect of the addition, modification, replacement or extension and operation of that part of the municipal drinking water system;

6.1.2 The approval expired by virtue of subsection 36(4) of the SDWA; and

6.1.3 The addition, modification, replacement or extension commenced within five years of the date that activity was approved by the expired approval.

7.0 System-Specific Conditions

7.1 Not applicable

8.0 Source Protection

8.1 Not applicable

Schedule C: Authorization to Alter the Drinking Water System

System Owner	**Municipality of Middlesex Centre**
Permit Number	**052-201**
Drinking Water System Name	**Middlesex Centre Distribution System**
Permit Effective Date	**February 4, 2022**

1.0 General

1.1 Table 2 provides a reference list of all documents to be incorporated into Schedule C that have been issued as of the date that this permit was issued.

1.1.1 Table 2 is not intended to be a comprehensive list of all documents that are part of Schedule C. For clarity, any document issued by the Director to be incorporated into Schedule C after this permit has been issued is considered part of this drinking water works permit.

Table 2: Schedule C Documents

Column 1 Issue #	Column 2 Issued Date	Column 3 Description	Column 4 Status	Column 5 DN#
1	November 28, 2014	Ilderton water storage tower and upgrades at Ilderton booster pumping station.	Archived	1
2	April 13, 2018	Construction of Delaware Standpipe (decommissioning of the old one)	Archived	2
3	October 8, 2021	Construction of Delaware Booster Pumping Station and chlorination system for Delaware Standpipe	Anticipated completion in 2022	TBD

1.2 For each document described in columns 1, 2 and 3 of Table 2, the status of the document is indicated in column 4. Where this status is listed as 'Archived', the approved alterations have been completed and relevant portions of this permit have been updated to reflect the altered works. These 'Archived' Schedule C documents remain as a record of the alterations.

Schedule C: Authorization to Alter the Drinking Water System

System Owner	**Municipality of Middlesex Centre**
Permit Number	**052-201**
Drinking Water System Name	**Middlesex Centre Distribution System**
Schedule C Issue Number	**4**

Pursuant to the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32 and the regulations made thereunder and subject to the limitations thereof, this schedule is being issued under Part V of the *Safe Drinking Water Act*, 2002, S.O., c. 32 to the owner of the drinking water system to amend the drinking water works permit to authorize alterations to the drinking water system as follows:

Proposed Alterations

The proposed alteration for the Middlesex Centre Distribution System is for the new Melrose Water Interconnection to the Lake Huron Primary Water Supply System (LHPWSS), the conversion of the existing storage tanks (the two celled reservoir, the clear well chamber, the decant cell, and the aeration storage) and high lift works in the Melrose water treatment system to a booster pumping station (BPS), the decommissioning of the Melrose water treatment system (two wells and the existing treatment system including chlorine disinfection, aeration and filtration aesthetic treatment) and the consequent incorporation of the Melrose Drinking Water System into the Middlesex Centre Distribution System, and all the associated process piping, watermains, valves, electrical and mechanical equipment, and instrumentation, all in accordance with the applications, plans and supporting documentation listed in Table 1 of this schedule.

MELROSE DISTRIBUTION SUB-SYSTEM

Pumping Station

Waterworks Building

Location	7 Wynfield Gate.
UTM Coordinates	NAD 27: UTM Zone 17, 467750.00 m E., 47607000.00 m N.
Equipment	Two (2) vertical turbine pumps (one duty, one standby), each rated at 5.37 L/s at 45 m TDH, with variable frequency drives (VFD).
	One (1) vertical turbine fire pump rated at 38.0 L/s at 45 m TDH, with a variable frequency drive (VFD).
	One (1) vertical turbine fire pump rated at 38.0 L/s at 38 m TDH, with a variable frequency drive (VFD).
	One (1) re-chlorination facility consisting of two (2) sodium hypochlorite metering pumps, with injections into the supply header prior to the reservoir and/or discharge header prior to water entering the distribution system, with one (1) sodium hypochlorite day tank.
Standby Power	One (1) 60 kW standby natural gas generator.
Notes	The water supply is obtained via connection to the Lake Huron Primary Water Supply System (LHPWSS) through a 250mm watermain along Vanneck Road and Wynfield Gate to the Pumping Station.

Reservoir and Pump Wells

Location	7 Wynfield Gate.
UTM Coordinates	NAD 27: UTM Zone 17, 467750.00 m E., 47607000.00 m N.
Capacity	One two celled reservoir, each with a capacity of 184.3 m^3 for holding treated water from the LHPWSS supply.
	Two (2) separate pump wells, Pump Well 1 with an approximate capacity of 47.5 m^3, and Pump Well 2 with an approximate capacity of 55 m^3.
Notes	• The two celled reservoir and Pump Well 1 are from the existing two celled reservoir and clear well chamber in the Melrose water treatment plant. • The Pump Well 2 is from the repurposed existing decant cell and aeration storage in the Melrose the Melrose water treatment plant.

Licence Amendments

In consideration of the proposed alterations, the licence with respect to the Middlesex Centre Distribution System will be amended to reflect the updated works after receiving the corresponding director notifications.

Applications, Plans and Supporting Documentation

Table 1	
Application dated August 15, 2024	Design brief of "Design Brief for the Melrose LHPWSS Interconnect", dated June 21, 2024, prepared by Stantec Consulting Ltd.
	Email correspondences in August, 2024, from Stantec Consulting Ltd.
Notes	

The conditions of the drinking water works permit and the licence apply, as applicable, to the alterations of the drinking water system authorized by the issuance of this schedule to the drinking water works permit.

Except as otherwise provided by the drinking water works permit and the licence, the proposed alterations described in this schedule shall be designed, developed, built, operated and maintained in accordance with this schedule and the documentation listed in Table 1.

DATED at TORONTO this 11th day of September, 2024

Signature



Aziz Ahmed, P.Eng.
Director
Part V, *Safe Drinking Water Act*, 2002

Schedule C: Authorization to Alter the Drinking Water System

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Permit Number	**052-201**
Drinking Water System Name	**Middlesex Centre Distribution System**
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Signature



Aziz Ahmed, P.Eng.
Director
Part V, *Safe Drinking Water Act*, 2002