Regional Municipality of Halton

Water and Wastewater Linear Design Manual

Revision Information Sheets

March 2026 LDM Version 7 to 8

Superseded/Cancelled LDM V7	Revised/New LDM V8	Item / Content	Action
Version 7	Version 8	AODA compliant	Revised

December 2025 - LDM Version 6 to 7

Superseded/Cancelled LDM V6	Revised/New LDM V7	Item / Content	Action
1.0 “ABOUT THIS MANUAL”; Public Works – Engineering & Construction	1.0 “ABOUT THIS MANUAL”; Public Works – **Development Services**	Department name updated; commissioner name updated; wording alignment	Revised
1.2 Other Halton Reference Manuals (list only, no live links)	1.2 Other Halton Reference Manuals (includes **live references/links**, clarifies “as amended”)	Adds explicit linked references to by-laws, manuals, master plan and DC studies	Revised
2.2 Design Water Demand (pressure zones ≈ 30 m)	2.2 Design Water Demand (pressure zones ≈ **26–30 m**; **all-pipe** hydraulic model reference)	Clarifies pressure zone range; references all-pipe model and booster stations	Revised
2.3 Equivalent Population (uses densities; DC Background Study noted qualitatively)	2.3 Equivalent Population (**adds Tables for Persons/Unit and m²/Employee; sets L/cap/day = Residential 230; ICI 190**)	Introduces quantitative PPU & m²/employee tables; sets explicit L/cap/day values	New/Revised
Table 2-2: Peak Hour factor per land use	Table 2-5: **Max Day/Peak Hour factors** (**MD 1.9 lake / 1.6 well; PH 3.0**)	Replaces land-use peaking with supply-based peaking; lowers PH factor; adds MD factors	Revised

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2.5 Hydraulic Design – C-factors (Table 2-3)	2.5 Hydraulic Design – C-factors (**Table 2-6**, same values; wording tightened)	Table reference renumbered; notes clarified (C=140 for transient; "include minor losses")	Renumber/ Revised
2.5.3 Minimum Pipe Sizes: Residential min **150 mm**	2.5.3 Minimum Pipe Sizes: Residential min **150 mm**; **ICI min 200 mm** or per flow	Explicit minimum 200 mm requirement added for ICI	Revised
2.6 System Layout – Grid Design (no HDD exception)	2.6 System Layout – Grid Design (**allows pipe barrel deflection only with fusible HDD**; 90° bends not permitted)	Adds HDD exception; reiterates no 90° bends	Revised
2.6 Permanent Easements (widths, offsets, 1:1 slope; encasement not substitute)	2.6 Permanent Easements (**adds construction access requirement; clarifies 3 m clear outside pipe; adds excavation 1:1 projection, and "all infrastructure in easements placed within casings"**)	Strengthens easement construction & placement rules	Revised
2.6 Separation from sewers – crossings (insulation when low cover; no minimum cover stated)	2.6 Separation – crossings (**introduces explicit minimum cover = 1.2 m with insulation per RH 408.020 when crossing over sewers**)	New minimum cover trigger and insulation note	New/Revised
2.6 Valves – Gate valves ≥400 mm in chambers; bypass required only for >400 mm (implied)	2.6 Valves – **Gate valves >400 mm require permanent bypass line**; chamber standards referenced	Makes bypass requirement explicit and tied to **AWWA C500**	Revised
2.6 Air management (air release valves ≥400 mm; hydrants at high points mentioned generally)	2.6 Air management (**explicitly requires hydrants at high points on mains <400 mm, with valving for air in/out**)	Clarifies air handling on small diameter mains	Revised

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Table 2-4 Hydrant Spacing (Residential; Commercial/Industrial/High Density & Mixed Use)	Table 2-7 Hydrant Spacing (**adds Institutional**, same max spacing)	Category list expanded; table renumbered	Renumber/ Revised
Table 2-5 Swab/Access Port Size	Table 2-8 Swab/Access Port Sizes (same sizing; **max spacing stated "≤1 km"**)	Adds explicit max spacing statement	Renumber/ Revised
Table 2-6 Preferred Design Range (materials incl. PVCO, FPP, Copper)	Table 2-9 Preferred Design Range (same materials; wording tightened; DI class notes clarified)	Table renumbered; minor notes adjustments (e.g., DI pressure class wording)	Renumber/ Revised
2.8 Removal & Abandoning (permit abandon in place; OPSS 510 reference)	2.8 Removal & Abandoning (**states "abandoned pipes shall be completely removed"; still allows OPSS 510 if left in place & adds grouting reference**)	Stronger preference to **remove**; adds grouting call-out	Revised
2.9 Service Connections (general rules; transmission mains: **no services**)	2.9 Service Connections (**new tiered policy by main function/size: Transmission, Major Feeders (>600, ≤600), Local Feeders (400–500)**; special cases for industrial)	Introduces connection policy matrix by main function	New/Revised
2.10 Corrosion Prevention (petrolatum coatings **preferred**)	2.10 Corrosion Prevention (**petrolatum coatings now "**required**" method; clarifies anode sizes: **10.8 kg** zinc for copper services; **11 kg** for fittings per OPSS amend.)	Tightens requirements; adjusts **anode weights** and references	Revised
3.2 Design Flow (wastewater) – Average Dry Weather Flow determined via densities; no explicit L/cap/day values	3.2 Design Flow – **sets L/cap/day** (**Residential 215; ICI 185**); adds Persons/Unit & m²/Employee tables	Adds explicit flow criteria inputs and supporting tables	New/Revised

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3.2 Peak Factor – Modified Harmon formula (**K_av** land-use weighting)	3.2 Peak Factor – Modified Harmon simplified (**M = 1 + 14/(4+Pe)**; minimum M=2.0)	Simplifies peaking equation; removes K_av weighting	Revised
3.3 Flow Velocities (min 0.6 m/s; max 3.0 m/s)	3.4 Flow Velocities (**calculations to use actual depth when not full; same min/max**)	Calculation guidance refined	Revised/Renumber
3.5 Minimum Grades (first leg ≥1% then design for 0.6 m/s)	3.5 Minimum Slopes (**sets global minimum slope 0.2%**; **first leg remains ≥1%**)	Introduces 0.2% baseline minimum slope plus existing first-leg rule	New/Revised
3.3 Pipe Size (Residential min **200 mm**; ICI "per flow")	3.3 Pipe Size (**Residential min 200 mm; ICI min 250 mm)**	Increases minimum ICI diameter to 250 mm	Revised
3.6 System Layout – maintenance holes, flooding notes general	3.6 System Layout (**adds overland flow route constraint**; vents/watertight covers if within 25-yr flow path)	Adds **overland flow route siting** requirement	New/Revised
Bedding & Backfill (Granular A bedding; OPSS MUNI 401; generic aggregate)	Bedding & Backfill (**Water:** Granular A bedding; **Wastewater:** explicitly **Granular A CRL** bedding; no "High Performance" aggregate)	Materials and 'no high-performance aggregate' clarified	Revised
Tracer Wire (10-gauge TWU; loops at valves; general)	Tracer Wire (**adds handwells/valve boxes at 150 m intervals for forcemains; no wire joints on forcemains**)	Adds **traceability infrastructure** for forcemains	New/Revised
Forcemain discharge (general MH/wet well note)	Forcemain discharge (**transition MH design details**; smooth transition; entry ≤0.3 m above flow line; min MH Ø=1200 mm)	Adds specific discharge design requirements	New

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Appendices list (Deviation Memo; OPSD/OPSS; Standard Drawings incl. Water Meter & Backflow series named slightly differently)	Appendices list (**renamed** “Backflow Prevention Assembly Standard Drawings (600 Series)”; minor wording updates)	Minor naming/wording alignment	Revised