Village of Lytton

VILLAGE OF LYTTON

Water System Infrastructure Evaluation

Report to Council

August 12, 2025

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WATER SYSTEM INFRASTRUCTURE EVALUATION

- This summary based on:
  - Infrastructure evaluation by Archimedes and Mundall Engineering.
  - Historic reports from last 20 years.
- Focus of this presentation on system summary and major concerns.

WATER SYSTEM INFRASTRUCTURE EVALUATION

- Other Historic Reports
  - Over the last 20 years a number of reports completed.
  - McElhanney, Circa 2008, New Wells Pre-design.
  - OPUS, 2016 Water Capital Plan.
  - Various Golder Reports, Source Water Protection, Well Head Protection.

WATER SYSTEM COMPONENTS

Typical Water Systems Include:

- Water Supply (wells, surface water intake, raw water piping).
- Water Treatment (4-3-2-1-0).
- Water Storage (provides capacity for domestic use and fire storage).
- Water Distribution (potable water from reservoir to point-of-use.

WATER SYSTEM COMPONENTS

Village of Lytton

Lytton Water System:

- Lytton Creek Intake.
- 3 Wells (2 active – Wells 2 and 3).
- Raw water piping.
- Multi-barrier treatment (UV and Chlorination.
- Four reservoirs (2 pressure zones).
- Approximately 9 kilometres of distribution piping to point-of-use.

WATER SYSTEM COMPONENTS

Terminology:

- ADD (Average Day Demand).
- MDD (Maximum Day Demand) – key design parameter for well capacity and reservoir storage).
- Water Treatment (4-3-2-1-0).
- Water Storage (provides capacity for domestic use and fire storage).
- Water Distribution (potable water from reservoir to point-of-use.
- 265 Reservoir (Top of water 265m).
- 345 Reservoir (Top of water 345m).

WATER SYSTEM EVALUATION

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Water Supply:

- Lytton Creek Intake.
- 3 Wells (2 active – Wells 2 and 3).
- Well 1 assessment to be completed.
- Lytton Creek impound assessment nearly complete.

Needed:

- Additional well (either Well 1 or new well).

Rating:

- 3 out of 5 (higher with well head protection considerations and lower water usage).

WATER SYSTEM EVALUATION

Water Supply (continued):

- History of surface water use.
- Well 1 drilled circa 1991.
- Wells 2 and 3 drilled circa 2008, connected in 2018.
- Well 1 currently inactive.
- Well 1 assessment to be completed.
- Lytton Creek impound assessment nearly complete.

WATER SYSTEM EVALUATION

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Water Treatment Consist of 2 barriers:

- UV disinfection
- Chlorination
- Regular checks by trained operators.

Needed:

- Filtration System, primarily for year round surface water use.

Rating:

- 4 out of 5 (higher with filtration implementation).

WATER SYSTEM EVALUATION

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Water Storage Consists of:

- 265 Zone Reservoir with 360m^3 of storage.
- 345 Zone Reservoir with 925m^3 of storage.
- Approximately 1300m^3 of total storage.
- Reservoirs capacity considers potable water for domestic use by people and capacity for fire flows.
  - Note this doesn't factor interface firefighting needs.

Needed:

- Additional storage

Rating:

- 4 out of 5 (higher with reduced water demand, fire sprinkler systems and improved delivery).

WATER SYSTEM EVALUATION

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Water Distribution:

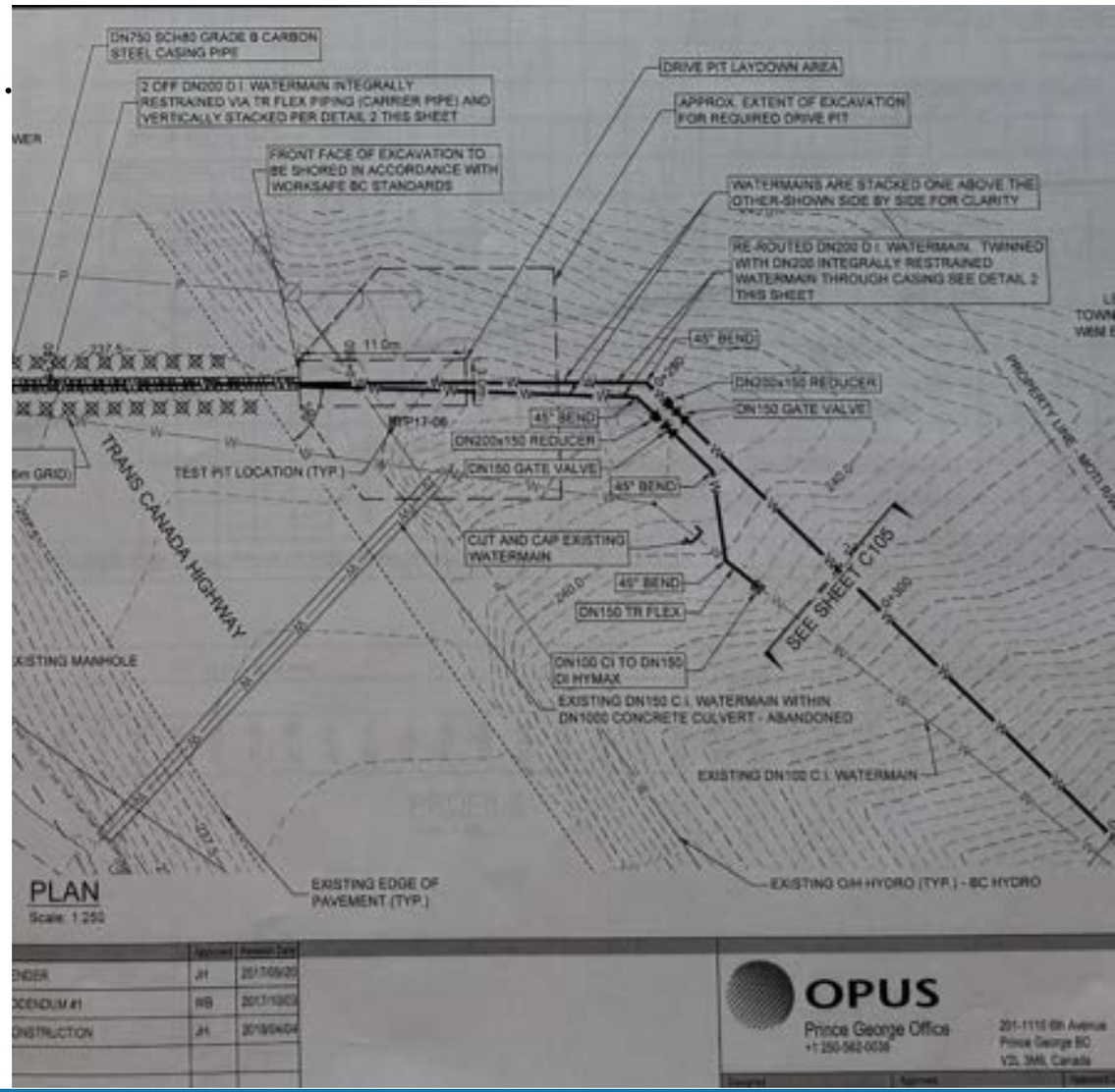
- Approximately 9 km of pipe, 50mm to 200mm in size.
- Bylaw requires minimum of 150mm.
- 150mm min for firefighting (200mm preferable).
- Many lines are very old, 50 years or more.
- Note ISC standards are different.
- May be significant leakage.

Needed:

- Urgent review of 265 zone restrictions.
- Leakage evaluation.
- Major upgrading.

Rating:

- 1 out of 5



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WATER USE

Historic Water Use:

- Average Daily Demand (ADD) per person.
- Maximum Daily Demand (MDD) per person.
- MDD used for design.
- Lytton per person water use 2 to 3 times that of City of Kamloops!

	Population	Estimated ADD	Estimated MDD
McElhanney (2005)	375	2700	5200
McElhanney (2008)	375	2200	5100
OPUS (2016)	366	2300	
Public Works 2024	150	3050	
City of Kamloops Design		800	2400
BC Average		400	

WATER CONSUMPTION

- Why is Lytton water use so high?
- Extremely high consumption may be partly due to water leaks, construction activities, and Village maintenance and recovery operations.
- Water leakage may be the main cause.
- Distribution upgrading should reduce leakage.
- Typically MDD is 3 times ADD, Lytton MDD is 1.9 to 2.3 times.

PRIORITIES

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Infrastructure Priorities:

- Investigate piping restrictions near 265 reservoir.
- Design and construction of watermain upgrading in both the 265 and 345 water zones of old and undersized watermains.
- Supply upgrading. (Well 1 or new well)
- Complete filtration plant feasibility/pre-design.

PRIORITIES

Other initiatives:

- Assess building fire risks, including fire sprinkler systems.
- Community conversations on interface fire fighting, fire resistive building techniques and landscaping methods.
- Engage community on water conservation.
- Community awareness on well head protections and the preparation of emergency response plans.

NEXT STEPS

- Prepare mapping showing the location of various improvement projects.
- Prepare grant funding brief for various improvement projects to be approved by Council.

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Questions?