Minute No. 375
Report – Standing Policy Committee on Water, Waste and Environment – April 17, 2023

Item No. 3 Requirements for the Use of Greywater Capture and Treatment Systems in Single and Multi-Family Residences

COUNCIL DECISION:

Council concurred in the recommendation of the Standing Policy Committee on Water, Waste and Environment and adopted the following:

1. That the report be received as information.

Report – Standing Policy Committee on Water, Waste and Environment – April 17, 2023

DECISION MAKING HISTORY:

Moved by Councillor Mayes,

That the recommendation of the Standing Policy Committee on Water, Waste and Environment be adopted by consent.

Carried

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On April 18, 2023, the Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Water, Waste and Environment and submitted the matter to Council.

STANDING COMMITTEE RECOMMENDATION:

On April 17, 2023, the Standing Policy Committee concurred in the recommendation of the Winnipeg Public Service and the following to the Executive Policy Committee and Council:

1. That the report be received as information.

COUNCIL DECISION:

On March 23, 2023, Council concurred in the recommendation of the Standing Policy Committee on Water, Waste and Environment and adopted the following:

1. That an extension of time of 30 days be granted for the Winnipeg Public Service to report back on the requirements to allow for the installation of grey water capture and treatment systems in single and multi-family residences, via a permit approved process.

2. That the Proper Officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On March 13, 2023, the Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Water, Waste and Environment submitted the matter to Council.

Report – Standing Policy Committee on Water, Waste and Environment – April 17, 2023

DECISION MAKING HISTORY (continued):

STANDING COMMITTEE RECOMMENDATION:

On February 27, 2023, the Standing Policy Committee on Water, Waste and Environment recommended that an extension of time of 30 days be granted for the Winnipeg Public Service to report back, and submitted the matter to the Executive Policy Committee and Council.

COUNCIL DECISION:

On June 23, 2022, Council concurred in the recommendation of the Standing Policy Committee on Water and Waste, Riverbank Management and the Environment, and adopted the following:

1. That the Winnipeg Public Service be directed to report back to Council in 180 days on the requirements to allow for the installation of grey water capture and treatment systems in single and multi-family residences, via a permit approved process.

2. That the Proper Officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

ADMINISTRATIVE REPORT

Title: REQUIREMENTS FOR THE USE OF GREYWATER CAPTURE AND TREATMENT SYSTEMS IN SINGLE AND MULTI-FAMILY RESIDENCES

Critical Path: The Standing Policy Committee on Water, Waste and Environment

AUTHORIZATION

Author	Department Head	CFO	CAO
C. D. Wiebe, P. Eng., CAMP, Manager of Engineering Services	T. W. Shanks, M. Eng., P. Eng. Director, Water and Waste Department	N/A	M. Jack

EXECUTIVE SUMMARY

In recent years, there has been an increasing interest in greywater capture and treatment systems (greywater systems) as a means to improve long-term sustainability and water resource management by reducing potable water consumption. These systems treat and store low-impact greywater (e.g. water from bathroom sinks and showers) and then reuse it for non-potable purposes. Currently, greywater systems are not permissible under City by-laws.

Requirements to permit greywater capture and treatment systems in single and multi-family residences would include:

- Changes to the Water and Sewer By-laws as well as the Municipal By-law Environment Act (MBEA) Enabling By-law.
- Development of an inter-departmental framework for permitting by the Planning, Property and Development Department and tracking by the Water and Waste Department.
- Resources to ensure compliance with the Backflow Prevention Program through annual verification and testing.

The use of greywater systems can provide benefits to homeowners that are looking for an environmental alternative to decrease their water consumption. However, since these systems are not permanent, they cannot be used to offset wastewater generation in areas where there are sewer capacity limitations.

RECOMMENDATIONS

That this report be received as information.

REASON FOR THE REPORT

On June 23, 2022, Council concurred in the recommendation of the Standing Policy Committee on Water and Waste, Riverbank Management and the Environment, and adopted the following:

1. That the Winnipeg Public Service be directed to report back to Council in 180 days on the requirements to allow for the installation of grey water capture and treatment systems in single and multi-family residences, via a permit approved process.

On February 27, 2023, a 30-day extension of time was granted for the Public Service to report back on the matter.

IMPLICATIONS OF THE RECOMMENDATIONS

There are no implications associated with the recommendations.

HISTORY/DISCUSSION

In recent years, there has been an increasing interest in greywater capture and treatment systems (greywater systems) as a means to improve long-term sustainability and water resource management by reducing potable water consumption. These systems treat and store low-impact greywater (e.g. water from bathroom sinks and showers) and then reuse it for non-potable purposes.

Prior to reuse, low-impact greywater must be treated properly, otherwise the presence of pathogenic microorganisms and some chemicals may pose a health risk. To minimize health or safety risks, this greywater is typically allowed for toilet flushing use only.

Greywater systems also use potable water for flushing when insufficient greywater is in the storage reservoir. Since the systems use both grey and potable water, premise isolation (e.g. backflow prevention device and an air gap) is required to prevent contaminating the public drinking water system.

Greywater systems are only used as water conservation solutions and are not considered a suitable offset for wastewater sewer capacity constraints. Reasons for this include:

- Greywater tank overflows are connected to the sewer system; once the tank is full, all greywater is discharged to the sewer.

- When systems are offline for maintenance or repair, all greywater is discharged to the sewer system.

- Greywater systems are not permanent installations and can be removed by the current or new owner at any time.

Based on these factors, sewers must be designed for, and able to convey, full wastewater flows from developments.

Requirements to Permit Greywater System Installations

A review of utilities that permit greywater systems found that each jurisdiction creates their own specific requirements and guidelines to allow the reuse of treated greywater.

Installation of greywater reuse systems is not currently permissible in Winnipeg. In order to permit them, the following changes would be required to the City's by-laws:

- Amendments to Sewer By-law No. 106/2018 to change the definition of greywater. Currently, greywater is defined as wastewater that must be directly discharged to the sewer.

- Amendments to Water By-law No. 107/2015:

    - A definition for greywater would need to be added to the by-law.

    - Part 7 – Backflow and Cross-Connection Controls would require revision to include:
        - prohibitions on cross connections between greywater systems and the City's waterworks system.
        - air gap and premises isolation requirements for buildings with greywater systems installed.

- Amendments to Municipal By-law Environment Act (MBEA) Enabling By-law No. 59/2016 that lists offences that can be enforced by the City:

    - Inclusion of greywater-related offences in Schedule A.

A greywater reuse program would also have impacts on existing resources and require new inter-departmental processes to ensure the public drinking water system is protected from greywater cross-contamination, including:

- Installation of a greywater system would require permitting by the Planning, Property and Development Department to ensure code compliance. When the greywater system is permitted, it is added to the Water and Waste Department's existing Backflow Prevention Program to ensure compliance.

- Annual inspections by the property owner would be required under the Backflow Prevention Program. Homeowners would be required to arrange and pay for an individual licensed under Section 37 of the Water By-law as a backflow preventer tester to verify their device is operating correctly. This would limit the risk of greywater contaminating the potable water system. Homeowners would also be responsible for ensuring ongoing operation and maintenance requirements are met.

- Should an owner no longer want their greywater system, they would be responsible for decommissioning and removing any plumbing fixtures and devices connected to the potable water system. Removing a greywater system would require a similar permitting and tracking process to installation and compliance confirmation under the Backflow Prevention Program.

The use of greywater reuse systems provides benefits in areas where potable water is limited and water conservation is required. It can also be considered an environmental alternative for homeowners that would like to decrease their water consumption and are willing to undertake the proper operation and maintenance. However, since these systems are not permanent and require homeowner operation and maintenance, they cannot be used to reliably offset wastewater generation for developments.

FINANCIAL IMPACT

Financial Impact Statement **Date:** February 17, 2023

Project Name:

REQUIREMENTS FOR THE USE OF GREY WATER CAPTURE AND TREATMENT SYSTEMS IN SINGLE AND MULTI-FAMILY RESIDENCES

COMMENTS:

There are no financial implications arising from the recommendations of this report.

Lucy Szkwarek, CPA, CGA

Lucy Szkwarek, CPA, CGA
Manager of Finance and Administration

CONSULTATION

This Report has been prepared in consultation with:

N/A

OURWINNIPEG POLICY ALIGNMENT

This report aligns with OurWinnipeg 2045, Policy 2.18 Potable Water Conservation, by providing safe, reliable and sustainable supply of potable water.

> Objective: Protect and value ecosystems as essential components to quality of life through municipal activities and urban environment.

WINNIPEG CLIMATE ACTION PLAN ALIGNMENT

N/A

WINNIPEG POVERTY REDUCTION STRATEGY ALIGNMENT

N/A

SUBMITTED BY

Department: Water and Waste
Division: Engineering Services
Prepared by: Ho Lau, C.E.T.
Date: March 1, 2023
File No.: 020-18-21-01-06