REPORT ON OPTIONS FOR REFLUX VALVE SUBSIDY

T Veronese | 1/58/13-33 | #6162240v5

RECOMMENDATION:

That Council engages directly with the identified properties and arranges the installation of a reflux valve upon the property owners consent and continue to investigate and assess properties on an as needs basis, arranging the installation of reflux valve's where appropriate and upon the property owners consent.

EXECUTIVE SUMMARY:

Cairns Regional Council owns and operates a 1,311-km network of sewer mains and 180 pumping stations to provide sewerage services to 68,754 connected properties. During periods of rainfall, stormwater and/or groundwater can enter the sewerage system through a range of potential pathways. Particularly heavy rainfall can cause the sewerage system to become overloaded and result in the release or spilling of sewage from the system.

In August 2018, Council officers provided details to Council regarding sewage surcharges and identified the reported instances had both reduced in number and narrowed in spread since 2012.

The improvement in sewerage services has been enabled by the significant investment in sewerage infrastructure augmentations and renewals made progressively by Council through its annual capital works program. The program is informed by comprehensive master planning exercises, and regular inspections and condition assessments, to manage the competing challenges of growth, ageing infrastructure, and rainfall-derived inflow and groundwater infiltration.

Eleven residents in total were offered reflux valve reimbursement in February 2019. A letter of offer was sent to these residents with only two enquiries being returned and only one request for reimbursement being received.

Given the low frequency and number of residents that may at some point be affected, it is recommended that Council Officers directly engage with each household. Through this engagement, the installation of the reflux valve can be thoroughly explained, including the ongoing maintenance and how it acts during an event. At this time, Officers will arrange for the installation of the valve (subject to the owner’s consent) at no cost to the property owner or resident.
BACKGROUND:

The following motion was carried unanimously during General Business of the Ordinary Meeting on 14 August 2019:

“That Council officers report back on options for a sewerage reflux valve subsidy that would be available to residents affected by sewerage surcharge caused by Council’s sewerage network.”

Cairns Regional Council owns and operates sewerage systems with the primary objective of collecting and conveying sewage for treatment to an appropriate standard. Premises are serviced by private sanitary drains and connected to Council’s sewerage system at a property connection branch (PCB). The PCB denotes the point of ownership and responsibility between Council and the property owner.

During periods of rain of any intensity, stormwater and/or groundwater can enter the sewerage system through a range of potential pathways:
- through defects (e.g. cracks, gaps, tree roots etc.) in Council’s underground sewerage network, including along sewer pipes and at access chambers (e.g. manholes); or,
- at the tops of manholes, where they may be under ponded water, for example; or,
- through defects in the sanitary drainage system on private property connections to sewerage; or,
- non-compliant or illegal connections, such as roofwater or other stormwater systems, directly to sewer.

During heavy and high-intensity rainfall, the volume of stormwater and/or groundwater entering the above potential pathways can overload the sewerage system, resulting in spills or surcharges of sewage. Sewerage systems typically include emergency relief systems to control the release of sewage during these events:
- Emergency Relief Structure (ERS) on Council’s sewerage system:
  - An ERS permits controlled overflows of sewage at predetermined locations in order to prevent overloaded or blocked sewers from discharging at sensitive locations, on private property and inside buildings.
- Overflow Relief Gully (ORG) on private sanitary drains:
  - An ORG is a grated outlet located just above ground level outside the premises but below the lowest fixture.
  - It is designed to operate as a release mechanism by directing the overflow outside. The height above the ORG of fixtures in the kitchen, bathroom, laundry, and floor waste gullies is relevant to directing the overflow outside.
  - Some ORG’s are not maintained or kept clear on the property, and then may not operate as designed. Water and Waste are finalising education information on our website for residents to be aware of keeping the ORG clear of vegetation and ensuring it is maintained and in working order. This is yet to go live and will do so over the coming months and will assist in the overall management of the system.

The above issues are common to any reticulated sewerage system and not unique to Cairns.
COMMENT:

Following from the August 2018 report, Council officers conducted risk assessments and developed criteria to assess on an as needs basis, for the installation of a reflux valve. The developed criteria are provided below:

Criteria for offering installation of a reflux valve:

1. The property has:
   a. an official record of more than one wet season with one or multiple instances of sewage spilling onto private property within the last 3 years; or
   b. an official record of only one wet season with one or multiple instances of sewage spilling onto private property within the last 3 years and confirmation by Wastewater Services Coordinator (e.g. based on operational experience) that more than one wet season with one or multiple instances of spilling has occurred within the last 3 years.

   and

2. The property is connected to a sewer that will not, or will be unlikely to, benefit from any sewerage upgrade project being completed within Council’s current annual capital works program by the commencement of the next wet season.

If all of the above criteria are satisfied, then the property owner will be engaged. Council will ensure that an inspection of the private sanitary drainage system is conducted to confirm it is compliant.

If all of the above criteria are not satisfied, refer below:

- If criterion 1 is not met, the advice to be provided to the property owner (customer) is to the affect that Council will monitor the issue over the following wet season for repeat incidents that may:
  o warrant or be improved by a future sewerage project; or
  o warrant the offer to install a reflux valve.

- If criterion 2 is not met, the advice to be provided to the property owner is to the affect that:
  o a current project is underway to improve services and reduce the frequency of these incidents; and,
  o should the situation not improve, the installation of a reflux valve will be considered.

Following application of the above criteria, eleven residents in total were offered reflux valve reimbursement in February 2019. A letter of offer was sent to these residents with only two enquiries being returned and only one request for reimbursement. There are 10 properties that remain identified as potentially benefiting from the installation of a reflux valve that have not yet confirmed their consent to have one installed. It is recommended that Council Officers engage directly with the property owners to arrange the installation upon their consent. Following the installation of a reflux valve a notice is placed on the rate file advising of the installation and ownership obligations.
Council has invested $65M in sewerage infrastructure over the last 5 years to improve the sewer network performance and reduce the likelihood of inundation incidents. This work is ongoing in 2019/20 as Council’s capital works program includes specific projects, including the following:

- Upgrades to the major pump station at Lennon Street, Manunda including:
  - Capacity-augmentation of the pressure main (completed)
  - Upgrade of the sewage pumps and electrical assets SPS T1 (programmed over 2019/20 and 2020/21 with a total project budget of $2.5M)
- Earlville Sewerage Upgrade, involving the upgrade of gravity sewers and a new major pump station in McCoombe Street, Bungalow (completed)
- Upgrade of an existing major pump station at Marshall Street, Bungalow (in progress)
- Upgrade of an existing major pump station at Brown Street, Bungalow (in progress)

The projects delivered (and ongoing) have been planned following detailed analysis of the performance of the sewer catchments to balance the risk of inundation over the risk of increasing the size of the network to cope with all rainfall scenarios, some of which happen very rarely. Oversizing the sewer infrastructure capacity can cause premature damage to the asset due to the main being relatively empty for extended periods, increasing sulphuric acid attack to the main.

**OPTIONS:**

Option 1 (Recommended)

That Council engages directly with the identified properties and arranges the installation of a reflux valve upon the property owners consent and continue to investigate and assess properties on an as needs basis, arranging the installation of reflux valve’s where appropriate and upon the property owners consent.

Option 2

That Council recommends an alternate approach.

**CONSIDERATIONS:**

Risk Management:

Cairns Regional Council Water and Waste has an Environmental Management System based on the AS/NZS ISO14001:2015 standard and uses a risk-based approach to identify and manage potential environmental risks associated with the provision of sewerage services.

During wet weather events, if the sewer is surcharging the reflux valve may be closed by the back pressure in the sewer main, therefore the property owner should limit discharges into the sewer, in particular washing machines and dishwashers. This risk will be discussed with each property owner prior to installation.
Council Finance and the Local Economy:

The cost of the installations will be met within existing budgets. Ongoing operational costs will be assessed over the next wet season.

Community and Cultural Heritage:

Council’s committed investment in sewerage infrastructure works will improve wastewater management that will result in a reduced risk to public health.

Natural Environment:

Council’s committed investment in sewerage infrastructure works will improve wastewater management that will result in a reduced risk to the natural environment.

Corporate and Operational Plans:

The provision of sewerage services supports the following Strategic Goals of the 2017-2022 Corporate Plan:

- Natural Assets
  - Value and protect Cairns’ pristine natural environment
  - Maintain clean air, water and waste
- Serving the Community
  - Deliver best-value customer service to the community

Statutory:

Cairns Regional Council’s Water and Waste department is a commercialised business unit of Cairns Regional Council under the *Local Government Act 2009* with a charter including the:

- Collection and treatment of sewage
- Planning for and delivering wastewater infrastructure
- Maintenance of the community’s wastewater infrastructure

Council also has obligations under the *Environmental Protection (Water) Policy 2009* and *Environmental Protection Regulation 2008*.

**ATTACHMENTS:**

Toni Veronese
Manager Business Performance and Compliance

Mark Wuth
General Manager Water and Waste
SCHEDULE 1
Example Reflux Valve Installation
SCHEDULE 2

Rates Notation

A reflux valve was installed on the private sanitary drainage to this property pursuant to an Agreement between Council and the Landowner dated [INSERT].

It is advised that during storms and heavy rainfall events, that occupants of the property minimise the use of fixtures and water-using appliances, such as dishwashers and washing machines. During prolonged rainfall events resulting in extended periods of the reflux valve remaining closed, Council may provide reimbursement of reasonable and legitimate costs for pumping out sewage from the private property drainage system arranged by the resident/owner.

Pursuant to the *Plumbing and Drainage Act 2002*, the Landowner is responsible for maintenance and future replacement of the reflux valve. All work must comply with the *Standard Plumbing and Drainage Regulation 2003*.

Any queries may be directed to Council’s Plumbing Administration Team.