# QUEENSLAND URBAN UTILITIES

## Submission to the Queensland Floods Commission of Inquiry

### Introduction

1. This submission is made by Queensland Urban Utilities (**QUU**) to the Queensland Floods Commission of Inquiry (**Commission**) in response to the Commission's Terms of Reference.

2. QUU has previously lodged a submission that specifically responded to the issues raised in the Commission's letter to Blake Dawson dated 8 March 2011 (**QUU's earlier submission**).

3. This submission is in response to the invitation made by the Commission in its letter dated 8 March 2011, for QUU to make a submission on any further issues that it considers may be of interest to the Commission.

### Background

4. As indicated in QUU's earlier submission, QUU provides water and wastewater services through its extensive distribution networks within its service area, which consists of the local government areas of its five participating local governments.[1]

5. QUU's water and wastewater networks consist primarily of the following:
   - 28 wastewater treatment plants;
   - 313 sewer pumping stations;
   - 89 water pumping stations;
   - 105 reservoirs;
   - 8537 km of sewer mains;
   - 8842 km of water mains; and
   - associated infrastructure including works depots.

6. QUU does not have any statutory authority for water treatment or stormwater management. South East Queensland's water treatment plants are owned and operated by a statutory authority of the Queensland Government, while stormwater management remains the responsibility of local government.

7. QUU's further submissions follow.

[1] QUU's five participating local governments are Brisbane City Council, Ipswich City Council, Lockyer Valley Regional Council, Scenic Rim Regional Council and Somerset Regional Council.

**Submission -Stormwater Management**

**General Planning Issues**

8. Stormwater systems and wastewater systems are separate and very different systems. Stormwater systems are designed to manage rainfall that falls in urban environments, typically by transferring it from developed properties to gutters and stormwater drains, and then into natural watercourses. Wastewater systems collect and transfer liquid human waste via sewers to wastewater treatment plants.

9. During wet weather events, stormwater flows within sewers may substantially increase, to a point that wastewater systems overflow.

10. Large stormwater flows can overwhelm wastewater treatment plants, reducing their capacity to treat wastewater properly before it is released into waterways. During flood events, wastewater flows do however, become highly diluted by stormwater infiltration, meaning that the health and environmental impact of such overflows is lessened. Overflows that continue after flooding has receded, for example as a result of flood damage to wastewater treatment plants, are more concentrated and hence have the potential for longer lasting effect.

11. QUU considers that effective ways to reduce stormwater flows within sewers include:

    a. increasing community and industry education on not connecting stormwater systems to the sewerage system; and

    b. extending the statutory powers of Distributor-Retailers like QUU, to investigate whether there are illegal stormwater connections on private properties and if so, to remedy illegal stormwater connections.

12. If these initiatives do not significantly mitigate the problem, then enhanced sewer planning in areas prone to flooding or stormwater flow, may need to be considered.

13. The issues discussed in paragraphs 10 and 11 above are addressed in more detail below.

**Enhanced stormwater and sewer planning**

14. Stormwater inflow is a continuing challenge for all wastewater service providers. Planners must provide a balance between anticipated flows and the cost of investment in the network.

15. The Queensland Department of Environment and Resource Management (**DERM**), has issued planning guidelines (**DERM Planning Guidelines**) that aim to provide a balance between the cost of

building and maintaining wastewater systems, and the capacity of those systems.

16. The DERM Planning Guidelines recommend that sewers be designed to carry five times the Average Dry Weather Flow (**ADWF**). The average dry weather flow is the combined average daily flow into a sewer from domestic, commercial and industrial sources.[2] QUU's sewerage system complies with the DERM Planning Guidelines, including the ADWF recommendation. Infrastructure constructed by developers and donated to QUU is also required to comply with the DERM Planning Guidelines.

17. If the initiatives mentioned in paragraph 10 are inadequate, then the DERM Planning Guidelines could potentially be revisited to ascertain whether these guidelines could be modified to better address stormwater management issues in areas with known wet weather and stormwater overflow. For example, a modification of the guidelines may involve requiring local government planners and developers in areas with known wet weather overflow or stormwater issues to provide sewerage upgrades for new developments beyond what would ordinarily be required.

18. On 21 March 2011 the Board of QUU approved a *Sewer Overflow Management Strategy* which includes a range of measures such as:

    a. an information campaign to increase the general public's understanding of how QUU's wastewater system operates and the important role of the public in ensuring its proper operation;

    b. provision for the inspection of private sewers on change of property ownership;

    c. cooperation with the Building Codes Board to mandate fully sealed private sewers in areas subject to overland or riverine flooding; and

    d. strengthening QUU's partnership with its participating local governments and Healthy Waterways to monitor overflow risks to human health and the environment.

**Development in Flood Plains**

19. Development in flood plains and potential flood inundation areas pose a number of local impediments to the provision of wastewater services through:

    a. increased incidents of inundation of wastewater systems by stormwater in both flood and rainfall events; and

    b. an increased likelihood of overflows from such systems into the environment.

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[2] DERM Planning Guidelines, Glossary

20. Consequently it is important that the type of development and its location is carefully considered and, where possible is minimised, in flood plains and potential flood inundation areas.

21. Where practicable and subject to the availability of appropriate funding, measures that may mitigate the risks of overflow include:

    a. sewering with sealed and pressure wastewater systems; and

    b. locating new critical infrastructure above peak maximum flood levels, recognising however that most wastewater systems operate by gravity flow and therefore are generally situated at the lowest points in the catchment.

**Illegal Connection of Private Stormwater Systems to the Sewerage System**

22. Wastewater systems are not designed to convey significant volumes of stormwater or floodwater. They are designed to be separate from stormwater management systems.

23. Gravity sewers are sized for peak wet weather flow which is 5 times the ADWF.[3] In QUU's network, it is common during wet weather events for stormwater inflow to increase flows to 10 to 12 times the ADWF. During exceptional weather events, stormwater flows can increase to 20 to 30 times the ADWF. Because of system capacity constraints, these additional flows are managed through built-in overflow points, which direct excess stormwater diluted flows into waterways.

24. A significant source of stormwater infiltration into QUU's wastewater system is believed to be from illegal stormwater connections to private sewers that are in turn connected to QUU's wastewater systems. For example, it is quite common for a property owner to direct the downpipe from a building's roof into the sewer overflow grate, rather than into the stormwater drain. These connections increase the likelihood of wastewater systems becoming overloaded and/or overflowing during wet weather and/or flood events, and are illegal under s193 of the *Water Supply (Safety and Reliability) Act 2008* (Qld) (**Water Supply Act**).

25. Local governments previously had statutory responsibility for water, wastewater and stormwater management. Whilst the water and wastewater function was transferred to QUU on 1 July 2010, stormwater management remains with the local governments and therefore QUU has only limited statutory powers under the Water Supply Act to address the problem of illegal stormwater connections to its wastewater system.

26. Both the *City of Brisbane Act 2010* (Qld) (**COB Act**) and the *Local Government Act 2009* (Qld) (**LGA**) provide significant powers to local government to:

[3] DERM Planning Guidelines section 5.5.4

a. require the connection of a stormwater installation for a property to council stormwater drains (section 77 of LGA and section 84 COB Act); and

b. prohibit the owner of a property from connecting the sewerage installation of the property, or to allow the sewerage installation of the property to be connected, to any part of the stormwater installation for the property or a council stormwater drain (section 78 of LGA and section 85 COB Act).

Non-compliance with these provisions gives rise to a penalty.

27. Additionally the statutory powers given to local governments to enforce these requirements are strong and include:

    a. a right to require the owner to disconnect the offending system;

    b. a right to require the owner to perform works in relation to the systems; and

    c. a right for authorised persons to enter property (other than a home on the property) without the permission of the occupier of the property, at any reasonable time of the day or night, under an approved inspection program. An approved inspection program is a program, approved by the local government, under which an authorised person may enter and inspect properties in the local government area to ensure compliance with local government related laws. An approved inspection program could include a program for identifying illegal stormwater connections by a process of smoke testing.

28. The powers in section 85 of the COB Act and section 78 of the LGA are, however, more directed to the prevention of sewage entering the stormwater system than the reverse case.

29. Therefore, whilst local governments have powers in relation to illegal stormwater connections on private land, those powers do not address the question of illegal connection of stormwater into the wastewater system.

30. The Water Supply Act provides that:

    a. a person must not without the written consent of a service provider, connect to, or disconnect from the service provider's infrastructure (Water Supply Act section 191); and

    b. a person must not discharge a prohibited substance, surface water, soil, sand or rock into a service provider's infrastructure (Water Supply Act section 193(2)).

31. For the purposes of the Water Supply Act section 193 'prohibited substance' includes floodwater, rainwater, roof water, seepage water, stormwater, subsoil water and surface water.[4]

[4] Water Supply Act Schedule 1 section 3.

32. To prosecute under section 193(2) may require direct evidence that the person concerned has "discharged" the prohibited substance "into the service provider's infrastructure". There is no definition of "discharge" for this purpose and no deeming provisions to facilitate proof.

33. Prosecution is one tool that may be utilised. Arguably, a more effective tool would be the power to direct disconnection of illegal stormwater connections or in default to undertake such disconnection.

34. The Water Supply Act section 33(1) provides some power to QUU to disconnect unauthorised connections and to recover the cost of the disconnection and to enter places for restricted purposes such as the repair or replacement of QUU's infrastructure.

35. The difficulty however is that:

    a. in most cases the offending stormwater connection point is not directly into QUU's infrastructure but rather first connects into the private sewerage infrastructure on the occupier's premises and then enters QUU infrastructure at the property boundary;

    b. while QUU is able to enter *places* to disconnect unauthorised connections to its infrastructure, it is unable to enter a part of a *place* used for residential purposes (Water Supply Act section 31);

    c. QUU has no right to enter a place and interfere with private infrastructure (as opposed to entering a place to maintain, repair or replace its own networks); and

    d. while local governments have certain rights to enter private property under an approved inspection program those rights are restricted to monitoring compliance with the local government legislation.

36. While it is arguable that an illegal stormwater connection that is wholly upon residential land is nonetheless a connection to a service provider's infrastructure for the purposes of section 33(1() of the Water Supply Act, the limitations upon entry to residential land, even where the connection is causing damage to infrastructure (section 33(5)), effectively means that such connections are unable to be properly policed by service providers such as QUU. The inability to carry out inspections of residential properties reduces the likelihood of the existence or location of illegal stormwater connections or discharges being detected.

37. An analysis of the COB Act, LGA and Water Supply Act suggests that the impacts of illegal connections into QUU' wastewater networks, particularly indirect connections on residential premises, are not adequately addressed under the current regulatory framework.

38. Measures that could be taken to minimise stormwater infiltration through illegal connections include:

    a. increasing community and industry education on not connecting stormwater systems (whether directly or indirectly) to the sewerage system; and

    b. extending the statutory powers of the Distributor-Retailers under the Water Supply Act to enter private property to investigate whether there are illegal stormwater connections and if so, to require plumbing regulators to remedy illegal stormwater connections.

**Submission - Supply and delivery of wastewater services during emergency events**

39. The role of Distributor-Retailers in disaster management has not been revised in light of the transfer of the water and wastewater services from the Distributor-Retailers' respective participating councils.

40. The SEQ Water Grid Manager (**WGM**) does not have regulatory responsibility for the management of wastewater services provided by Distributor-Retailers. QUU, as a registered wastewater service provider, is the authority with overall responsibility for the provision of wastewater services within its service area.

41. During the January 2011 flood events, QUU managed all wastewater-related issues directly with local and district disaster coordination centres. Unlike the SEQ water network, which is designed to operate on a region wide basis covering multiple catchments, wastewater networks are managed on a catchment by catchment basis. Consequently QUU's direct communication with local and district disaster coordination committees enabled the effective local and district coordination of information and priorities for all parties during the flood event.

42. While the WGM properly has lead agency status in relation to coordination of the emergency response for water management it is important to note that:

    a. the WGM, because of the legislative constraints of its role, has no direct interface with the end water-user. It is the Distributor-Retailers who have the direct interface with the end user;

    b. the WGM has no responsibility for wastewater management. This is the role of the Distributor-Retailers;

    c. while QUU has direct engagement and interaction with local disaster management committees and district disaster management committees, it has no direct interaction with the State Disaster Management Group;

    d. the State Disaster Management Group currently has no avenue for direct input on issues relating to wastewater, an essential service as important as water.

43. While QUU may not need to have direct interaction with the State Disaster Management Committee for local or district specific events, in relation to events (such as the recent 2011 flood events) that extend across a number of disaster management districts, it would be advantageous for QUU to have direct engagement with the State Disaster Management Committee, rather than engagement through the WGM. This would enable QUU to be quickly and directly provided with appropriate information, from all relevant participants, during

disaster events. This in turn would enable QUU to have greater input into the management of disasters affecting its water and wastewater services (particularly where there is an impact upon the end user) and in future State-managed disaster preparation exercises.

44. The following initiatives are proposed:

a. the critical role of QUU in the provision of wastewater services and as the interface with the end users of these services be integrated into emergency services and State disaster management planning and exercising; and

b. the role of the Distributor-Retailers in water and wastewater delivery and management (particularly to the end user) be clarified with all stakeholders during emergency events.

**Summary**

45. In summary, in QUU's submission:

a. The powers afforded to QUU to effectively detect illegal stormwater connections and discharges into the wastewater system and enforce compliance in relation to such connections and discharges, ought be reviewed and strengthened;

b. There ought be a review of the role played by QUU and other Distributor-Retailers in emergency situations; and

c. Planning of developments in flood plain areas ought include consideration of wastewater systems and infrastructure to minimise overflow risk.