

Statement of Paul Belz

QFCI

Date:

25 | 10 | 11 *JM*

Exhibit Number:

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Reference
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I, PAUL BELZ, state:

Role and Position

1. I am the General Manager for Planning for Queensland Urban Utilities (QUU). I am responsible for strategy and planning of water and waste water systems, environmental compliance, reporting, treatment plant design and land use planning and development assessments for QUU. Within QUU's emergency framework, I am an emergency manager. I was the emergency management team leader during the flood event.
2. This statement is in response to a request for a further statement by the Counsel Assisting the Floods Commission of Inquiry (**Commission**) on 24 October 2011.
3. I have previously provided a statement to the Commission, such statement being dated 21 October 2011 (**my earlier statement**).

As to paragraph 7, does QUU propose to investigate?

4. QUU have already conducted a thorough investigation of the West End area in general, as part of recommissioning and restoration work following the flood event. Work in the vicinity of the Ferry Road, West End area included:
 - Civil, mechanical and electrical repairs to the Hocking Street Siphon and Grey Street Sewer Pump Station;
 - CCTV inspection of sewer reticulation mains; and
 - Inspection of sewer overflow points.
5. This investigation examined any capacity issues, any potential blockages and inlet points in the system that could have contributed to the flooding experienced, or any other way that water could have been introduced into the system.
6. Investigations are ongoing in the West End area. QUU does not have jurisdiction regarding private plumbing or the stormwater system.

As to paragraph 8, can QUU say whether any of these clean-ups involved clean-up of sewerage flooding/ back flow;

7. I understand that at least 65 of the 110 recorded instances where QUU attended locations to perform on site clean-up between 11 January 2011 and 25 January 2011 were in relation to calls from QUU customers reporting suspected sewerage flooding/backflow. However, QUU is not able to say with any certainty whether these clean-ups were in fact a result of sewerage flooding/backflow or due to other reasons.

As to paragraph 10 and the third dot point, what mechanisms of failure have been identified? What means of redress have been or will be implemented to prevent such failures in the future?

8. A range of mechanisms of failure have been identified. These include:
 - the flooding of switchboards and electrical equipment;
 - the flooding of pumps; and
 - damage to equipment caused by debris (for example, shipping containers) being carried down the Brisbane River and colliding with assets.
 9. With respect to means of redress, QUU have considered a range of measures, including:
 - installing one way valves on water reservoirs;
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- raising pumping equipment to higher levels;
 - installing levees (for example, at Oxley Creek treatment plant);
 - the ability to transfer sewerage away from failing assets; and
 - installing pipes/branches so that contingency pumps can be installed in an emergency.
10. These abovementioned measures have been identified through the AECOM and Montgomery Watson Harza review processes. In each of these reviews, the same basic process has been undertaken to:
- review the risks identified during this flood event and previous flood events;
 - review the criticality of the particular asset; and
 - identify short-term, medium-term and long-term measures that could be put in place to mitigate against the risks.
11. Examples of short-term measures are the restoration works that QUU has undertaken, such as moving existing equipment and infrastructure to higher levels, where appropriate.
12. Examples of medium or long-term measures are the installation of levees (such as at the Oxley Creek treatment plant), the installation of diversionary pipe work to transfer flows from asset to asset (ie. away from affected assets) and the installation of additional pipes/branches to enable the connection of contingency pumps, at a later date, if required. These medium and long-term measures are part of a five year program to incorporate flood resilience across the network.
13. QUU has back-up generators that generally run for four to five hours before running out of fuel, providing they are not themselves submerged.
14. As part of QUU's business resilience study, QUU are considering relocating back-up generators to higher ground, where feasible.

As to paragraph 12, provide details of the basis for QUU's assertion or belief as to the involvement of illegal storm water connections in the waste water system.

15. QUU (and prior to the establishment of QUU, its relevant participating councils) have carried out studies in Camp Hill and Wynnum and have undertaken flow monitoring in Rosewood as part of previous sewer overflow abatement programs over the last ten years.
16. The results of the flow monitoring in Rosewood showed that this area experiences 30-60 times the dry water flow in wet weather. In other parts of Brisbane, this figure is 15-20 times the dry water flow. The system has a maximum capacity of 5 times the dry water flow. These results infer a level of increased flow due to illegal storm water connections.
17. Councils, as QUU's agent (councils are the legal entities that can enter on property) have also undertaken further investigations which have utilised smoke testing. This is where smoke is pumped into the sewer system to identify where there are connections to the system. During testing, smoke can be seen to be emanating from the storm water down pipes of a large number of properties, suggesting that these properties are illegally connected to the sewer system.

As to paragraph 17, are there any challenges that QUU is facing? Are there deficiencies that have been identified? Are there barriers potentially preventing QUU from achieving the strategy? Are there legislative problems? Are there difficulties because of needing to work with other levels of Government such that the Commission could assist by commending some coordinated approach?

18. QUU continues to work with councils and the State Government to clarify responsibilities as a result of the new water arrangements. This will be an ongoing process.
19. It is not QUU's function to dictate or determine planning issues such as the location of planned development. No matter what is planned or developed, QUU is obliged to provide relevant infrastructure and services.
20. Customers are generally not aware that they are responsible for their own internal systems/plumbing to their property boundary. QUU are endeavouring to educate customers regarding what is their responsibility and what is QUU's responsibility. Please see the **attached** QUU brochure "Pipeline" dated October 2011 at pages 2-3 ("Think at the Sink"), in this regard. This brochure is being progressively sent to all QUU customers with their quarterly water and wastewater account. Information sheets covering matters such as responsibility for private plumbing are also available to customers on QUU's website.
21. As previously mentioned in Robin Lewis' first statement, instituting some method of statutory point of sale inspection whereby homeowners must submit to an inspection of their stormwater connections prior to selling their property may assist in storm water management. Otherwise, QUU does not consider there are insurmountable barriers that need attention.

As to paragraph 18, what is the literature that is referred to? Is it local information or is it worldwide based? The literature should be identified.

22. In respect of best industry practice, QUU has had reference to a number of local and overseas programs when developing its Strategy. For example, the Sydney Sewer Overflow Abatement Program - SewerFix.
23. Other programs, locally and internationally, such as in the United States of America and Europe, are accessible on the internet and are evaluated from time to time.

As to paragraph 20, who reviews the strategy?

24. QUU's Planning Department reviews the Strategy. I am the head of this department and I oversee the review process.
25. Once the review process is complete, the results of that review are provided to the CEO and Board of QUU for their approval.

As to paragraph 21:

As to the first dot point, what are overflow relief gully caps? Expand generally on the first dot point. Why has Rosewood been identified for a trial – what particular issues led to that? What are the timeframes for the trial?

26. Overflow relief gully grates are the small grates that are located externally to the resident's home but within the private property boundary, usually in close proximity to the kitchen or bathroom. The purpose of the grate is to relieve pressure if backflow occurs higher up in the sewer system, the idea being that water can be released through this grate, rather than through bathroom or kitchen fixtures. An overflow relief gully cap fitted to the grate can stop storm water entering the sewerage system.
27. From customer feedback and previous council knowledge, Rosewood has been identified for a trial because the geography of this area is such that it experiences a lot of overland

storm water flow which enters the overflow relief gully caps and compromises the capacity of the system.

28. QUU, in consultation with the local council (as noted previously QUU does not have jurisdiction with respect of plumbing and infrastructure located within private property boundaries), intends to trial different gully cap designs to allow release of pressurised water, whilst ensuring that overland storm water flow cannot enter the system.
29. At present, the trial is still in its preliminary stages. In light of the involvement of councils and residents, there is a large amount of co-operation and co-ordination involved. The trial is expected to commence shortly.

- ***As to the second dot point, please give some examples.***

30. How QUU deals with customer feedback is one example of improvements being made to the identification and tracking of sewage overflows.

31. QUU is putting in place a procedure that will allow QUU to track with more accuracy the history of particular properties. That is, previous complaints with respect to the property, measures taken to address any issues and the success of those measures in addressing any issues.

- ***As to the third dot point, by what means are these properties identified?***

32. "At risk properties" are identified by the following means which include, the location of previous complaints, the geography of the area (low lying/elevated), the status of the sewer system (capacity/operational problems) and the age and condition of the sewer system.

- ***As to the fourth dot point, what does "case management" mean?***

33. The management of a case from start to finish. For example, once a prioritised property is identified, QUU will usually speak to the customer, identify what the problem is, devise a solution or group of solutions to the problem, speak to the customer about implementation of the solution/s, initiate implementation and ascertain customer feedback on implementation.

34. If the problem is not related to QUU's system, QUU will usually endeavour to ascertain what the problem is and if necessary, refer to a reputable plumber or other professional for assistance.

- ***As to the last dot point, what are householders being asked to do? Are there brochures being distributed and if so please produce copies.***

35. Please see the attached QUU brochure "Pipeline" dated October 2011 at pages 2-3 ("Think at the Sink"), in this regard. A further brochure relating to QUU's "Think at the Sink" campaign is being prepared and will be distributed shortly.

As to paragraph 22(a), in what way is QUU working with local councils to generate solutions? Are there barriers being experienced that some assistance could be afforded by recommendations from the Commission?

36. For example, QUU is working with the Ipswich City Council in respect of the trial of overflow gully caps in Rosewood. This necessarily involves clarification of roles and responsibilities around stormwater management and associated impacts on the sewerage system. QUU anticipates being able to manage the necessary relationships with Councils to achieve such measures.

As to paragraph 22(c), please explain the consumer reference group work. How is information obtained from the consumers – what is the public interface? Is there a website for instance that members of the public can provide information to QUU?

37. Please see the **attached** QUU Customer and Community Reference Group Charter 2010.
38. The Customer and Community Reference Group (**CCRG**) provides a forum through which customer and community representatives can provide advice and QUU can listen to and explore customer's needs, emerging issues and initiatives in the delivery of water and wastewater services across QUU's service territory.
39. Members of the CCRG are selected via an application process and attend formal meetings, which are scheduled at least quarterly.
40. The CCRG provides feedback and advice to QUU in areas which include: customer standards and expectations, affordability and pricing, infrastructure planning and growth impacts and water and wastewater efficiency and other environmental initiatives.
41. There is no designated website for the CCRG. However, customers can provide feedback via QUU's website.

As to paragraph 23, what are the reviews that are being undertaken?

42. In addition to its own internal investigations which have been detailed earlier in this statement, QUU have commissioned external reviews. For example, the business resilience study (AECOM) and the post- flood reassessment of the Fernvale and Lockyer Valley wastewater treatment (GHD).

As to paragraph 24, what has AECOM been commissioned to do? Is there a letter by which it was commissioned? If so, can a copy be produced?

43. AECOM have been commissioned to undertake a business resilience study of QUU infrastructure affected by the flood event. This incorporates an assessment of flood risk and development of mitigation strategies.
44. Please see the **attached** Terms of Reference (for an investigation on flood risk assessment and mitigation options of QUU infrastructure) and letter from QUU to AECOM undated (Order for Services H95517HE).
45. In anticipation of future flood events, QUU wished to develop a plan to provide business and service continuity during those events. To that end, the study aimed to undertake a risk assessment and identification of priorities with a view to having a strategy on:
 - Flood mitigations options; and
 - Indicative cost estimates for making assets more flood resilient.
46. A specific objective of the study was to develop a prioritisation of key assets at risk if there was a repeat of the January 2011 event.
47. A second specific objective was to develop a set of flood mitigation options along with broad costs, so that, when applied to the prioritisation of assets, QUU would have guidance on future capital works. It is recognised that in many cases these will be subject to detailed feasibility and design studies before final investment decisions are made.
48. The strategy developed will not only be used for capital investment planning, but also to inform emergency response procedures, management procedures and network reliability systems and procedures.

49. The aim was to use the January 2011 event as the "baseline" flood rather than to try to make the QUU network resilient to any flood event.

As to paragraph 25, have any risks been identified through the study done by AECOM to date? In particular have risks for this wet season forthcoming been identified and what is being done to mitigate them?

50. Please see paragraphs 8 to 10 generally.
51. A short term measure that is being implemented is the relocation of a major power generator at the Oxley Creek waste water treatment plant to higher ground.

As to paragraph 26, what is the knowledge that QUU has gained from the 2011 floods? How has it been sourced i.e. is it from complaints, is it from observation or is it from studies? To the extent it is from studies, can the studies be produced? Are there provide details of the re-assessment of the Fernvale and Lockyer Valley Waste Water Treatment Plants and provide copies of the reassessments that are said to have been undertaken.

52. For example, QUU has gained the following knowledge from the 2011 floods:
- A better understanding of the areas prone to flooding;
 - Levels of flooding;
 - Access to assets in the event of a flood and susceptibility to flooding;
 - Information to assist in the design of assets (for example, flood levels); and
 - What contingency stores to have in place (for example, pumping equipment).
53. QUU has sourced this information from a range of sources including, customer feedback, Water Grid stakeholders, Queensland Health and its own staff on the ground, rather than formal studies, other than those referred to in my earlier statement and both statements of Robin Lewis, which are still underway.
54. The post-flood reassessment of the Fernvale and Lockyer Valley wastewater treatment plant is being performed by GHD. The reassessment is not yet complete. It is expected to be completed by the end of the year.

With respect to the second statement of Robin Lewis, the following information is sought hopefully to be able to be provided through Mr Belz:

- ***As to paragraph 12(f), what problems or barriers have been experienced?***
 - ***As to paragraphs 16 to 19, what does this mean in practice? Are there any suggestions as to changes that could be made to improve in this area?***
55. As per Robin Lewis' further statement at paragraph 19, from 1 July 2013, a new (yet to be determined) arrangement will be put in place. Whilst there would potentially be advantages in QUU having greater input into planning issues, those matters are currently the subject of review about the interaction of agencies of government and the balances between them. It is beyond QUU's capacity to say what the proper balance of those things should be in the end. QUU would also need time to develop the capacity to have further input.
- ***On page 6, in paragraph vi, provide details of the flood levels that are being used – is it based on inundation maps, if so, whose maps?***
56. QUU draws flood level information from various sources: historical information from the Bureau of Meteorology, local council inundation maps and local council flood modelling (if

available). Where the infrastructure is considered to be a major asset, QUU commissions its own flood modelling, in consultation with the relevant council.

- ***On page 6 at paragraph viii, what is QUU thinking of doing? How is QUU taking Q100 into account?***

57. QUU is looking at previous flood levels, flood modelling and the established flood inundation line (where available) to understand the impact on electrical infrastructure and well openings.

58. This knowledge will feed into potential mitigation measures for example, raising infrastructure, bulk head arrangements or building levies around infrastructure.

- ***As to paragraph 26 sub-paragraph (c), what modelling is being used? As to sub-paragraph (d), what historical information is being used?***

59. In respect of modelling, QUU utilises local council flood modelling (if available). Where the infrastructure is considered to be a major asset, QUU commissions its own flood modelling, in consultation with the relevant council.

60. In respect of historical information, QUU utilises information from the Bureau of Meteorology and local council inundation maps.

- ***As to paragraph 36, has QUU experienced problems with the standard design?***

61. No. As per Robin Lewis' further statement at paragraph 36, the pumps and motors in the majority of cases are of a submersible type which would not be impacted by flood events. However, the electrical control panels are susceptible to flooding.

62. Therefore, it is the location and level at which the electrical control panels are situated that is taken into consideration with the design. Although, it should be noted that it is not always possible to simply raise infrastructure.

- ***As to paragraph 53, is QUU raising the level for new infrastructure?***

63. QUU's focus has been on reinstatement and restoration of operational infrastructure generally with a 'like for like' design, so as to minimise recovery time.

64. In respect of new infrastructure and following QUU's post flood reviews, QUU will consider (where appropriate) raising the level of new infrastructure. For example, Fernvale and Lockyer Valley wastewater treatment plants.

- ***As to paragraphs 57 and 58, is QUU wholly reliant on the Brisbane City Council or does it do its own consideration of the appropriate level?***

65. As mentioned previously, QUU utilises information from the Bureau of Meteorology, as well as information from council (ie. inundation maps and flood modelling (if available)). QUU also commissions its own flood modelling, in consultation with the relevant council.

As to paragraph 60, who is doing the post flood reassessment? When is it due? If it is being commissioned by QUU, please provide a copy of the commission letter.

66. The post- flood reassessment of the Fernvale and Lockyer Valley wastewater treatment plant is being performed by GHD.

67. Please see the **attached** letter from GHD to QUU dated 19 August 2011.

68. The reassessment is not yet complete. It is expected to be completed by the end of the year.

Appendix A to the earlier statement of Paul Belz

69. Regarding the function of "Program Marketing and Communication":

(a) To whom does the newsletter go?

The publication "Pipeline" is distributed to all QUU customers.

(b) What problem had been identified regarding maintenance of household sewers?

Residents do not typically check or maintain their sewers and are not aware of particularly household waste that should not be disposed of down the sink or toilet.

(c) Please provide a copy of the September publication.

Please see the **attached** QUU brochure "Pipeline" dated October 2011.

(d) Was the pre wet season distribution planned for October done?

Yes, in the most recent mail out of QUU water bills.

(e) What does the reference to "200 properties and upstream catchments" mean?

This refers to "hot spot" areas that are subject to wet weather overflow.

70. Regarding the function of "identification and tracking of sewerage overflows:

(a) Is there a practice or means of identifying potential faults?

There are a number of sources utilised to identify and track sewerage overflows. For example, through camera surveying of sewer pipes, the evaluation of low lying areas, hydraulic modelling of the sewer system and customer complaints.

(b) What does "SPS" mean?

SPS means "Sewerage Pump Station."

(c) What does "Ellipse std job=Wet weather overflow investigation" mean?

Ellipse is the name given to QUU's maintenance management and job allocation software. " Ellipse std job=Wet weather overflow investigation" refers to a standard task assigned to work crews, which means the crew attends at the site and investigates any wet weather/sewerage overflow issues.

(d) What does "Ellipse WWOFF investigation" mean?

See above at (c). WWOFF means "Wet Weather Overflow."

71. As to the "identification of properties at risk" function:

(a) What is the "historical overflows clean-up data"?

"Historical overflows clean-up data" refers to historical customer complaints and problem resolution data.

(b) Have the properties and areas with chronic overflows been identified?

Yes. This is an ongoing task/process. As different wet weather events occur and solutions are put in place, priority areas change.

- (c) What does SDE mean?

SDE means "Service Delivery East." QUU delineates service areas by geography. East refers to Brisbane.

- (d) What does SDW mean?

SDW means "Service Delivery West." West refers to Ipswich, Lockyer Valley, Scenic Rim and Somerset.

72. As to the "Targeted operation and maintenance programs for priority areas" function:

- (a) How are/were the "hot spot" areas identified?

The "hot spots" are/were identified by the number of previous sewerage overflow issues.

- (b) Has the pre wet season inspection of overflow structures been done?

To the best of my knowledge, this process is ongoing.

- (c) What does "MH" mean?

MH means "manhole".

- (d) Explain what the rolling source control program is.

The rolling source control program is an ongoing program to determine the source of prohibited inflows to sewers.

- (e) Explain what the items in the last column mean:

- (i) Source control program;

See answer at paragraph 72(d).

- (ii) MH inspections;

Manhole inspections refers to the inspection of same for sewerage infiltration.

- (iii) Emergency relief overflow structures;

These are structures that are analogous to pressure relief valves, for high flows in sewers either to storm water or local waterways. In each case, QUU identifies the safest area for the overflow to be directed to.

- (iv) Trunk cleaning.

Trunk sewer cleaning refers to the removal of built up debris from major sewers.

73. As to the "fit-for-purpose household sewers" function:

- (a) Explain the tactic of developing and marketing a subsidised voluntary household sewer inspection retrofit program;

This is a proposal for customers to participate in retrofitting private plumbing to minimise the amount of storm water infiltration into the sewerage system. Retrofitting

involves, for example, putting caps on overflow relief gullies and inspecting sewers. Basically, it is an assessment of the sewer and associated infrastructure.

- (b) Why would the program (or whatever it is) be "scaled back to be installation of overflow relief caps only"?

It is my understanding that the proposal has not been "scaled back" as such. Rather, the installation of overflow relief gully caps has been prioritised.

- (c) What are overflow relief caps?

Please see paragraph 25.

- (d) Expand upon the suggestion that QUU has no powers of enforcement if defects are found.

Councils have enforcement powers on private property. QUU does not. Therefore, QUU relies upon co-operation with local councils to take enforcement measures if defects are found in private plumbing.

74. As to the "improved system performance in wet weather" function:

- (a) What problems were identified at Rosewood, Oxley and Wynnum?

Generally, wet weather overflow was identified at these areas. This means that the capacity of the sewer system was exceeded in wet weather.

- (b) What does "Oxley and Wynnum TOR developed" mean?

This refers to Terms of Reference relating to specific sewerage system investigations for capacity in wet weather events.

- (c) What week was that done?

The project will be completed over a three month period, which commenced at the end of August/beginning of September this year.

- (d) What does the reference to "Rosewood-Network only" mean?

This means the Rosewood sewerage system network.

75. As to the "Impact of sewer overflow on public health and the environment" function:

- (a) Expand upon the "Coordination and cooperation with Healthy Waterways to manage public perception and calls for greater controls";

Healthy Waterways are investigating the impacts of the floods on our waterways. Part of this program is to investigate how to manage and inform the community of environmental and health issues during events such as the flooding.

- (b) With whom is the partnership referred to in the deliverables column?

Healthy Waterways.

- (c) Provide a copy of the action plan that was to be delivered by July 2011.

We are not in a position to provide a copy, as the action plan has not yet been delivered.

76. As to the "case management" function:

(a) Provide a copy and/or details of the operating procedures;

Please see the **attached** documents:

- Water distribution management and reporting of house flooding.
- Procedure for a wet weather event causing one or more sewerage pump stations to overflow.

(b) Where are the properties with "chronic overflows"?

These properties are located at the "hot spots" mentioned earlier. Typically, these properties are in areas that are low lying, subject to high storm water infiltration into the sewer system and may have hydraulic capacity constraints due to a range of causes.

(c) By what means or methodology are "incidents investigated in wet to determine local drivers"?

Cleaning local sewers and viewing them via camera surveying.

(d) Explain the "local drivers";

Stormwater overland flow paths, sewer system configuration, low plumbing fittings are local drivers.

(e) What are "access chamber overflows"?

Access chamber is used interchangeably with manhole or person hole. Overflow refers to overflow of the access chamber.

(f) What are the "chokes etc" referred to?

Chokes are blockages or tree roots in the sewer system.

(g) Explain the contingency plans in place;

Some examples of contingency plans in place include: diversionary pumping and temporary tankering (transporting by truck) to transfer flow around problem or system issues.

(h) In what circumstances would property acquisitions be recommended?

QUU have very limited rights of acquisition for construction of water and wastewater infrastructure. Any property acquisitions because of backflow issues would be a matter for other authorities.

(i) Explain what is meant by local hydraulic problems;

This refers to a local pipe capacity issue.

(j) What is meant by "proactive maintenance and works recommended"?

This refers to a specific maintenance program for the identified site/area.

(k) Expand upon the mitigation options referred to;

Mitigation options are as outlined in Appendix A of my earlier statement. For example, manhole raising/sealing, sewer/manhole spot repairs and increased local sewer cleaning of known trouble spots.

- (l) Was the "drainers contract" scheduled for 31 August 2011 effected?

No. QUU are involved in ongoing discussions with prospective tenderers, as required by the State Procurement Policy.

- (m) What does "MH lid safety ongoing retrospectively 1 April 2012" mean?

This refers to an ongoing program of correcting manhole lids where water is able to enter through the lid structure.

Points to be addressed from the statement of Robin Lewis

77. In relation to paragraphs 15 to 19 regarding the land planning framework:

- (a) What local government documents and processes?

I am unsure of what is meant by this question.

- (b) What land use planning and infrastructure decision making processes are being undertaken on QUU's behalf?

At present, QUU does not have jurisdiction to undertake these functions. This position may be different depending upon the regulatory model adopted by the State post 1 July 2013.

It may not be accurate to say they are taken on QUU's behalf, when, as I understand the legal position, until 1 July 2013, QUU's authority to decide is statutorily delegated back to Councils.

- (c) How does this work in practical terms?

In practical terms, councils carry out work with council staff at the local government level using agreed processes.

- (d) How is QUU involved?

QUU has input into the processes by which this is to occur and receives regular reports and meets with the councils.

- (e) Relate by way of example to processes governing Lockyer and Fernvale WWTP upgrades and QUU's involvement?

QUU is the funder and constructor of the Lockyer Valley and Fernvale WWTP upgrades. Lockyer Valley and Scenic Rim Regional Councils are participating councils of QUU. They are also the regulators under the *Sustainable Planning Act (SPA)* for development and building approvals.

- (f) Statutory delegation regarding concurrence functions?

Please refer to Robin Lewis' further statement at paragraph 18.

- (g) Any protocols or consultation as to exercise on behalf of D-Rs?

QUU is consulted pursuant to protocols, under a memorandum of understanding with the council.

78. Provide further details of the (referred to in paragraph 36 in relation to the design of wastewater pumping stations):

- (a) Appropriate Australian Standard.

There are different Australian Standards for different aspects of the pump stations. For example, the Australian Electrical Standard with respect to electricity and the Concrete Code with respect to concrete works.

- (b) Licensing conditions under the EPA.

DERM stipulate conditions with which major sewerage pump stations have to comply. For example, the pumping stations have to have the capacity to hold four hours worth of sewerage in the event that a pump failure occurs.

- (c) Safety requirements under the *Electrical Safety Act 2002 (Qld)*.

The *Electrical Safety Act 2002 (Qld)* provides appropriate levels of insulation and for the separation of live electrical works in switchboards.

79. As to the matters in paragraphs 56, 60, 61 and 62:

- (a) Conducting such studies is appropriate, but what is the legal requirement for same (eg. DERM / IDAS conditional approval)?

As part of DERM's licence application approval process, there is a legal requirement to determine flood levels for new infrastructure.

- (b) What compliance monitoring?

I am unsure of what is meant by this question.

- (c) If adverse study outcome, what effect does this have on proposed improvements to flood resilience? What interests prevail?

All findings of relevant studies will be considered and included where appropriate in the final design of infrastructure. A number of competing interests are considered, including cost, value for money, environmental outcomes and continuity of service.

- (d) Copies of post flood assessment for Fernvale and Lockyer Valley WWTPs and details of recommendations incorporated into the upgrade designs.

The post- flood reassessment of the Fernvale and Lockyer Valley wastewater treatment plant is being performed by GHD. The reassessment is not yet complete. It is expected to be completed by the end of the year.

80. Backflow preventers (paragraph 39):

- (a) Relevant to household sewerage systems - only?

QUU cannot install backflow preventers in household sewerage systems as this is the responsibility of the householder.

- (b) Therefore responsibility of householder to install.

Yes.

- (c) May prevent use of toilets and showers during flood events – unpopular as a result.

Yes. This is because backflow preventers stop waste discharging away from the property. Therefore, householders are not able to use toilets or showers during high rainfall events. Backflow preventers are also unpopular because the householder must maintain the system themselves.

81. Sealed/pressurised systems (paragraphs 64-67):

- (a) Can these systems be integrated with standard gravity systems, so that sealed systems are only used where needed (ie. in areas of greatest risk of backflow) so that added capital and operating costs are minimised (paragraph 65 implies this may be so)?

Yes. These systems can be integrated with gravity systems, as long as they are planned and installed at the commencement of development. It is quite difficult to retrofit them.

Signed and solemnly, sincerely and truly affirmed and declared by Paul Belz, of QVU at Brisbane, Queensland, this 25th day of October 2011.

.....
[Redacted]

Witness Signature

.....
[Redacted] 25/10/11
Signature ✓

[Redacted]

Print name

IN THE

PIPELINE



OCTOBER 2011



IT TAKES MUCH MORE THAN A TAP TO RUN YOUR WATER

2. TREATMENT

It takes advanced water treatment methods to remove impurities and supply fresh, safe and secure water.

3. PUMPING STATION

It takes 51 pumping stations to pump water up to reservoirs and over some of the high points across our service territory.

5. STORED IN RESERVOIRS

It takes 113 reservoirs to store water before it is transported to your home.

7. YOUR PROPERTY

1. WATER COLLECTION

It takes a complicated network of dams and the SEQ Water Grid to deliver our water supplies.

4. TRANSPORTATION

It takes 8744km of pipes to transport more than 100 billion litres of water every year.

6. WATER METER

MAINTAINING THE PIPES ON YOUR PROPERTY

While Queensland Urban Utilities maintains and operates the water service up to your property connection point, as a property owner you own and are responsible for the maintenance of the water and wastewater pipes on your property. This includes the cost of any repairs to, or damage caused by, the pipes on your property.

GREEN SPACE SPROUTS UP THANKS TO UPGRADE PROJECT

Residents in Indooroopilly, Kenmore and Fig Tree Pocket will benefit from extensive revegetation thanks to the completion of Queensland Urban Utilities' \$4.4 million main sewer line upgrade at Cubberla Creek Reserve.

Turf restoration work commenced in June with almost 1400 native plants and grasses – and 200 cubic metres of mulch – placed in five areas at Cliveden Park and along the banks of Cubberla Creek.

“1400 native plants and grasses, and 200 cubic metres of mulch, will enhance the local area.”

The planting of native trees, shrubs and grasses in the area will help enhance local biodiversity, improve the wildlife corridor between Mt Coot-tha and the Brisbane River and improve parklands along Cubberla Creek. The work is being done in consultation with local bush care groups and Brisbane City Council Asset Services.

Part of a \$3.2 billion investment

The upgrade – a successful 1.5km tunnelling and open excavation project to replace 40-year old pipes with a new, larger pipeline – is part of a record \$3.2 billion, 10-year investment by Queensland Urban Utilities to maintain and improve the capacity and reliability of Brisbane's water and wastewater services.

Micro-tunnelling, which involves remotely controlled unmanned borers, was used to take a new 600mm diameter sewer pipeline underneath the Centenary Motorway.

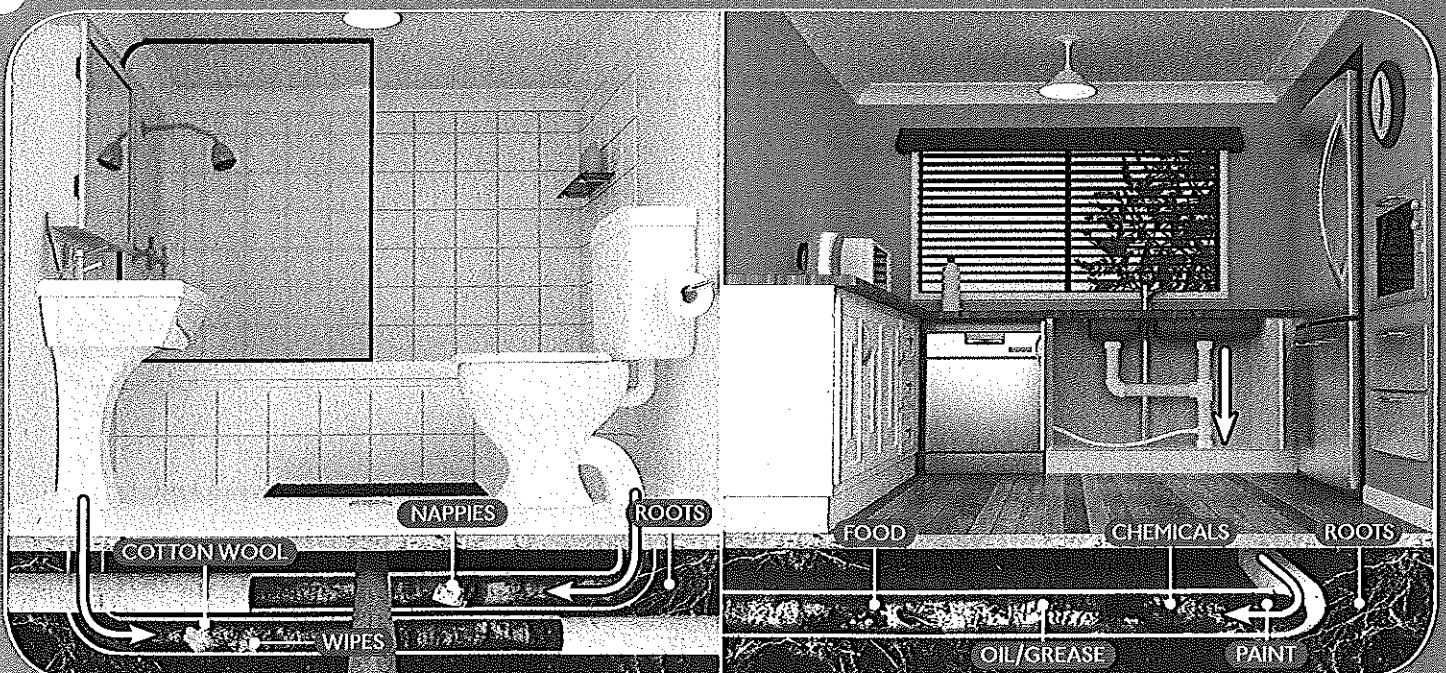
Other construction methods used across the project were open trenching and excavation, pipe bursting and slip lining.

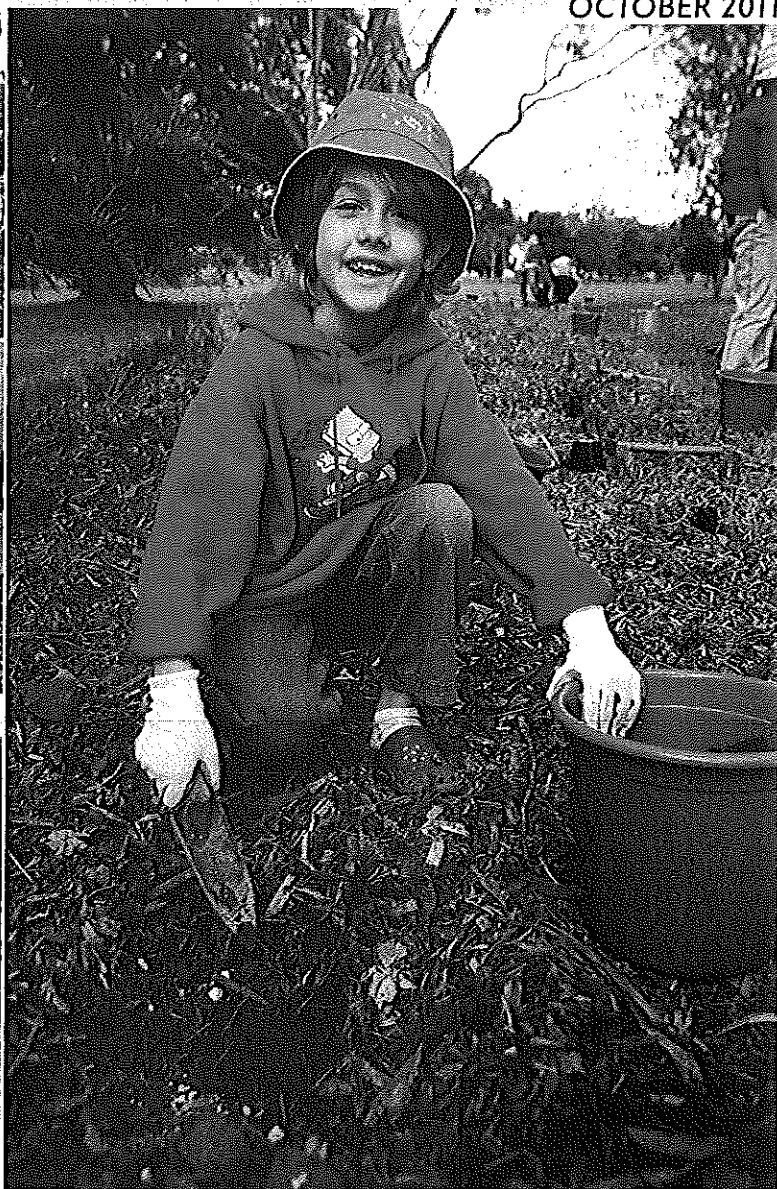
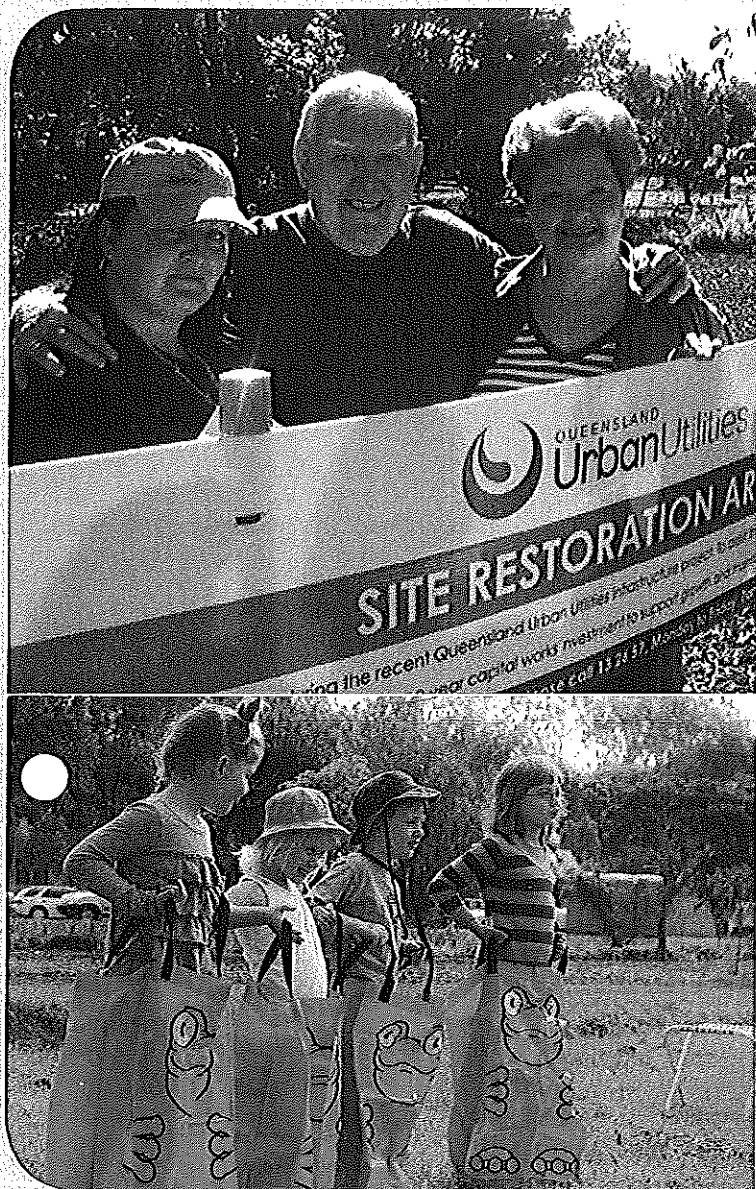
A big thank you from Queensland Urban Utilities

To thank local residents for their patience during construction, Queensland Urban Utilities funded a Community Planting Day on Sunday, August 14 and supported a Family Fun Day-Forest Festival on Sunday, October 2. The Community Planting Day provided free coffee and a sausage sizzle for local families, with many young children planting a native tree in their local park.

“Local children enjoyed the games at the Queensland Urban Utilities Community Planting Day.”

THINK AT THE SINK





Major problems to the wastewater pipes on your property can be caused by washing or flushing non-decomposable items down the sink or toilet, such as nappies, cotton buds, fats and oils.

Wastewater from household sinks, drains and toilets is piped through 8932km of wastewater pipes.

As a property owner you own and are responsible for the maintenance of the wastewater pipes on your property.

This includes the cost of any repairs to, or damage caused by the pipes.

Minimise the risk of blockage or damage to wastewater pipes by following some simple guidelines:

- Maintain the sewerage pipes on your property making sure they are free from cracks and blockages.
- Plant carefully: Check for pipes before planting, and choose trees with non-invasive roots.

- Dispose of any waste responsibly: Cooking oil, paints, pesticides, cleaning products and pool chemicals should never be poured down the sink, gutter or any other drain.
- Visit the Queensland Urban Utilities website for details on how you should dispose of household hazardous waste.

In some instances, Queensland Urban Utilities' infrastructure is located on residential property.

If you are unsure about the wastewater infrastructure on your property, please phone our General Enquiries Line on 13 26 57.

A NEW LOOK WATER BILL

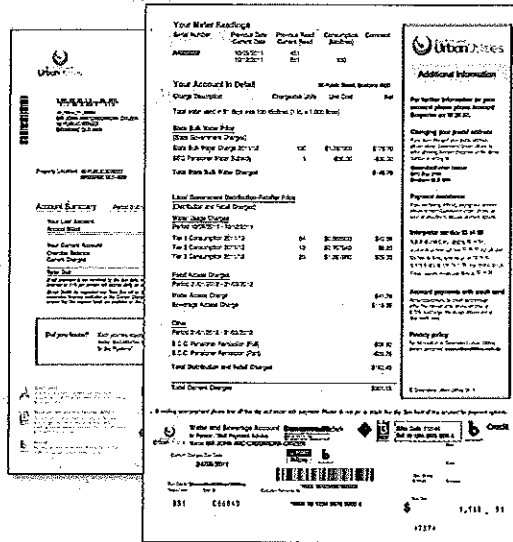
We're making it easier to understand the breakdown of your water and sewerage charges.

The second page of your Queensland Urban Utilities account has been split into two distinct sections.

The first section outlines State Government charges, such as the Bulk Water charge and the SEQ Pensioner Water Subsidy.

The second section features Queensland Urban Utilities' charges, such as water and sewerage access, water consumption and the Brisbane City Council Pensioner Remission Subsidy.

For more information, visit www.urbanutilities.com.au/your_home/your_account.



2011-12 WATER AND SEWERAGE CHARGES

New water and sewerage charges for 2011-12 came into effect on 1 July 2011.

These are reflected in your October account, which will include the new State Government Bulk Water and Tiered Consumption Charges.

Water used prior to 1 July 2011 will be charged at the 2010-11 rates, while water used after this date will be charged at the 2011-12 rates.

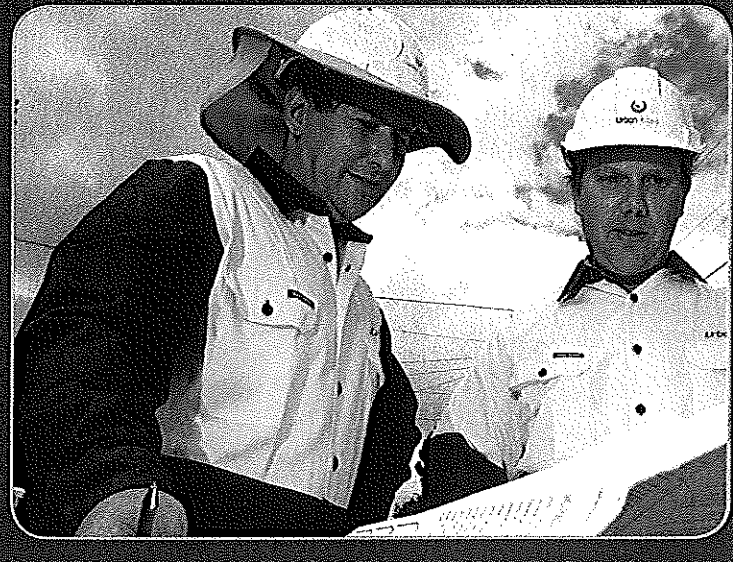
While prices have changed, the average annual Brisbane household Water and Sewerage Account remains the lowest in South East Queensland.

WE'RE PROUD TO BE THE PROVIDER OF WATER AND WASTEWATER SERVICES TO MORE THAN 1.3 MILLION RESIDENTS ACROSS A 14,346KM² SERVICE TERRITORY

Having been set up as part of the State Government's Water Reform, we're owned by the five councils that serve the Brisbane, Ipswich, Lockyer Valley, Scenic Rim and Somerset local authority areas.

Queensland Urban Utilities employs over 1100 people to manage and maintain the infrastructure that delivers water to your door as well as the infrastructure that removes, treats and disposes of your wastewater.

For more information about our water and wastewater services click the 'About Us' link on our website: www.urbanutilities.com.au.



TO REPORT A FAULT OR EMERGENCY
Contact us 24/7 on 13 23 64

FOR MORE INFORMATION VISIT
www.urbanutilities.com.au

GENERAL ENQUIRIES
From 7am-7pm weekdays 13 26 57



Queensland Urban Utilities Customer and Community Reference Group Charter 2010

1. The Charter

The Customer and Community Reference Group Charter guides the establishment and operation of this forum for the benefit of Queensland Urban Utilities and its customers.

The Charter will be reviewed jointly by the CCRG and Queensland Urban Utilities every two years.

2. Objectives of the Customer and Community Reference Group

The Queensland Urban Utilities Customer and Community Reference Group has the following objectives:

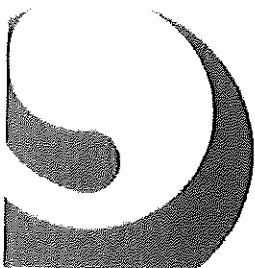
- To provide a forum for effective input and examination by customer and community representatives of relevant policy, planning and service standards
- To assist in promoting fair, equitable and sustainable delivery of water and wastewater services
- To assist in informing Queensland Urban Utilities' customers and the broader community through an open and honest dialogue on water and wastewater service delivery issues.

3. Role of the Customer and Community Reference Group

The Customer and Community Reference Group provides a forum through which customer and community representatives can provide advice and Queensland Urban Utilities can listen to and explore our customers' needs, emerging issues and initiatives in the delivery of water and wastewater services across our service territory.

The Group will provide feedback and advice to Queensland Urban Utilities in areas including:

- customer service standards and expectations
- affordability and pricing
- infrastructure planning and growth impacts
- water and wastewater efficiency and other environmental initiatives.



The Customer and Community Reference Group is advisory in nature and not a decision making body. It is expected that the Group will contribute to achieving significant benefits both for customers and Queensland Urban Utilities through increased understanding of issues by both parties, and by enabling Queensland Urban Utilities to be more responsive to the needs of its customers and the community.

4. Customer Reference Group Member Responsibilities

Customer and Community Reference Group members will:

- Attend meetings on a regular basis and contribute to group discussions
- Provide feedback from Group meetings to their member agencies and the wider community when appropriate and where possible
- Allow other Group members to freely express their views, and respect the views of other group members
- Work within the framework of the Customer and Community Reference Group Charter
- Uphold the confidentiality of any matters declared as such
- Respect the position they hold with regard to access to information from Queensland Urban Utilities, and not use or seek to use information or their position in any way for personal gain.

5. Queensland Urban Utilities' Responsibilities

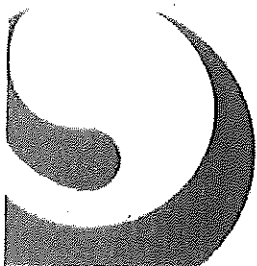
Queensland Urban Utilities agrees to:

- Pass on the Customer and Community Reference Group's advice and recommendations to its Board, and senior management
- Provide feedback on how the Group's recommendations and input has been used
- Report on relevant projects and initiatives and seek feedback from the Group
- Facilitate the effective operation of the Group by providing a convenor, administrative assistance and resources deemed necessary
- Respond to requests for information with agreed timeframes
- Work within the framework of the Charter
- Respect and value the contribution of Group members.

6. Membership

The Customer and Community Reference Group will consist of up to 10 members drawn from residential customers, businesses and peak representative community organisations that may represent the following sectors:

- community and social welfare
- primary production
- business and industry
- environment



- property sector
- local government sector
- residential customers
- commercial customers.

7. Process of Appointment

Selection of Group members will be conducted by Queensland Urban Utilities through an advertised expression of interest process open to residential and commercial customers and peak representative community organisations residing and operating in the Queensland Urban Utilities service territory.

The process is not open to previous or current Queensland Urban Utilities' employees, nor employees from shareholding Councils, or other water entities.

Applications are assessed through the following process:

- an appointment panel consisting of three Queensland Urban Utilities Senior Managers and shortlisting of preferred candidates
- interviews and / or referee checks may be conducted on shortlisted candidates to confirm skills, experience and personal attributes
- review of recommended candidates by Queensland Urban Utilities Board
- successful candidates will be notified in writing by Queensland Urban Utilities Chief Executive Officer
- once successful candidates have been notified and formally accepted their appointments, unsuccessful candidates will be notified in writing.

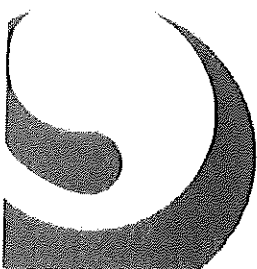
The Queensland Urban Utilities Board will make the final decision on all member appointments to the Customer and Community Reference Group. No further correspondence will be entered into once the decision is final.

8. Terms of Appointment

Customer and Community Reference Group Members will be appointed for an initial period of one year and will be eligible for re-appointment for a further 12 months.

To be eligible for re-appointment members must have demonstrated their commitment to the group by:

- attending meetings on a regular basis
- actively contributing to and participating in group discussion
- respecting their position and those of others on the group by allowing members to freely express their views and participate in discussions



- actively liaising with their local community and networks to provide and gain feedback on water and wastewater issues
- demonstrating that they have represented their community's interest on the CCRG
- upholding the confidentiality of matters declared as such by the CCRG
- not mis-using their position on the CCRG for their personal gain.

Queensland Urban Utilities may review the membership and the terms of appointment at any time.

9. Vacancy in Membership

A position on a CCRG may be declared vacant if:

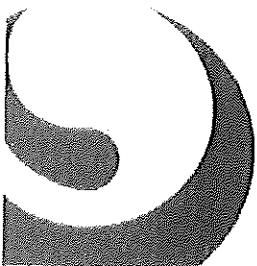
- an individual resigns their membership in writing to the Queensland Urban Utilities Chief Executive Officer
- an individual fails to attend two meetings in succession without prior notice
- an individual acts in a way which, in the opinion of the Queensland Urban Utilities Chief Executive Officer, may bring the Group into disrepute
- an individual declares an ongoing conflict of interest
- an individual acts in a manner which, in the opinion of the Queensland Urban Utilities Chief Executive Officer, is in contravention of the Charter.

If during the term of the Customer and Community Reference Group a replacement member is required, a replacement member will be appointed by Queensland Urban Utilities.

If a member's position becomes vacant, that member may recommend a list of candidates to act in their place for the remainder of their term of office. Such recommendations are to be submitted to the Convenor with a final decision made by the Queensland Urban Utilities Board. If in the event that a suitable candidate cannot be recommended by the outgoing member, a new member representing that customer or community sector will be sought.

10. Remuneration

Customer and Community Reference Group Members will receive a nominal payment for each meeting. For meetings of four hours or less in duration, inclusive of travel time, members will receive a remuneration payment of \$200. Meetings over four hours in duration, inclusive of travel time, will receive a remuneration payment of \$300. Members will be entitled to reimbursement of reasonable travelling and other expenses incurred in attending Group meetings, such as parking costs, on submission of valid receipts to the Convenor.



11. Media policy

Any media request of Customer and Community Reference Group or its members shall be referred to Queensland Urban Utilities.

Individual Group members shall not provide media comment about Group or Queensland Urban Utilities matters, or on behalf of the Group, without prior approval of the Queensland Urban Utilities Chief Executive Officer.

Members must be aware of privacy issues and legislation and not publicly identify other Group members or discuss their views or the activities of the Customer and Community Reference Group to media organisations.

12. Customer and Community Reference Group Meetings

Meetings will be held at a location alternately in Brisbane, Ipswich and a regional location within the Queensland Urban Utilities service territory.

Meeting Schedule

Meetings will be scheduled (at least) quarterly. A schedule of meetings including dates, times and locations will be confirmed at the commencement of each calendar year and be distributed to members.

The Convenor may request additional meetings, with the agreement of Group members.

Attendance at Meetings

Only Customer and Community Reference Group Members are entitled to attend meetings with the exception of the following, as appropriate to the agenda and as agreed by the Convenor:

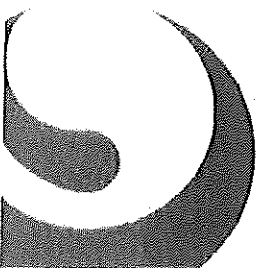
- invited Queensland Urban Utilities staff for specific agenda items
- special invitees for specific agenda items
- Queensland Urban Utilities support / administrative officers.

Convenor

Meetings will be convened by Queensland Urban Utilities' General Manager, Marketing and Communications.

The role of the Convenor is to:

- chair meetings in a manner that enables agenda items to be limited to those within the scope of the Customer and Community Reference Group



- ensure that the differing views of group members are acknowledged and respected
- ensure that the minutes are an accurate record of member discussions at each meeting
- be the spokesperson for the Group when providing Queensland Urban Utilities with formal feedback from the Group.

The Convenor will provide a written report to each Customer and Community Reference Group meeting.

Apologies

Any apologies are to be referred to the Convenor prior to the commencement of a meeting.

Agenda

Agenda items may be nominated by Group members and / or Queensland Urban Utilities. Members will be required to forward agenda items in writing to the Convenor three weeks prior to the scheduled meeting. The agenda will be compiled and forwarded to members at least two weeks prior to the next scheduled meeting.

The opportunity to raise general business will be made available at each meeting.

Customer and Community Reference Group Members will be briefed by Queensland Urban Utilities staff and representatives on certain current and future customer and stakeholder consultative initiatives to enable information to inform the Groups' responsibilities and actions.

Distribution of Papers and Reports

Any reports or papers that Members are required to review prior to the scheduled meeting will be forwarded with the distribution of the agenda, which will be provided at a reasonable time prior to the scheduled meeting.

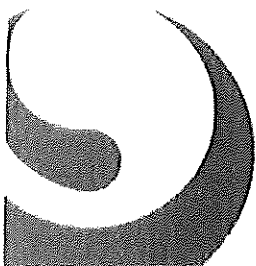
Minutes

Minutes will be taken at each meeting and consist of an accurate record of discussion, a statement of feedback, actions and accountabilities arising.

Queensland Urban Utilities, through its administrative support function, will prepare draft minutes for review by the Convenor. Minutes from each meeting will be distributed to all Group members within two weeks following the meeting.

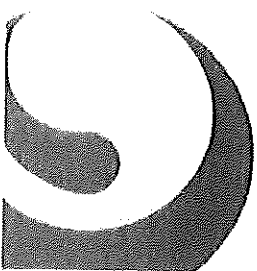
The Convenor is responsible for coordinating actions arising from meetings including the follow up and recording of progress of these actions.

The minutes will be presented at the next Group meeting for confirmation that they are an accurate record of the discussions at the previous meeting.



Administrative Support

Administrative support to the Customer and Community Reference Group will be provided by Queensland Urban Utilities and include scheduling of meetings, endorse and forward agendas, minute taking, circulating documentation to Group members in advance of meetings, follow up on actions and other support as requested by the Convenor.



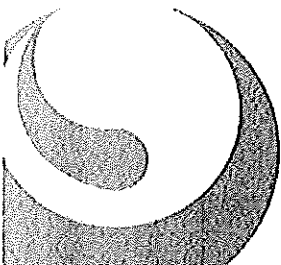


TERMS OF REFERENCE FOR AN INVESTIGATION ON FLOOD RISK ASSESSMENT AND MITIGATION OPTIONS OF QUU INFRASTRUCTURE

TERMS OF REFERENCE APPROVAL			
TITLE	NAME	SIGNATURE	DATE
General Manager, Planning	Paul Belz	[REDACTED]	19.04.11

TERMS OF REFERENCE ENDORSEMENT			
TITLE	NAME	SIGNATURE	DATE
Manager, Infrastructure Planning	[REDACTED]	[REDACTED]	19.04.11

REVISION HISTORY		
REV. NO.	ISSUE DETAILS	DATE
0	For Stakeholder Review	18.04.11



Document Approval List

Project Sponsor:	[REDACTED]	Location:	Roma St Transit Centre (L7)
TOR Author:	[REDACTED]	Location:	Roma St Transit Centre (L7)

STAKEHOLDER DOCUMENT DISTRIBUTION						
BRANCH WORK UNIT	REPRESENTATIVE	REV	DATE SENT	RETURN DATE	COMMENTS REC. (Y/N)	COMMENTS INC. (Y/N)
QUU Infrastructure Planning	[REDACTED]	0	19.04.11	19.04.11	Y	Y

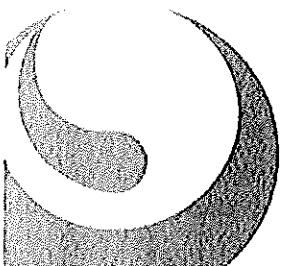
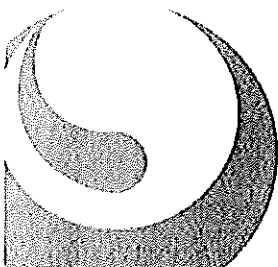


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1.0 PROBLEM / OPPORTUNITY DESCRIPTION

1.1 BACKGROUND

Significant flooding occurred in many areas of Queensland during late December 2010 and early January 2011, with three quarters of the state declared a disaster zone.

During this time a number of districts within Queensland Urban Utilities (QUU) service areas suffered significant flood water inundation, resulting in damage to assets, and disruption to operations and services to the community.

QUU's emergency and response management teams commenced 24 hour operations, expending significant time and cost to respond to the immediate and on-going water and wastewater needs of the community.

1.2 PURPOSE AND DRIVERS

During the flood event a number of QUU's critical water and wastewater sites and ancillary structures were inundated. In relation to wastewater, 121 out of 333 sewerage pump stations and 9 out of 28 water reclamation plants were flooded.

The impact on our assets and operations highlighted the need to review the resilience of our infrastructure against flooding.

The objective of this study is to provide QUU with an initial assessment of the potential for fluvial flooding, impacts on customers, and possible mitigating solutions. The outcome of the study will be a high level strategy on flood risk mitigation options and indicative cost estimates for our water and wastewater infrastructure.

2.0 SCOPE

2.1 PRIMARY REQUIREMENTS

It is proposed to carry out the investigation in two phases:

Phase 1 – Review of flood levels

Phase 1 will involve a review of flood level information for the January 2011 and 1974 flood events for all districts within QUU's service area. QUU will provide flood level information for Brisbane only. Flood information for all other districts (Ipswich, Somerset, Scenic Rim, Lockyer Valley) will need to be organised and gathered by the Consultant. This might include flood maps and/or river gauge data, photos etc. Information on actual flood inundation levels of affected assets will be provided to assist in the review.

The purpose of this phase is to define and verify the correctness of the original flood level information and, if necessary, amend and/or extrapolate flood levels for phase 2.

Phase 2 – Flood Risk Assessment and Mitigation Strategies

Phase 2 will involve an assessment of flood risk and development of mitigation strategies for QUU's 2011 flood affected assets (not just assets affected by direct inundation). The 1974 flood levels must also be considered to ensure the highest flood level on record is taken into account.



As part of this assessment, QUU's 5 year Capital Investment Plan (CIP) is to be reviewed in terms of potential flood risk and possible synergies with proposed flood mitigation options.

The assessment is to consider the environmental, financial and social impacts and consequences to the organisation, with a primary focus on customers and the environment.

In developing mitigation strategies, while it is expected that a clear framework for risks and consequences be established, potential mitigating options should reflect innovative thinking at both a local level (site) and holistically (system wide). For example, redirection of wastewater flows between scheme catchments; construction of bunds around water reclamation plants; relocating critical assets etc. Mitigation strategies should consider short term and long terms options and present high level strategic cost estimates.

A work package plan shall be developed on the basis of geographic area (constituent councils) and grouped into projects involving minor capital and long term projects requiring further investigation.

A concise summary report shall be prepared as part of phase 2 (Refer to 3.0 Deliverables).

3.0 DELIVERABLES

3.1 MEETINGS/WORKSHOPS

QUU shall be consulted during the Study to ensure relevant information is obtained and agreement on key issues is achieved. The following meetings/workshops shall be undertaken as a minimum requirement:

- Inception meeting
- Risk / Prioritization Workshop
- Mitigation Options Workshop

The Consultant shall prepare an agenda for each of these meetings/workshops for distribution to the invitees prior to the day of the respective workshop. The Consultant shall document minutes of the actions agreed at the workshops.

A formal pre-start meeting between the Study Manager and the Project Representative will be required at the earliest possible date after award.

The Inception meeting shall include:

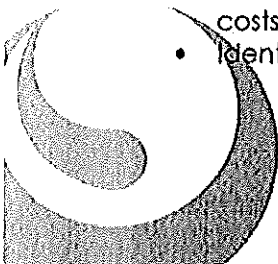
- Verification of scope and deliverables
- Confirmation of project methodology

The Risk / Prioritization Workshop shall include:

- Verification of priority assets for assessment (i.e., critical assets)
- Confirm key risks and consequences

The Mitigation Options Workshop shall include:

- Facilitating a QUU discussion that will review the mitigation options considered
- Presentation of findings for the options being considered (outlining risks, timing, costs etc)
- Identify any additional options that could be considered



The consultant shall provide fortnightly progress reports up to the delivery of the final report and present outcomes and conclusions reached during the preceding period for discussion.

3.2 DRAFT INVESTIGATION REPORT (DIR)

As a minimum, the Draft Investigation Report (DIR) must summarise in a concise manner (plain english, tables, maps etc) the risks and consequences to the organisation and proposed work package plan to address flood mitigation. The body of the report should focus on outcomes and conclusions rather than process and/or technical material. Detailed or supporting information should be presented in the appendix.

On completion of the analysis, the Consultant shall submit to QUU one (1) hard copy of the DIR and one (1) electronic copy of the relevant study files. Draft review by QUU is to be programmed as two (2) weeks.

The QUU Project Representative will circulate the DIR to QUU stakeholders for comment. The QUU Project Representative will then collate all comments and will return the comments to the Consultant for consideration in finalizing the report.

3.3 FINAL INVESTIGATION REPORT (FIR)

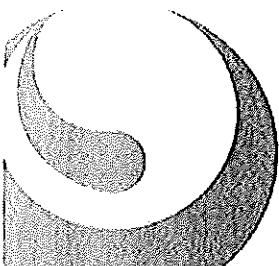
After making amendments as appropriate for the proposed FIR the Consultant shall re-submit the investigation report as the "Final Draft" for final review by QUU and before Queensland Urban Utilities accepts the FIR.

Following the review period, and after receiving comments and making amendments as appropriate, the Consultant shall submit to QUU two (2) hard copies and one (1) electronic copy of the Final Investigation Report. The electronic copy is required in both native file formats (eg. Word 97, Excel 97, etc.) and as a compiled Acrobat PDF.

3.4 OWNERSHIP OF DOCUMENTS

QUU is the owner of any documents produced for this investigation study. As such, any documentation produced is not to include the name, logo or any other identification of any external agency (this is to include the body of the text, footers, headers, covers and drawings). The exceptions will be that:

- In the executive summary of the document, the wording "This Investigation Report has been prepared in partnership between Queensland Urban Utilities and (insert lead agency's name)" may be included;
- In the Investigation Team signature boxes, the personnel and lead agency's name may be included; and,
- In the body of the text, an agency's name may be included, where required to unambiguously identify works or documents referenced in this Investigation Report.



4.0 FEE PROPOSAL AND PAYMENT SCHEDULE

The Fee Proposal is to be a Fixed Lump Sum Fee (excluding GST) to undertake all tasks required to deliver the project. The Fee Proposal should include relevant details of the key personnel that the Consultant proposes for this investigation study, together with their hourly charge rates.

Payment will be:

- For Consultants currently registered on the QUU Panel of Providers: in accordance with the Panel Contract Schedules
- For Consultants not registered on the QUU Panel of Providers: by assessment of monthly progress claims

The following milestone limits will apply:

- Prior to acceptance by Queensland Urban Utilities of the Draft Investigation Report
 - Maximum of 60% of the Fixed Lump Sum Fee.
- Prior to acceptance by Queensland Urban Utilities of the Final Investigation Report
 - Maximum of 80% of the Fixed Lump Sum Fee.

5.0 ASSESSMENT CRITERIA

The assessment criteria for Fee proposals submitted are based upon the following:

- Price and fee details including distribution of costs and hours associated with the proposed works
- Previous Experience - in undertaking similar studies
- Available Resources and relevant technical expertise in undertaking this type of study (including analysis and interpretation of results)
- Project Appreciation including the proposed methodology for the conduct of the Study based upon the requirements and scope described in this TOR document
- The technical input proposed (analysis, design and treatment options, environment, community & social, risk assessment, etc) and the level of confidence in achieving the desired outcome
- Proposed timeframe – 2 – 3 months

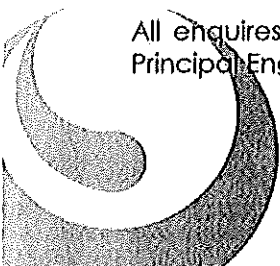
Queensland Urban Utilities will undertake a Value for Money (VFM) assessment of the submissions received to assist in determining the preferred provider of these works. The Project Works will not necessarily be awarded to the lowest price submission.

6.0 STAKEHOLDER CONSULTATION / ISSUES

All correspondence shall be directed through the Project Representative (see below).

7.0 ENQUIRIES

All enquires pertaining to this Terms of Reference are to be directed to Sam Bagraith, Principal Engineer, Network Planning, Queensland Urban Utilities.

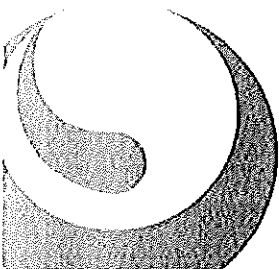


Sam Bagraith
Principal Engineer
Telephone: (07) 340 30128
sam.bagraith@urbanutilities.com.au

8.0 REFERENCES AND SUPPORTING DOCUMENTATION

QUU will provide the Consultant with the following information (as required):

- List of flood affected assets (GIS and spreadsheet including details such as asset elevations; how it was affected; i.e., inundation, loss of power etc)
- Brisbane flood levels map for the 2011 and 1974 flood event
- Council contacts for flood information data gathering
- General water and wastewater GIS information (as required)
- Concurrent QUU flood mitigation related studies



APPENDIX 1 — DEFINITIONS

Client

The Client is Queensland Urban Utilities – a Division of Brisbane City Council. The Divisional Executive Manager, Queensland Urban Utilities may delegate this responsibility to a General Manager or Manager of a Branch within the Queensland Urban Utilities Division as considered appropriate for the work proposed.

Consultant

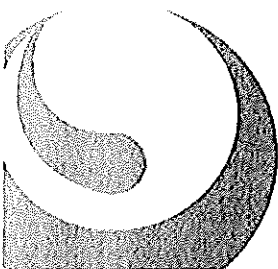
A consultant is the provider of the applicable services drawn from outside Queensland Urban Utilities for the purpose of carrying out studies / investigations required to address identified issues/concerns and to determine the appropriate solution(s).

Project Representative

The Project Representative is the nominated Queensland Urban Utilities project officer responsible for coordinating the conduct of the project (from start to finish). All enquiries pertaining to the Terms of Reference are to be directed through the Project Representative.

Sponsor

The Sponsor is the person who initially flagged the need, issue or problem and requires it to be resolved. The Sponsor will be required to have a continuing involvement in the resolution of the need, issue or problem, ie, in terms of defining and scoping the problem in the Terms of Reference or study / investigation. The Sponsor will need to agree that the study/justification or study/investigation and the outcome(s) is/are satisfactory for the resolution of the need, issue or problem.



Stakeholder

A Stakeholder is any party having an interest in the outcomes and other appropriate aspects of the study eg, the Sponsor, the Client, Projects Branch, Asset Management Branch, Field Services and Commercial Services etc.

Study Manager

The Study Manager is responsible for the conduct of the study/Investigation. The Study Manager is the nominated representative of the study team charged with undertaking the study/Investigation and producing the required Report/Documentation and delivering it to the Project Representative.

Study Team

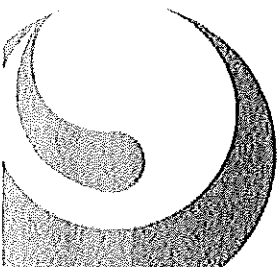
A study team is the provider of the applicable services drawn together for the purpose of carrying out studies/investigations required to address identified issues/concerns and to determine the appropriate solutions. The Study Team may be from Queensland Urban Utilities, the Brisbane City Council, an external agency (consultant) or a combination of the above.

Study/Investigation

A study/investigation is the process whereby an identified need, problem or issue is examined in engineering/scientific detail in order to achieve an outcome or outcomes which will resolve it or recommend further work.

Terms of Reference

The purpose of a Terms of Reference (TOR) is to describe the underlying history behind a problem/issue/concern, to place boundaries around what the study/investigation should and should not include and to detail the outcomes required.



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Brisbane Q 4001T 3403 3363
F 3403 3471
www.urbanutilities.com.auAECOM
Level 8
540 Wickham Street
PO Box 1307
Fortitude Valley QLD 4006

Attention: Mark Gibbs

Order for Services

Order No. [REDACTED]

Pursuant to clause 3.2 of the Contract dated 1 July 2010 between the Brisbane City Council ("the Council") and AECOM ("the Contractor") of which Central SEQ Distributor Retailer Authority trading as Queensland Urban Utilities ("QUU") is a Participating Agent for the provisions of Services ("the Contract") and in response to the Quote given by the Contractor dated 16 May 2011 and numbered qld-b11-1083\8, QUU accepts that Quote by the placement of this Order for the provision of the Services referred to below. Such Services are to be provided for Queensland Urban Utilities.

1. Services Investigation of flood risk assessment and mitigation options of QUU infrastructure as per quote qld-b11-1083\8

2. Specifications & Deliverables As per quote qld-b11-1083\8

3. Specified Personnel As per quote qld-b11-1083\8

4. Costs

In accordance with your Quote of 16 May 2011, the maximum cost for the Services ordered under this Order is \$ 45,370. In accordance with the terms of the Order (as set out in the Contract), this cost shall not be exceeded without the QUU's prior written approval.

5. Date of commencement of this Order

30 May 2011

6. Date on which this Order is to cease (unless otherwise terminated in accordance with the terms of the Order)

22 July 2011

7. Location(s)

As per quote qld-b11-1083\8

8. Representatives

(a) QUU's Representative for this Order

[REDACTED]

Planning Engineer

[REDACTED]

(b) Contractor's Representative for this Order

[REDACTED]

Segment Lead – Water Resources and Coastal Management




[REDACTED]

9. Terms and Conditions

The terms and conditions of this Order are as specified by clause 3.5 of the Contract.

10. Additional Terms and Conditions

If you are in agreement with the foregoing, please sign in the space provided retain a copy for your records and return a PDF signed copy to QUU, after which this Order will constitute a contract between the parties for the performance of the Services set out above.

<p>QUU agrees to comply with the terms and conditions of this Order as contained in the Contract and the above Details</p>	<p>Signature:  Paul Belz General Manager, Planning Queensland Urban Utilities Date: 20/5/11.....</p>
<p>The Contractor agrees to comply with the terms and conditions of this Order as contained in the Contract and the above Details</p>	<p>Signature:  Name:  Title: TECHNICAL DIRECTOR AECOM Australia Pty Ltd Date:</p>



CLIENTS | PEOPLE | PERFORMANCE

19 August 2011

██████████
Queensland Urban Utilities
Level 6 Brisbane Transit Centre
171 Roma Street
Brisbane QLD 4001

Our ref: 41/24018/425074
Your ref:

Dear ██████████

Lowood and Fernvale WRP Proposal for Flood Study

Thank you for the opportunity to submit a proposal for undertaking a flooding assessment for the proposed Water Reclamation Plant (WRP) at Fernvale.

Project Appreciation

The Lowood and Fernvale WRP serve small but rapidly growing communities in the Somerset Regional Council (SRC) area. The existing infrastructure has insufficient capacity to treat the flow from the projected population, leading Queensland Urban Utilities (QUU) to develop a long term wastewater management strategy to deal with future demands.

The expected flood level during the 100 year Average Recurrence Interval (ARI) event at the proposed site is 40 [m AHD]. However, based on a water mark and debris survey after the January 2011 flood, the water levels reached an approximate level of 42.64 [m AHD]. Therefore, QUU is proposing that the new WRP be situated above 43 [m AHD]; alternatively QUU is also proposing to fill the site to a level of 40 [m AHD] and have some plant element projecting above the fill.

The proposed WRP may be located at a location adjacent to the current site, provided the site can be safely protected against the impact of flooding.

The main purpose of this flood study will be to establish the impact on the river caused by raising the proposed the proposed site to 43 and 40 [m AHD] respectively.

Specifically the flood study will determine:

- the flow condition such as velocity and depth at the proposed location in a January 2011 like event in the existing and the 2 proposed developed case; and
- the relative impact on water surface level caused by the 2 proposed WRP during a 100 year ARI event.

Flood study scope of works

Our proposed methodology has been developed to efficiently address the requirements of QUU. A summary of the key tasks associated with the methodology is provided below.



Task 1: Background data previous studies and hydrology

Prior to undertaking the flooding assessment, we will review appropriate background information including:

- Supplied survey data for use in developing the site specific hydraulic model,
- Review previous hydrologic model and hydraulic model, and
- Review the *Lowood and Fernvale WRP augmentation Site option Study post January 2011 flood* (GHD, May 2011)

It is anticipated at this stage that no additional hydrological work will be undertaken as the hydrology is incorporated into the existing model discussed below.

Task 2: Hydraulic Analysis - Base Case

It is understood that a MIKE 11 model covering the proposed site has been developed by the Somerset Regional Council (SRC). It is assumed that:

- the existing model will be made fully available;
- the existing model is provided in full working order;
- the road bridge adjacent to the site is accurately defined; and
- the existing model extends a sufficient distance upstream and downstream of the study area.

GHD proposes to review and refine this model where it is appropriate.

GHD proposes to estimate the existing flood condition such as depth and velocity in the 100 year ARI design event based on the model provided by the SRC.

Additionally, this model will also be used to establish the flooding condition in an event equivalent to the January 2011 event. The boundary conditions will be modified until the hydraulic model results become comparable to the observed data.

Task 3: Hydraulic Analysis - Developed Case

GHD proposes to assess the 2 proposed WRP developments in the 100 year ARI design event and in the January 2011 like event. The 2 development will be represented in the MIKE 11 hydraulic model by updating the cross section geometric data.

Two developed case scenario will be assessed:

- Scenario 1: Include the site fill to a level of 43 [m AHD]; and
- Scenario 2: includes the site fill to a level of 40 [m AHD] with plant element projecting above the fill.

Task 4: Reporting

The work undertaken will be outlined in a concise technical report. The report will include maps of flood extent, flow velocity, flood level and the relative impact on the peak flood levels for the 100 year ARI event and the January 2011 like event for the existing case and the 2 developed cases.

The report will also include clear recommendation on how to:



- maintain the integrity of the filled site during major flood event;
- protect structures protruding above the fill against flooding; and
- protect the fill embankment against scouring and slumping.

Proposed Budget and timing

Our lump sum fee for the proposed scope of works is \$ 18,500 (excluding GST) assuming the SRC model is available and in working order. Any additional work outside this scope will be undertaken at our standard hourly rate plus expenses. No additional works will be undertaken without the prior approval of the client.

It is anticipated that 4 weeks will be needed to complete the study upon receipt of all data.

The cost of any additional survey work has not been included in this proposal as it is anticipated that no additional survey data will be necessary.

Standard hourly rates, excluding GST for the project team are:

Peer Review	\$ 264 per hour
Project Director	\$ 189 per hour
Senior Engineer	\$ 163 per hour

Condition of Engagement

GHD propose to undertake the work in accordance with the standard terms and conditions defined in the *Brisbane City Council Provision of Infrastructure Consulting services Contract No. A100026-09-10*.

A signed order will need to be returned to GHD prior to commencement of the project.

I trust the above scope of work assesses the key areas but please do not hesitate to contact me or

[Redacted signature]

Yours sincerely

[Redacted signature]

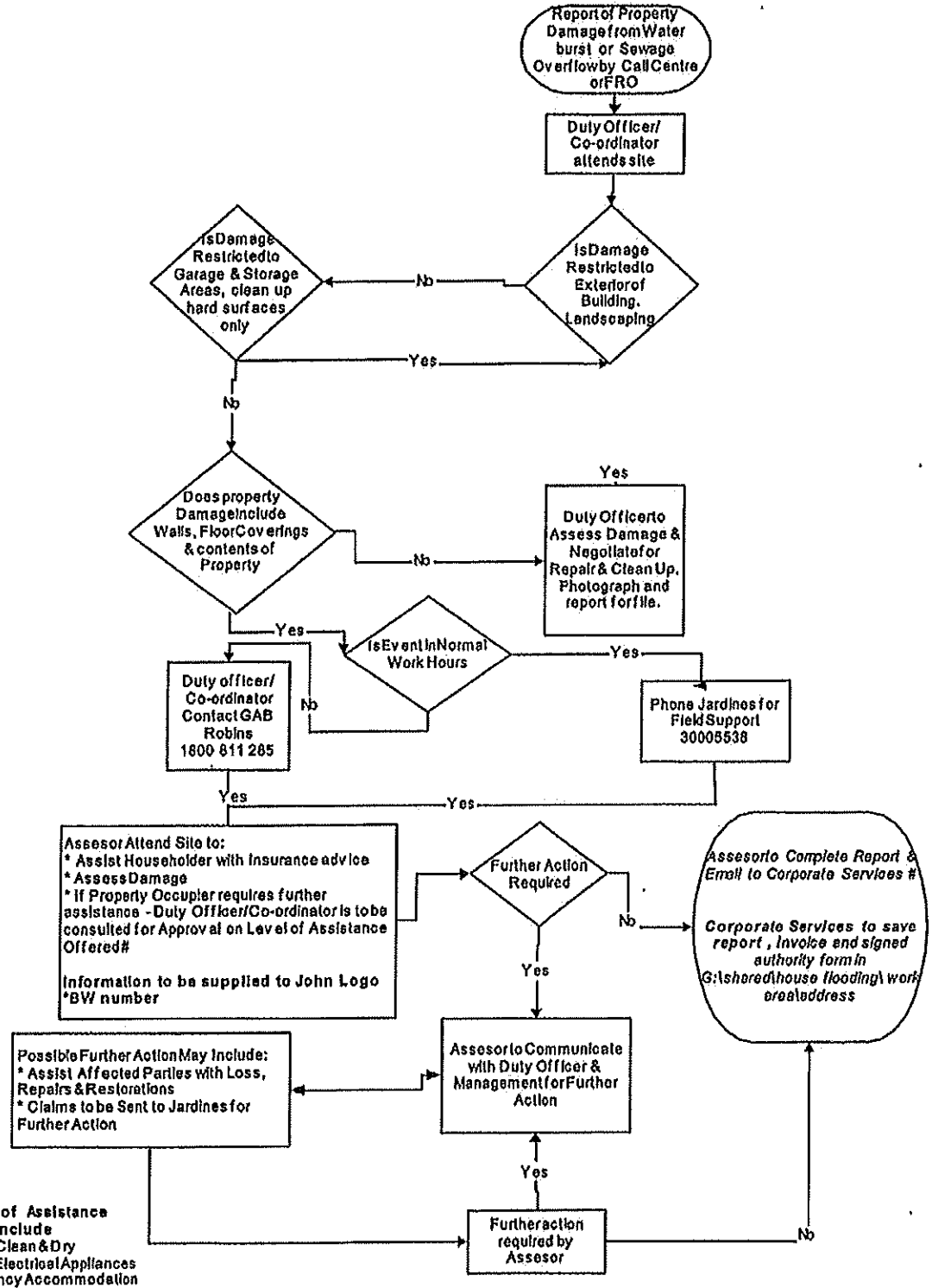
[Redacted signature]

Project Director

[Redacted signature]



Related Documents: General Hazards Safe Work Method Statement



PROCEDURE FOR A WET WEATHER EVENT CAUSING ONE OR MORE SEWERAGE PUMP STATIONS TO OVERFLOW

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2.	Procedure	2
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1. Scope of Document

This document provides the procedures to be undertaken by all employees of Queensland Urban Utilities when a wet weather event causes one or more sewerage pump stations to overflow.

2. Procedure

The following procedures are to be performed in the manner specified, by the officer stipulated in each.

Queensland Urban Utilities - Procedure for a Wet Weather Event causing one or more Sewerage Pump Stations to Overflow

STEP	PROGEDURE	OFFICER
	A wet weather event is characterised by rainfall causing one or more sewerage pump stations to overflow from excessive inflow.	
1	If a wet well high alarm occurs (in wet weather and the pump/s are running this would indicate heavy inflow due to the rain). Notify Field Engineering Duty Officer after hours or relevant contact officer during working hours. Keep them informed of any subsequent alarms at that pump station or any others.	Control Room Officer
2	Inhibiting of pumps in upstream pump stations: <ol style="list-style-type: none"> 1. Use "G:\Shared\Contingency 2002\briswater\default.htm" to determine if any upstream pump station pumps can be inhibited. 2. Notify Field Engineering Duty Officer/contact officer if this is done or the incident team, if an incident is declared. 	Control Room Officer
3	Send SMS message to the following groups : Managers Ops/S & D Sewerage M&E * See Queensland Urban Utilities Operational Standards- Part B Doc 002401	Control Room Officer
4	If the Field Engineering Duty officer/contact person determines that an "Incident" should be declared, contact the Incident Management Team using AHWM. Criteria for declaring an incident. <ol style="list-style-type: none"> 1. More than 10 pump stations overflowing and/or 50 work orders received from the Call Centre. See Document 003563 for Resourcing	Control Room Officer
5	If the site/s are suitable for tankering i.e. can stop an overflow easily because rainfall event has ceased (use the sewerage pump station contingencies "g:\Shared\Contingency 2002\briswater\default.htm" as a guide): <ol style="list-style-type: none"> 1. Organise for tankers to go to selected site/s. 	Field Engineering Duty Officer/ Incident Team

Queensland Urban Utilities - Procedure for a Wet Weather Event causing one or more Sewerage Pump Stations to Overflow

STEP	PROCEDURE	OFFICER
	<ol style="list-style-type: none"> 2. If required, organise Queensland Urban Utilities staff to be on site to direct the tankering operation. 3. Staff on site to determine if an overflow has occurred. <p>Note: In Large wide spread events, this may not be practical. Tankering post a rainfall event should be considered only if the overflow can be stopped relatively easily.</p> <ol style="list-style-type: none"> 4. Tankering may also be used to end a specific overflow sooner, if the rain has stopped and most other sites have returned to normal flows. 	
6	<p>When approximately 80% of pump stations have returned to normal operation after the wet well event:</p> <ol style="list-style-type: none"> 1. The remaining 20% may require a site visit to check the site is operating correctly. 2. In the case of conventional stations, the running pump can be inhibited to allow another pump to run. 	Control Room Officer
7	<p>If an overflow occurs:</p> <ol style="list-style-type: none"> 1. Send staff out to clean up, if necessary. Prioritise on the type of customer i.e. Hospital, CBD, key commercial. 2. Estimate volume of overflow 3. Contact EPA if more than 5000 litres 	Field Engineering Duty Officer/ Incident Team
8	<p>Request Queensland Urban Utilities staff to observe and note any abnormalities that may have contributed to the occurrence. i.e. blockages, damaged infrastructure, abnormal colour/smell (trade waste), high flows (creek inflow, MH lids missing/unseated)</p>	Field Engineering Duty Officer/ Incident Team

3. Related Documents

<insert related documents list here as hyperlinks; this section to always stay at the end of the document>