

In the matter of the

Commissions Of Inquiry Act 1950

Commission of Inquiry Order (No. 1) 2011

QUEENSLAND FLOODS COMMISSION OF INQUIRY

Witness Statement of Gary Ellis

Engineering and Environment Manager
Ipswich City Council

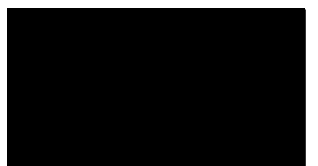
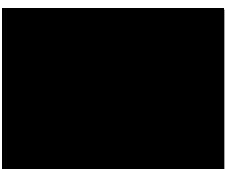


Table of Contents

	Description	Page
Introduction		
Topic 1	Introduction and Qualification	7
Topic 2	Overview of the ICC Development Assessment Process for Operational Works Applications	9
Topic 3	Citiswich -Assessment Of Operational Works Applications For Citiswich	11
Topic 4	Application number 7333/06	14
Topic 5	Application number 4264/07	22
Topic 6	Application number 5426/10	27
Topic 7	Application number 7540/10	37
Topic 8	Application number 3823/10	39
Topic 9	Other Citiswich Applications	43

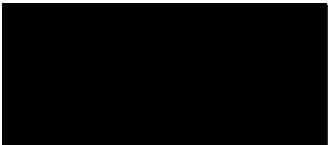
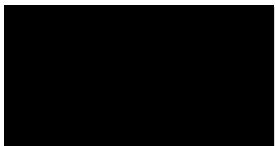
Table of Annexures

	Description	Date
GE-1	Standard Checklist - appraisal form for operational works	Undated
GE-2	Operational Works Checklist	Undated
GE-3	Bremer Business Park Masterplan – Flooding Investigation (Job Number J8714/R3/V2)	August 2007
GE-4	Citiswich Masterplan – Local Flooding Investigation (Job no LJ8714/R6)	June 2008
GE-5	Map of approximate extent of earthworks for Application 7333/06	Undated
GE-6	Development Application and accompanying reports (Application 7333/06)	26 October 2006
GE-7	Information Request from ICC (Application 7333/06)	7 December 2006
GE-8	Response to Information Request (Application 7333/06)	18 December 2006
GE-9	Request for additional information - Department of Main Roads (Application 7333/06)	31 January 2007
GE-10	Response to Request for additional information (Application 7333/06)	12 February 2007
GE-11	Decision Notice and approved plans (Application 7333/06)	23 March 2007
GE-12	Revised Operational Works Drawings and associated correspondence (Application 7333/06)	22 May 2007
GE-13	Map of approximate extent of earthworks for Application 4264/07	Undated
GE-14	Development Application and accompanying reports (Application 4264/07)	5 June 2007
GE-15	Correspondence from CLT to ICC, in relation to Stormwater Management Strategy and Flood Assessment (Application 4264/07)	11 September 2007
GE-16	Referral Agency Response of the Department of Main Roads (Application 4264/07)	18 October 2007
GE-17	Decision Notice of ICC (Application 4264/07)	26 November 2007
GE-18	Letter from Burchill VDM to ICC attaching revised development drawings (Application 4264/07)	17 June 2008
GE-19	Map of approximate extent of earthworks for Application 5426/10	Undated

GE-20	Development Application (Application 5426/10)	13 August 2010
GE-21	Letter attaching detailed engineering bulk earthworks drawings (Application 5426/10)	24 August 2010
GE-22	Information Request (Application 5426/10)	6 September 2010
GE-23	Response to Information Request (Application 5426/10)	8 October 2010
GE-24	Information request DTMR (concurrence agency) (Application 5426/10)	27 October 2010
GE-25	DTMR Referral Agency's Response (Application 5426/10)	18 January 2011
GE-26	Decision Notice (Application 5426/10)	30 May 2011
GE-27	Map of approximate extent of earthworks for Application 7540/10	Undated
GE-28	Plan showing overall precinct zones	Undated
GE-29	Development Application for operational works (bulk earthworks) and associated attachments (Application 7540/10)	4 November 2010
GE-30	Information Request (Application 7540/10)	12 November 2010
GE-31	Response to Information Request (Application 7540/10)	24 December 2010
GE-32	Summary of Application 5614, including a location plan relevant to the Q100 flood line and 2011 flood event	Undated
GE-33	Development Application (Application 5614)	24 July 2007
GE-34	Letter from Applicant attaching revised drawings (Application 5614)	18 February 2008
GE-35	Development Application Decision Notice (Application 5614)	8 July 2008
GE-36	Summary of Application 3644/09, including a location plan relevant to the Q100 flood line and 2011 flood event (Application 3644/09)	Undatd
GE-37	Development Application and accompanying documents (Application 3644/09)	17 June 2009
GE-38	Letter from the Council advising that the Application 3644/09 has lapsed	25 October 2010
GE-39	Summary of Application 9502/08, including a location plan relevant to the Q100 flood line and 2011 flood event	Undated
GE-40	Development Application (Application 9502/08)	17 December 2008
GE-41	Information Request (Application 9502/08)	27 January 2009

GE-42	Response to Information Request (Application 9502/08)	24 September 2010
GE-43	Development Application Decision Notice (Application 9502/08)	22 October 2010
GE-44	Implementation Guideline No.24	September 2011
GE-45	Map of approximate extent of earthworks for Application (Application 3823/10)	Undated
GE-46	Application for operational works and accompanying plans (Application 3823/10)	11 June 2010
GE-47	Letter from Walker Corporation to ICC and attached updated plans (Application 3823/10)	12 July 2010
GE-48	Decision Notice and attached approved plans (Application 3823/10)	23 July 2010
GE-49	Summary of Application 4820/07, including a location plan relevant to the Q100 flood line and 2011 flood event	Undated
GE-50	Development Application (Application 4820/07)	21 June 2007
GE-51	Development Application Decision Notice (Application 4820/07)	3 August 2007
GE-52	Summary of Application 6568/08, including a location plan relevant to the Q100 flood line and 2011 flood event	Undated
GE-53	Development Application (Application 4820/07)	8 August 2008
GE-54	Request to withdraw application (Application 4820/07)	16 November 2009
GE-55	Summary of Application 7282/10, including a location plan relevant to the Q100 flood line and 2011 flood event	Undated
GE-56	Development Application dated (Application 7282/10)	22 October 2010
GE-57	Decision Notice (Application 7282/10)	10 February 2011
GE-58	Bremer Business Park – Stage 1 – Stormwater Management Strategy to Support Development Application for Reconfiguration of Lot”, Job No LJ8714/R5	August 2007
GE-59	Summary of Application 9070 & 9070/07A, including a location plan relevant to the Q100 flood line and 2011 flood event	Undated
GE-60	Application dated (Application 9070 & 9070/07A)	9 November 2007
GE-61	Decision Notice (Application 9070 & 9070/07A)	1 October 2008

GE-62	Letter withdrawing part of the application from Walker Corporation	26 May 2011
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WITNESS STATEMENT OF GARY ELLIS

This written statement is provided in response to a Requirement, dated 23 September 2011, pursuant to section 5(1)(d) of the *Commissions of Inquiry Act 1950* (Qld) to provide a written statement, under oath or affirmation, to the Queensland Floods Commission of Inquiry.

I, Gary Stephen Ellis, of [REDACTED] Yamanto, Ipswich, in the State of Queensland swear as follows:

INTRODUCTION AND QUALIFICATIONS

1. I am employed by Ipswich City Council (ICC or the Council) as Engineering and Environment Manager in the Development and Planning Branch of the Planning and Development Department. I commenced this role in October 2008.
2. From May 2003 to present, I held positions at ICC as Development Engineer (May 2003-March 2005), Assistant Development Manager – Engineering (March 2005 to March 2007), Development Manager – Engineering (March 2007 – October 2008); and Engineering and Environment Manager (October 2008 to Present). In these capacities I was involved in the assessment of development applications. Prior to my employment with Ipswich City Council and for the period January 2000 to May 2003, I was a Doctorate of Philosophy Student with University of Southern Queensland (USQ – Centre of Excellence in Engineered Fibre Composites) conducting research into the application of fibre composites for civil infrastructure. During this period I was also engaged by USQ to perform as an undergraduate subject tutor.
3. I hold the following qualifications:
 - (a) Bachelor (Honours 1A) of Engineering – Civil [1999]
 - (b) Diploma Frontline Management – Commissioned Officer RAAF [2002]
 - (c) Certificate IV of Workplace Assessment and Training [2001]
 - (d) Associate Diploma of Engineering (Aviation Engineering) – RAAF [1990]
4. In my current role I have management responsibility for a team consisting of engineers, technical officers, environment planners and environmental health officers. I am responsible for the daily management of branch operations which include engineering and environmental assessment of development applications including ERA's. In this role I report to the City Planner, Mr Adams.

5. The Commission's Requirement directed to me dated 27 September 2011 requires that I provide a written statement as to certain matters concerning sites located at (adopting the references in the Commission Requirement notice):

B [REDACTED] Mill Street, Goodna;

C [REDACTED] Chubb Street, 8 Georgette Street, One Mile;

D [REDACTED] Haig Street, Brassall;

E [REDACTED] Eric Street, Goodna;

F [REDACTED] Chubb Street, One Mile; and

G [REDACTED] Alice Street Goodna.

6. I have read the statements provided to the Commission by Ms Joanne Pocock, Mr Brett Davey, Mr Tim Foote, and Ms Natalie Plumbe in relation to the above properties.

7. I understand the Commission has been advised by the Council's solicitors, Clayton Utz, that I was on leave at the time the Commission Requirement was issued to me. I returned from leave on Tuesday, 4 October 2011 and, since my return from leave, have been occupied in responding to the questions raised by the Commission in relation to the development history of the Citiswitch site. In the time available I have not had an opportunity to undertake a comprehensive review of the files in relation to the other sites in respect of which I have been asked to provide a statement.

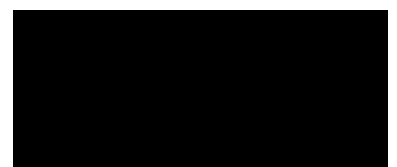
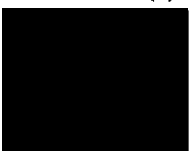
8. However, I have reviewed the statements provided by ICC officers in relation to those sites and am able to inform the Commission that there is nothing that I can add to those statements which I consider would be of assistance to the Commission.

9. In this statement I will provide a brief description of:

- (a) the ICC development assessment process for Operational Works; and
- (b) some threshold matters relevant to the assessment of Operational Works applications for the Citiswitch site.

10. I will then respond to the Commission's Requirement in relation to the following development applications:

- (a) 4820/07;
- (b) 4264/07;
- (c) 7333/06;



- (d) 5426/10;
- (e) 7540/10;
- (f) 3823/10;
- (g) 3644/09;
- (h) 5614/07;
- (i) 6568/08;
- (j) 7282/10;
- (k) 9070/07 & 9070/07A;
- (l) 9502/08.

11. In respect of the other Citiswich Development applications the subject of the Commission's notice, these are more appropriately dealt with by Natalie Plumbe as they relate to material change of use or reconfiguration of lot applications. I have read Natalie Plumbe's statement in respect of these applications and have nothing further to add to those statements which would be of assistance to the Commission.
12. The sources of information for the matters set out in this statement are:
- (a) my personal knowledge and recollection of relevant events; and
 - (b) my review of the relevant ICC development application files, a copy of which I understand have been produced to the Commission pursuant to a Requirement notice dated 5 August 2011.

OVERVIEW OF THE ICC DEVELOPMENT ASSESSMENT PROCESS FOR OPERATIONAL WORKS APPLICATIONS

13. In this section of my statement I provide for the assistance of the Commission some commentary on the ICC Development Assessment process for operational works applications. I have read the Statement of Joanne Pocock to this Commission, dated 7th October relating to the overview of the ICC Development Assessment process. The assessment process for operational works applications follows the same steps, excepting that consultation with elected representatives is not a condition of the engineering officer's delegations for operational works. Notwithstanding on occasions at the request of divisional councillors consultation in relation to a particular operational works applications occurs.

14. As indicated in the Statement of Joanne Pocock, after an application has been received by ICC, the assessment officer (for an operational works application, this is an Engineering Technical Officer) presents the application to an internal panel known as the Integrated Development Assessment Panel (IDAP). The IDAP panel for Operational Works applications is comprised of personnel from ICC's Engineering and Environment Branch and personnel from the Development Planning Branch. The scheduled meeting agenda is circulated to these personnel and other key personnel from Queensland Urban Utilities.
15. Complimenting the panel review is the IDAP checklist appraisal form for operational works (refer attachment GE-1) that can be used at the IDAP which permits a record of key points of the IDAP discussion and checking of referrals both internal and external to ICC. The checklist informs the assessment process to avoid oversights and provide a record of what other experts within ICC will be involved in the assessment. The use of this checklist started in January 2007 but was rudimentary and has evolved and improved since its introduction to present day format. It is also at this preliminary IDAP review that further significant information necessary for the assessment process, acknowledgment notice concerning concurrence agencies and relevant codes and policies are identified and flagged for the assessment process. It is considered that this is a risk minimisation approach to ensure standardisation and consistency for development and that site constraints and referrals are suitably identified. It is also an opportunity for individuals with various specialised skill sets (e.g. hydraulics or traffic engineering) to have input to specific areas of assessment. In terms of flooding investigations and major stormwater management plans, any internal referral will generally be considered during the IDAP process where development extents (including earthworks) are determined and referrals are made where applicable and as determined by panel members to the Senior Hydraulics Engineer from the Hydraulics Section of the ICC Works Parks and Recreation Department (formerly Works Department) for more complex hydraulic issues in applications or to the officers within the Engineering and Environment branch for less complex applications.
16. On 20 September 2011 ICC adopted a Stormwater Management Implementation Guideline to assist applicants and ICC personnel with the ICC Planning Scheme requirements in relation to flood management and stormwater quality. The guidelines assist applicants by providing information on what should be included in a stormwater management plans to be submitted to ICC, as well as information on flood modelling methodologies. The implementation guideline is available on the Council's website (refer to attachment GE-44).
17. Operational Works applications are assessed in accordance with identified and relevant codes under the Ipswich Planning Scheme, engineering publications including Austroads, Queensland Urban Design Manual (QUDM) and *"Best Practice Erosion and Sediment Control"* published by the International Erosion and Sediment Control Association Australasia. For further confidence

the ICC engineering assessment report template provides a standard complete list of these codes and publications as an immediate prompt and for consideration when drafting a report.

18. Internal referral officers forward their completed assessment, including any recommendations for conditions or reasons for refusal to the engineering technical officer who cross-references all information and completes the assessment against the Planning Scheme, relevant conditions of any related planning approval, such as a reconfiguration of lot or material change of use and provides a report and recommendation about the application to the relevant Delegate. The engineering technical officer's report includes a brief summary of works, including applicable codes/standard and engineering publications, any additional information for consideration of the application and recommended conditions and the completed Operational Works checklist (refer attachment GE-2).

CITISWICH -ASSESSMENT OF OPERATIONAL WORKS APPLICATIONS FOR CITISWICH

19. The Citiswich development is approximately 315 hectares in land area which is mapped as a “regionally significant business enterprise and industry area” under the Ipswich Planning Scheme and is identified as an “enterprise opportunity” under the South East Queensland Regional Plan.
20. The site is approximately 25 kilometres west of the Brisbane CBD and about 7 kilometres to the east of the Ipswich CBD. The land is bound by the Bremer River to the north, Brisbane Road to the south and the Dinmore and Bundamba residential areas to the east and west respectively. The land is transected by the Warrego Highway in a south-east to north-east direction.
21. Where ICC is assessing an operational works application which involves filling in the floodplain, as was the case with some of the Citiswich applications the subject of this statement, ICC generally has regard to the following matters with respect to flooding:
 - (a) the designation of the land under the Ipswich Planning Scheme and the provisions of the Ipswich Planning Scheme, including relevant codes and the Temporary Local Planning Instrument 01-2011 - Flooding Regulation (**the TLPI**) including an assessment of compliance with the Earthworks Code – Flooding and Drainage (8) Specific Outcomes (a) to (c) inclusive and relevant Overlays 11.4.7 probable solution or now against the TLPI where applicable;
 - (b) other relevant policies such as the QUDM, AS 3798 – 1996 “*Guidelines on earthworks for commercial and residential developments*”, and *Best Practice Erosion and Sediment Control*” published by the International Erosion and Sediment Control Association Australasia;
 - (c) whether the applicant has submitted hydraulic reports which adequately demonstrate negligible impacts for peak flood levels and no increased peak flows for range of

design events (including Q20 and Q100) and which are based on an appropriate model and assumptions and which have been certified by a Registered Professional Engineer of Queensland (RPEQ); and

- (d) whether the creation of essential services such as major catchment sewerage pump stations, electrical and telecommunications, strategic road network and major development would be suitably located above the Q100 flood line in accordance with Ipswich Planning Scheme 2006 and the State Planning Policy SPP 1/03 - Mitigating the Impacts of Flood, Bushfire and Landslide (SPP 1/03). The location of essential services is generally a matter more likely to be assessed with the material change of use or reconfiguration of lot application.

22. For Citiswich in particular;

- (a) the master plan for the proposed earthworks for the Citiswich development was established and described in the earthworks masterplan contained in the Cardno Lawson Treloar (CLT) Masterplan Flooding Investigation dated March 2007 which was submitted to ICC with the Development application for reconfiguration of a lot 1837/07;
- (b) ICC assessed the Masterplan Flooding Investigations (**Masterplan Flooding Investigation**) which addressed both river and local flooding in the course of its assessment of applications for both Reconfiguration of Lot 1837/07 and Operational Works 4264/07. During the course of those applications and as a response to ICC requests for further information the Masterplan Flooding Investigation was refined, such that the most current versions are:
 - (i) “Bremer Business Park Masterplan – Flooding Investigation, dated August 2007”, Job Number J8714/R3/V2 (refer attachment **GE-3**); and
 - (ii) “Citiswich Masterplan – Local Flooding Investigation, Job no LJ8714/R6 dated June 2008 1 (refer attachment **GE-4**);
- (c) the current version of the Masterplan Flooding Investigation dated August 2007 includes a hydraulic sensitivity analysis concerning ‘Cumulative Flooding Impact Assessment’ and sets out the proposed filling extent for the Citiswich Development. The report states:

“Modelling included in this report is based on an old design for the Bremer Business Park development; and is deemed conservative and a ‘worse case’ scenario as the new design has less filling. As part of the new design, Walker Corporation has proposed minor filling below the 1 in 20 development line.”

- (d) the cumulative flood impact assessment concludes that the water levels are not influenced by conveyance or flood storage as there were no impacts (less than 1mm) between the relevant existing, cumulative and storage case scenarios. This is reasonable given the volume of floods is large in comparison to volume of flood storage in the area;
- (e) the proposed cut and fill balance for Citiswich as described in the Masterplan Flooding Investigation results in a net gain of 15,867 m³ flood storage below Q20 development line (refer VDM drawings C3632:00Sk.72A and C3632:00Sk.74A);
- (f) the ultimate filling for Citiswich is outside the Bremer River high-flow areas;
- (g) the Masterplan Flooding Investigation concluded that *“The results presented in this report indicate that the proposed master plan filling will not adversely impact on the flood levels external to the site and that the flood immunity of the Warrego Highway has not been reduced”* (p 14) for a range of design storm events including Q100;
- (h) the MasterPlan Flooding Investigation was reviewed by the Senior Hydraulics Engineer of the then Works Department of ICC and myself;
- (i) the computer model approach used in the Masterplan Flooding Investigation was a 2D dynamic hydraulic model which at the time was considered industry best practice and remains so today and was supported by Queensland Urban Design Manual 2007 which states *“for floodplains or urban flooding situations with complex flow patterns, dynamic 2D modelling is recommended”*;
- (j) the flood investigation and hydraulic model development was undertaken and conducted by CLT, who are a reputable engineering consultancy that possess suitably qualified and experienced staff concerning hydrological and hydraulic investigations. The subject investigation was reviewed and approved by CLT personnel ([REDACTED]) who is a Registered Professional Engineer of Queensland (RPEQ) for the “civil” area of engineering;
- (k) the overall conclusion of the CLT Masterplan Flooding Investigation (August 2007) states:

“CLT has developed a local hydrological flood model to detail the flood storage requirements to ensure no increase in peak flows off the site into the Bremer River.

CLT has also developed a full 2D model, which is a sub-model of Ipswich City Council’s full river system MIKE11 model. The modelling indicates that the impacts

due to the proposed Bremer Business Park overall masterplan on peak flood levels are negligible."

This provided ICC with the necessary assurance concerning CLT model accuracy, relevancy and validity to model and simulate the impacts, if any, of the proposed ultimate planned filling within the Citiswich Development.

23. In terms of the ultimate planned filling, works to the south of the Warrego Highway are essentially complete excepting Archer Street Active Park works which is to include cut for flood storage, whilst most works to the north of the Warrego Highway are yet to be approved.
24. For subsequent earthworks applications for the Citiswich Development, ICC assessed the adequacy and applicability of the Masterplan Flooding Investigation to those applications. Council officers assess the submitted RPEQ certified drawings with cross-reference whether the proposed extent of fill is consistent with the Masterplan Flooding Investigation. Council has required for some instances (applications 5426/2010 and 7540/10), further third party engineering certification by an RPEQ to confirm:
 - (a) that the proposed works are consistent with the Masterplan Flooding Investigations assumptions fill extent; and
 - (b) that any subsequent impact from the works will be negligible.
25. I will now turn to the specific applications requested by the Commission.

APPLICATION NO: 7333/06 [REDACTED] Bognuda Street and [REDACTED] Bognuda Street, Bundamba

Application background and overview

26. The application involved a development application for operational works for bulk earthworks, specifically importation and placement of fill and creation of a landscaped amenity embankment (Warrego Highway frontage) within Stage 1A of the Citiswich Development (**Application 7333/06**) which application was lodged on 1 November 2006. Annexure **GE-5** identifies the approximate extent of earthworks. The earthworks are preliminary finish surface levels for future development of Stage 1, and are located above the Q20, providing fill which is slightly increased to above Q100 flood level in order to provide the desired flood immunity with freeboard.
27. At the time of lodgement of Application 7333/06, the land was included in the Regional Business and Industry - Medium Impact (RB2M) Zone under the current Ipswich City Planning Scheme 2006.
28. Application 7333/06 is an Operational Works application for earthworks not associated with a Material Change of Use and is code assessable under the Ipswich Planning Scheme 2006.

29. The Chief Executive of the Department of Main Roads was a concurrence agency and Powerlink and the Western Corridor Recycled Water Project were advice agencies for the Application 7333/06.
30. The Application 7333/06 was assessed against the following identified codes and policies:
- (a) Ipswich Planning Scheme Policy 3 – General Works;
 - (b) Ipswich Planning Scheme Part 12, Div 15 – Earthworks Code (Including lot filling);
 - (c) Australian Standard 3798 - Guidelines on Earthworks for Commercial and Residential Developments;
 - (d) Queensland Urban Drainage Manual;
 - (e) Australian Rainfall and Runoff (The Institution of Engineers, Australia);
 - (f) Queensland Streets;
 - (g) Ipswich City Council Standards Drawings;
 - (h) Manual of Uniform Traffic Control Devices (Department of Main Roads); and
 - (i) Guidelines for Planning and Design of Urban Water Supply Schemes (Water Resources).
31. Application 7333/06 was approved on 22 March 2007 with conditions. I was the Delegated Officer for the Application 7333/06.
32. Attached to my statement are copies of the following key documents relating to this application as follows:
- "GE-6" Development Application for Bulk Earthworks and accompanying reports, dated 26 October 2006;
- "GE-7" Information Request from ICC, dated 7 December 2006;
- "GE-8" Response to Information Request, dated 18 December 2006;
- "GE-9" Request for additional information - Department of Main Roads, dated 31 January 2007;
- "GE-10" Response to Request for additional information dated 12 February 2007;
- "GE-11" Decision Notice dated 23 March 2007 and approved plans; and

"GE-12" Revised Operational Works Drawings and Associated Correspondence dated 22 May 2007.

The known site level or levels at the time the development application was lodged

33. The proposed pad finished surface levels range between RL16.5m AHD and RL17.0m AHD (refer approved Burchill VDM drawing C3632:01:02). The existing contours ranged between RL16.0m and RL13.0m.
34. The bulk earthworks summary detailed on Burchill VDM drawing C3632:01:03 states 234,240m³ nett solid fill (including 1,373m³ nett cut). The finished surface levels were subsequently subject to some minor adjustment in order to facilitate construction of roadworks and services in association with application 5614/07.

The known Q100 and Q20 flood level at the time of the development application

35. At the time of the Application 7333/06 the known Q20 development line and Q100 flood line were:

- (a) Q20 - RL 13.3m AHD
- (b) Q100 - RL 16.2m AHD

36. These are the same relevant Q20 and Q100 levels for the present day.

The assessment process that was followed specific to flood impacts

37. The assessment process followed the process applied by ICC for operational works applications as set out in this statement.
38. The Council Codes and policies that were assessed for this application are as set out in paragraph 30
39. Application 7333/06 predated the Masterplan Flooding Investigation which was still being developed and therefore the applicant submitted a CLT flooding investigation that was applicable to Stage 1A only. The report titled "Bremer Industrial Park Stage 1A – Flooding Investigation" is consistent with the subsequent Masterplan Flooding Investigation and states: *"hydraulic analysis has been performed to determine peak flood levels for the site and to ensure development on the site will remain flood free and not adversely impact other properties in accordance with the appropriate Local Authority design standards"*. The report concludes *"the modelling indicates that impacts due to Stage 1A of the proposed Bremer Business Park on peak flood levels are negligible"*.

40. Council Works Department reviewed this report particularly having regard to the matters in paragraph 21 (a) to (d) of this Statement.

What consideration was given to the proximity of the site to the Bremer River and the flood risk or potential impact of flooding on the use proposed for the site.

41. The subject site and proposed works are adjacent to the Bremer River and may have consequences for proposed earthworks in terms of managing runoff discharge quality and appropriate erosion control. The site is subject to potential flooding. The potential for flooding was assessed by reference to those documents set out in paragraph 47, and the conclusions identified in the Bremer Industrial Park Stage 1A Flooding Investigation report prepared by CLT, which provided that the development of Stage 1A as proposed would have a negligible effect on peak flood levels.
42. The Application 7333/06 concerns only bulk earthworks and does not relate to any particular use. The proposed finish surface levels would provide any future land use with site elevations exceeding Q100 flood level with an associated freeboard.

The frequency of past flooding at the site

43. It is my understanding that the frequency with which flooding has occurred at the site in the past was a policy consideration in the formulation of the Q20 development line and the Q 100 flood line. Past flood events in relation to the site were not obtained for the purpose of considering the application, the relevant policy consideration for those purposes being the location of the Q20 development line and Q100 flood line.

The potential for surrounding properties, located upstream, downstream or on the opposite side of the Bremer River, to be at greater risk of flooding due to land filling or excavation work carried out at the Citiswich site and impacts of any stormwater or overland flow management facilities.

44. The potential for surrounding properties to be at risk of flooding was assessed having regard to the following:

- (a) The application submission which included the Bremer Industrial Park Stage 1A Flooding Investigation for proposed master planned filling, which concluded:

“Cardno Lawson Treloar has successfully developed a full 2D model, which is a sub-model of Ipswich City Council’s full river system MIKE11 Model. This model will be suitable for all stage assessments of the Bremer Business Park.

The modelling indicates that impacts due to Stage 1A of the proposed Bremer Business Park on peak flood levels are negligible.”

- (b) The application concerned bulk earthworks only that are outside “critical conveyance paths of the River, up to the Brisbane River 1 in 100 flood level” and did not include any stormwater or overland flow management facilities other than sedimentation basin for sedimentation control purposes.

Was the application assessed against the earthworks code contained with the Ipswich Planning Scheme and if so, how?

45. The Application 7333/06 was assessed against the Ipswich Planning Scheme earthworks code having regard to the increased flood immunity proposed and the assessment of flood impacts in the Bremer Industrial Park Stage 1A Flooding Investigation.

Were any measures proposed to mitigate the potential for flooding at the Citiswich site and, if so, a brief description of these measures?

46. The fill proposed in the application would increase the flood immunity level for the associated area of land and for future development of this land and includes increased fill elevation to include standard freeboard.

Provide a list of experts reports obtained or received by the ICC for the purpose of assessing the impact or potential impact of flooding at the Citiswich site on surrounding properties, located upstream, downstream or on the opposite side of the Bremer River, and a summary of:

(How the ICC assessed the adequacy of those reports;

What reliance, if any, the ICC placed on those reports; and

The ICC’s justification for relying on those reports;

47. Relevant critical documents are:
- (a) “Bremer Business Park Stage 1A – Flooding Investigation, dated 31 October 2006”, Job Number J8714/R1 (refer annexure GE-6);
 - (b) “Bremer Business Park Stage 1A – Stormwater Management Strategy for Operational Works – Change to Ground Level Approval” Dated October 2006 and Job Number LJ8714/R2 (refer annexure GE-6); and
 - (c) CLT Letter “Bremer Business Park – Stage 1A – Response to Information Request”, dated 19 December 2006 (refer annexure GE-8);.
48. The Bremer Business Park Stage 1A – Flooding Investigation, dated 31 October 2006 and associated modelling demonstrated that impacts due to Stage 1A of the proposed Bremer Business

Park on the peak flood levels are negligible. The ICC had regard to these documents in its assessment of the application.

49. The Bremer Park Industrial Park Stage 1A Flooding Investigation was undertaken and conducted by CLT, a reputable engineering consultancy that possess suitably qualified and experienced staff concerning hydrological and hydraulic investigations. The subject investigation was internally reviewed and approved by [REDACTED] who is a Registered Professional Engineer of Queensland (RPEQ) for the “civil” area of engineering.
50. The hydrological inflows and boundary conditions (the Q20 and Q100 flood levels) of the CLT developed SOBEK 2D model were consistent with the ICC adopted Bremer River Study (Sinclair Knight Merz 2000).
51. These matters provided ICC with assurance of the CLT model accuracy and relevance to model and simulate the impacts, if any, of the proposed Stage 1A filling within the Citiswich Development.

Did ICC seek additional information from the applicant about the potential flood and/or stormwater run off impacts of the proposed development and if so, why was such information sought.

52. ICC issued an information request dated 7 December 2006 seeking further information from the applicant relevant to flooding and stormwater run off impacts. The information request provided:
 1. *Albeit the provided flood study indicated no flood level increase for Q100, adverse flooding impacts associated with the placement of fill within a flood zone may occur whereby the effects are accumulative. Therefore it is requested that the Developer provide details of the ultimate development of the Bremer Business Park concerning finished surface levels in areas located below the current Q100 flood line. Further provide a revised flood study that examines importation and placement of fill for the ultimate developed business park.*
 2. *Provide Council with Water Efficiency Management Plan that recognises the limitations of current Level 4 Water Restrictions within South East Queensland.*
 3. *It is considered that the placement of fill within the site will interfere with existing overland drainage and as such have an impact on road flood immunity of Ashburn Road and Warrego Highway. It is requested that the Developer provide details of any change to the existing drainage regime and demonstrate where necessary how any adverse impact associated with the overland flow interference will be mitigated so as to not worsen the existing road immunity and drainage system for the identified road network.*

4. Stormwater Quality and Quantity

Further to discussions held between [REDACTED] of Walker Corporation, the Healthy Waterways Partnership and Ipswich City Council the Bremer Business Park (BBP) is to be developed in accordance with industrial best management practice water sensitive urban design (WSUD).

Condition 21 of Preliminary Approval 3556/02 outlines the approach to stormwater reporting ensuring that stormwater in the BBP is treated in an integrated manner. This includes:

- (a) A **Master** Stormwater Management Plan (SMP) for the whole Bremer Business Park that includes Conceptual Stormwater Quality and Quantity Management Plans and recognises and addresses organic carbon of in-situ soils and the natural drainage paths identified in Figure 10 of the Preliminary Approval. Further it is a requirement that the reports will demonstrate through appropriate pollutant modelling that treated stormwater will meet or exceed the Water Quality Objectives listed in Planning Scheme Policy 3, Part 2, Table 2.3.1 – Water Quality Objectives and load-based objectives for South-East Queensland (TSS 80%, TP 60%, TN 45% and GP 90%).
- (b) Detailed Design Options (which may include case study options from Healthy Waterways Draft WSUD in Industrial Areas Fact Sheet) as part of Stormwater Quality Management Plan (SQMP) for individual development sites.
- (c) A certificate from relevant consultant (eg. Cardno Pty Ltd) certifying that proposed works are in accordance with amended SQMP will be required.

Note

The report will need to consider the high levels of organic carbon of in-situ soils and the containment of this carbon which contrary to standard WSUD practice requires that stormwater should be prevented from entering groundwater to the greatest extent possible while ensuring a balance between maintaining flows to the Bremer River and recycling opportunities.

Planning the locations of various WSUD should be in accordance with the requirement for water and wastewater corridors as required by condition

16 of Council's Preliminary Approval 3556/02 with particular attention to the widths and suitable locations outlined in conditions 16(b) and (c).

53. In terms of flooding and impacts, if any, it was desirable to understand the cumulative affects for the ultimate Citiswich Development (Formerly Bremer Business Park – BMP) and planned filling. Additionally the Information Request requires that the Warrego Highway and adjoining ICC road network is not impacted by alterations to stormwater management for the catchment. The Department of Main Roads similarly raised concerns about the Warrego Highway.

54. The Department of Main Roads as concurrence agency issued a further information request dated 31 January 2007 requiring, amongst other matters, that

"The Warrego Highway may be affected by this development if it changes the location, level or flow rate of water run-off to, across or along the road. The term 'development' covers all construction works (except design work) involved in the site development project, including works outside the site boundaries.

The applicant is required to complete and return attached questionnaire and any supporting material required, according to result of the questionnaire to this office.

Please note that it will not be sufficient for the hydraulics consultant to merely state that the Warrego Highway will not be affected by stormwater drainage. Main Roads will require the hydraulics consultant to submit all supporting documentation and calculations".

55. A letter from CLT to the Applicant that was attached to the Response to Information Request provided:

"The flood study provided as detail in Cardno Lawson Treloar's report 'Bremer Industrial Park Stage 1A Flooding Investigation' dated October 2006 (ref LJ8714/R1) has investigated the effects of the proposed filling for Stage 1A on flood levels as a stand alone site. As detailed above, this report indicates negligible flood level increase for the 100 year ARI, for the proposed filling.

As part of the Stage 1 Reconfiguration of Lot (ROL) Application a full master plan flood investigation will be undertaken, This will assess the full impact of the proposed fill extents and indicate mitigation measures (e.g. floodplain storage excavation, or fill extent modifications for conveyance) to ensure that there are no adverse flood level impacts external to the site.

Therefore, this future assessment will include the proposed Stage 1A fill extents and ensure the accumulated impacts of the ultimate Bremer Business Park fill extents will not cause adverse flood level impacts external to the site."

Conditions were imposed on the development to address the impacts of flooding

56. Decision Notice Condition 21 lists the approved plans which define the approved fill extent and levels. Further, Condition 7 required certification that the approved works were constructed. In respect of Erosion controls, condition 14 required:

14. *Prior to the commencement of works the Developer shall submit to Council an amended Erosion Sediment Control Plan which is to detail a temporary detention basin. The basin shall be designed in accordance with the Brisbane City Council Erosion Hazard Assessments Guideline and the Sediment Basin Construction and Maintenance Guidelines. Amongst other necessary items sizing calculations and an Erosion Hazard Assessment Checklist shall be provided.*

57. There were no specific flooding or stormwater conditions imposed by the Department of Main Roads.

APPLICATION NO: 4264/07 [REDACTED] **Bognuda Street and** [REDACTED] **Asburn Road, Bundamba**

Application background and overview

58. The application involved a development application for operational works for bulk earthworks, specifically excavation and fill within Stage 1B, 1C and 1D of the Citiswich Development (**Application 4264/07**), which application was lodged on 6 June 2007. Annexure **GE-13** identifies the approximate extent of earthworks. Earthworks are preliminary finish surface levels for future development of these sub-stages and are slightly increased above Q100 inundation flood levels to provide the desired flood immunity with freeboard.

59. At the time of lodgement of the Application 4264/07, the land was included partly in the Regional Business and Industry - Medium Impact (RB2M) Zone and partly in the Regional Business and Industry - Low Impact (RB2L) Zone under the current Ipswich Planning Scheme 2006.

60. Application 4264/07 is an Operational Works application for earthworks not associated with a Material Change of Use and is code assessable under the Ipswich Planning Scheme 2006.

61. The Chief Executive of the Department of Main Roads was a concurrence agency for the Application 4264/07 and Powerlink, and the Environmental Protection Agency were advice agencies.

62. Application 4264/07 was assessed against the following identified codes and policies:

- (a) Ipswich Planning Scheme Policy 3 – General Works;
- (b) Ipswich Planning Scheme Part 11, Div 4 - Overlays;

- (c) Ipswich Planning Scheme Part 12, Div 15 – Earthworks Code (Including lot filling);
- (d) *Queensland Urban Drainage Manual*; and
- (e) Ipswich City Council Standards Drawings.

63. Application 4264/07 was approved on 22 November 2007 with conditions. I was the Delegated Officer for the Application 4264/07.

64. Attached to my statement are copies of the following key documents relating to this application as follows:

"GE-14" Application for a development approval for operational works for bulk earthworks, and accompanying reports, dated 5 June 2007;

"GE-15" Correspondence from CLT to ICC, dated 11 September 2007 in relation to Stormwater Management Strategy and Flood Assessment;

"GE-16" Referral Agency Response of the Department of Main Roads dated 18 October 2007;

"GE-17" Decision Notice of ICC, dated 26 November 2007; and

"GE-18" Letter from Burchill VDM to ICC dated 17 June 2008 attaching revised development drawings.

The known site level or levels at the time the development application was lodged

65. The proposed pad finished surfaces levels range between RL16.5m AHD and RL21.5m AHD (refer approved Burchill VDM drawings C3632:04:03 to C3632:04:05 inclusive). The existing contours generally ranged between RL11.0m and RL30.0m, with corresponding cut to fill earthworks depths linearly grading (varying from gentle to mild undulation) across the subject site approximately –8.5m and +5.95m respectively.

66. The bulk earthworks summary detailed on Burchill VDM drawing C3632:04:06 indicates 392,905m³ nett solid fill (includes 15% allowance for compaction of excavation material), 466,866m³ nett cut (Equivalent 405,970m³ nett solid fill) and therefore 15,026m³ spoil to temporary stockpile. The sourced excavation material is taken generally from above the Q100 flood level. These finished surface levels were, or are to be, subsequently subject to some minor adjustment in order to facilitate construction of roadworks and services in association with application 5614/07 dependent upon development progress.

The known Q100 and Q20 flood level at the time of the development application

67. At the time of Application 7333/06 was made, the known Q20 development line and Q100 flood line were:
- (a) Q20 - RL 13.3m AHD
 - (b) Q100 - RL 16.2m AHD
68. These are the same relevant Q20 and Q100 levels for the present day. The 2011 event inundation level was approximately RL18.7m AHD.

The assessment process that was followed specific to flood impacts

69. The assessment process followed the process applied by ICC for operational works applications as set out in this statement.
70. The Council Codes and policies that were assessed for this application are as set out in paragraph 62.
71. The proposed fill under the Application 4264/07 is a component of the proposed master plan filling described in the Masterplan Flooding Investigation. The Application 4264/07 relied on the Masterplan Flooding Investigation and was assessed against that Masterplan Flooding Investigation.
72. The review and assessment of critical flooding investigation documents was conducted in conjunction with the assessment of the Development Application for Reconfiguration of Lot 1873/07.

What consideration was given to the proximity of the site to the Bremer River and the flood risk or potential impact of flooding on the use proposed for the site.

73. The subject site and proposed works are adjacent to Bremer River and may have consequences for proposed earthworks in terms of managing runoff discharge quality and appropriate erosion control. See paragraph 83 below.
74. The risk of flooding was addressed by reference to the Masterplan Flooding Investigation.
75. The application concerns only bulk earthworks and does not relate to any particular use. Notwithstanding this the proposed finish surface levels would provide any future land use with site elevations exceeding Q100 flood level with an associated freeboard.

The frequency of past flooding at the site

76. It is my understanding that the frequency with which flooding has occurred at the site in the past was a policy consideration in the formulation of the Q20 development line and the Q 100 flood

line. Past flood events in relation to the site were not obtained for the purpose of considering the application, the relevant policy consideration for those purposes being the location of the Q20 development line and Q100 flood line.

The potential for surrounding properties, located upstream, downstream or on the opposite side of the Bremer River, to be at greater risk of flooding due to land filling or excavation work carried out at the Citiswich site and impacts of any stormwater or overland flow management facilities.

77. The potential for surrounding properties to be at risk of flooding was assessed having regard to the following:

- (a) The proposed fill under the Application 4264/07 is a component of the proposed master plan filling described in the Masterplan Flooding Investigation. The Application 4264/07 relied on the Masterplan Flooding Investigation, which demonstrated that the impacts of the proposed filling were negligible.
- (b) Correspondence from CLT dated 11 September 2007 stated that the operational works drawings had been reviewed and that in relation to flooding *"the earthworks details presented on drawings C3632:04:03 to C3632:04:05 are within the fill extents presented in our flood report. Hence these drawings are in accordance with the flood assessments undertaken by CLT"*.
- (c) The application concerned bulk earthworks only that are external to *"critical conveyance paths of the River, up to the Brisbane River 1 in 100 flood level"* and did not include any stormwater or overland flow management facilities other than sedimentation basin for sedimentation control purposes.

Was the application assessed against the earthworks code contained with the Ipswich Planning Scheme and if so, how?

78. Application 4264/07 was assessed against the Ipswich Planning Scheme earthworks code having regard to the increased flood immunity proposed and the assessment of flood impacts by the Masterplan Flooding Investigation and the Bremer Business Park – Stage 1 – Stormwater Management Strategy August 2007.

Were any measures proposed to mitigate the potential for flooding at the Citiswich site and, if so, a brief description of these measures?

79. The proposed fill would increase the flood immunity level for the associated area of land and for future development of this land including increased fill elevation to include standard freeboard.

Provide a list of experts reports obtained or received by the ICC for the purposed of assessing the impact or potential impact of flooding at the Citiswich site on surrounding properties, located upstream, downstream or on the opposite side of the Bremer River, and a summary of:

- (i) **How the ICC assessed the adequacy of those reports;**
- (ii) **What reliance, if any, the ICC placed on those reports; and**
- (iii) **The ICC's justification for relying on those reports;**

80. Relevant critical documents are:

- (a) "Bremer Business Park Masterplan – Flooding Investigation, dated August 2007", Job Number J8714/R3/V2 (GE-3); and
- (b) "Bremer Business Park – Stage 1 – Stormwater Management Strategy to Support Development Application for Reconfiguration of Lot", Job No LJ8714/R5 and dated August 2007 (GE-58)

81. See paragraph 22 above.

Did ICC seek additional information from the applicant about the potential flood and/or stormwater run off impacts of the proposed development and if so, why was such information sought.

82. No Information Request was made. However, reference was made to application 1837/07 Request for Information for consideration of flooding information.

Conditions were imposed on the development to address the impacts of flooding

83. Decision Notice Condition 23 lists the approved plans which define the approved fill extent and levels. Further, Condition 7 required engineering certification that the approved works were constructed. In respect of erosion and stormwater controls, conditions were imposed as follows:

- 14. *Erosion and sediment management measures shall be installed prior to commencement of works and are to be maintained in place until the relevant areas are developed as a consequence of further development plan approval.*
- 15. *The Developer shall carry out works in accordance with the Environmental Management Plan by Burchill VDM (Report Number 4506-0 and dated June 2007). At all time the suitable erosion and sediment controls shall be in place in order to ensure any stormwater leaving the site does not exceed 50mg/L in total suspended solids. Dust mitigation measures shall be in place at all times during the construction phase.*

17. *Prior to discharging any stormwater from the detention basins the developer shall treat the water with a flocculent ensuring that discharged stormwater does not exceed 50mg/L in total suspended solids. The draining of detention basins shall only occur once testing results have been reviewed by the Council's Environmental Planner (07) 3810 6554 and Council has permitted the discharge of stormwater from the basins in writing.*

APPLICATION NO. 5426/10 [REDACTED] **Bogunda Street Bundamba** [REDACTED] **Hawkins Crescent, Bundamba, Bundamba; and** [REDACTED] **Warrego Highway, Bundamba**

Application background and overview

84. Application 5426/10 involved a development application for operational works for bulk earthworks, specifically importation and placement of fill, within a relatively small portion of Stage 7 of the Citiswich development (**Application 5426/10**), was lodged on 13 August 2010 and approved on 30 May 2011, subject to conditions. The Delegated Officer for Application 5426/10 was Adrian Bulley.
85. Application 7540/10 (described at paragraphs 115 to 126 below) includes the same affected area as Application 5426/10. Application 7540/10 was lodged on 4 November 2010 and if approved will supersede Application 5426/10. As noted below, Application 7540/10 has been placed in abeyance by the applicant in order to allow the applicant to consider the impact of the TLPI.
86. **Annexure GE-19** identifies the approximate extent of earthworks which involve fill below the Q100. Earthworks are preliminary finish surface levels for future development of Stage 7 located between the current and maintained Q20 and Q100 inundation flood levels. The application also includes quantity two stockpiles of topsoil located along the Warrego Highway, at approximate elevations of RL15.0m and RL16.0m AHD respectively and with a combined base footprint of approximately 3000m². These stockpiles originate from the topsoil stripping of area beneath the proposed fill placement areas. Application 5426/10 was lodged primarily to seek approval for earthworks undertaken by importing net fill of approximately 46,140 m³, without Council approval. The source of the fill is understood to originate from the nearby Ipswich Motorway Upgrade Project being developed for the State.
87. At the time of lodgement of Application 5426/10, the relevant land was included in the Regional Business and Industry - Low Impact (RB2L) Zone under the Ipswich Planning Scheme 2006.
88. ICC records indicate that the relevant flood levels are for the Q20 development line RL13.3m AHD and for the Q100 flood line RL16.2m AHD.

89. The Chief Executive of the Department of Main Roads was a concurrence agency for the Application 5426/10.
90. The Application 5426/10 was assessed against the following identified codes and policies:
- (a) Ipswich Planning Scheme Policy 2 – Local Government Information;
 - (b) Ipswich Planning Scheme Policy 3 – General Works;
 - (c) Ipswich Planning Scheme Policy 5 – Infrastructure;
 - (d) The TLPI Ipswich Planning Scheme Part 11, Div 4 - Overlays;
 - (e) Ipswich Planning Scheme Part 12, Div 5 – Reconfiguring a Lot Code;
 - (f) Ipswich Planning Scheme Part 12, Div 6 – Residential Code;
 - (g) Ipswich Planning Scheme Part 12, Div 15 – Earthworks Code (Including lot filling);
and
 - (h) Australian Standard 3798 - Guidelines on Earthworks for Commercial and Residential Developments.
91. Attached to my statement are copies of the following key documents relating to this application as follows:
- "GE-20" Development Application dated 13 August 2010
- "GE-21" Letter dated 24 August 2010, attaching detailed engineering bulk earthworks drawings
- "GE-22" Information Request dated 6 September 2010
- "GE-23" Response to Information Request dated 8 October 2010
- "GE-24" Information request DTMR (concurrence agency) dated 27 October 2010
- "GE-25" DTMR Referral Agency's Response dated 18 January 2011
- "GE-26" Decision Notice dated 30 May 2011

The known site level or levels at the time the development application was lodged

92. The elevations of proposed area subject to the earthworks approximately range between RL 13.3m AHD (Q20) and RL 17.0m AHD (Q100).

The known Q100 and Q20 flood level at the time of the development application

93. At the time of the Application 5426/10 the known Q20 development line and Q100 flood line were.

(a) Q20 - RL 13.3m AHD

(b) Q100 - RL 16.2m AHD

These are the same relevant Q20 and Q100 levels for the present day. The 2011 event inundation level was approximately RL18.7m AHD.

The assessment process that was followed specific to flood impacts

94. The assessment process followed the process applied by ICC for operational works applications as set out in this statement.

95. The Council Codes and policies that were assessed for this application are as set out in paragraph 90.

96. The proposed fill under the Application 5426/10 is a component of the proposed master plan filling described in the Masterplan Flooding Investigation. Application 5426/10 was assessed to ensure compliance with the Masterplan Flooding Investigation, specifically in terms of extent and levels of fill.

What consideration was given to the proximity of the site to the Bremer River and the flood risk or potential impact of flooding on the use proposed for the site.

97. The subject site and proposed works are adjacent to Bremer River and may have consequences for proposed earthworks in terms of managing runoff discharge quality and appropriate erosion control. Consideration was given to the proximity of the site to the Bremer River and conditions imposed which require a revised Sediment and Erosion Control plans and measures prior to commencement of works.

98. The site is subject to potential flooding. Application 5426/10 was approved subject to specific conditions concerning Sediment and Erosion Control and compliance with the Masterplan Flooding Investigation. Conditions which addressed the potential for flooding are outlined in paragraph 113.

99. Application 5426/10 concerns only bulk earthworks and does not relate to any particular use. Notwithstanding the proposed finish surface levels would provide any future land use with site elevations exceeding Q100 flood level with an associated freeboard.

The frequency of past flooding at the site

100. It is my understanding that the frequency with which flooding has occurred at the site in the past was a policy consideration in the formulation of the Q20 development line and the Q100 flood line.
101. However, concerning Application 5426/10 the current TLPI was considered and therefore in the application of the TLPI some regard was also given to historical events, specifically the 1974 and 2011 events, in terms of the adopted flood regulation line and compensatory earthworks policy only.

The potential for surrounding properties, located upstream, downstream or on the opposite side of the Bremer River, to be at greater risk of flooding due to land filling or excavation work carried out at the Citiswich site and impacts of any stormwater or overland flow management facilities.

102. The potential for surrounding properties to be at risk of flooding was assessed having regard to the following:
- (a) The proposed fill under Application 5426/10 is a component of the ultimate masterplan for filling described in the Masterplan Flooding Investigation. The Applicant has provided technical advice that the proposed earthworks are consistent with the master plan filling described in the Masterplan Flooding Investigation. [REDACTED] of CLT in a letter dated 6 October 2010 states that Acor Baseline Drawings (BR090107-100A and BR090107-200A) “*reflect the modelling assumptions detailed*” in the master planned flood investigation.
 - (b) Application 5426/10 concerns bulk earthworks only that are external to “critical conveyance paths of the River, up to the Brisbane River 1 in 100 flood level” and does not include any stormwater or overland flow management facilities (CLT Letter dated 6 October 2010).

Was the application assessed against the earthworks code contained with the Ipswich Planning Scheme and if so, how?

103. Application 5426/10 was assessed against the TLPI provisions which overrides the current scheme earthworks code. The TLPI contains a replacement earthworks code Part 12, Section 12.15.4 – Earthworks Code (including Lot Filling) Clause (8) Flooding and Drainage, which was used in the assessment of Application 5426/10 particularly having regard to the increased flood immunity proposed and assessment of flood impacts in the Masterplan Flooding Investigation and the Citiswich Masterplan – Local Flooding Investigation (Local Flooding).

Were any measures proposed to mitigate the potential for flooding at the Citiswich site and, if so, a brief description of these measures?

104. The proposed fill will increase the current flood immunity level for the associated area of land and for future development of this land and includes increased fill elevation to include standard freeboard.

Provide a list of experts reports obtained or received by the ICC for the purposed of assessing the impact or potential impact of flooding at the Citiswich site on surrounding properties, located upstream, downstream or on the opposite side of the Bremer River, and a summary of:

- (i) How the ICC assessed the adequacy of those reports;
- (ii) What reliance, if any, the ICC placed on those reports; and
- (iii) The ICC's justification for relying on those reports;

105. Relevant critical documents are:

- (a) "Bremer Business Park Masterplan – Flooding Investigation (Regional Flooding), dated August 2007", Job Number J8714/R3/V2. This report is an external Bremer River flooding investigation concerning impacts, if any, of planned filling and altered imperviousness, peak flows and levels (GE-3);
- (b) "Citiswich Masterplan – Local Flooding Investigation (Local Flooding)", Job No LJ8714/R6 and dated June 2008 (GE-4). This report is the internal development site flooding investigation concerning conveyance of upstream external catchments through the development to Bremer River and associated flood extents; and
- (c) CLT Letter "Re: Citiswich Industrial Estate – Stage 7 – Bulk earthworks (Filling) – Response to Ipswich City Council Information Request (Application 5426/10)", dated 6 October 2010 (GE-23).

106. The Masterplan Flooding Investigation (both the Regional and Local) have been the subject of Council review by engineering staff and formed the basis of approvals for preceding Citiswich Development planning applications including Stage 1 Bulk Earthworks.

107. Refer paragraph 22.

Did Council seek additional information from the applicant about the potential flood and/or stormwater run off impacts of the proposed development and if so, why was such information sought.

108. ICC issued a further information request dated 6 September 2010 which relevant to flooding requested:

2. *Preliminary Approval*

The applicant is requested to identify how the proposed earthworks relate to the Bremer Business Park Preliminary Approval. The applicant should provide details of any earthworks proposed outside of the footprint approved for developable lots in the preliminary approval and include justification for fill outside of the developable area as approved in the preliminary approval.

3 *Flooding*

It is acknowledged that Cardno Lawson Treloar (CLT) report "Bremer Business Park Masterplan – Flooding Investigation", dated August 2007 and Job No J8714/R3/V2 provides an assessment of proposed fill located within the floodplain, however in order to progress the proposed development it is requested that the applicant provide:

- (a) Confirmation that any proposed Western Tributary Detention Basin has no negative impact upon the adopted flood level (in essence, demonstrate that any constructed basin does not remove any assumed flood storage);*
- (b) Confirmation that the assumed inflows for regional hydraulic and cumulative flooding assessments are for ultimate post development and no mitigation; and*
- (c) RPEQ certification from CLT stating that the proposed works are either consistent with the flood study assumptions and fill extent, or conversely that the flood study is conservative in terms of proposed fill extent and that any subsequent impact is negligible.*

4. *Earthworks*

Flood modelling incorporates an assumption of net flood storage gain up to RL 13.3m AHD, however these works are not included with proposed works. The applicant is requested to provide revised engineering drawings that incorporates details of proposed cut and fill for increased flood storage of 8,340m³ (North) and 7,527m³ (South).

- 109. This information was requested to ensure that the sequential earthworks (fill) were consistent with the Council accepted Masterplan Flooding Investigation (GE-3) and particularly to obtain the required engineering certification from relevant consultant(s).
- 110. The Chief Executive of DTMR as concurrence agency issued a further information request dated 27 October 2010 requiring, amongst other matters, that:

"A state-controlled road may be affected by this development if it changes the location, level or flow rate of water run-off to, across or along the state-controlled road. The term 'development' covers all construction works (except design work) involved in the site development project, including works outside the site boundaries.

There should be no worsening of road drainage as a result of the development proposal. The applicant is to show how the rate of run-off to the state-controlled road is to be detained to the pre-development rate."

111. Council files indicate that the Applicant provided further information to DTMR on 18 November 2010. On 18 January 2011, DTMR provided a Referral Agency's Response to the Council along with associated conditions for development approval. Condition 3 provided that *"The applicant shall not increase the peak intensity of the stormwater run-off to Warrego Highway nor adversely impact on stormwater quality"*. These conditions formed part of the ultimate approval of Application 5426/10.

What measures were proposed to mitigate the potential for flooding at the site.

112. Measures to comply with TLPI provisions concerning flooding, specifically compensatory earthworks, were addressed in the earthworks conditions which are outlined in paragraph 113.

Conditions imposed to address flooding impacts

113. Conditions of approval addressed flooding matters and specifically requiring compensatory earthworks, revised plans and further flood investigation that accords with earthworks condition(s) of approval prior to undertaking working and include:

6. *Earthworks*

- (a) *This approval is for bulk earthworks within the site only.*
- (b) *Any allotment or other filling creating a soil depth of 500mm or more must be conducted in accordance with Australian Standard 3798. Test results as required by Australian Standard 3798 at Responsibility Level 1, and a certificate of quality and uniformity of fill must be provided by a RPEQ.*
- (c) *Where batters resulting from cut and fill on the site produce slopes greater than 1:4, the Developer must provide RPEQ certification that the slopes are stable and properly drained.*
- (d) *All slopes that are to be accessed by public and maintained by Council as well as internal batters fronting road reserve must be restricted to a minimum 1:6.*

- (e) *The development of the site is subject to the conditions of any related Reconfiguring a Lot, Material Change of Use and Operational Works approval.*
- (f) *Amended drawings showing cross sections through the earthworks must be submitted prior to commencement of works.*
- (g) *To avoid an adverse impact on the flood capacity of the Bremer River, provision of compensatory flood storage volume must be provided for any filling situated between the Q20 and Q100 flood levels. A flood model and detailed drawings must be submitted to Council for approval by the Assessment Manager prior to commencement of earthworks on the site, detailing the compensatory storage volume.*
- (h) *Filling below the 1 in 20 development line must be avoided.*

7. *Engineering Certifications*

- (a) *Engineering drawings must be marked as confirmation that they have been checked and approved by a RPEQ.*
- (b) *Engineering certification (by RPEQ) must be submitted to Council for all internal civil works associated with the development.*
- (c) *The certifying authority (or their representative) is expected to undertake inspections as necessary to ensure the finished product conforms to the required standards, and is appropriate for its intended use.*

8. *Sediment and Erosion Management*

- (a) *The Developer is responsible for the installation and maintenance of erosion and sediment management facilities and truck shake down facilities from the time of commencement of construction until the works have been completed. All management facilities must be designed, installed and maintained in accordance with the latest version of the document "Best Practice Erosion and Sediment Control" published by the International Erosion and Sediment Control Association Australasia. Sediment and erosion control and truck shake down facilities must be installed and available for inspection prior to commencement of work.*

- (b) *If the Assessment Manager determines that erosion and sediment originating from the site has caused sediment deposit and/or erosion on other property, the Developer shall be responsible to restore any damage.*

Such restoration works must be completed in the time and to a standard determined by the Assessment Manager.

- (c) *Should the Developer fail to complete the restoration works determined by the Assessment Manager within the specified time or to a satisfactory standard, Council may complete the work and recover all costs from the Developer associated with that work. For this purpose, the Developer must lodge a \$10,000.00 silt and erosion bond with Council, prior to commencement of works, which shall only be released by Council at the time of completion of the works and satisfactory revegetation of the site. Where Council determines that a drawdown of the bond is required, the Developer must restore the bond to its full amount within ten (10) business days of a notice from Council to that effect.*

- (d) *Prior to the commencement of works, the Developer must submit to Council a Sediment and Erosion Control Plan that should include, but not be limited to the following:-*

- (i) *Show contours on, and surrounding, the site so that catchment boundaries can be seen.*
- (ii) *Provide background information including site boundaries, contour maps, existing vegetation, location of site access and there impervious areas and existing and proposed drainage pathways with discharge points.*
- (iii) *Provide a program of works containing details on the nature and specific location of works (revegetation, cut and fills, run-off diversions, stockpile management, access protection), timing of measures to be implemented and maintenance requirements.*
- (iv) *Include E&SC plans to indicate the staging of works, and Scheduling of progressive and final rehabilitation as works progress. Revegetation must take place immediately after earthworks are complete in any given area of the site.*
- (v) *Identify the riparian buffers and areas of vegetation which are to be protected and fenced off to prevent vehicle access.*

- (vi) *The location and engineering details with supporting design calculations for all necessary sediment basins.*
 - (vii) *Provide details of chemical flocculation proposed, including equipment, chemical, dosing rates and procedures, quantities to be stored and storage location, and method of decanting any sediment basin.*
 - (viii) *The location and diagrammatic representations of all other necessary erosion and sediment control best management practice.*
 - (ix) *Identify the clean and disturbed catchments, and flow paths, showing diversion of clean water runoff, collection drains and banks, and location of discharge outlet points.*
 - (x) *Show calculated flow velocities, sizing and channel lining protection, and velocity/energy checks required for all stormwater diversion and collection drains, banks, chutes, and downstream outlets.*
 - (xi) *Location of topsoil stockpiles.*
 - (xii) *Provide a site based management plan (SBMP) setting out maintenance and monitoring measures including monitoring of sediment basin releases. The SBMP should include adaptive and contingency management measures for the site to ensure E&SC measures are effective at all times, particularly prior to, during and after wet weather.*
 - (xiii) *The ESCP must be supported by an Erosion and Sediment Control Plan Checklist in accordance with Chapter 5.10 of the above referred publication for Best Practice Erosion and Sediment Control for building and construction sites.*
- (e) *Site clearing must not extend beyond that necessary to provide up to eight (8) weeks of site activity during those months when the actual or average rainfall is less than 45mm, six (6) if between 45 and 100mm, four (4) weeks if between 100 and 225mm, and two (2) weeks if greater than 225mm.*

- (f) *Sediment basins and the cut off drains leading to these basins must be constructed, in accordance with the approved plans, prior to any other earthworks taking place on the site.*

114. The concurrence agency issued consent for the Application 5426/10 subject to conditions (this consent was attached to decision notice). The following stormwater condition imposed by the Department of Transport and Main Roads is as follows:

"The applicant shall not increase the peak intensity of the stormwater run-off to Warrego Highway and not adversely impact on stormwater quality."

Application 7540/10 [REDACTED] Bognuda Street Bundamba [REDACTED] Hawkins Crescent, Bundamba, Bundamba; and [REDACTED] Warrego Highway, Bundamba

Application background and overview

115. Application 7540/10 seeks approval for operational works for bulk earthworks, specifically importation and placement of fill, within a portion of Stage 7 of the Citiswich development (**Application 7540/10**). Application 7540/10 was lodged on 4 November 2010. Application 7540/10, if approved, will supersede Application 5226/10. Application 7540/10 includes and extends beyond the areas for earthworks described in Application 5426/10.
116. Annexure **GE-27** identifies the approximate extent of the earthworks. Earthworks are preliminary finish surfaces levels for future development of Stage 7 and are proposed to be located between the current and maintained Q20 and Q100 inundation flood levels.
117. At the time of lodgement the land subject to Application 7540/10, was included partly in the Regional Business and Industry - Low Impact (RB2L) Zone and partly in the Regional Business and Industry Buffer (RBB) Zone under the Ipswich Planning Scheme 2006.
118. The Application 7540/10 is an Operational Works application for earthworks not associated with a Material Change of Use and is code assessable under the Ipswich Planning Scheme.
119. The Chief Executive of the Department of Main Roads was a concurrence agency and Powerlink an advice agency for the Application 7540/10.
120. Application 7540/10 is in abeyance and has not been assessed. The applicant stated in an email from Mr Adam Heather dated 3 August 2011:

"As discussed, could you place in abeyance the processing of application no. 7540/10. This application deals with the proposed filling of land on the northern side of the Warrego Hwy. The recently approved application 5426/10, which was also for the proposed filling of land on the northern side of the Warrego Hwy, contained a condition requiring resubmission of the Citiswich

Flood study, demonstrating how certain criteria were met. As you are aware, we are currently having the flood study reviewed by Cardno Lawson Treolar and expect this review to be finalised in about 8 weeks. The reviewed flood study will be submitted as part of the current application 7540/10. This will serve to comply with the condition imposed under 5426/10 and provide sufficient information for 7540/10 to be approved without a similar condition."

121. Attached to my statement are copies of the following key documents relating to this application as follows:

"GE-29" Development Application for operational works (bulk earthworks) and associated attachments lodged on 4 November 2010

"GE-30" Information Request dated 12 November 2010

"GE-31" Response to Information Request dated 24 December 2010

The known site level or levels at the time the development application was lodged

122. The elevations of proposed area subject to the earthworks approximately range between RL 13.3m AHD (Q20) and RL 17.0m AHD (Q100).

The known Q100 and Q20 flood level at the time of the development application

123. At the time Application 7540/10 was made the known Q20 development line and Q100 flood line were.

(a) Q20 - RL 13.3m AHD

(b) Q100 - RL 16.2m AHD

These are the same relevant Q20 and Q100 levels for the present day. The 2011 event inundation level was approximately RL18.7m AHD.

Did Council seek additional information from the applicant about the potential flood and/or stormwater run off impacts of the proposed development and if so, why was such information sought.

124. ICC issued an information request dated 12 November 2010. In relation to flooding, further information was requested as follows:

3. Flooding

It is acknowledged that Cardno Lawson Treolar (CLT) report "Bremer Business Park Masterplan – Flooding Investigation", dated August 2007 and Job No J8714/R3/V2 provides an assessment of proposed fill located within the floodplain however in order to progress the proposed development it is requested that the applicant provide

- (a) *Confirmation that any proposed Western Tributary Detention Basin has no negative impact upon the adopted flood level (in essence, demonstrate that any constructed basin does not remove any assumed flood storage);*
- (b) *Confirmation that the assumed inflows for regional hydraulic and cumulative flooding assessments are for ultimate post development and no mitigation; and*
- (c) *RPEQ certification from CLT stating that the proposed works are either consistent with the flood study assumptions and fill extent, or conversely that the flood study is conservative in terms of proposed fill extent and that any subsequent impact is negligible.*

4. Earthworks

Flood modelling incorporates an assumption of net flood storage gain up to RL 13.3m AHD, however these works are not included with proposed works. The applicant is requested to provide revised engineering drawings that incorporates details of proposed cut and fill for increased flood storage of 8,340m³ (North) and 7,527m³ (South).

- 125. The request is consistent with application 5426/10 Information Request and this information was requested to ensure that the sequential earthworks (fill) were consistent with the accepted Masterplan Flooding Investigation (refer “*Bremer Business Park Masterplan – Flooding Investigation*”, dated August 2007 and Job No J8714/R3/V2) and particularly to obtain the required engineering certification from relevant consultant(s).
- 126. A response to information request in the form of a letter and attachments, was received on 24 December 2010. A copy of the response to information request, which was prepared by Walker Corporation Pty Ltd is included at Annexure **GE-31**. The letter and attachments represented a partial response to the information request of 12 November 2010. In relation to the matters relating to flooding, further information was to be provided by Walker Corporation as foreshadowed in the response. This further information has not been received by Council.

APPLICATION NO: 3823/10, [REDACTED] Bognude Street, Bundamba; [REDACTED] Bognuda Street, Bundamba; and [REDACTED] Bognuda Street, Bundamba

Application background and overview

- 127. The application involved a development application for operational works for bulk earthworks, specifically importation and placement of fill material both above and below the Q100 flood line within Stages 4a, 4b and 4c of the Citiswich development (**Application 3823/10**), which

application was lodged on 15 June 2010. Annexure **GE-45** identifies the approximate extent of earthworks. The earthworks are stockpiling of fill to be used for future earthworks around the development site including Stages 4a, 4b and 4c. (refer Annexure **GE-47** Walker Corporation letter dated 12 July 2010) and future applications for those future earthworks will be required. The extent of proposed fill concerning the Stage 4 area accords with fill extent and boundary assumed for the Masterplan Flooding Investigation.

128. Archer Street divides the subject works into north and south portions, with the majority of the earthworks area related to the portion south of Archer Street. The subject area south of Archer Street was prior to earthworks being undertaken, only partly affected by the Q20 development line and Q100 flood line.
129. At the time of lodgement of the Application 3823/10, the land was included partly in the Regional Business and Industry - Low Impact (RB2L) Zone and partly in the Regional Business and Industry Buffer (RBB) under the current Ipswich Planning Scheme 2006.
130. The Application 3823/10 is an Operational Works application for earthworks not associated with a Material Change of Use and is code assessable under the Ipswich Planning Scheme.
131. The Application 3823/10 was approved on 23 July 2010 with conditions.
132. Attached to my statement are copies of the following key documents relating to this application as follows:

"GE-46" Application for operational works and accompanying plans, dated 11 June 2010;;

"GE-47" Letter from Walker Corporation to ICC dated 12 July 2010 and attached updated plans;

"GE-48" Decision Notice and attached approved plans dated 23 July 2010.

The known site level or levels at the time the development application was lodged

133. The proposed pad finished surface level north of Archer Street is RL16.22m AHD and for south of Archer Street proposed pad levels range between RL16.22m AHD to RL23.6m AHD (refer approved Acor Baseline drawings BR090084-100 to 106 inclusive attached to Annexure **GE-47**). The existing contours were approximately as follows:
 - (a) Between RL11.0m and RL12.0m (North of Archer Street); and
 - (b) Between RL12.0m and RL23.0m (South of Archer Street).
134. The bulk earthworks summary detailed on Acor Baseline drawings BR090081-100 Rev C indicates 296,016m³ imported fill.

The known Q100 and Q20 flood level at the time of the development application

135. At the time of the Application the known Q20 development line and Q100 flood line were.

- (a) Q20 - RL 13.3m AHD
- (b) Q100 - RL 16.2m AHD

136. These are the same relevant Q20 and Q100 levels for the present day. The 2011 event inundation level was approximately RL18.7m AHD.

The assessment process that was followed specific to flood impacts

137. The assessment process followed the process applied by ICC for operational works applications as set out in this statement.

138. The Council Codes and policies that were assessed for this application are as set out in below:

- (a) Ipswich Planning Scheme Policy 2 – Local Government Information;
- (b) Ipswich Planning Scheme Policy 3 – General Works;
- (c) Ipswich Planning Scheme Policy 5 – Infrastructure;
- (d) Ipswich Planning Scheme Part 12, Div 15 – Earthworks Code (Including lot filling);
- (e) Queensland Urban Drainage Manual Volume 1 Second Edition 2007

139. The proposed fill under the Application 3823/10 is a component of the proposed master plan filling described in the Masterplan Flooding Investigation. The Application 3823/10 relied on the Masterplan Flooding Investigation and was assessed against that Masterplan Flooding Investigation.

What consideration was given to the proximity of the site to the Bremer River and the flood risk or potential impact of flooding on the use proposed for the site.

140. The subject site and proposed works are adjacent to Bremer River and may have consequences for proposed earthworks in terms of managing runoff discharge quality and appropriate erosion control. Consideration was given to the proximity of the site to the Bremer River and conditions were imposed which require Sediment and Erosion Control plans and measures prior to commencement of works.

141. The application concerns only bulk earthworks and does not relate to any particular use. Notwithstanding this the proposed finish surface levels would provide any future land use with site elevations equalling or exceeding Q100 flood level with an associated freeboard.

The frequency of past flooding at the site

142. It is my understanding that the frequency with which flooding has occurred at the site in the past was a policy consideration in the formulation of the Q20 development line and the Q 100 flood line. Past flood events in relation to the site were not obtained for the purpose of considering the application, the relevant policy consideration for those purposes being the location of the Q20 development line and Q100 flood line.

The potential for surrounding properties, located upstream, downstream or on the opposite side of the Bremer River, to be at greater risk of flooding due to land filling or excavation work carried out at the Citiswich site and impacts of any stormwater or overland flow management facilities.

143. The application submission included reference to Masterplan Flooding Investigation documents, which demonstrated that the impacts of the proposed filling were negligible.
144. The application concerns bulk earthworks only that are external to “*critical conveyance paths of the River, up to the Brisbane River 1 in 100 flood level*”, western drainage tributary and does not include any stormwater or overland flow management facilities other than sedimentation basin for sedimentation control purposes.

Was the application assessed against the earthworks code contained with the Ipswich Planning Scheme and if so, how?

145. The Application was assessed against the Ipswich Planning Scheme earthworks code particularly having regard to the increased flood immunity proposed and the assessment of flood impacts by the Masterplan Flooding Investigation and the Citiswich Masterplan – Local Flooding Investigation (Local Flooding) June 2008.

Were any measures proposed to mitigate the potential for flooding at the Citiswich site and, if so, a brief description of these measures?

146. The proposed fill will increase the current flood immunity level for the associated area of land and for future development of this land and includes increased fill elevation to include standard freeboard.

Provide a list of experts reports obtained or received by the Council for the purposed of assessing the impact or potential impact of flooding at the Citiswich site on surrounding properties, located upstream, downstream or on the opposite side of the Bremer River, and a summary of:

- (i) How the Council assessed the adequacy of those reports;
- (ii) What reliance, if any, the Council placed on those reports; and

(iii) **The Council's justification for relying on those reports;**

147. Relevant critical documents are:

- (a) "Bremer Business Park Masterplan – Flooding Investigation, dated August 2007", Job Number J8714/R3/V2 (**Annexure GE-3**);
- (b) "Citiswich Masterplan – Local Flooding Investigation", Job No LJ8714/R6 and dated June 2008 (**Annexure GE-4**);

The above reports were undertaken by CLT, a reputable engineering consultancy that possess suitably qualified and experienced staff concerning hydrological and hydraulic investigations.

Did Council seek additional information from the applicant about the potential flood and/or stormwater run off impacts of the proposed development and if so, why was such information sought.

148. No further information request issued concerning this application.

Conditions were imposed on the development to address the impacts of flooding

149. No specific conditions imposed in relation to flooding. However, Decision Notice Condition 1 lists the approved plans. Condition 6 imposed requirements in relation to Engineering Certifications for the development, while conditions 8 and 9 imposed requirements in relation to earthworks silt management.

OTHER CITISWICH APPLICATIONS

150. The request from the Commission dated 27 September 2011 also relates to the following applications:

- (a) 5614/07;
- (b) 3644/09;
- (c) 9502/08;
- (d) 4820/07;
- (e) 6568/08;
- (f) 7282/10;
- (g) 9070 & 9070/07A.

151. These applications have limited relevance to flooding as they have either not been progressed or relate to land which was unaffected by the 2011 flood event and are located above the Q100 flood

line. I have attached as noted above summaries of those applications, a location plan relevant to the Q100 flood line and 2011 flood event and relevant documents, as follows:

(a) 5614/07

GE-32 Summary of Application 5614/07, including a location plan relevant to the Q100 flood line and 2011 flood event

GE-33 Development Application dated 24 July 2007

GE-34 Letter from Applicant dated 18 February 2008 attaching revised drawings`

GE-35 Development Application Decision Notice dated 8 July 2008

(b) 3644/09

GE-36 Summary of Application 3644/09, including a location plan relevant to the Q100 flood line and 2011 flood event

GE-37 Development Application and accompanying documents

GE-38 Letter from the Council advising that the Application 3644/09 has lapsed

(c) 9502/08

GE-39 Summary of Application 9502/08, including a location plan relevant to the Q100 flood line and 2011 flood event

GE-40 Development Application dated 17 December 2008

GE-41 Information Request dated 27 January 2009

GE-42 Response to Information Request dated 24 September 2010

GE-43 Development Application Decision Notice dated 22 October 2010

(d) 4820/07

GE-49 Summary of Application 4820/07, including a location plan relevant to the Q100 flood line and 2011 flood event

GE-50 Development Application dated 21 June 2007

GE-51 Development Application Decision Notice dated 3 August 2007

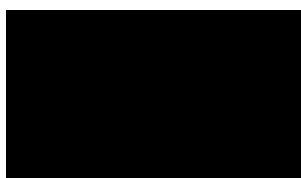
(e) 6568/08

GE-52 Summary of Application 6568/08, including a location plan relevant to the Q100 flood line and 2011 flood event

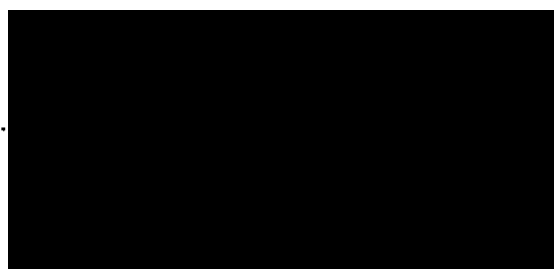
- GE-53** Development Application dated 8 August 2008
- GE-54** Request to withdraw application dated 16 November 2009
- (f) 7282/10
- GE-55** Summary of Application 7282/10, including a location plan relevant to the Q100 flood line and 2011 flood event
- GE-56** Development Application dated 22 October 2010
- GE-57** Decision Notice dated 10 February 2011
- (g) 9070/07 & 9070/07A
- GE-59** Summary of Application 9070 & 9070/07A, including a location plan relevant to the Q100 flood line and 2011 flood event
- GE-60** Application dated 9 November 2007
- GE-61** Decision Notice dated 1 October 2008
- GE-62** Letter withdrawing part of the application from Walker Corporation dated 26 May 2011

I make this statement conscientiously believing the same to be true, and by virtue of the provisions of the *Oaths Act 1867* (Qld).

Signed and declared by Gary Stephen Ellis at Ipswich in the State of Queensland this 13th day of October 2011 before me:



Deponent



Witness