GRECH
PLANNERS

Comments with regard to Statements of Others
Queensland Floods Commission of Inquiry

Comments of

Paul Grech

Prepared for

The Queensland Floods Commission of Inquiry

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Introduction

1.0 Commission

1.1 As requested, this document provides comments with regard to:-

- first and second Statements of Martin James Reason (MJR);
- Statement of Brendon John Nelson (BJN), including "*Temporary State Planning Policy – Planning for Stronger, More Resilient Floodplains*" (Attachment 11); and associated *"Part 1 – Interim Measures to Support Floodplain Management in Existing Planning Schemes"*; and
- Statement of Gary Stuart White (GSW).

1.2 The draft flood mapping available on the Queensland Reconstruction Authority (QCA) website was also examined.

1.3 Comments are made with regard to the topic headings of the draft Statement of Paul Grech, for insertion later, subject to discussion.

2.0 Consideration of Flood Risk in Land Use Planning

2.1 The various responses of MJR with regard to the questions of the Commission relating to how SPP1/03 is substantially dealt with by outlining the basic process steps in the preparation and amendment of planning schemes. However, it is not clear to me as to whether, as part of these processes, there is a current or intended practice for requiring the preparation of a more comprehensive flood risk management process, as provided for within Appendices 1 and 2 of the SPP Guideline (refer to paragraphs 8.5 – 8.18 of my Statement).

3.0 Flood Mapping

General

3.1 MJR (Statement 1, paragraph 21) alludes to the issue as to whether flood maps should be included as a statutory overlay to planning schemes (as a "natural hazard management area" as required by the current legislation) or retained as a non-statutory document, as presently the practice of Brisbane City Council. I agree with MJR that the complexity and extent of such information can make it impractical to include within a planning scheme map. This will be particularly the case if more complex flood risk mapping such as discussed in my Statement is undertaken. In principle, I do not see that it matters, provided that there is a system to ensure that consideration of flood risk, where necessary, is triggered. Issues to consider include:-

- ease of amendment as new flood information is provided and existing information is reviewed;

- misapprehension that the inclusion of the maps in a statutory document reflects certainty with regard to known flood risks; and
- complexity of information that may be included on a flood map can be disproportionate to the level of information provided on other planning scheme overlay maps.

QCA Draft Mapping

3.2 Having regard to the substantial absence of existing flood mapping (64% of local government planning schemes contain no flood mapping – BJN Transcript re Statement, paragraph 146) and the enormity of the task of undertaking flood mapping across Queensland, it is recognised that some quick but interim approach would be desirable to trigger where flood risk considerations would be relevant.

3.3 The flood mapping undertaken on the State-wide basis (BN Statement, paragraph 99) reflects a rapid assessment technique consistent with the concept of preparing maps identifying "investigation areas", as discussed at paragraph 10.12 of my Statement. That is, in my view such maps can be a useful first step in assisting the consideration of flood risks in the planning process, but should have recognised limitations, being:-

- The flood maps need to be clearly recognised for what they present in terms of flood risk information. **Figure xx** provides some comments with regard to the draft mapping available on the Queensland Reconstruction Authority website.
- The type of mapping described by BJN (paragraph 99) does not appear to be related to probability mapping (other than where this relates to actual events and their probability is known) and does not relate to flood risk mapping as described in my Statement. The issues arising could be:-
  - ultimately if and when more detailed flood mapping based on probabilities (as normally undertaken as part of a flood study) is prepared, it may disprove existing flood mapping or identify areas not previously mapped;
  - it excludes other than main riverine flooding (such as major overland flow drainage paths, which could represent substantial flood risks, particularly in more urbanised areas);
  - individual development proponents may be able to discredit the flood mapping readily easily, utilising a more conventional flood modelling approach;
  - landowner objections may arise due to concerns with regard to property values and development potential and, as above, be able to disproved the validity of the maps. (Note that this process will identify substantial areas of land as flood-affected across Queensland, not previously identified as such).

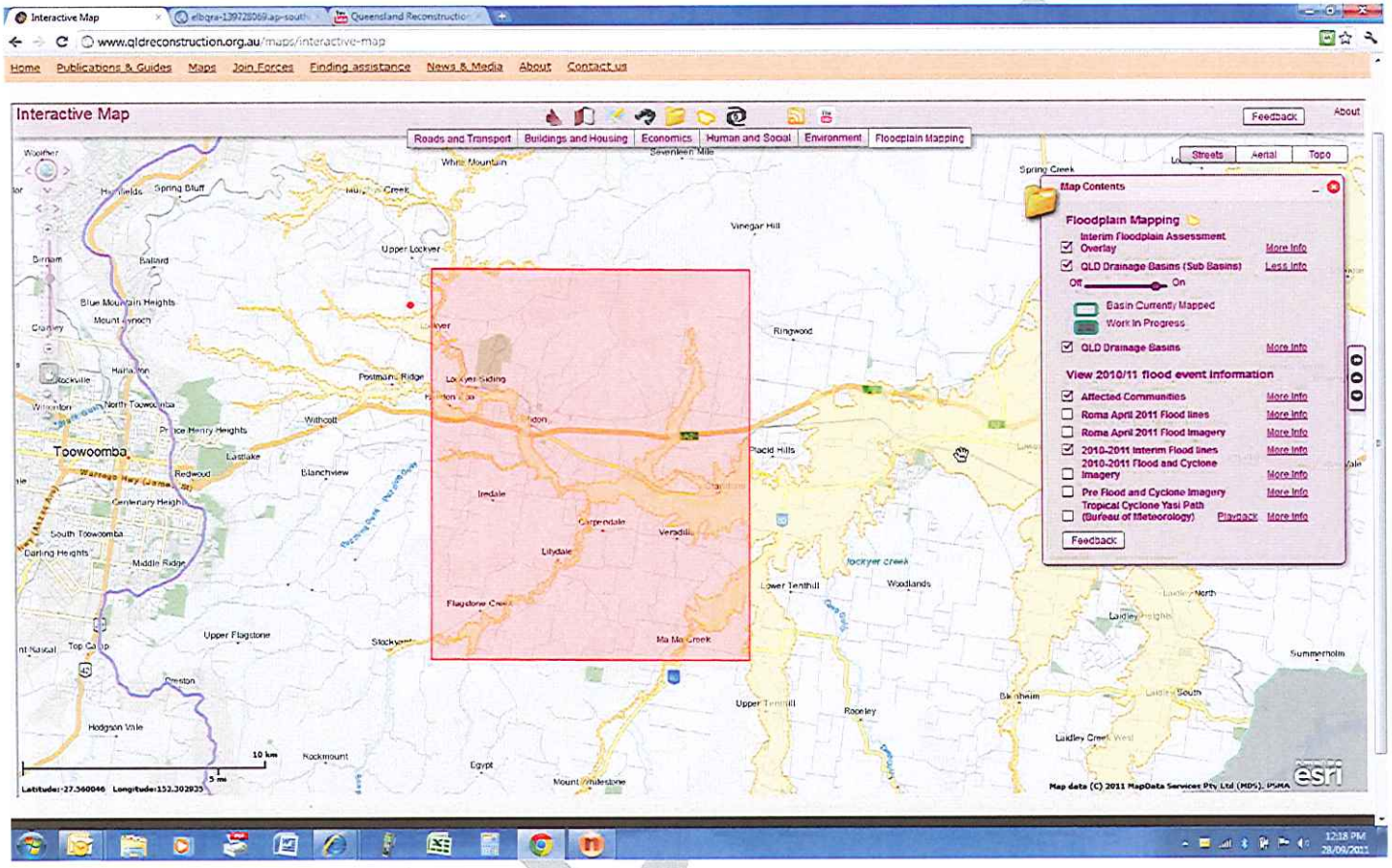

Figure X: *Draft Queensland Floodplain Mapping*

Source: Queensland RA Website viewed on 28/09/11

Observations:

- Generally desirable to provide information that is available even if not accurate rather than no information.
- An explanation/disclaimer on individual maps when viewed interactively would be desirable. The PDF download maps do have disclaimers.
- Explanation required that the floodplain is not based on a modelled probability.
- Without introducing complexity that may confuse the public it would be desirable to incorporate an explanation/ of the limitations of the flood maps.
- It is not clear why when "Affected Communities" is clicked a red dot appears outside of the mapped floodplain?
- Ideally in the long term it would be desirable to have graded flood areas (such as a high, medium low risk mapped floodplain as discussed in my Statement) that can provide more guidance for the spatial planning of different land uses within the floodplain, definite "no-go" areas due to high hazard conditions, as well as tools for emergency management. .

- For the reasons discussed in my Statement, this type of flood mapping information does not inform the planning process in an ideal way. For example, all areas are identified equally as potentially flood-affected, which does not assist in determining whether there are parts of the floodplain so hazardous that the majority of development should not be permitted, or the relative risk levels within the floodplain that may guide the planned distribution of land uses in a particular way.

- Without the flood mapping being based on probability modeling, I assume that there would be practical difficulties in determining design flood levels for the purposes of imposing controls on floor levels for different types of land uses, certifying structural soundness of buildings, evaluating flood impacts on others, where a Council does not have design flood levels. As noted at page 17 of the draft Part 1 Guidelines, Council might rely on historical flood data or existing flood studies to determine flood levels for application at the DA stage, but this would not always be available.

- The flood mapping is unlikely to provide a consistent level of flood risk management. This is because the mapping will capture a mix of flood extents based on differing probabilities.

- Such mapping does not provide information on the nature of the flood hazard important in the flood risk management study and plan preparation process (as discussed at paragraph 7.4 of my Statement).

3.4 Accordingly, while the flood mapping program described in the Statement of BJN (and available on the Authority's website) is understandable in the circumstances as an initial step in identifying as quickly as possible, potential areas of flood risk, it seems, in my view, to be more appropriately directed to:-

- identifying areas of priority for undertaking more comprehensive flood risk management studies (for emergency management planning as well as the planning process in different areas);

- providing a statutory trigger where flood issues need to be considered;

3.5 With regard to the second matter, the following issues arise:-

- The information provided by the flood mapping may not be sufficient to provide a meaningful input to the DA assessment process. Where warranted, due to the scale of development or the sensitivity of the land use being affected by flooding. In such cases the mapping could be a trigger to requiring a more detailed flood study.

- Not all flood-affected land would be identified, nor is it likely or reasonable to expect that all flood-affected land would be identified in the foreseeable future. This is particularly relevant when considering extensive areas that may be affected by overland flow flooding within more urbanised areas. As observed at Section 12 of my Statement, it is desirable to also provide a system that allows for the application of flood-related development controls where no mapping exists.

- I note that MJR (Statement 2 paragraph 20) identifies that BBC will require an applicant to provide a flood study, where not provided with a development application, with regard to detached housing.

- Similarly, as identified in the Statement of GSW (paragraph 146), an indirect process can be applied to require an applicant to consider flood risks at the DA stage, in the absence of a flood map. This process requires the Council assessment officer to identify the potential for flooding and request further information as part of the DA process. It is not clear as to whether this is consistent practice across all Councils in Queensland, and appears to be a "loop hole" process of considering flood risks where not otherwise triggered by a *Natural Hazard Management Area* overlay in the planning scheme. This process is not clearly reflected within the process described in the Interim SPP Guideline. It would be highly desirable if it did.

- The flood mapping being undertaken may be misunderstood by the public to indicate that land not mapped is subject to no flood risk. Accordingly, I am of the view that:-

  - There should be clear information provided to the public with regard to the purpose and limitations of the flood mapping (other than the disclaimer on the maps) to ensure that there is no misapprehension that they do not necessarily represent all land subject to potential flooding or may even include land not subject to flooding after more detailed studies are undertaken.

  - The flood map extents be broadened as far as reasonably possible to capture what could be later refined to reflect flood extents determined by conventional flood modeling.

  - Consideration be given to reflecting the intent of the flood mapping with appropriate terminology, such as describing the floodplains mapped as, "flood investigation areas", as opposed to floodplains. Note: the definition of floodplain within SPP 1/03 would unlikely align with what is being mapped (see paragraph 8.7 of my Statement).

  - The flood mapping should not be seen as a long-term fix for identifying and responding to flood risks, particularly in areas where future development may be occurring, which would demand more detailed risk management studies as a priority.

- Page 15 of the draft Part 1 Guidelines does appropriately identify a process of Council utilising the QCA mapping as well as relying on an existing overlay or other existing information where this is more accurate.

4.0 Appropriate Development in the Floodplain

4.1 *Temporary SPP – Planning for Stronger, More Resilient Floodplains*, is proposed to amend SPP1/03 by inserting some temporary provisions. The retention of flooding within an overall SPP dealing with natural hazard management in general is desirable at that policy level. Experience has shown that where flood risk

management is dealt with separately in the planning process, it becomes a sideline consideration due to the complexity of the issue and time and costs in analysing flood risks, (particularly after long periods of no flooding). Retaining flooding under the umbrella of "natural hazards" also provides perspective that flood risk is only one consideration in the planning process.

4.2 SPP1/03 requires both a flood study (to identify flood behaviour characteristics) and a floodplain risk management study (which identifies risks and potential mitigation options including planning controls) leading to the preparation of a flood risk management plan. As noted at paragraph 94 of the BJN Statement, Part 2 of the Guideline is yet to be prepared and is to include a "flood study template". It is not clear what this means. The flood risk management process outlined in SPP1/03, involves a process with significant community input to determine acceptable flood risks (see Figure 2 of my Statement) which goes beyond what is described as a flood study in the SPP.

4.3 The development scheme described for the area affected by flooding on 10 January 2011 (paragraph 59 of BJN Statement) understandably cannot remove development rights for existing residents without compensation. I make my comments on the assumption that there has been considerable debate as to whether to allow the redevelopment of properties that were badly affected in the recent floods and that options involving compulsory acquisition with appropriate compensation were rejected. I assume that adequate information is available to reasonably understand the possible flood hazard across a range of floods at the individual property and a conscious decision can be made by the approval authority and the land owner about the level of risk associated with rebuilding. These are clearly difficult and complex considerations but without a reasonable understanding of the risk it may be prudent to defer decisions until appropriate information is available.

4.4 Redevelopment in badly affected locations is said to be discouraged by requiring it to be impact-assessable development. However, there are minimal definitive *Acceptable Outcomes* in *the Interim Floodplain Assessment Overlay Model Code* that apply when undertaking such an assessment, particularly where there is limited flood behavioral information. For example, in determining an appropriate defined flood level, would this to be determined solely on the historical flood height, or will it be based on more standardised probability flood modeling? Would the structural adequacy of the building and evacuation capacity of future residents be considered? Such assessments may require information such as flood depths, velocities and rates of rise across a range of floods. Any lack of certainty with regard to what level of flood risk is being addressed, should ideally be clearly disclosed to residents that intend to rebuild.

4.5 At paragraph 72, BJN notes that the design of the Scheme for the future Grantham Township is directed to both rebuilding the community and *"limiting the potential for future redevelopment in areas affected by the January 2011 flood event"*. I have not, at this stage, seen any information that explains the probability of that flood and the range of possible floods that could occur within that floodplain. While I am not critical of the need to act swiftly to rebuild the community, it does not appear clear to me that the residual flood risks that the rebuilt township will be exposed to, have been identified and communicated to the public. Some explanation is provided at paragraph 76 of the BJN Statement, however this implies that a "flood study" will be

prepared in the future, to inform the SPA-compliant planning scheme being prepared by the Lockyer Valley Regional Council, but assumingly this information is not available. I note the reference is to a *flood study* as opposed to a *floodplain risk management study* as specified in SPP1/03, but assume that this is just short hand.

5.0 Appropriate Minimum Standards for Development in Flood Prone Land

5.1 MJR (Statement 1, paragraph 9) indicates that existing flood-related planning restrictions, "*reflect policy judgments*" about what is an acceptable level of risk. However, the flood risk management process outlined by SPP1/03 and the SPP Guideline requires that these judgments be made through a process involving substantial community input and a more comprehensive understanding of flood risks than has been available in the past. It is recognised that this policy is relatively new and Councils are currently going through a process of renewing planning schemes under the provisions of the *Sustainable Planning Act 2009*.

5.2 The performance outcomes and acceptable outcomes at Clause 4 of Schedule 1 (Interim Floodplain Assessment Overlay Model Code) of the Part 1 Interim Guidelines provide understandable interim controls. However, they raise the following issues:-

- Generally, the controls capture the seven considerations typically applied to development, outlined at paragraph 16.3 of my Statement, but not necessarily comprehensively.

- Providing elevated structures in conjunction with the need to provide "*clear and direct pedestrian and vehicle evacuation routes off the site*" can be conflicting risk management measures. If an occupant wrongly assumes that the elevated structure will not be inundated, there can be a propensity to remain within the building past the point where evacuation is possible. This can be dangerous where flood levels could continue to rise to life threatening levels or if the dwelling could become structurally unstable.

- Some terms are ambiguous. For example, Performance Objective 5 requires community infrastructure to function effectively during and after "flood events". It is not clear whether this means <u>all</u> flooding (i.e. up to the PMF, if known).

- Performance Outcome PO3, which requires consideration of impacts upon others in the floodplain, does not identify the need to consider cumulative impacts. That is, the impact of an individual development will inevitably be minor, compared to the impact associated with all developments contemplated by a planning scheme. Consequently, without considering cumulative impacts, the additional flood affectation to existing development could, over time, be substantial.

- The controls in the Interim Code are structured to be implemented in a practical manner, where little or no flood behavioural information exists. However, I do not see a reason why there should not be an alternate set of more detailed standard controls that could apply where existing detailed flood behaviour information exists, or is warranted to be provided in the DA process by way of a site-specific flood study, due to its scale (e.g. a major residential development of 100 dwellings or more) or because of its sensitivity to flooding (e.g. a hospital,

or aged persons accommodation). Such more detailed interim guidelines could also be useful in greenfield planning. For example, rather than require buildings to be "located on the highest part of the site" (CI.4.AO1.1) the Acceptable Outcome could be to be located on land above the Q100.

5.3 Notwithstanding the above specific comments, there should be some consideration given to whether any development should be permitted on flood prone land generally and more specifically the land affected by the 2010/2011 floods, without basic knowledge of flood behavior such as the depth of flooding at the Q100 and more extreme floods. There can be a conscious decision to allow development without such information but this in itself needs to be accepting of the risk that without such information similar or more extreme flooding could have devastating impacts in the future

6.0 Use of Building Codes in the Floodplain for Existing and Future Development

6.1 MJR (paragraphs 175-181) confirms that there are presently no specific building codes for flood-prone areas in Queensland, other than the setting of minimum heights for habitable rooms. Mr White, nonetheless, confirms that the Queensland Government is pursuing the adoption of National Building Codes through the Australian Building Codes Board. Mr White anticipates that the new mandatory part of the draft Standards could be introduced into Queensland for buildings in a designated flood hazard management area by late 2011. I have not viewed this draft Standard, but assuming it covers an appropriate range of building elements, then this would be a desirable outcome; if not, then there may be a need to consider a supplementary interim building code.

6.2 I note that such additional Building Code requirements are likely to have a construction cost implication and accordingly, the extent of development to which the Code is applied may be the subject of debate.