

4 November 2011

Ms Jane Moynihan
Queensland Floods Commission of Inquiry
400 George Street
Brisbane QLD 4000

QFCI

Date:

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Exhibit Number:

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Also provided by email.

Dear Ms Moynihan

RACQ Insurance flood mapping submission

We refer to your letter dated 18 October 2011.

Thank you for the opportunity to make submissions on the flood mapping issues raised in your letter. In preparing this response, RACQ Insurance has sought feedback from the hydrologist it has engaged in response to the Queensland floods (Water Technology Pty Ltd) in relation to the information that would be useful for their purposes. We have also sought feedback from our Reinsurance Broker as to the information they require when performing flood modelling studies for RACQ Insurance.

Response to Specific Questions:

1. What area should be covered by a flood map? For example, a local government area, a catchment, a basin, a sub-basin?

In general, RACQ Insurance believes flood mapping should be undertaken on a catchment wide basis, since flooding is not limited by geographical or jurisdictional boundaries. In addition to current urban areas, the mapping must also consider those areas where future development may occur along with rural areas.

The advantage of this approach, over maps based on local government areas, is that flooding mechanisms operate by reference to catchment area, not local government areas. Once catchment wide mapping has been performed, it can then be looked at by reference to other administrative geographical areas within the various catchments. The starting point for the mapping should be the physical boundaries defining the flood risk.

2. Who should be responsible for flood mapping? For example, the Queensland Government, the Commonwealth Government, local governments, catchment-based authorities? If some sort of joint responsibility, how would that work in practice?

One argument is that the authority required to administer responses to flooding issues (land use planning and/or disaster management) should be responsible for flood mapping. Generally in Queensland this will be the responsibility of local governments, with some involvement from the Queensland Government in relation to disaster management.

The problem with such an approach, however, is that it can lead to inconsistency. Further, there may not be sufficient resources within the local governments to undertake this activity.

For these reasons, RACQ Insurance would support the primary responsibility for flood mapping resting with the Queensland Government. If a sub-structure is required within the Government to manage this

task, it should be broken down into catchment-based authorities rather than local government authorities for the reason given above in response to question one.

RACQ Insurance notes the approach used in Victoria, where floodplain management is primarily the responsibility of Catchment Management Authorities. Development applications are made to local authorities with a referral to the Catchment Management Authority triggered based on zones of flood risk. If catchment-based authorities are to administer flood mapping, this Victorian approach could be adopted.

One other possible consideration is that responsibility for flood mapping be placed with the Federal Government. This is because some catchment areas will cross state borders, and because it would be beneficial to have a uniform approach nationally.

The above comments deal with mapping for riverine-type flooding. A further complication arises from the fact that mapping is also conducted in relation to stormwater or local catchment inundation. This would generally fall within the responsibility of the local government, as it is the entity responsible for the stormwater system. Ideally it would still be best for this information to be centralised, but perhaps responsibility for compiling the information could remain the direct responsibility of the local government concerned.

It may also be beneficial if mapping for other water perils (for example storm surge) were included within this centralized system.

3. Who should perform flood mapping? For example, private experts, officers of local, State or Commonwealth governments?

Flood mapping should be performed by suitably qualified and experienced engineers (either in private consultancies or government). In Queensland, the flood maps produced should be certified by an appropriately experienced RPEQ (Registered Professional Engineer Queensland). Appropriate experience for an RPEQ should be at least 10 years' experience in hydrology and hydraulics.

If a Federal approach is taken, then similar qualifications from other jurisdictions should be required.

4. Should there be mapping guidelines to guide all flood mapping completed in Queensland? If so, who should set the guidelines?

RACQ Insurance believes that there should be mapping guidelines for all flood mapping in Queensland. These should be set (or adopted) by the State or Federal Government. Guidelines which are uniform across the country would obviously be preferable.

The guidelines should establish consistent outputs so professionals using the data have ease of access to and useability of the information.

The principles of standardisation should include:

- GIS outlines of flood extents for given Annual Return Intervals (ARIs);
- Grid or raster based outputs for depth information for a given ARI (although the resolution of the grid may need to vary depending on the area involved); and
- Clear metadata on source information and accuracy or other key data.

RACQ Insurance understands there are several bodies of work currently available or being undertaken that could inform this process. This would include the guidelines for the current State Planning Policy SPP 1/03, Floodplain Management in Australia: Best Practice Principles and Guidelines SCARM Report 73, the NSW Floodplain Development Manual and the work currently being undertaken as part of the review of Engineers Australia's Australian Rainfall and Runoff document.

5. Who should fund flood mapping? For example, local governments wholly, state government wholly, commonwealth government wholly, current resilience funding program arrangements, another type of joint funding involving the State, Commonwealth and local governments? What other funding options are available?

RACQ Insurance believes that the current arrangement whereby initial funding is provided from all levels of government seems to be appropriate. Consideration might be given to vary the proportions of contributions according to exposure to flood risk and ability to contribute.

There should also be a forward planning element to flood mitigation and risk mapping. The current Queensland Reconstruction Authority has a budget of \$1.8bn for reconstruction but with no remit for enhanced flood mitigation. A fraction of the above sum would be required to establish more detailed and consistent flood mapping. A structured cost benefit analysis of undertaking flood risk mapping vs. future loss potential would be a useful analysis.

Existing developments are always going to be an issue, but it is possible to take steps to mitigate future flood risk to developments constructed from now on. Development proposals in the future should include a detailed flood planning component and funding for such studies. If the community is to bear the potential cost of flooding of a new development it should be quantified at the outset and a study undertaken with associated costing and analysis of mitigation actions. These should be publicly available.

6. What amount of data-sharing is appropriate? Should any agency which completes a flood study be required to share its information with other government agencies, insurance companies and financial institutions? On what terms should it be required to share such information?

Maps of flood risk should be available to any and all interested parties. In particular, if flood maps are used for planning controls, they need to be public documents. Ultimately the community carries the cost of flooding and increased awareness of flood risks can help reduce these costs.

Flood mapping is based on the use of hydrologic and hydraulic models. The relevant authority should be responsible for the "adopted" model and charged with its ongoing maintenance and improvement to ensure current conditions are represented. The data/analysis used in development of the flood maps and these models that is not readily available from other sources should also be available, but could be subject to conditions and potentially costs associated with their provision to third parties.

For example, Brisbane City Council and Gold Coast City Council both have established systems for provision of hydrologic and hydraulic models to third parties. Agreements are put in place including nominal costs for provision of the data, no responsibility or liability for subsequent use by third parties is accepted and the licensing is for the stated purpose only.

A legislative approach that limits any liability arising from the usage of flood mapping could be adopted. This has been implemented in other international markets where national flood insurance schemes exist.

7. What types of flood mapping should be available to the public to enable them to be properly informed when making decisions affecting land planning, such as purchasing a property or making a development application, and in the context of an emergency, such as deciding whether and when to evacuate? Should the flood mapping available to them be, for example:

- a) the flood maps or information used in local planning schemes
- b) flood maps and information held by State government agencies
- c) flood maps and information held by Commonwealth government agencies
- d) maps showing flood risk, historical flood height at property and similar
- e) maps showing evacuation routes
- f) maps showing zones of land that are likely to be flooded in certain eventualities ie when the flood rises about a certain height at a certain gauge

RACQ Insurance believes there would be benefits in all of the mapping listed being available to the public.

Flood mapping incorporated in local planning schemes should be publically available and, rather than simply showing a "Defined Flood Event" (eg 100 year ARI) should show:

- historic events that have been experienced in the area; and
- a range of "design" flood events (eg 1 year ARI to 2000 year ARI) to provide the best available indication of flood risk.

In relation to the second point, flood mapping needs to see a full range of ARIs and not just focus on 1 in 100, which is a popular well-used reference level used in planning and mapping. The ability to understand risk measures at intervals beyond the 1 in 100 year measure is important. Land use and planning policies often restrict what can be built or sited within the 1 in 100 ARI. Potentially this means a concentration of risk just beyond this level. In simple terms, there could be a limited impact from a 1 in 99 year level flood but a very considerable concentration of properties affected just beyond the 1 in 100 year level. Concentration of risk is important for insurance and reinsurance planning.

Flood mapping used for emergency management should also be publically available (in particular, information associated with warning mechanisms, evacuation routes and evacuation centres), but would necessarily be in a different format to that used for town planning.

The format in which the mapping is presented would vary according to its intended audience. Mapping for use by insurers or government could obviously be presented in a more technical format. Information presented to the public might be presented in a simpler format as discussed below.

8. What sort of information or education should be provided to members of the public to assist them in understanding the maps?

RACQ Insurance believes that all of the information discussed in the response to the previous question should be made available to the public.

As part of the development of a floodplain management plan, there would typically be public consultation sessions to both gain information about people's experiences and provide feedback about the results of the studies.

In particular, it would be useful to provide all of the information discussed in the response to the previous question in an interactive website where the public or stakeholders can gain an understanding of flood risk of both regions in general, and if necessary, on a property by property basis.

Community education campaigns could also be undertaken (on a catchment by catchment basis) to provide maximum benefit to the community.

These education campaigns might be tailored to the particular flooding risks arising in each region. For example, we understand that the geography of the Lockyer Valley region means that it is susceptible to flash flooding where residents will have little or no warning. On the other hand, we understand that

widespread inundation in Brisbane will generally occur with two or three days' notice. Obviously the different timeframes involved would require different responses.

Consideration should be given to how to best present information to members of the public. The information needs to be presented in a way that is simple to understand, but not so simple that it glosses over the details of the flood risks. This is obviously a difficult balance to strike.

For example, historical inundation extents have use for communities with a memory of those events. However, they can also provide a false sense of security; a historic level can be perceived a maximum rather than a specific probability or likelihood.

Consideration should also be given as to whether, in communications directed to the public, the use of ARI indicators (eg "a 1 in 100 year flood") should be maintained. It seems that the concept of an Average Recurrence Interval is not very well understood by members of the public, and referring to such things can give a false sense of security.

9. What sort of information or mapping should be available to insurance companies or financial institutions for them to use in decisions about providing products to consumers?

The same information discussed above should be available to insurers.

In particular, the information should provide flood risk information that shows the frequency and severity of flooding across the entire catchment. The frequency of flooding should be represented in terms of design flooding, for at least the 20, 50, 100 year ARI and Probable Maximum Flood levels. The severity should be represented as the depth of flooding and also velocity of floodwaters affecting a location.

Insurance companies would benefit from access to the detailed information (topographic/ land use) used during the development of the maps. There would also be benefits in sharing of cost/damage information in terms of exposure for insurance companies, and potential flood damage costs to the community.

The mapping should also include any information relating to the location of flood defence systems such as levees and the level of protection these provide. The extent of mapping needs to cover the entire catchment and should not be limited to the populated areas.

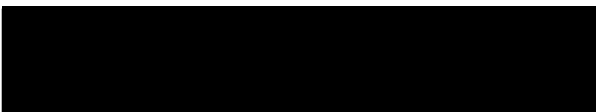
RACQ Insurance would be open to the possibility of accessing this information through access or subscription fees.

Other Comments

RACQ Insurance believes there should be information about the level of confidence of flood mapping. For example, flood maps based on approximate terrain (eg 10m contours) information or with little or no stream gauge information will have a much lower level of confidence than those based on high accuracy terrain information with long term stream gauging information. Obviously, the mapping should be done as accurately as possible, but there will always be a degree of inaccuracy, and notes to the mapping should clarify what that is.

We understand that much of the mapping is based on predicted rainfall data, and that this is affected by the possible changes to rainfall caused by climate change. The anticipated impact of those possible changes should be incorporated into the flood mapping procedure and periodically reviewed.

Yours sincerely



Bradley Heath
Chief Executive Officer
RACQ Insurance Limited