

Department of State Growth

MINERAL RESOURCES TASMANIA

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Mr Mike Blake
Government Flood Review
GPO Box 308
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Dear Mr Blake

Thankyou for your invitation to provide a submission to the Flood Review Team (email dated 5 January 2017).

As you know, Mineral Resources Tasmania (MRT) has recently undertaken work for the (2016) Flood Taskforce to address flooding on an alluvial fan at Caveside, near Mole Creek. The study (completed with external assistance) was successful in defining the flood processes, levels, velocities and extents in the area studied. At the presentation we provided for you in early January, Mr Ted Rigby (our external collaborator) also outlined a conceptual flood modelling project that could provide a state-wide flood map layer. To this end, our submission discusses this concept and in doing so addresses aspects of the strategic issues you have included in your letter, namely:

- Community preparation, resilience and awareness, including awareness of insurance matters, relating to major flood events in Tasmania.
- Consideration of the detrimental environmental effects of the flooding upon the landscape, and what effective mitigation measures may be necessary to avoid similar events.
- The use and efficacy of forecasting, community alerts, warnings and public information by authorities in responding to flood events.

MRT considers that an important component of community awareness, resilience and preparedness for flooding is the availability of flood hazard maps, pertaining to both past events and for the prediction of future events. The information contained in such maps would enable communities to make informed decisions before and during an event and facilitate planning, emergency management and mitigation measures (e.g. engineered solutions).

There are a number of existing flood maps that serve individual communities in Tasmania; however, factors such as incomplete coverage and a lack of supporting documentation make it impossible to simply stitch these together in a meaningful way.

Recently, MRT and Mr Rigby collaborated in producing a conceptual flood model for the entire state. The exercise proved that the construction of a single state-wide model is indeed possible, affordable and practical using contemporary computer-based software and hardware. Until recently, computer technology was not powerful enough to achieve this. In addition, the Caveside modelling demonstrated that flood modelling software, with suitable inputs, can successfully replicate known events to a high level of accuracy. Therefore, through the production of predictive flood models based on appropriate inputs, it is indeed possible to map flood hazard (extent, inundation depth, velocity, timing, and likelihood) and risk (if the elements at risk are known). Furthermore, the construction of a state-wide digital architecture provides the flexibility to run many scenarios and address a range of questions.

Through careful management and governance, the architecture can be improved/modified over time to reflect changes in the landscape and land use, and thus provide a valuable long term predictive tool.

The most important first-order input to flood model digital architecture is the elevation information used. In the case of Caveside, we were able to use existing LiDAR imagery acquired by the Meander Valley Council to generate a high-resolution topographic layer. LiDAR is a relatively new technology that is superior to traditional methods of generating regional-scale elevation models. Unfortunately, only about 25-30% of the state is covered by this imagery and importantly there are several flood prone towns (e.g. in the Midlands area) that lie outside of these areas. We would argue that acquisition of LiDAR to cover all of the state should be a priority if a reliable state-wide flood map(s) is desired. It should be noted that a Tasmanian Government SIIRP (Structured Infrastructure Investment Review Process) proposal to acquire a complete coverage of the state is currently being prepared by the Surveyor General, but has not been approved. A complete LiDAR-based digital elevation model of the state, if acquired, would also benefit a number of agencies, Local Government and the general public.

The generation of a single flood model for the state would need careful planning and management and we support the intention of the Office of Security and Emergency Management (DPAC) to this year seek funding for such a study.

I hope that this submission provides a sufficient case for your consideration. Please let us know if you need further information and clarification.

Yours sincerely



Brett Stewart
DIRECTOR OF MINES