

July 20, 2010

The Manager
Metricon Qld Pty Ltd
PO Box 3407
Robina TC Qld 4230

Attention: Mr Shaun Nicholson

Dear Sir,

**RE: PROPOSED DEVELOPMENT AT TERRANORA AREA E, ALTITUDE ASPIRE,
PROJECT APPLICATION MP09_0166**

As requested, we have undertaken a review of the proposed development with particular reference to responding to the NSW Department of Planning, Director General's Requirements for Environmental Assessment regarding flooding. For ease of reference the relevant requirements are reproduced below in italics followed by our responses in normal text.

6.5 Provide an updated assessment of any flood risk on site (for the full range of floods including events greater than the design flood, up to probable maximum flood; and from coastal inundation, catchment based flooding or a combination of the two) and having consideration of any relevant provisions of the NSW Floodplain Development Manual 2005, the NSW Sea Level Rise Policy Statement (DECCW, 2009), the Draft Flood Risk Management Guide: Incorporating Sea Level Rise Benchmarks in Flood Risk Assessments (DECCW, 2009), and the Draft NSW Coastal Planning Guideline: Adapting to Sea Level Rise (DoP, 2009). The assessment should determine: the flood hazard in the area; address the impact of flooding on the proposed development, address the impact of the development (including filling) on flood behaviour of the site and adjacent lands; and address adequate egress and safety in a flood event.

6.6 Assess the potential impacts of sea level rise and increases in rainfall intensity on the flood regime of the site and adjacent lands.

Based on advice from Tweed Shire Council (TSC), the climate change design flood level (DFL) of RL2.9m AHD is applicable for greenfield residential developments in this area, as specified in TSC's DCP – A3. The climate change DFL includes an allowance for sea level rise of 0.91m and for a 10% increase in rainfall intensity. The Probable Maximum Flood (PMF) level is RL5.8m AHD.

Part of the site is below the DFL, however this area is to be used for stormwater runoff treatment in constructed wetlands, roads and open space. The proposed Broadwater Parkway is intended to have a minimum design level of RL3.0m AHD, which is above the DFL. While part of the site below the DFL is to be filled to facilitate the construction of the wetlands and Broadwater Parkway the amount of filling and consequent loss of flood storage is inconsequential and would have no measurable impact on flood levels in the Terranora Broadwater or elsewhere.

All of the lots in the proposed development are above the PMF flood level and access would be available via Fraser Drive or Market Parade during these events when the Broadwater Parkway would be inundated.

Local catchment flows would be managed using a stormwater drainage system designed in accordance with Tweed Shire Council's requirements (Development Design Specification D5). This system would cater for minor flows (flows up to and including 5 year ARI storm events) by means of a network of underground pipe drains and inlet pits. Runoff from storm events greater than 5 year ARI would be managed by a major flows system comprising overland flow paths on roadways and in open channels. Accordingly the central open channel and the culvert under the Broadwater Parkway would be designed to convey Q100 flows to the outlet. Flows in roadways would be managed in accordance with the requirements of QUDM 2008 so that flow depths and velocities would be acceptable.

It is intended that further details for the central open channel, the stormwater drainage system and the constructed wetlands would be provided as part of a submission for a Construction Certificate approval.

We trust this is acceptable. Please do not hesitate to contact this office if you require any further details or elaboration.

Yours faithfully,
Gilbert & Sutherland Pty Ltd


for **Neil Sutherland**
Director/Principal Agricultural &
Environmental Scientist


Allan Genn
Principal Engineer