Submission on DoP&I Draft Circular - Coastal Hazard notations on section 149 planning certificates.

This submission is on behalf of Lake Cathie Coastal Residents Group (LCCRG) – 'from the coal face', as we refer to our last five and a half years experience at Lake Cathie. We describe this experience, and then offer what we believe follows from it.

We welcome the distinction between current and future exposure to coastal hazards. The SMEC Lake Cathie Hazard Study in 2008, updated in 2010, concluded there is no current erosion risk to the sixty-two Chepana Street houses, no risk by 2050, possibly a risk by 2100. Notwithstanding the clarity of these statements, it took us till late last year to achieve 'future' instead of 'current' risk notations on S.149(5) certificates. In our first submission of 17 May 2013, 'Submission on Stage 2 Workshop Questions', we described the five years of fruitless approaches to Port Macquarie-Hastings Council (PMHC) staff to draw the distinction, and we'd like to think that our submission to the Stage 2 Workshop contributed to the distinction now being drawn in the draft Circular.

This present submission deals entirely with future hazards and S.149(5) notations, as covered in the draft Circular, and in our view, every issue addressed in the draft depends on what is actually meant in the first S.149(5) dot point, which reads:

Firstly, if the information is not sufficiently accurate, complete and reliable, as supported by a competent process of assessment, then the information should not be included in a section 149(5) planning certificate.

The draft circular describes this statement as one of the Circular's three guiding principles, but what is actually intended in the phrase *sufficiently accurate, complete and reliable?* Each word appears carefully chosen, but how will '*accurate, complete and reliable'* be applied when qualified by *'sufficiently'*? The purpose of this submission is to propose the addition in the final Circular of **'criteria for sufficiency**' in applying this guiding principle.

For the thousands of distressed and disadvantaged owners of coastal properties, the hope is that the words '*accurate, complete and reliable'* will be applied with their literal meanings, and this hope has been buoyed by coverage of a recent comment by Minister Brad Hazzard. He was quoted as saying to Ean Higgins of The Australian (30/01/2014) "We just needed to get Councils to jump away from that doomsday scenario". What did he actually mean by "doomsday scenario"? Presumably he meant that to describe the extreme IPCC sea level rise projections, as far into the future as 2100, as *accurate, complete and reliable,* would be an oxymoron, and that the State Government is now ruling out such long term extreme projections. We will return to this big picture after discussing the events at Lake Cathie, and the relevance they have to the guiding principle of accuracy, completeness and reliability - assuming the principle survives in the final version of the S.149(5) guidelines.

On the next page, we provide a set of six photos which establish how Lake Cathie's southern beach cycles between erosion (Photos 1 through 4) and accretion (Photos 5 and 6). The availability of Photos 3 and 4 on the web allowed direct comparisons, 3 with 5, 4 with 6, at about the same locations. The SMEC Study inexplicably ignored Lake Cathie's indurated sand in applying the Bruun Rule and the Nielsen et al *Zone of Reduced Foundation Capacity* (ZRFC) schema.

COMPARATIVE VIEWS OF LAKE CATHIE INDURATED SAND

Photo 1. Indurated sand exposed after storms, circa mid-2011. Note sand adhering to the near-vertical face of the indurated sand.

Photo 2. Further view of adhering sand, establishing the level of the sand before the storms.

Photo 3. Photo in Royal Haskoning letter to PMHC, 18 December 2012, looking south.

Photo 4. Photo in Royal Haskoning letter to PMHC, 18 December 2012, looking north.

Photo 5. Approximately the same southern view on 19 January 2014, after accretion.

Photo 6. Approximately the same northern view on 19 January 2014, after accretion.

The Lake Cathie experience – Summary of events.

The following summary makes clear how protracted and unsatisfactory the hazard evaluation and its imposition at Lake Cathie have been for the past five and a half years.

- As stated, the SMEC Hazard Study in 2008, updated in 2010, concluded there is no current erosion risk for the sixty-two Chepana Street houses, no risk by 2050, possibly a risk by 2100. The Study ignored indurated sand in applying the Bruun Rule and the Nielsen et al *Zone of Reduced Foundation Capacity* (ZRFC) schema.
- In July 2008, Port Macquarie-Hastings Council (PMHC) commenced applying punishing erosion risk notations on Chepana Street S.149 certificates, and the inclusion of notations continues. Four comparative sets of Valuer General valuations have proved that, in the next valuation which occurred twelve months after July 2008, Chepana Street properties were de-valued by 43%, compared with similar properties elsewhere in Lake Cathie. (Chepana Street properties de-valued by 30%, similar properties elsewhere in Lake Cathie increased in value by 13%, 2008/9).
- In mid 2012, the spokesperson for Lake Cathie Coastal Residents Group (LCCRG) commissioned WorleyParsons to review the SMEC Hazard Study. WorleyParsons concluded that Chepana Street properties are not at risk by 2100, and that the citation on S.149 certificates should be removed. WorleyParsons drew inferences from the presence of indurated sand.
- In September 2012, the media release by Minister Hartcher announced that S.149 notices should focus on current known hazards. LCCRG was advised by DoP&I that enabling guidelines would issue by early 2013. Draft now released, 12 months late.
- By late 2012, PMHC had submitted the WorleyParsons report to OEH and then to Royal Haskoning, for peer reviews. While both acknowledged that indurated sand had been ignored in SMEC's projections of storm bite and beach recession due to sea level rise, both supported the SMEC projections, OEH doing so on the basis of being 'prudently conservative'. In qualifying their conclusions, both recommended that the indurated sand at Lake Cathie be studied. Royal Haskoning recommended that the study be in three parts:- establish its physical extent and properties; revisit existing photogrammetry; develop a quantified conceptual model.
- During 2013, PMHC adopted the Royal Haskoning recommendations, and $50,000 was provided for core drilling and analysis, plus a further $50,000 for the review of photogrammetry and the development of the 'conceptual model'. The Geological Assessment has just become available, and confirms that the indurated sand is continuous, and extends landwards by 70 metres at least. The further two recommendations will now be completed, over some period. The SMEC 2010 erosion projections may then be reduced, and S.149(5) erosion risk notations removed.
- On 30 January 2014, DoP&I issued the subject draft Planning Circular to guide councils in preparing Section 149 planning certificates. The first guiding principle in recording information on Section 149(5) certificates is that such information be 'sufficiently accurate, complete and reliable', and if this guideline is not met, the information should not be included. However, the draft offers no test or guidance on how to decide sufficiency, and without this test or guidance, the first of the three guiding principles in the draft Circular would be effectively meaningless.

The Lake Cathie experience – comments and questions arising.

The SMEC Hazard Study recorded that the recession of Lake Cathie's southern beach over 64 years was generally less than 10m, and observed that most of this recession occurred between 1940 and 1983. This drew the following comment in the Study - *The slowing of the rate of dune recession may be due to the exposure of the Pleistocene indurated sand barrier and the relative resistance of this material to erosion*. Notwithstanding this acknowledgement, the Study proceeded to apply the Bruun Rule and ZRFC Schema as though indurated sand were not present. The Study projected 18m storm bite and 42m beach recession due to sea level rise by 2100, and qualified these projections as *indicative only,* re-stating that the indurated sand at Lake Cathie had been treated as though it is equally erodible as unconsolidated beach sand.

In its review, WorleyParsons observed that:- *Since 1940, there have been 23 storms with Hs > 6 m with one storm having Hs > 8 m, during which time the dune face receded less* [than] *some 9 m along Chepana Street; that is, on average the dune receded only some 0.4 m per storm or, at a long term average rate of 0.14 m/a. The presence of "coffee rock" is likely to be the reason that there has been no record of any significant recession at Lake Cathie over the past 7 decades.*

We contend that, because of the presence of continuous indurated sand, plus anecdotal evidence of its presence back to Chepana Street ocean-side houses, neither the Bruun Rule nor the Nielsen et al ZFRC schema applies to the Lake Cathie beach, and should not have been adopted and applied in the SMEC Hazard Studies of 2008 and 2010. Accordingly, the combined 60m projected recession by 2100 should not have been included in the hazard mapping, and this mapping referenced as the basis for citing erosion risk on S.149 certificates.

We believe the correct approach would have been to test-bore to establish the extent of the indurated sand and then to turn to the historical data, as did WorleyParsons, there being no developed and tested theoretical approach available, or on the horizon to our knowledge, for projecting beach erosion due to sea level rise where seawall-like indurated sand is present (please refer again to the photos on page 2).

This approach has in fact happened, in that WorleyParsons' report is to hand, and its assumption (based on the anecdotal evidence) that the indurated sand, continuous on the shoreline and extending many metres landwards, has been confirmed. However, this is 'purely academic' since we understand PMHC are retaining consultants Cardno to develop the 'conceptual model' (Royal Haskoning's third recommendation), and to review SMEC's Lake Cathie beach recession projections, now that the Geotech Study is to hand.

From its letter of 18/12/2012 to PMHC, the Royal Haskoning third recommendation was to (quote) *develop a (quantified) conceptual model of the main sedimentary processes and pathways for the study area which could serve as the framework for the interpretation of the existing and any future photogrammetric analysis.*

If we are understanding correctly, the aim is to model, and apparently quantify, the part which indurated sand plays in beach recession at Lake Cathie, this recession continuing to be periodically updated by photogrammetry. It therefore appears that the conceptual model's use will be to interpret *existing and any future photogrammetric analysis,* with increasing understanding of how the presence of indurated sand retards beach recession.

On this basis of photogrammetry being the necessary basis for study of beach recession at Lake Cathie, the photogrammetric recession rate has been 0.14m per annum over the past 64 years – 14m per 100 years. This is 20% of the rate deduced in the SMEC Hazard Study, indurated sand having been entirely ignored in the Study. The six photos on page 2 confirm what has long been observed by locals - cyclic erosion, accretion, and some fracturing of undercut indurated sand during heavy storms. We believe, as do WorleyParsons, that foreseeably this cycle and recession rate will continue, and the 2100 erosion risk notations on S.149(5) certificates for Chepana Street properties should cease immediately.

The draft Circular set against the Lake Cathie experience.

The key guiding principle in the draft Circular is:

Firstly, if the information is not sufficiently accurate, complete and reliable, as supported by a competent process of assessment, then the information should not be included in a section 149(5) planning certificate.

The SMEC Hazard Study concluded for Chepana Street :- no current erosion risk, no risk by 2050, possibly a risk by 2100. Since indurated sand was ignored, it is self-evident that, under the first principle, the Study was incomplete, and the risk notation for 2100 should not be included in the S.149(5) certificate.

However, we cannot be confident that councils will accept and operate on such a 'plain English' interpretation.

Based on our experience with PMHC staff, the following is the rationalisation which almost certainly will be advanced by them in relation to the S.149(5) notations for Chepana Street properties:

- The 'hotspot' guidelines required there be a Hazard Study at Lake Cathie.
- Coastal consultants advised there is no theoretical projection tool available which takes account of indurated sand.
- Therefore the only coastal science tool available – the Bruun Rule – has been applied, but this resulted in *indicative only projections*. In spite of this uncertainty, and in the absence of precise guidance as to the meaning of the word 'sufficiently', we will make the decision that they are *sufficiently accurate, complete and reliable* projections as to what might possibly happen by 2100.
- On this basis, and applying the precautionary principle (see further reference to this below), we consider that the Hazard Study meets the Planning Circular's criteria for sufficiency, and for a competent process of assessment.

We submit that such manipulation of 'sufficiency' should not be allowed, and accordingly, the Planning Circular should contain at least the following criterion for sufficiency:

Sufficiency and competence can only be satisfied if the data and science involved are directly applicable to the study or decision in question, and the science is accepted and in use for the type of study involved.

We observe that adopting this sufficiency criterion would not leave councils with no way to proceed on issues where the science is not available. The default position would be to make projections from historical data, coastal photogrammetry being the prime coastal example.

The big picture – mutual exclusivity.

The following extracts reveal the present fundamental problem that the draft Planning Circular runs into, namely that a risk which is uncertain should not be included under the draft Circular, but must be included under the precautionary principle in the NSW Coastal Policy 1997. The extracts are titled with their sources.

1. First dot-point under Section 149(5), DoP&I draft Planning Circular, page 2.

    - Firstly, if the information is not sufficiently accurate, complete and reliable, as supported by a competent process of assessment, then the information should not be included in a section 149(5) planning certificate.

2. Fourth dot-point under ESD principles, NSW Coastal Policy 1997, page 14.

    - The precautionary principle. Requires a risk averse approach to decision making. Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty is not to be used as a reason for postponing measures to prevent environmental degradation.

We are aware that at least 50 councils have obtained advice from the law firm Beatty Legal, as follows:

Uncertainties can be accommodated by application of the precautionary principle. Under this principle where there is a threat of serious or irreversible environmental damage and scientific uncertainty as to the nature and scope of the threat, the decision maker must assume the threat is a reality and take appropriate measures to avoid or mitigate the potential harm.

The underscored advice to councils - assume the threat is a reality – says 'ignore the uncertainty', whereas the draft Planning Circular says just the reverse.

We are currently in the course of placing this issue before State Government Ministers, Members and senior DoP&I staff. Clearly a solution must be found before the S.149 Guidelines reach finality.

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