



## Update Statement 2018

### Kapiti Coast Erosion Hazards

#### Background

Between 2006 and 2014 Coastal Systems Ltd (CSL) carried out several coastal erosion hazard assessments for the Kapiti Coast District Council (KCDC) to assist in revising their District Plan's building setback lines after council recognized the existing lines, based on 1980s information, were inadequate. The assessments covered the open coast, inlets, areas with structural controls (seawalls, groynes etc), used 50 and 100 year projection periods, and assessment detail ranged from *high level* for red-flagging potential high risk areas to *site-specific* investigation where development was imminent. The assessments were carried out using best practice methodology and thoroughly peer reviewed.

CSL's most comprehensive assessment report and accompanying erosion prediction maps were released in August 2012. The KCDC also sent letters to 1800 affected properties placing severe building development restrictions within both the 50 and 100 year erosion prediction envelopes and informing them that the new erosion information would go on LIM reports forthwith. This action resulted in an immediate public outcry and formation of the high-profile pressure group Coast Ratepayers United (CRU). CRU set out to block implementation of the CSL erosion prediction lines into District Plan hazard zones (this process would have included public input and adaptation strategies), by relentless challenge of the CSL assessments via Kapiti and Wellington media as well as their own web site.

To subdue coastal property owners, the KCDC agreed to appointed an independent panel of 4 experts who reviewed the CSL assessments in late 2013. The Panel recommended implementation of the CSL assessment material into the District Plan once three "easily effected" changes were incorporated, i.e. "modify and apply". The main change involved use of an alternative approach for computing one of the five hazard model components. CSL strongly objected to the alternative which had been shown in the literature to over-estimate erosion and was not used elsewhere, whereas the method used by CSL was consistent with NIWA best practice guidance. The Panel's approach would have seen the CSL hazard prediction lines several metres further landward, so their modify and apply

recommendation was problematic for the CRU, who had consistently claimed that the CSL lines were too far landward.

The Panel had also recommended broader investigations that could reduce uncertainty but stressed that this was longer-term work and would be used to inform the following District Plan Review 10 years time. CSL had already formulated a future research programme for the KCDC to achieve these sorts of refinements – a programme spanning several years to enable data collection and cost spreading. This secondary recommendation by the Panel was seized upon by the CRU and the new council. In particular, the KCDC ignored the Panel's primary recommendation to "modify and apply" the CSL assessment lines, rather, they would appoint a Coastal Advisory Group (CAG) to oversee a new broader assessment, with implementation of this work into the District Plan by 2018.

In 2012-13 coastal residents also sort a High Court Judicial Review to exclude the CSL erosion information from LIM reports. However, the judgment found the council had no discretion in this regard and had to make the information available in a clear manner – the Judge finding this was something council officers (without any CSL input) had not succeeded in doing. Nonetheless, under CRU pressure, the council removed all explanatory text and erosion prediction maps from LIMs, referencing only the CSL report along with a potentially misleading disclaimer on the report's front cover, and the maps were unavailable. As the Code of Ethics used by coastal practitioners requires us to inform those affected by possible consequences of our findings, we subsequently made the full set of reports, maps and clear explanation available for download on the CSL website ([click here](#)).

### **What happened after 2014?**

Following publication of the erosion prediction maps and discussion of the erosion hazard process on the CSL website in 2014-15, CRU advisors wrote a 114 page submission to the Advertising Standards Authority requesting that the CSL site be shut down on the basis of content accuracy. However, the Authority refused the CRU request and suggested, given the extent of the applicant's grievances, they take legal action. The matter did not proceed further.

The KCDC prepared draft terms of reference for a coastal advisory group (CAG) which the CRU rejected while they sort determinations (definitions) on a range of matters through the Environment Court. In addition, it appears that the council had no real inclination to carry out an expanded assessment as it seems no budget was ever allocated for this purpose.

In November 2017 the (Reviewed) Proposed District Plan was released with no erosion hazard provisions – the council stating that the provisions in the Operative District Plan having to apply until the new assessment and implementation process has occurred, i.e. in several years time. In December the High Court upheld an earlier Environment Court decision that this process was acceptable. However, it is noted that the Courts' were led to

believe that the CAG/expanded reassessment was actually underway, when in fact CSL understand that there has been minimal progress.

Since 2014, erosion hazard assessment methodology has further developed with the advent of probabilistic analysis software ([click here](#)), which Tonkin and Taylor first applied for the Northland Regional Council in 2014, and they have subsequently used it at other locations in both the North and South Island. Probabilistic-based analysis enables a continuous range of likelihoods to be computed for different scenarios. This compares with the single likelihood computation method used in the past. The probabilistic approach also facilitates sensitivity testing which is helpful in assessing the relative contributions of the different hazard model components and their parameter values.

The CSL Kapiti erosion output have been tested using this new approach and the 100 year prediction line was found typically to have a probability of 4% which meets the *very unlikely (1 to 10%)* requirement in the current New Zealand Coastal Policy Statement (NZCPS) for new development and subdivision. The CSL 50 year line, the surrogate for the *likely* scenario (which the NZCPS requires for existing development), had a probability of 89%, making it somewhat conservative, i.e. it under-estimates erosion with the actual value further landward.

### **Comparison with Christchurch**

The Pegasus Bay Coast to the east of the Waimakariri Rivermouth was subject to a coastal hazard assessment in 2015 by Tonkin and Taylor for the Christchurch City Council (CCC). Once again substantial negative resident reaction followed release of the assessment, fueled by the appearance in Christchurch of the Kapiti CRU who ensured an independent expert panel reviewing the assessment, and challenge of assessment material appearing in LIM reports. And again the Panel recommended the assessment be used as a basis for implementation of coastal hazards into the District Plan subject to addressing several matters. However, the CCC response was dramatically different to the KCDC's. The CCC instructed their consultant to address the issues raised in the Panel's review. And quite correctly, the consultant rejected some of the issues which were non-substantive. Furthermore, the assessment information was included directly into LIM reports, with a caveat noting limitations until the final assessment was completed. The Christchurch case is now about to move into the implementation phase.

### **Advice to prospective Kapiti property owners**

It will be years before the KCDC formulate erosion hazard zoning and given that the KCDC admit the inadequacy of erosion zoning in the current (Operative) District Plan, CSL urges prospective home buyers on the Kapiti Coast, as well as insurers, real estate professionals and property developers to be fully aware and mindful of the existing CSL erosion prediction lines ([click here](#))

**Advice for the KCDC**

Since 2012 the KCDC's erosion hazard process became extremely political and heavily influenced by the coastal residents. In 2014, council rejected the Expert Panel's recommendation to modify and apply the CSL assessment and opted instead for a revised assessment to be implemented by 2018. However, it appears there has been minimal progress in this regard. The council accepts that the existing hazard zoning in the Operative District Plan is inadequate, so the present situation is untenable.

In keeping with developments in hazard science and assessment, and in keeping with the approaches of other councils (see examples in MFE 2017 Guidance), and in making best use of the earlier hazard work funded by council, CSL recommends the following:

- The CSL 2012 erosion prediction lines be used to define areas with high hazard risk potential (NZCPS 2010 requirement);
- Detailed hazard assessments are then carried out for these areas using probabilistic analysis applied to continuous alongshore data combined with official climate change directives (MFE 2017 requirements),
- Hazard zone implementation would utilize these results and follow the new MFE 2017 guidance regarding community and cultural input together with adaptive strategies to derive final hazard maps and rules.

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