

BEFORE THE ENVIRONMENTAL PROTECTION AUTHORITY

IN THE MATTER of the Exclusive Economic Zone and
Continental Shelf (Environmental Effects)
Act 2012

AND

IN THE MATTER of an Application for Marine Dumping
Consent by Coastal Resources Limited

SUMMARY STATEMENT OF KIERAN MURRAY

Dated 4 December 2018

INTRODUCTION

1. My name is Kieran O'Neill Murray. I am a Managing Director of Sapere Research Group, an independent expert services firm.
2. I have prepared a report and an addendum for the Decision Making Committee. My report was entitled *Review of economic analysis submitted in support of Coastal Resources Limited marine dumping consent application*, dated 1 November 2018. My addendum to that report was dated 15 November 2018.
3. I participated in the economic expert conference with Mr Greg Akehurst of Market Economics, last Friday, 30 November 2018.

EXPERTISE AND CODE OF CONDUCT

4. I am a professional economist. My qualifications are set out in paragraphs 4 to 9 of my 1 November report.
5. I confirm I have read the Environment Court's Code of Conduct as set out in its Practice Note 2014 and I agree to comply with it. I confirm that the issues addressed in my reports and this summary statement are within my area of expertise.

SCOPE AND APPROACH BY MARKET ECONOMICS

6. I consider the Market Economics report prepared by Mr Greg Akehurst directly responds to the questions raised in my 1 November report and its addendum. I also consider the overall approach applied by Mr Akehurst sound and fit for purpose – my comment applies both to the approach to estimating the cost of alternatives and the approach used to model future demand for dredging.
7. However, I disagree with several key assumptions adopted by Mr Akehurst; the assumptions I consider more plausible would materially reduce the forecast demand for disposal of dredged material at the Northern Disposal Area.
8. To assist Mr Akehurst to respond efficiently, I advised him ahead of the economic conference that I agreed with the scope and approach to his report but that I had concerns about key assumptions. I provided him with a written explanation of these concerns just ahead of the conference, and we discussed my concerns during our caucus on Friday morning.
9. Unfortunately, he did not provide me with his revised modelling or written explanation until 3pm yesterday afternoon, leaving me insufficient time to review his changes prior to our 4pm deadline for filing a joint statement. The statements attributed to me in the draft joint statement submitted yesterday are the matters I raised last Friday.
10. I have reviewed Mr Akehurst's response overnight and will outline where I consider we have an agreed view, as well as those matters on which we differ

and which are material to the conclusions to be taken from Mr Akehurst's report.

ALTERNATIVE MEANS OF DISPOSAL

11. I understand that Mr Akehurst and I agree that where reclamation is available, it is a lower economic cost option than disposal at the Northern Disposal Area; this is because reclamation avoids the cost of acquiring and trucking in fill from an alternative source. We also agree that future opportunities for significant reclamation within Auckland seem unlikely. There is some scope for reclamation in regions beyond Auckland; for example, reclamation is proposed for the expanded Whangarei marina.
12. Disposal to clean fill is an available option, and would cost less than disposal to landfill - the only options initially modelled by Property Economics and Market Economics. For example, Urbanquarry, located 30 km from Pine Harbour marina advised me that it would take, uncontaminated, wet dredged material and quoted \$35 a tonne (about \$63 m³) and could take in excess of 20,000 tonnes a year. Trucking costs would, however, make disposing to land significantly more costly than barging to the Northern Disposal Area. As a general rule of thumb, disposing to land would cost around 2 to 3 times the existing cost of dumping at the Northern Disposal Area, unless the land option was close to the dredge site.¹

CURRENT DREDGING DEMAND

13. Mr Akehurst and I agree that current demand for disposing maintenance dredging at the marinas serviced by CRL averages 17,498m³ per annum (refer table 9, M.E report for breakdown). We also agree that the Ports of Auckland has, on average, dredged 38,000m³ per annum. Hence, if the Ports of Auckland were to shift its disposal to the Northern Disposal Area, and existing marinas were to maintain current practice, a total of about 55,500m³ of dredge material would need to be disposed of each year.
14. Mr Akehurst and I also agree that the dredging proposed for the America's cup venues would produce a further 70,000m³ of dredged material (in total), excluding potentially contaminated material that would be disposed of separately.

FUTURE DREDGING FROM EXISTING MARINAS

15. Mr Akehurst assumes that dredging at existing marinas will be significantly higher

¹ Mahurangi River Trust reported low end cost of \$40m³ for extraction transport, dewatering and placement – see K Murray, 1 November 2018

in the future than in the past. I comment on his reasoning under two headings:

- a) capital dredging
- b) maintenance dredging.

Capital dredging

16. Mr Akehurst calculates the quantity of dredging material that would be produced from each existing marina if the entire areas zoned under the Auckland Unitary Plan for each marina - but not currently used for marina facilities - were dredged to create new berths, assuming that these new areas would require dredging by 2.5m.
17. The volumes produced from this calculation substantially exceed the projections for capital dredging at existing marinas set out in the evidence of CRL – see table on p 7 of draft joint statement. Mr Akehurst refers to the CRL projections for capital dredging, as “consented volumes”. I was not able to verify whether the values are in fact consented; Mr Thompson and Mr Shearer provide evidence on consented values for the marinas modelled by Mr Akehurst but the values stated in their evidence do not match the CRL projections for capital dredging.
18. Mr Akehurst reasons that the difference between his calculation and CRL’s projections is because the new dredging would be less than 2.5 metres on average as new berths would be created in deeper waters than existing marinas. I consider that a more plausible explanation of the differences is that there is no expectation that the entire remaining areas zoned for marinas in the Auckland Unitary Plan will be dredged - it is unlikely that the next least cost option for new marina berths in Auckland is dredging *all* of the remaining zoned areas.
19. Unfortunately, Mr Akehurst does not calibrate his model so that it produced a result which is reflective of a planned capital dredging programme. Hence, Mr Akehurst’s capital dredge calculation is simply an estimate of the maximum amount that might conceivably be dredged from all existing marinas. Mr Akehurst shows that CRL’s prediction for capital dredging is less than the maximum conceivable, but provides no insight into whether the CRL prediction is reasonable or likely to occur.
20. For clarity, Mr Akehurst then adopts CRL’s estimates of capital dredging.

Maintenance dredging

21. In estimating maintenance dredging from existing marinas, Mr Akehurst assumes:
 - a) all zoned areas have been dredged to their maximum extent and therefore an expanded area must be maintained – this assumption follows his approach to quantifying capital dredging
 - b) all existing marinas (except Half Moon Bay/Bucklands beach) would dredge deeper in the future than they have in the past.

22. The result is an estimate of the quantity of dredging that would be produced if maintenance dredging were maximized at all existing marinas.
23. To illustrate the impact of Mr Akehurst's assumptions, the 5 marinas that currently produce around 17,500m³ of maintenance dredging would, under Mr Akehurst's calculations, produce over 57,000 m³ of maintenance dredging per annum (refer table 10 of M.E report).

No one pays for the additional dredging

24. Mr Akehurst's report effectively assumed that the additional capital and maintenance dredging occurs at no cost – no marina user would receive a higher bill and as a result considers whether they still wished to utilize the berth.
25. Following our caucus, Mr Akehurst has added a partial response to some of the increased costs. In this revision:
 - a) Mr Akehurst factors in only the cost of dredging an existing marina to a deeper depth, but not the cost expanding the area or maintaining the expanded area. This calculation is most easily seen in the estimate for Half Moon Bay/Buckland's Beach, as this marina is assumed not to dredge deeper and therefore there is no change in cost to users of that marina. No one is asked to pay for dredging the expanded area nor for maintaining that area – as the percentage increase in the number of berths is small relative to the quantities dredged, charges must be increased somewhere.
 - b) Mr Akehurst limits his modelled response to the cost changes to his estimate of household demand for boats; no marina trims the amount it dredges because of the reaction of its users to higher charges. However, the evidence of Mr Shearer is that marinas are currently being dredged less than consented levels because of an unwillingness for users to pay higher costs (Mr Shearer, para 13).

FUTURE DREDGING FROM NEW MARINAS

26. Mr Akehurst includes dredging for three unidentified marinas. These marinas are termed "Coromandel, Tonkin and Taylor and Confidential – Auckland". The values provided in the report are those as provided to Mr Akehurst from CRL and do not result from Mr Akehurst's estimates.
27. Mr Akehurst does assess the total number of berths that would result if those unidentified marinas require the same average berth space as existing Auckland marinas and are dredged to a depth of 2.5m. He adds that estimate of additional berths, to his estimate of berths that could be created if the existing marinas were dredged to their maximum area. He concludes that the total additional marinas

aligned with his forecast of expected demand growth for marina berths.

28. Mr Akehurst adds to the dredged values a further 200,000m³, which is simply labelled contingency and not supported by analysis or reasoning.

TIME PROFILE IS UNCLEAR

29. The period of time over which Mr Akehurst anticipates dumping at the Northern Disposal Area to ramp up from the existing 17,500 m³ to 250,000 m³ is not explained in his report.

DEMAND FOR NEW MARINA BERTHS

30. Mr Akehurst forecasts demand by estimating the existing number of berths, and inflating that number out 10 years by assuming demand for new marina berths grows at a quicker rate than expected population growth in Auckland.
31. The approach is reasonable, but in the results provided yesterday he introduces a mistake and persists with a growth assumption that is high relative to other studies and what is known about demand for boats suitable for a marina berth.
32. The introduced mistake is that he adds to the base number - the estimate of existing berths - the berths that have not yet been built at sites such as Putiki Bay (Waiheke). So in Mr Akehurst's model, these forecast additions are themselves inflated and result in increased forecast demand, rather than being additional supply.
33. His estimate of existing marinas (and hence the value projected to increase) is also overstated by assuming 100% capacity utilization at all existing marinas and a 'latent demand', a wait list, of 360 boats that cannot find a berth in any existing marina. I conducted a telephone poll of existing marinas, and there are available berths outside of the city marinas – Westhaven and Orakei can reasonably be assumed to be full.
34. Mr Akehurst then assumes that demand grows for marina berths at a faster rate than the projected growth in Auckland's population. This growth rate is much higher than the rates assumed in the reports cited in Mr Akehurst's report (see cites at footnote 13).
- a) The BECA (2012) forecast the number of **all** boats to increase faster than population growth because of a rapid increase in jetskis and windsurfer boards – boats that don't require marina berths. It projected growth for yachts and launches, the relevant category in the BECA report, would grow at a slower rate than population (because immigrants tend to own proportionally fewer boats), and result in a growth rate a quarter of that assumed by Mr Akehurst

- b) NZ Marine Industry Association (2016) projected a growth rate of about 100 yachts and launches a year, less than half the growth rate assumed by Mr Akehurst
- c) the Comer (2018), Panuku Development Auckland, aligns with the NZ Marine Industry Association and BECA projections.

35. In his response yesterday, Mr Akehurst referred to an industry magazine article.² The source for that article is a NZ Herald article which quotes a marine broker saying the purchase price for marina berths has risen significantly – as of course have the prices of almost all long term assets since interest rates have fallen. In my view, that magazine article should be treated with caution.

CONCLUSION

36. In my view, Mr Akehurst's estimates are best viewed as the maximum dredged material that could be disposed of at the Northern Disposal Area if:
- a) all zoned areas for existing marinas are dredged to their maximum extent and the marinas are maintained at a greater depth than they have in the past
 - b) three unidentified marina developments produce the volume stated by CRL
 - c) existing marinas that currently dispose to land move to disposing at the Northern Disposal Areas (this is a small component of Mr Akehurst's estimates)
 - d) all future dredging by the Ports of Auckland are disposed of at the Northern Disposal Area as is all dredging for the America's cup
 - e) a further 200,000 m³ from sources that neither CRL nor Mr Akehurst can identify or project, are disposed of at the site.
37. I would have liked Mr Akehurst to provide some sensitivity as to the volumes that would result from a less aggressive scenario. For example, his model could in effect be run in reverse, to calculate the quantity of dredging that would be required if forecast marina demand were to follow, say, the BECA projection and after allowing for some of that demand to be met from existing capacity and already committed capacity.

DATE: 4 DECEMBER 2018

² *Auckland faces serious marina berth shortage*", International Boating Industry, November 13th 2018, David Robinson

Kieran Murray