

BEFORE THE BOARD OF INQUIRY

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of an Inquiry Concerning the Proposed National Policy Statement for Freshwater Management

**STATEMENT OF EVIDENCE BY DAVID JAMES BRIDGES
ON BEHALF OF MANAWATU, TARARUA AND HOROWHENUA DISTRICT COUNCILS'**

INTRODUCTION

1. My full name is David James Bridges. I am the Principal Engineer of Good Earth Matters Consulting Limited, an environmental engineering, asset management, planning and resource management consultancy practice based in Palmerston North and Christchurch.
2. My professional qualifications are Bachelor of Engineering (Civil), New Zealand Certificate of Town Planning and a Post Graduate Diploma of Business Administration. I am a Chartered Professional Engineer (CPEng) and a Fellow of the Institute of Professional Engineers of New Zealand (FIPENZ). I am also a certified independent Hearings Commissioner.
3. I have been engaged in environmental engineering and resource management practice for 31 years, with particular emphasis on wastewater, water, stormwater and solid waste management. This practice has included investigation and auditing of environmental compliance, advising on options for achieving environmental compliance, preparing assessments of environmental effects to support resource consent applications and undertaking detailed design, construction, commissioning and compliance auditing of infrastructure capital projects.
4. My directly relevant experience includes 20 years experience consenting takes and discharges, designing and managing upgrades, managing compliance and auditing performance of infrastructure upgrades for the public and private sector in the Manawatu-Wanganui region and throughout the lower North Island and South Island. Currently, I am currently directly responsible for some 10 - 12 takes or discharges at various stages of the investigation, consenting or implementation phase, comprising both private and public sector works.
5. I confirm that I have read and am familiar with the Code of Conduct for Expert Witnesses in the Environment Court Consolidated Practice Note (2006). I have approached the preparation of this evidence in the same way that I would for the Environment Court. I agree to comply with the Code of Conduct.

SCOPE OF EVIDENCE

6. My evidence will cover aspects of the submission made on behalf of the Manawatu, Tararua and Horowhenua District Councils' as follows:
 - Integration of Objectives
 - Importance of a whole of catchment approach whilst avoiding a one size fits approach
 - Providing for reasonable and foreseeable use
 - Managing demand and land use development
 - Efficient consumptive use
 - Environmental baseline and ecological flows
 - Swimmability and recreational values
 - Timeline.
7. I wish to affirm my support for the Proposed National Policy Statement for Freshwater Management and emphasise that my evidence is presented as that of an experienced practitioner to assist the Board.

INTEGRATION OF OBJECTIVES

8. In my opinion an integrated approach is required in respect of objectives 1, 2 and 6 (in particular) if the overall purpose of the NPS is to be realised.
9. As creatures of statute territorial local authorities have obligations and responsibilities set out in a number of statutes. In respect of water these include the Resource Management Act 1991, the Health Act 1956 and the Local Government Act 2002.
10. It is my experience that the Ministry of Health is focussed on public health; territorial authorities must be alert to issues of affordability (rates) and Regional Councils on ecological issues.
11. In my view regional planning documents which do not sufficiently provide for existing community infrastructure as part of the existing natural and physical resource, place an undue financial burden on communities.
12. By way of illustration, at times of low flow the continuation of surface water takes for community water supplies may be in conflict with consent conditions unless those conditions have due regard to the need for ongoing supply while on occasion, optimal flow for ecological purposes cannot be maintained. In my experience this can be particularly acute in older rural communities throughout the Manawatu-Wanganui region with which I am particularly familiar.
13. The policy framework should allow for:
 - a. Providing for community well being, in particular infrastructure, as an issue of regional significance and needs to be addressed on a catchment wide as opposed to a site specific basis.
 - b. Resources need to be managed through planning as opposed to management through consents.
 - c. There is a relationship between social, health related, economic and ecological goals which need to be better addressed when developing policies and plans.

- d. Balance needs to be achieved when considering the four well beings (for example s10(b) LGA'02) which take account of the need to provide for sustainable communities.
 - e. There needs to be a clear distinction between what is intended as goals (things to be strived for over time) and policies to necessarily be applied during the currency of a particular plan.
 - f. Appropriate timeframes are required to transition to new outcomes that have been established as a consequence of adopting specific policies.
 - g. That such timeframes need to extend beyond a plans life in respect of community infrastructure given the asset lives that are typically associated with such infrastructure.
14. The point I am endeavouring to make is that it is very difficult to reconcile competing statutory obligations when the policy framework within operative regional planning documents fails to do so. In my opinion this Proposed National Policy Statement will create a basis for that to occur.
 15. It is my experience that the issue of short duration consents in respect of community infrastructure militates against long term sustainable investments in improved environmental outcomes.
 16. For example in respect of the Kimbolton STP (population served 190) the Manawatu District Council has received a 10 year consent but has had to, on the grounds of community affordability, agree to funding the project over a 20 year timeframe. The community is concerned that they will have to fund a further upgrade before the current one is paid off. The ten year time frame was struck to allow for reconsideration of the position in 2018 (being an expiry date which the Regional Council is pursuing throughout the catchment) to ensure that land based disposal options remain open to consideration on a regular basis. However in this case, the discharge to water has a less than minor effect on the Oroua River being the principal water body in issue if due regard is had to say a recreational standard. The position being articulated is more one of principal in this respect than effects based, and the planning framework needs to be refined to ensure that this occurs. In my experience this is not an uncommon problem in this region i.e. the Kimbolton discharge serves as a useful example only. In my view the draft NPS endeavours to correct this problem by acknowledging the need for interrelated and integrated objectives and policies regarding the management of freshwater resources.
 17. I observe that conversely the consents issued by the Hawke's Bay Regional Council in respect of Otane, Waipukurau and Waipawa is a long term consent through to **30 September 2030** which has key milestones which must be satisfied. This seems to me to be a very practical and pragmatic way to provide certainty for all parties over a significant timeframe whilst ensuring that progress can be made in an affordable manner.
 18. A further example of the importance of acknowledging existing community infrastructure as part of the existing physical and natural resource is best illustrated through the use of the Woodville water supply managed and operated by the Tararua District Council.
 19. The water supply comprises a gravity take from the Mangapapa Stream at a maximum extraction rate of **72** m³/hr when the flow is greater than or equal to 0.17 m³/sec and 54 m³/hr when the flow is less than 0.17 m³/sec. Water is fed directly to the treatment plant or a detention dam. The concrete weir and intake structure was constructed in 1901 and subsequently modified/strengthened in 1938, 1967 and 1987. My personal knowledge of the system dates from 1986.

20. Obtaining sufficient water to meet community needs and water harvesting requirements whilst maintaining ecological flows is becoming increasingly difficult. The point that I wish to make is that we are dealing with a highly modified catchment.
21. To deal with the need to maintain ecological flows, meet consent requirements and the obligations the Council has under the Local Government Act, the simplest solution is to consent a take from the Manawatu River. This would require a pumped rising main from the river to the treatment plant, a distance of 4 - 5 km. Capital cost would be of the order of \$1 - 1.25 million along with associated ongoing pumping and operational costs.
22. The outcome would be a significant additional community cost, compliance but without any net environmental benefit if the effects are considered on a catchment wide basis.
23. In my view this process needs to ensure that a policy framework that allows the conflicting statutory requirements and overarching purpose as articulated in the Proposed NPS emerges to ensure that these issues of concern can be consistently addressed and to provide a greater level of certainty to TLAs in their planning processes.

IMPORTANCE OF A WHOLE OF CATCHMENT APPROACH AND AVOIDANCE OF A ONE SIZE FITS ALL APPROACH

24. The Manawatu-Wanganui Regional Council (for example) is interpreting a whole of catchment approach to mean that numerical standards will be applied uniformly to all freshwater bodies within a particular zone or reach irrespective of the value, or otherwise, of a specific body.
25. Not all water bodies are of equal significance or importance, either in terms of takes or discharges. It is the cumulative effect on the catchment as a whole that is significant. In my opinion it is unreasonable to require all freshwater resources to meet the same quality standards, environmental flows and level irrespective of effect on the environment as a whole.
26. By way of example I again refer to the Kimbolton STP discharge consent.
27. The STP services a population estimated at 190 people. The Kimbolton STP discharges into an unnamed tributary of the Oroua River approximately 800 m upstream of the confluence with that River. The catchment of the unnamed tributary is approximately 620 ha. In the upper reaches of the catchment it is mainly open, flat, terraced farmland. This contrasts with the lower reaches of the catchment which is a steep gully. The steep banks of the tributary are highly erodible as evidenced by a number of small slips and scars. Farming is carried out throughout the catchment. The unnamed tributary is not considered a major tributary of the Oroua River (MWRC, 1997), however it is located above the Feilding water supply intake and must therefore comply with MCWP Rule 5 for drinking water sources.
28. The receiving waters are defined as this unnamed tributary of the Oroua River. Due to the very low flows the effects can be considered no more than minor, if not de minimus.
29. The simplest solution to achieve arbitrary compliance with the relevant plans is to pipe the discharge 800 metres and discharge directly into the Oroua River at a cost of \$200 - \$250,000 for no net environmental benefit in the catchment as a whole.
30. In considering the effects of the discharge I consider that there are two questions to be asked, first is the receiving environment of any value or significance and secondly is the discharge

having a more than minor effect on the catchment as a whole. However this is not the approach being adopted at present.

31. In this context I am also aware of the fact that in the lower Manawatu catchment there are several relatively insignificant discharges which only have a minor effect on the receiving environment but, the processes surrounding the consents required, have been complex, lengthy and costly. This is because the Regional Council has sought to require discharges to land although the outcome will have no material bearing on the water quality of the river as a whole. I have been involved in two recent applications to this effect; New Zealand Pharmaceuticals and New Zealand Defence Force and I am aware of two applications made by the Horowhenua District Council of late (Shannon and Foxton STPs) where this has been a major issue.
32. I am asking that the NPS include guidance as to the processes to be used by Regional Councils for identifying water ways and water bodies of significance, for determining a hierarchy of water body values within any catchment system and to adopt a suite of policies which will ensure that investment by way of upgrade will achieve a commensurate improvement in water quality having regard to other point source and non -point source discharges. This is a major issue within the Manawatu catchment in particular.

PROVIDING FOR REASONABLE AND FORESEEABLE USE

33. Providing for foreseeable use raises a number of issues including:
 - What constitutes "reasonable" use?
 - What should be reserved or banked for future growth?
 - Should priorities in terms of allocation be set?
 - How should any such priorities be determined?
34. In New Zealand there is a desire to attach a "number" to what constitutes reasonable use. I submit that this is too simplistic and that a much more sophisticated approach is required. Factors contributing to community requirements include:
 - Basic human needs
 - Discretionary human needs
 - Operation and maintenance of community facilities
 - Operation and maintenance of sports grounds and recreational facilities
 - Community landscaping and amenity provision
 - Open public spaces
 - Tourism and tourism based activities
 - Age of housing stock and infrastructure
 - Production of potable water and sewage plant operation
 - Climate and geographic location
 - Soil characteristics
 - Commercial, manufacturing and industrial use
 - Hospitality industry

- Provision for future growth and development.
35. Y Zhou and RSJ Tol in their paper Economic Analysis of Domestic, Industrial and Agricultural Water Demands in China (Water Science and Technology: Water Supply Vol 5 No 6 pp 85 - 93) investigated among other matters factors influencing domestic water use. They concluded that these factors included income, precipitation, temperature, available water resources, family size, water price, and geographic location.
 36. A key local government function is to provide for sustainable communities and their reasonable and foreseeable future needs.
 37. In my view, the adoption of the Ministry of Health derived figures of 250 or 300 L/person/day as being required to meet domestic needs is unhelpful because it focuses largely on basic human needs.
 38. In my view, it would be extremely helpful for the NPS to provide guidance as to the processes that could be used to identify reasonable use and foreseeable needs. One size will not fit all. Further, in my experience, smaller rural councils (as opposed to metropolitan authorities) will face particular difficulty if this does not occur. Their infrastructure and population neither warrants nor can afford the arbitrary application of 'numerical' thresholds for allocation and such an approach will jeopardise their future economic sustainability.
 39. In my opinion, providing for a community's reasonable and foreseeable needs is of fundamental importance. To do so requires all of the factors listed in paragraph 33 to be provided for and this requires a judgement to be made concerning the allocation of water. The policy framework needs to reflect this. Guidance within the NPS is requested to reflect this approach having regard to the factors listed above.

MANAGING DEMAND AND LAND USE DEVELOPMENT

40. Inappropriate management of demand and land use development leads to degradation of the resource as a consequence of less resource being available and/or contamination of the resource.
41. Territorial Local Authorities only have a limited number of tools to manage or influence demand including auditing of large users, charging pressure management and water restrictions. Experience in 2008 in Dannevirke and Eketahuna indicates that restrictions and education programmes have a very limited effective timeframe before use reverts to or exceeds normal levels.
42. Discharges from community infrastructure which may not have resulted in significant effects in the past due to the effects of dilution, are now having a significant effect due to more water being allocated, particularly for irrigation.
43. Unfortunately identifying a "reasonable" per capita consumption figure for community water supplies and consenting takes to match this number achieves little, because the Councils have such limited tools available for reducing demand to that level if they currently exceed it.
44. The argument for a "number" is that "surplus" resource can be allocated for more efficient use by others. However if allocation to others means that the community has to invest heavily in water harvesting or the development of alternative sources of supply then a full and

comprehensive analysis is required to establish whether in fact the reallocation is effective, achievable and sustainable from a community perspective, and over what time frame.

45. In the case of Dannevirke water take from the Tamaki River, the average demand is below the currently consent daily volume but greater than the proposed core allocation and the reasonable use as per the Horizons Regional Council Proposed One Plan is 12% below the current average demand.
46. If the Council wishes to make up the shortfall it needs to find an additional source of supply or undertake water harvesting. The cost of doing so is likely to be of the order of 2 - 4 million. This is a direct consequence of how reasonable use and/or provision for foreseeable needs may be interpreted.
47. It appears to me that a more relevant approach to managing demand and land use development would be to recognise infrastructure capacity (not actual usage) as the current position in respect of the use of natural and physical resources and use this as the baseline for the allocation of natural and physical resources for community use.
48. Feilding Township serves to illustrate the above. In the last 3 or so years it has lost 2 or 3 wet industries and that capacity has not been taken up by others. If a "use it or lose it" approach is adopted, the Council has no ability to cater for new wet industries or indeed any growth and development.
49. I am asking that the NPS recognises existing infrastructure, including unused capacity as a priority allocation, which Regional Councils are required to provide for through the RPS and Regional Plan Objectives and Policies. I acknowledge that this will require the introduction of 'transferable permits' which I discuss in further detail in the next section of this evidence.

EFFICIENT CONSUMPTIVE USE AND TRANSFERABLE PERMITS

50. There is a significant lack of clarity around what may or may not constitute efficient consumptive use. The emphasis appears to be on what I refer to as technical efficiency and ignores an integrated approach to consideration of effects and outcomes. For example, if freshwater is allocated for irrigation and to intensify land use, a degradation of the freshwater resource may be a consequence of this decision. This may not represent an efficient consumptive use of the resource.
51. Further, if a consequence of allocation is to require the community to invest significantly in additional infrastructure to meet existing consumptive needs this may not represent an efficient use of resources. This can be the result of the numerical approach applied and discussed above.
52. The team that I led who were responsible for developing an economic growth strategy for the Tararua District Council identified that the greatest economic benefits for a region arose from attracting manufacturing and processing industries, and conversely intensification of land use or changes in land use were least effective in generating economic benefit.
53. As discussed in paragraph 47 above, Feilding has lost 2 wet industries (Feltex and McCains) in recent years. The Council needs to retain the ability to attract and provide for replacement processors, but also agrees that excess water should be made available for short term beneficial use.

54. As set out in paragraph 48, I am asking that the NPS provide for existing infrastructure to be treated as a priority allocation and support the NPS establishing a process for consent holders to transfer excess capacity on a short term basis.
55. I am also asking that the NPS set out a framework for evaluating efficient use which takes account of the economic, ecological and community benefits and costs for determining what constitutes efficient consumptive use. Such a methodology needs to take account of individual community situations as opposed to a one size fits all.
56. Consider Mangaweka Township for example. The population is of the order of 60 residents and the existing infrastructure is aged and in poor condition. Average water consumption on a per capita basis is 750 L/person/day which by all standards is considered high.
57. To renew the infrastructure and drive efficiency of use hard would incur significant cost to the community but in terms of integrated management of the resource it would make absolutely no difference.

ENVIRONMENTAL BASELINE AND ENVIRONMENTAL FLOWS

58. I understand and acknowledge the science underpinning the environmental baseline and ecological flows and do not dispute this.
59. As a practitioner it would be helpful if I knew where the goal posts are. This applies particularly to water bodies that represent an historically (on occasions significantly) modified environment as a consequence of takes or discharges.
60. It would be helpful if the NPS provided guidance as what is meant by "progressive enhancement" and "protection from inappropriate" for example. In a recent case handled by my office regarding a variation of a consent to take water to meet the needs of the Eketahuna community a debate occurred regarding the rapid imposition of numerical standards; inability to comply with those standards and the lack of an affordable alternative within the timeframe concerned. That water supply had been relied upon by that community for in the order of about 80 years.
61. It would be equally helpful for the NPS to provide guidance as to whether existing heavily modified environments, excluding any freshwater resources of notable or exceptional value, and to what extent need to be restored or maintained and whether in fact environmental flows need to be restored.
62. For example consider the Tutaenui Stream which receives stormwater discharges and effluent discharges from Marton Township. Piping the STP discharge to the Rangitikei River would eliminate the effects of the discharge on the Tutaenui Stream, have no overall environmental benefit and have an overall effect of reducing residual flow in the Tutaenui during low flow periods.
63. In my view that guidance is realised by the 2035 date to meet the aspirations of all New Zealanders and which is identified in the Proposed National Policy Statement on the basis that it 'has been chosen as an ambitious yet achievable target, setting a balance between the need to make changes in a timely manner and the cost incurred by making those changes'. The changes also need to be applied in a manner which discriminates between takes/ discharges in any given environment (i.e. effects related), as opposed to the application of arbitrary and inflexible standards on a catchment (region) wide basis.

SWIMMABILITY AND RECREATIONAL VALUES

64. I support the NPS in respect of the objectives and policies regarding swimmability but suggest that the term 'swimmability' be replaced with the more widely understood term "contact recreation".
65. I am also of the view that the policy framework needs to identify when a water body needs to meet contact recreation standards. Not all water bodies are able to be used for contact recreation by virtue of their accessibility, size or natural characteristics and some, given their historical use and the dependence of communities on them, may be better excluded provided that there is no undue adverse effect on the environment (catchment) as a whole.

TIMELINE

66. I support the aspirational goal of 2035 as set out in the preamble to the NPS.
67. It is my experience that consistent and steady progress towards achieving the aspirations of New Zealanders in respect of fresh water is being impeded by:
68. A lack of understanding on the part of regulators as to the timeframes, process and community costs associated with the upgrading of community infrastructure.
69. A lack of willingness to issue long term consents in respect of community infrastructure. In this regard the consents issued by the Hawke's Bay Regional Council in respect of Otane, Waipukurau and Waipawa which were consented for a period of 25 years subject to key milestones being achieved.
70. Achieving integration between the investigation, consenting design construction, commissioning and funding timeframes with the political, LTCCP and consenting timeframes. At a practical level it is very difficult for an upgrade to be able to deliver measurable benefits within one SOE LTCCP or Regional Plan life cycle.
71. The upgrade of Dannevirke's STP completed in 2004 illustrates the above point well. The plant provides tertiary level treatment in the form of membrane filtration and was a "first" for New Zealand. The option was conceived in 1998, went through an issues and options process before the Council committed to proceeding with a consent application and to be viable was dependent on receiving a consent of 25 or more years. Overall the project took some 6 from conception to normal operation.
72. I believe that it would be very useful if the objectives and policies of the NPS were linked to the aspirational goal of 2035 and that guidance was provided or process incorporated into the NPS which recognised the value and importance of consenting community infrastructure on a long term basis to encourage better quality investment, environmental and community decision making and sent a clear signal that projects may/will extend beyond one plan cycle.

CONCLUSION

73. This evidence is intended to reflect the overall support which this submitter has for the Proposed NPS.
74. It has also been prepared having careful regard to the submission filed.