BEFORE THE HEARING COMMISSIONERS
AT HAMILTON

IN THE MATTER	of the Resource Management Act 1991 ("**the Act**")
AND	
IN THE MATTER	of the hearing of submissions on The Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments

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STATEMENT OF EVIDENCE BY CHRISTOPHER MARTIN KEENAN FOR HORTICULTURE NEW ZEALAND

15 FEBRUARY 2019

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SUMMARY STATEMENT

1. This planning evidence addresses the Horticulture New Zealand ("**HortNZ**") submission, further submissions and the Waikato Regional Council's ("**WRC**") Section 42A Report responses to the submissions on the Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments.

2. HortNZ is supportive of the general direction of the Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments ("**PC1**") with the submission and response from Council in the Section 42A Report, further assisting in developing a robust plan.

3. The submission and this planning evidence address how HortNZ considers that an alternative planning provision would better give effect to, be not inconsistent with, or have regard to (as the case may be) the various relevant planning documents and further support a robust regional plan.

4. As this evidence has been prepared prior to the forum that has been set up to discuss commercial vegetable production I acknowledge that officers may provide further feedback on the issues raised by HortNZ at this stage.

QUALIFICATIONS AND EXPERIENCE

5. I am currently the Director of Water Matters Ltd. I have been in this role for nearly three years. Over that time I have provided specialist resource management advice to a range of fruit and vegetable growing businesses across New Zealand on a wide range of freshwater management and production related matters. These organisations include commercial vegetable growing businesses, indoor fruit production and Maori owned and operated agribusiness.

6. I also work for a range of contractors providing advice to Government agencies on the horticulture sector, primary production and resource management in general.

7. Prior to then I was managing water and resource management matters on behalf of HortNZ from early 2007 until mid 2016 as the Manager of Natural Resources and Environment to Horticulture New Zealand.

8. Prior to that I was Senior Advisor at the Ministry for the Environment (2004-2007), working in the "Sustainable Water Programme of Action". My areas of work included iwi and primary sector engagement. I have held officer positions in enforcement and compliance at Greater Wellington Regional Council and

environmental research positions in freshwater and marine science at the then Auckland Regional Council; now the Auckland Council.

9. I have conjoint qualifications in resource management and science from Lincoln University (BRS/BSc). I have 19 years' experience in resource management practice. I was a member of the small group on the Government's Land and Water Forum, a foundation member of the Primary Sector Water Partnership and in the past have been involved in water related policy and planning processes across New Zealand in most Regional Council / Unitary Authority jurisdictions.

10. As a foundation member of the Land and Water Forum small group; I was also a member of four subcommittees (farm practice, quality allocation, quality over-allocation, and urban issues) which prepared recommendations for consideration by all stakeholders and partners to the Crown that were involved. In previous reports I was involved in producing water quality and quantity allocation policy and methods and limit setting advice to Government.

11. I was a member of the Water Measuring Device Implementation Taskforce and was closely involved with preparation and review of the regulation promulgated under section 360 of the RMA 1991 to mandate water meters on consented takes.

12. I was a foundation member of the reference group developing the National Objectives Framework, to underpin the water quality standards system developed for the National Policy Statement for Freshwater Management (NPS-FM). As a member of this group I provided advice to help the Government set standards relating to the attributes described for the national values set in the NPS-FM.

13. I am currently active on committees collaboratively establishing new freshwater policy in Waikato and the Bay of Plenty. In many of these committees I have been nominated not for my affiliation with the horticulture sector, but for my experience and the technical support I can provide. I have been involved in many regional collaborative processes designed to support limit setting under the NPS-FM including Hawkes Bay's TANK process; Bay of Plenty's Regional Freshwater Advisory Group, Gisborne's Freshwater Advisory Group, The Matrix of Good Management process in Canterbury; and Auckland's Rural Advisory Panel.

14. During my time as Resource Manager for HortNZ I was a member of the Collaborative Stakeholder Group (CSG) for the Waikato River.

15. In my role at HortNZ I was responsible for managing HortNZ's wider resource management programme. This included leading the sector's involvement in natural resource planning issues across the country, developing the supporting science and good management

practice programmes and commissioning catchment scale decision support tools (catchment models) for the Tukituki Catchment, the Rakaia - Selwyn water management zone, The Waipaoa catchment in Gisborne and models used in the TANK catchment and various Bay of Plenty catchments.

16. I was a member of the recently established Technical Advisory Group to Ministers and Iwi Leaders on the Government's plans to reform water quality and quantity allocation. I was appointed to this position in March 2016. The group was discontinued in 2018 following Government election processes.

17. As a result of this role, my qualifications, and previous experience, I have considerable factual knowledge and expertise in the areas of horticulture, natural resource management, and freshwater policy.

CODE OF CONDUCT

18. While this is not a hearing before the Environment Court, I can confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses produced by the Environment Court and have prepared my evidence in accordance with those rules. My qualifications as an expert are set out above.

19. I confirm that the issues addressed in this brief of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

20. This evidence provides a policy assessment of those provisions on which HortNZ submitted and addresses the Section 42A Report prepared by WRC.

21. The planning framework is well described in both the Section 32 Report and the Section 42A Report provided by the WRC. Unless explicitly stated I generally agree with the analysis.

22. I was involved in preparation of the HortNZ's submissions and further submissions on PC1 and Variation 1 to PC1. In preparing this evidence I have read many of the submissions to PC1. I have also read the evidence prepared by Gillian Holmes, Stuart Ford, Vance Hodgson and Lucy Deverall as well as the technical reports mentioned by Ms Holmes in her evidence prepared by Jacobs for HortNZ.

23. The Section 42A Report provides a format within which submissions have been analysed. There are some practical difficulties in

responding to the Section 42A report; given that the policies and methods have not been explicitly covered at this stage. In this respect much of this advice has to be provisional. This evidence covers:

(a) The nature of commercial vegetable production in the Waikato Region and more broadly across NZ; as well as horticultural production more generically including fruit production.

(b) The policy approach adopted by Horticulture New Zealand as it relates to the Section 42A analysis.

(c) Explicit comment on the parts of the Section 42A report relevant to the policy approach; including:

i. the expression of values,

ii. the attribute tables used for setting Freshwater Objectives;

iii. Collective and Enterprise based approaches to achieving the Objectives; and

iv. how a limited opportunity for new commercial vegetable production activities could be provided for.

BACKGROUND AND CONTEXT

24. As noted in more detail in Miss Deverall's evidence, the horticulture sector in the Waikato region is particularly diverse; with very different characteristics exhibited between fruit production systems and commercial vegetable production systems. Plan Change 1 (**PC1**) is relevant to all horticultural production; but has particular consequences for the commercial vegetable sector due to the regulatory regime proposed for commercial vegetable production.

25. PC1 as notified provides for existing commercial vegetable production as a permitted activity until 2020. Following that, existing commercial vegetable production becomes a controlled activity requiring a land use and discharge consent. New commercial vegetable production requiring a greater area is not provided for under PC1 without application for a non-complying activity resource consent.

26. HortNZ has provided detailed submissions and further submissions for both PC 1 and Variation 1 to PC 1. Two science reports support the submissions and further submissions.

27. HortNZ does not propose an alternative time frame for achieving objectives or an alternative water quality state to be achieved. However, HortNZ, and most growers, consulted do not consider that the notified PC1 adequately provides for commercial vegetable production.

28. While some minor changes are proposed to the planning structure provided for fruit production systems; I generally consider the planning approach to be an appropriate response. My reasons are based on my understanding that fruit productions systems generally exhibit discharge characteristics that are relatively minor.

29. HortNZ participated in the Collaborative Stakeholder Group (**CSG**). I was nominated by growers to represent the sector on my previous role as Manager of Natural Resources for Hort NZ. I was supported by a nominated grower; Garth Wilcox.

30. The developed proposals for commercial vegetable production notified in PC 1 involved consultation with the commercial vegetable production sector. Finding appropriate regulatory Objectives Policies and Methods proved difficult, and a closer analysis has identified obstacles within the proposed regulatory structure; given the reliance on a proportion of lease land to sustainably undertake commercial vegetable production.

31. The sector relies to a large extent on rotational processes. These processes mean production is not at fixed locations. Sharing and leasing agreements are critical. With each change in location a balance is being sought in the proportions of crops being provided to market.

32. Each lease change involves 3 parties:

    (a) The grower leasing land into an enterprise for commercial vegetable production from the lessee.

    (b) The landowner who no longer has a relationship with that commercial production enterprise.

    (c) The landowner developing and contracting a relationship with the commercial vegetable production enterprise.

33. My experience with regulatory water quality regimes for commercial vegetable production indicates there is significant complexity to overcome if rotational cropping is to be provided for. Most existing plans including the Horizons One Plan; Environment Canterbury's Land and Water Plan and Plan Change 6 for the Tukituki River all created land use and discharge controls as combined regulatory methods.

34. Since the adoption of these combined controls growers have reported significant problems with leasing new land and transferring existing authorisations. The problems relate mainly to the reliance on land use controls provided through section 9 of the RMA. Because these controls "run with the land" it is simply not possible to lease new land and transfer the permission to discharge under the land use consent, without the grower losing a proportion of the allocated discharge from the overall total available to the grower.

35. In addition, property-based discharge allocations have been developed that would preclude[1] development of commercial vegetable production in many locations where leasing could potentially be conducted. This is because the existing baseline contaminant discharges differ. For some contaminants the existing operation is likely to have a higher discharge (for example bacteriological contaminants) and for some the existing discharge may be lower (for example nitrogen).

36. The horticulture sector has done significant work on measuring and modelling discharges from commercial vegetable production and fruit production activities. HortNZ has invested in catchment modelling tools. It is also developed codes of practice focusing on nitrogen and phosphorus loss reduction, soil conservation and water use efficiency. These tools are starting to demonstrate what is possible to achieve.

37. There are a number of practical examples demonstrating that collective action or action at an enterprise scale is more effective than edge of field mitigations or individual farm plans based on each block or property utilised by the enterprise. Some of these examples include the Franklin Sustainability Project, the Twyford Water Users Group and the Lake Horowhenua Accord erosion and sediment control plans. HortNZ will elaborate on these in future hearings.

38. In these cases, effective freshwater management improvements have been achieved by communities working together to achieve outcomes they cannot manage as individuals. These approaches have all been developed within subcatchments or small catchments. All have required active support from the regulator

39. HortNZ has developed a regulatory option to support catchment collectives. I consider this approach to be a viable option to improve freshwater outcomes. I consider however that collaborative approaches require support in the regulatory context. In my view given the effectiveness of the demonstrated collective action merits

[1] Given that the emphasis at this stage of PC1 is on the overall approach, Values and Objectives it is more appropriate to provide detail on these matters in commentary on the policies and methods. The evidence being provided here is highlighting the general nature of the issue.

reference to collaborative approaches in the objectives of the plan. It should not preclude individual action if parties wish to undertake that option.

40. I have reviewed the Section 42A report prepared for PC 1. HortNZ's submissions are referred to in a number of places. I comment on each reference within the section 42A in report the next section of my evidence.

SECTION 3.11.1.2 OF PROPOSED PC1 RELATING TO VALUES FOR FRESHWATER

41. HortNZ submitted to amend section 3.11.1.2 in relation to use values, particularly the Primary production value[2]. While some commercial vegetable production occurs in other districts of the Waikato region, by far the majority is located in Pukekohe and Pukekawa due to the unique and discrete biophysical environment found in these locations.

42. The combination of frost-free land; relatively low disease pressure and free draining volcanic soils provide an environment suitable for production of winter vegetables (mostly for the domestic market). These include carrots, potatoes and leafy greens that cannot be reliably produced at the required quantities in October, November and part of December from any other location in New Zealand. The rotation also includes cropping at other times to ensure that a complete rotation can be achieved. Mr Ford comments further on this in his evidence.

43. The New Zealand Government has recognised that a significant issue exists in relation to these versatile lands becoming unavailable for production. As noted in Miss Deverall's evidence, the Government has signalled production of a new National Policy Statement regarding versatile land in response to a developing awareness of the finite nature of suitable land for winter vegetable production and domestic food supply. The horticulture sector is being consulted with in regard to protection of versatile land.

44. Significant loss of productive potential in Pukekohe and Pukekawa occurred prior to (mostly through Franklin DC PC14), and following the Auckland Unitary Plan processes. These processes increased urban expansion onto previously utilised vegetable cropping land within the Auckland Region. While "Elite" (LUC Class 1) land was provided protection within the plan, Prime land (LUC Classes 2 & 3) were not afforded the same level of protection. This has compressed and intensified the rotation on remaining land.

[2] Referred to generically in the s. 42A report para 230 page 40.

45. The submission of HortNZ to PC1 provides a description of horticulture in the Waikato catchment. That description details the significant changes that have occurred in the commercial vegetable production sector over the last 20 years. Small scale, typically family run businesses, have in many places been absorbed by larger businesses. Nationally, grower numbers are decreasing and the scale of enterprises has increased. In my experience, approximately 10 growers make up approximately 90% of production by volume and planted area. There are still however a larger number of much smaller scale operations that still exist.

46. Commercial vegetable production is also at risk from declining water security. Water security decreased dramatically following the completion of Variation 6 to the Waikato Regional Plan. Variation 6 prioritised future water allocation away from agricultural irrigation (including horticultural irrigation) to provide for future domestic and municipal supply; dairy shed wash down and milk cooling and energy generation. This was because commercial vegetable production land (and the ecosystem services provided by it) were not distinctly identified as being finite and scarce. It was considered to be of a similar value to other agricultural production at all locations.

47. The officers have not supported the submissions of HortNZ, noting that the primary production value already states that the rivers are regionally and nationally significant for horticultural purposes. The value does not currently state this. The value instead refers to the combined value of all agricultural production.

48. Not all of the Waikato River system and the land supported within the rivers catchments can be considered to be equal (in relation to commercial vegetable production, for the reasons outlined above in paragraph 38 and in the Industry Statement by Miss Lucy Deverall). There are very limited opportunities to find new commercial vegetable production land with the right characteristics. With improvements in climate analysis at the local level; small pockets of land can be identified within the Waikato catchment that may provide these opportunities.

49. Very little land that is of use for commercial vegetable production remains in Pukekohe and Pukekawa. Growers are actively seeking opportunities to grow in other areas but progress has been slow because rotational systems require considerable time to develop; and often the properties of the land and climate contain barriers to sustainable production over the long-term. Currently Northland has been trialled by numerous growers for the development of winter vegetable crops. However significant soil concerns exist; and the disease pressure on crops is significantly greater given the different climate.

50. Climate change modelling[3] suggests that some opportunities may open up further south in the Waikato; although it is not expected that this will occur to a great extent. In my view without some recognition of the value for domestic food supply of winter vegetables; the plan will not be able to provide for the resilience to alter production of winter vegetables as required by demand and climate change.

51. Not all commercial vegetable production systems are equal. Commercial vegetable production in the Waikato has been modelled within the section 32 report on a "worst case" basis, because all commercial vegetable production has been modelled based on Pukekohe production systems, soils and climate.

52. Winter vegetable production in Pukekohe produces some of the higher nitrogen leaching rates found in New Zealand commercial vegetable production systems; because of the timing for growth of winter vegetable crops. The timing is critical for domestic food supply. This is why during the CSG process the horticulture sector rejected the concept of reducing to the 75th percentile for nitrate leaching; and recognition that this would penalise production of staples at the critical times of year when they are required by communities.

53. It is notable however that while on a per hectare basis commercial vegetable production has a high nitrogen leaching rate; it occurs at such a low frequency that overall the estimated nitrogen discharge load of the commercial vegetable sector is 2.6% of the total estimated nitrogen load discharged from all land use activity[4]. While commercial vegetable production is this significant contributor on a per hectare basis to nitrogen leaching; it contributes very little to the bacterial load for the Waikato River[5].

54. This reflects the scarcity of commercial vegetable production land. The greatest percentage by area of commercial vegetable production land in any subcatchment of the Waikato is 21.4% (Whakapipi subcatchment, Pukekohe). The next highest is the Ohaeroa (Pukekawa) subcatchment at 6.1% of total land area and third is the Waikato @ Tuakau subcatchment (4.5% of land area)[6].

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[3] https://www.niwa.co.nz/our-science/climate/information-and-resources/clivar/scenarios#ourfutureclimate

[4] http://www.hortnz.co.nz/assets/Natural-Resources-Documents/Healthy-Rivers-Plan-Change-Technical-Report-for-HortNZ-sub.pdf. "*Values and Current Allocation of Responsibility for Contaminant Discharges*" Jacobs technical report IZ081700-RP-0001 (08 March 2017). Baker, T., Sands, M., Nation, T. and Sturgeon, C. page 5.

[5] Ibid; p10

[6] Ibid; Table 4.9 pp 48-49

55. While officers have noted they do not support changes to the primary production value descriptor along the lines of those proposed by HortNZ; they do propose that the submitters concerns should be addressed in the objectives policies and rules. I have not seen the policies and rules reports. However, in my view the submitters concerns have not been addressed within the Values, Objectives and related tables referred to in this report; and in my view it is appropriate to do so.

PROVIDING A LIMITED OPPORTUNITY FOR NEW COMMERCIAL VEGETABLE PRODUCTION ACTIVITIES

56. The officers report notes[7] that HortNZ opposed the conclusions of economic modelling; in particular modelling of the effects of achieving Scenario One. This is because some of the reports suggest a complete removal of the commercial vegetable sector will occur within the Waikato catchment. The officers do not dispute this statement; but note that commercial vegetable production has been provided for through provisions within the plan.

57. As noted above in paras 26-31, while provisions provide for commercial vegetable production; there are numerous critical issues relating to rotational production that have not been addressed by provisions within the plan including:

    (a) the legal nature of the control;

    (b) movement across sub- catchment boundaries within an enterprise; and

    (c) provision for an increase in land area currently used for commercial vegetable production.

58. Under the proposed provisions; only the existing footprint is provided for as a controlled activity. Any increase in land area; regardless of the intensity or scale would require a non-complying activity resource consent application.

59. Growers have noted that a consequence of scarcer land for leasing over the last decade has led to more intensive rotation on the remaining land. A potential solution to this is to provide a limited opportunity to increase the existing land footprint where it can be demonstrated that commercial vegetable production has a lesser effect on the desired state of freshwater than the existing activity mix.

60. HortNZ considers that a limited opportunity should be provided for new commercial vegetable production. The proposal of HortNZ is

[7] s42A paragraph 290, p 50

for a discretionary or a restricted discretionary activity that explicitly provides for new commercial vegetable production; where it can be demonstrated that the combined effect of modelled or measured contaminant discharge has a lesser effect on community values for freshwater than the pre-existing activity. I concur with that view. A multi contaminant approach is supported fully by the evidence of Gillian Holmes (paras 42-59 of her evidence) for HortNZ.

61. In practice there would be many instances where this could not be demonstrated. It is likely that the opportunity being sought by HortNZ would be limited to highly versatile land that is currently being utilised for an activity with a significant nitrogen discharge alongside other discharges of phosphorus, sediment and bacteria. Opportunities may emerge on some dairy production land or land currently used for intensive beef production. Climatic factors are likely to limit this further to sites in the lower Waikato River catchment.

62. Where it can be demonstrated within an application that the effects of a proposed land use for commercial vegetable production will improve freshwater outcomes a noncomplying activity status application should not be required in my view. A discretionary activity or restricted discretionary activity would be more appropriate.

SUBCATCHMENT LOAD LIMITS, AND PROVIDING FOR COLLECTIVE MANAGEMENT WITH THE SUPPORT OF A TAILORED DECISION SUPPORT TOOL

63. The Officers have noted[8] the proposal of HortNZ for sub-catchment load limits to be included in PC1. However, the analysis does not address the proposed inclusion of the new load limit table.

64. HortNZ has contracted development of the sub-catchment load limits table that is proposed using science produced by the Technical Leaders Group. HortNZ has not suggested a “lowering of the bar”; rather it has sought to directly translate the concentration targets into load limits. Load limits would support achievement of the Vision and Strategy by providing Council with a standard to assess whether a set of mitigations proposed by a subcatchment scale collective is likely to achieve the appropriate reductions.

65. An assessment of load as opposed to concentration is more useful to the Council because it is the total load of contaminants that affects water quality; not the concentration from any particular unit of land. For the majority of the Waikato River catchment, such accounting tools currently do not exist. PC1 envisages a future plan

[8] S. 42a paragraph 331-2 page 57

change that provides an allocation of contaminants to land or enterprises.

66. Accounting tools will be necessary to support such an allocation. The officers recognise this in para 310 and again in para 619, but are of the view that there is currently insufficient information to determine whether or not a load limit is appropriate and if so; what those load limits should be.

67. PC1 is a transitional plan that is seeking to prepare for further contaminant load reductions in future plan changes. A body of science has been prepared that can be expressed either as a concentration target or a load limit. It is unclear why it is appropriate to include concentrations prepared in such a way, but not load limits at the catchment or sub catchment level.

68. Definition of sub catchment load limits also provides opportunities for a community to work as a group to achieve more efficient reductions in discharges. It is appropriate to assess the effect of these reductions in terms of load; as opposed to concentration. For these reasons I consider the table proposed by HortNZ to be a useful addition to PC 1. This also addresses the point raised by Officers in paragraph 399 regarding what constitutes a freshwater objective.

MINIMISING ECONOMIC AND SOCIAL DISRUPTION

69. The officers comment[9] on the suggested amendment to the principal reasons for adopting Objective 2. HortNZ suggests an addition of minimising the "economic" disruption as well as the social disruption to the community during transition to achieving water quality targets.

70. HortNZ sought the amendment to ensure that social disruption was not minimised at the expense of important economic activities. The officers have carefully considered the amendment and rejected the proposed amendment. In my view the proposed amendment of HortNZ would not materially affect the outcome of the plan.

WATER QUANTITY ISSUES

71. The s. 42A analysis also suggests that amendments seeking to include recognition of the importance of the use of water are rejected. The reasoning provided is that the focus of PC1 is water quality and not the abstraction of water. HortNZ made submissions relating to the use of water because efficient water use is a critical factor in reducing discharges from commercial vegetable

[9] s42A Paragraph 360, page 62

production; and in practice water quality outcomes are inextricably linked to the reliability of water supply. Evidence for this is provided in the technical reports that accompany the HortNZ submission[10].

MANAGING DISCHARGES COLLECTIVELY

72. Officers have addressed[11] some of the amendments proposed by HortNZ to enable landowners to collaboratively achieve reductions at a catchment or sub- catchment scales. In paragraph 393 officers note that "conclusions on a sub- catchment approach are yet to be reached".

73. HortNZ developed the approach to managing a sub-catchment as a collective to improve the opportunities within the plan for achieving the Vision and Strategy. The package of amendments has been designed to support both the default method of achieving the objective (through farm plans, resource consents and permitted activity rules) as well as an alternative pathway allowing for combined action to achieve water quality outcomes.

74. There would appear to be significant advantages in managing collectives working together to achieve outcomes. Use of collectives may require significantly less resource consent applications and a greater consistency and coordination in the farm planning approach. It also provides for combined action in a way that edge of field mitigations within individualised farm plans does not.

75. I do not consider the collective approach to be an easy option. The amended criteria provided by HortNZ to ensure that an application would be successful have been developed to ensure equivalence with the default approach. Individuals working as a collective would all have to demonstrate they are making the appropriate improvements for the reductions required to be achieved.

APPROACH TO MINIMISING CONTAMINANT DISCHARGES IN GENERAL:

76. Proposed PC 1 currently focuses on nitrogen benchmarks as a proxy to measure intensification. While controls exist in relation to the other contaminants, there is no ability to make an overall assessment of the impact of an activity across all 4 contaminants. In my view this regulatory regime disadvantages the commercial vegetable production sector in the Waikato. The emphasis on a per hectare contribution also disadvantages horticulture; as it does not

[10] http://www.hortnz.co.nz/assets/Natural-Resources-Documents/Healthy-Rivers-Plan-Change-Technical-Report-for-HortNZ-sub.pdf. "*Values and Current Allocation of Responsibility for Contaminant Discharges*" Jacobs technical report IZ081700-RP-0001 (08 March 2017). Baker, T., Sands, M., Nation, T. and Sturgeon, C. pp 26-32.

[11] s42A Paragraph 381, page 66

recognise the total impact and scale of commercial vegetable production which is relatively minor in terms of the contribution to overall effect on water quality.

77. The section 42A report notes the difficulty of assessing an activity across multiple contaminants. However, in my view the plan change should be structured to provide an opportunity for applicants to demonstrate a lesser effect in line with progress towards achieving water quality targets for the Waikato River. The changes sought by HortNZ have been rejected to a large extent and in my view should be considered where they can support achievement of the Vision and Strategy for the Waikato River.

SUMMARY AND CONCLUSION

78. Commercial vegetable production in the Waikato districts of Pukekohe and Pukekawa are not easily substituted for production in other regions and contribute to the national domestic food system at key times in the year. It is appropriate to amend the value description to reflect this as suggested by Mr Hodgson.

79. In my view, commercial vegetable production systems require a tailored approach within PC1 and I agree with the officers that policies and methods do go some way towards providing for commercial vegetable production. However, I do not consider the policies and methods provide appropriately for new commercial vegetable production activities. In my view it is appropriate to provide a limited opportunity for new commercial vegetable production as a discretionary or restricted discretionary activity.

80. I also consider the plan change could usefully adopt the subcatchments load limits table as an interim approach to support collective applications to manage freshwater quality. In general, if it is considered desirable to undertake collective approaches; an Objective that enables such approaches is appropriate.

81. In my view it is appropriate to consider water quantity because there is evidence supporting the effectiveness of efficient irrigation as a key mitigation for nitrogen losses from commercial vegetable production.

82. I agree with the officers' general conclusions regarding the need for the plan to focus on actions to improve water quality to meet the 10-year targets. In my view the HortNZ approach provides some alternative approaches that could improve the plan by providing greater opportunity for collective action to achieve reductions.

83. I support an approach to achieving contaminant reductions that considers how an activity or enterprise contributes to water quality

state across all four contaminants and consider the plan has placed too much emphasis on nitrogen as a proxy for increased effects.

Chris Keenan
for Horticulture New Zealand

15th February 2019