BEFORE THE HEARINGS COMMITTEE

IN THE MATTER	**of hearings on submissions concerning the proposed One Plan notified by the Manawatu-Wanganui Regional Council**

SECTION 42A REPORT OF LACHIE GRANT
ON BEHALF OF HORIZONS REGIONAL COUNCIL

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1. INTRODUCTION

My qualifications/experience

1. My full name is Iain Lachlan Grant. I have a Masters of Agricultural Science with honours (specialising in erosion processes and soil mechanics) from Massey University, Palmerston North. I also hold a Batchelor of Agricultural Science Degree (specialising in soils, agricultural engineering and farm management) from Massey University.

2. I worked as a Soil Conservator for Manawatu-Wanganui Regional Council from 1992-1996 based in Marton and servicing the Rangitikei and Manawatu Catchments. Work included farm planning, sustainable land management programmes and erosion control planning for individual landowners, and land use resource consents. I also managed the Rangitikei District Council forestry estate.

3. From 1996-2002 I worked as a Land Management Officer for Horizons Regional Council based in Wanganui. During this time I was involved with land management programmes, oversaw the Whanganui Catchment Strategy, involved in the Wanganui and Taumarunui Sustainability groups, numerous SUBS (Soils Underpinning Business Success) programmes, farm planning and resource consents. I was also involved in the Green Tick or Farmsure quality assurance programme as an expert for the land management component.

4. From 2002-2005 I headed the Land Management Department of the Taranaki Regional Council where the focus was sustainable land management through comprehensive farm planning and riparian planning.

5. From 2005 to present: I am a co-director of the land management consultancy company LandVision Ltd specialising in whole farm planning, land resource mapping, nutrient management and sustainable land management. LandVision Ltd is based in Wanganui and works throughout the North Island.

6. I am a member of the New Zealand Association of Resource Management.

7. I have produced in excess of 90 whole farm plans for Horizons Regional Council under SLUI, and in excess of 70 other farm plans, written numerous articles on sustainable land management and resource management, and presented many papers on land management and farm planning.

8. I have read the Environment Court's practice note 'Expert Witnesses – Code of Conduct' and agree to comply with it.

My role in SLUI

9. I have been involved in the preparation of whole farm plans for Horizons Regional Council and was involved in all 5 prototype plans prepared by AgResearch.

Scope of evidence

10. This report is to inform the committee of the following:
    a. Some background information on farm planning
    b. The components of the Whole Farm Plans (WFP)
    c. The process for completing a WFP
    d. The expectations offered by Horizons Regional Council as part of the Whole Farm Plan process.
    e. Summary of analysis from plans completed to date

2. EXECUTIVE SUMMARY OF EVIDENCE

11. The SLUI Whole Farm Plans incorporate all aspects of the farm business. Their overall objective is to increase the level of land being managed within its capability and in doing so reduce the impact of events like February 04 on the region.

12. The SLUI Whole Farm Plans are comprised of five key components that include:
    - A Land Use Capability and Land Resource Inventory of the property surveyed at the property level
    - Resource evaluations to identify magnitudes of environmental risk, capabilities of sustained production, production yield gaps (pasture), and opportunities for improved farm performance.
    - Review of the existing farm business using benchmarking and analyses of options for achieving personal and business aspirations.
    - Recommendation of best practice solutions to enhance farm sustainability tailored to the individual farm in question.
    - Integrated long-term business and resource management plans that outline the 'what, when, where and how much' of achieving agreed change.

13. The process for completing the Whole Farm Plans is as important as having the plan. The key components of the process includes:
    - § Land resources survey of property
    - § Development of environmental works programme by land management officer
    - § Farm business assessment by farm business consultant
    - § Linking all components of the plan together

14. The success of the Whole Farm Plans is reliant on them being compiled in conjunction with the landowner and the process used as an education tool.

15. The whole process is voluntary and the landowner can pull out at any stage of the process should he wish. The annual commitment to the recommended works programmes is also flexible to recognise variations in farming circumstances.

16. Horizons Regional Council is supporting the recommended works programme with regional grant or financial assistance. The rate of which HRC contribute is related to issue and the degree of community or regional benefit. HRC are also providing on-going advice, services and support to landowners in the programme.

17. An analysis of the first 40 plans undertaken by LandVision Ltd in the last 12 months shows that when the effective area is reduced as a result of implementing the recommended works programme there is often the opportunity to realise the yield gap on the better classes of land and accommodate the stock off the poorer land. Often the balance of this changes when the reduction in effective area is greater than about 11%. For the 40 plans in this analysis the average reduction in effective area was 8.7%.

3. BACKGROUND INFORMATION

18. Farm planning has been around for more than 50 years and in the past often only focused on one issue such as a soil conservation or riparian problem. More often than not these plans did not consider the whole farm system and as a consequence their usefulness or achievement of the underling goals and objectives varied.

19. On the other hand, the Horizons SLUI Whole Farm Plans recognises that the farm is a complex system with many interacting components that all need to be considered. They provide comprehensive base information about the land resource, that all land management

decisions should be based on. Without this information it is difficult to make informed management decisions about a change in land use and the impacts of this change on the whole farm system.

20. An integral part of the Horizons SLUI Whole Farm Plans is that the plans incorporate the farm business as an important part of the farm system. Ignoring this information significantly reduces the opportunity for implement of the recommended works programme.

Components of the HRC SLUI Whole Farm Plans

21. The components contained in the Horizons Regional Council SLUI Whole Farm Plans includes:
    (i) The plan summary
    (ii) A detailed assessment of the natural resources present
    (iii) A farm business assessment
    (iv) A recommended environmental enhancement programme
    (v) An estimate of the environmental investment
    (vi) Information on reporting and monitoring

The plan summary

22. The plan summary brings all the components of the whole farm plan together in summarizing the findings from the land and environment assessment and the business assessment. It also summarizes the opportunities for both environmental enhancement and business development.

23. This section also details the up front the intent of the whole farm plan from Horizons and provides an overview of the big picture at the regional level and how the individual property fits into this regional big picture.

Resource and environmental assessment

24. The resource and environmental assessment is comprised of five parts that include:
    a. Land resources present
    b. Water resources present
    c. The natural resources present
    d. The physical business resources present, and

e. The resource consent obligations or requirements as a result of having the whole farm plan

Land resource assessment

25. The land resources are described and evaluated according to the Land Resource Inventory (LRI) and Land Use Capability (LUC) Classification systems. The LRI system involves mapping landscape units according to five inventory factors (rock type, soil unit, slope class, erosion type and severity, and vegetation).

26. The LRI is then classified as LUC. The LUC system splits land into eight different classes with classes 1-4 suitable for arable farming, classes 5-7 suitable for pastoral farming and class 8 having no production value. The versatility of the land diminishes as you go from class 1 to 8. These LUC classes are then further subdivided into a subclass according to the main limitation present. There are four subclasses mapped which include erosion, wetness, soil or climate. Using the five inventory factors of the LRI, land with similar inventory factors are then grouped together to give the LUC unit.

27. An example of a LUC and LRI map for a whole farm plan are shown in Appendix 1.

28. The LRI/LUC system when mapped at the property scale is a very powerful tool for both farm management and resource management. Some of the opportunities it provides includes:
    a. For each LUC unit it is possible to accurately predict the behaviour of the different LUC units under different management or land uses. From a landowner's perspective, having this knowledge means that each LUC unit can be managed within its capability.
    b. From a farm management perspective, not all land is created equal and different land types have different production potentials and opportunities for management. The LUC system segregates the different land types into management units. As a result it is possible to accuracy identify the contribution of each unit to the farm business. It is also possible to predict the potential production of a unit and put management strategies in place to realise this yield gap.
    c. Good resource information also gives farmers the opportunity to better allocate their fertiliser resources according to soils and stocking rates. Improved fertiliser allocation means enhanced on-farm profitability and off-farm water quality.

29. Each component of the LRI assessment (geology, soil type, slope, erosion and vegetation) are described in detail along with there strengths and limitations, and recommended conditions of use.

Water resources

30. The water resources present on a property are described. Issues surrounding water quality and opportunities for enhancing it are discussed. Sediment yield from the property is also discussed along with opportunities for reducing it.

Natural resources

31. The WFP process identifies areas of natural heritage on the property. It considers any issues and makes recommendations for enhancement.

Resource consents

32. Having a WFP negates the need for resource consents for some activities under the One Plan. This is outlined in the plan and the guidelines for those activities that do require consent are presented.

The existing farm business

33. The farm business is considered in several main parts:
    a. The landowners personal and business goals
    b. The physical resource
    c. Infrastructure
    d. Current stocking policy
    e. The business enterprises
    f. Business structure & financial position
    g. Performance indicators
    h. Fertiliser and Nutrient Management

Personal Goals and Business goals

34. The landowner's personal goals and aspirations for the farm business and personal goals are outlined along an assessment of how these goals work in conjunction with the WFP recommendations.

Infrastructure

35. The WFP provides a brief description of the farm resources in terms of infrastructure and assets. It also comments on opportunities to future proof these.

Current Stocking policy and business enterprise

36. An outline of the current stock carried on the property is presented. This information is used for nutrient budgeting, pasture yield gap opportunities and effects of the recommended works programme on the farm business.

37. The current stock policy is also outlined along with any other forms of farm income.

Farm Business Structure and Financial Position

38. A brief summary of the structure and financial position of the business is presented.

Performance indicators

39. The FBC undertakes an analysis of audited accounts to bench mark the property against other similar properties.

40. Summary of the key financial and performance indicators for the farm business and a comparison to the group averages.

Fertiliser and nutrient management

41. The current fertiliser policy for the last 12 months is outlined and nutrient management blocks are identified. Recommendations are outlined for best practises for nutrient management on the identified blocks.

42. A nutrient budget is undertaken for the years stocking and fertiliser policies using Overseer.

43. Nitrogen, Phosphate and emission losses are assessed and recommendations made as to possible ways to reduce these.

44. Also discussed are the possible carbon emission liabilities as a result of the farm business and the opportunities for offsetting and/or reducing these.

Business Assessment

45. The business assessment is undertaken by the FBC and involves the following:
    - § To complete a Business Review of the farm. This requires documenting and benchmarking the farm livestock and management systems, and physical and financial performance using Profit Check (an accounts analysis tool).
    - § To ensure that the impact to the business of any recommended works programme is clearly documented.
    - § To highlight possible options that allow the land owner to adopt the works programme whilst still enabling them to realise their longer term goals. This may involve improving pasture productivity and carrying capacity on unaffected areas, or changes to livestock policies.
    - § Where necessary to facilitate discussions and agreements between the farm owner and HRC to ensure both parties arrive at a fair outcome. Sometimes this can also be to give the farm owner the confidence to say no to the recommendations of the WFP.

Recommended works programme

46. The recommended works for WFP's are based on the LRI/LUC assessment for the property. Each LUC unit has its own inherent strengths and limitations, land use suitability, and conditions of use to achieve long term sustainability.

47. The recommended works programme details each environmental issue on the property and outlines possible measures to either avoid, remedy or mitigate the effects. Each issue within a WFP is prioritized according to its effects to community assets, water quality, and farm infrastructure. Accompanied with a recommended works programme is a recommended works map. An example is shown in Appendix 1.

48. Five year draft timetables for the recommended works programme are contained in tables in the WFP. The timetables are tailored for each farm. Those issues which are to be treated first vary, and in some situations it is the off-site community benefit issues that are recommended

for first priority and in other situations it is those areas with greatest benefit to the farm system.

49. The works programme is a living document and can be adjusted according the landowners annual situation. This is a necessity with the huge variations in farm incomes. As a result, in some situations the rate of implementation has been increased and in other situations, slowed.

50. Some of the recommended works activities will attract financial help from HRC. These discussions are held at the end of the plan preparation process.

The farm plan process

51. The WFP process involves a number of steps which are all critical to the success of the plan. These steps include:
    a. The plan, its purpose and process are explained to the landowner by an Environmental Management Officer (EMO) from Horizons Regional Council.
    b. On acceptance of having a WFP produced, the landowner provides HRC with a paddock map, a tracks and waterways map, the stock reconciliation, soil fertility and nutrient management history, and a set of audited accounts. The paddock and nutrient management information are passed on to the person undertaking the land assessment survey work (LandVision or a Land Management Officer from HRC – referred to as the LMO here in) and the set of audited accounts are given to the farm business consultant (FBC), Greg Sheppard. The LMO has no reason to see the set of audited accounts.
    c. Once the paddock map is digitized, the LMO arranges for a site visit with the landowner to undertake the LRI/LUC survey. Discussions are held around the kitchen table as to outline both parties' goals, objectives and expectations of the process.
    d. Further to this the local geology and land forming process are explained by the LMO to the landowner, along with some discussion on current farm policies and practices and how they fit in to the land resources present. The landowner is encouraged to accompany the LMO around the property during the mapping process so as the discussion held around the kitchen table is extended out on to the property.
    e. The property is then LRI/LUC mapped at the paddock scale (1:8000) along with any recommended works required.

f. At the completion of the mapping process further discussions are held as to the findings of the LUC/LRI mapping and a draft recommended works programme is prepared.
g. The field mapping is then digitised into a geographic information system so further analysis work can be undertaken.
h. If the property has issues that will impact significantly on the farm business a second visit is required following the analysis work. This is often undertaken in conjunction with the FBC.
i. Once the land resource mapping and analysis work has been completed it is passed onto the FBC. He uses parts of this information to bench mark the property against other similar properties. Once the FBC has undertaken this analysis work he arranges for an on-site meeting to firstly go through his findings, discuss the landowner's personal goals and objectives, discuss the implications of the recommended works programme prepared by the LMO, and explore opportunities for business progression.
j. Both the LMO and the FBC send their final reports to HRC for amalgamation into a WFP. HRC compile the final report and it is then presented to the landowner.
k. Discussions on the recommended works programme are then held between the landowner and the EMO from HRC. These discussions also incorporate any financial incentive HRC may offer.
l. The EMO from HRC will also provide on-going support during the implementation of the plan.

52. For the WFP to be successful it is critical that it is compiled in conjunction with the landowner or at the very least, has the landowners input. The process needs to be used as education tool so that the landowner understands his land resources. This will give the landowner the ability to predict how things will behave under different management regimes. It also gives him the knowledge to understand why any physical resource recommendations for the property were made. The WFP itself is just a document that should be used as a reference.

Roles and responsibilities in the farm plan process

53. The table below summaries the roles and responsibilities of the different parties in the farm plan process.

	Landowner	HRC or HRC LMO	LMO	FBC
Initial engagement				
§ Explanation of the programme & process	i	i		
§ Collection of initial information including paddock maps, stock numbers, fertiliser history etc	i	i		
Resource & environmental assessment				
§ LUC/LRI mapping	i		i	
§ Natural resources	i		i	
§ Resource consents	i	i	i	
Existing farm business				
§ Personal & business goals	i			i
§ Infrastructure	i		i	
§ Current stocking policy & business enterprise	i		i	i
§ Farm business structure & financial position	i			i
§ Performance indicators	i			i
§ Fertiliser & nutrient management	i		i	
§ Pasture yield gaps	i		i	
Business assessment	i			
§ Business development	i			i
§ Benchmarking	i			i
§ SWOT analysis	i			i
§ Impact of works programme on farm business	i		i	i
Recommended works programme				
§ Proposed programme	i		i	
§ Costings	i		i	
Farm plan discussions	i	i	i	i
Printing of farm plan document		i		
Implementation				
§ Discussions for Regional Grant	i	i		
§ On farm support & technical advice	i	i		
§ Supply of soil conservation materials	i	i		
§ Plan monitoring	i	i		

Expectations

54. Throughout the process it is made clear to the landowner that process is voluntary and they could pull out at any stage.

55. As part of the process the landowner will gain a greater understanding of his land resources, and will have a vision of works required on the property to achieve long-term sustainability.

56. HRC are supporting the recommended works programme with regional grant or financial assistance. The rate of which HRC contribute is related to issue and the degree of community or regional benefit.

57. HRC are also providing on-going advice, services and support to landowners in the programme.

Plan analysis

58. The table below summaries the effects of the recommended works programmes on the current carrying capacities from the first 40 plans undertaken by LandVision Ltd in the past 12 months.

	Average	**Range**
(a) Property size (ha)	566.9	123.7 - 1889.8
(b) Effective area (ha)	475.8	72.8 - 1675.6
(c) Proposed effective area following implementation of the recommended works programme (ha)	447.3	16.9 - 1550.0
(d) Current stocking per farm (SU)	4760.7	800 - 14455
(e) Potential stocking per farm following implementation of the works programme and realising the yield gap (SU)	4887.9	294 - 13634

59. The above table shows that when the effective area is reduced as a result of implementing the recommended works programme there is often the opportunity to realise the yield gap on the better classes of land and accommodate the stock off the poorer land. Often the balance of this changes when the reduction in effective area is greater than about 11%. For the 40 plans in this analysis the average reduction in effective area was 8.7%.

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