

**BEFORE THE INDEPENDENT PANEL
OF KAPITI COAST DISTRICT COUNCIL**

IN THE MATTER of the Resource Management Act 1991 ("**RMA**")

AND

IN THE MATTER of Private Plan Change 4 ("**PC4**") to the Kāpiti Coast
District Plan ("**Plan**") - 65 and 73 Ratanui Road,
Otaihanga

**STATEMENT OF EVIDENCE OF VAUGHAN FRANCIS KEESING ON BEHALF OF
WELHOLM DEVELOPMENTS LIMITED**

ECOLOGY

16 JANUARY 2026

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1. INTRODUCTION

1.1 My name is Vaughan Francis Keesing.

Qualifications and experience

1.2 I have been a consulting ecologist for the last 28 years. My qualifications include a B.Sc. (Hons, 1st) in Zoology and a Ph.D. in Ecology, both from Massey University, as well as a Diploma in Research Statistics.

1.3 My skills lie in community ecology. I have specialist skills in the areas of limnology (the study of inland waters, including wetlands, as ecological systems), entomology, zoology, and botany, and I have worked extensively in freshwater and terrestrial habitats.

1.4 I have been practising as an ecologist for the last 28 years and have worked in a variety of locations including the Wellington region and elsewhere in the lower North Island, West Coast, Canterbury, central North Island, the Far North, Auckland region, and the Bay of Plenty.

1.5 During that time. I have undertaken a wide range of ecological surveys of natural and semi-natural sites, incorporating both botanical and wildlife values. I have provided assessments of values and significance of sites for many councils and private clients, as well as assessing ecological effects of a range of activities on those sites.

1.6 This work has included significance and effects assessments across a range of projects and habitat types, such as:

- (a) determining significant wetlands (as part of exercises in the West Coast Region and Ashburton to identify Significant Natural Areas ("**SNAs**") and in Rangitikei as part of its Protected Natural Areas Programme);
- (b) bush significance assessments (eg over 150 Franklin District Conservation lots, 50 Western Bay of Plenty lots, and many more across New Zealand);
- (c) large-scale roading projects involving wetland assessment and devising proposals to offset wetland effects (eg MacKays to Peka Peka Expressway and Transmission Gully);
- (d) wind farms (eg West Wind, Hurunui, Mill Creek, and Hauāuru mā raki) and hydroelectric schemes (eg Arnold, Wairau, and Coleridge);

- (e) over 20 large-scale subdivisions (eg Omaha South (Darby Partners), Long Bay (Landco), Pegasus Bay (Infinity Co), and Ravenswood (at Woodend));
- (f) plan changes (eg Porters Ski field expansion); and
- (g) assessments of wetland, riparian systems and rivers (eg Hurunui irrigation project, Waitohi irrigation dams, Wakamoekau community water storage; Rakai Water Conservation Order ("**WCO**") amendment, Hurunui WCO, Ngaruroro WCO, Lake Summer dam proposal, Conway minimum flow regime, North Christchurch stream minimum flow assessments (macrophyte), Taramakau River riparian wetland assessment, and the Wairau hydroelectric power scheme).

1.7 Most relevant to this hearing is the work I have undertaken to identify wetland presence and values for:

- (a) Manu Park subdivision, Te Awa subdivision and Lindale subdivision (Waikanae);
- (b) Waikanae Summerset retirement village development,
- (c) Wakamoekau water storage and Lansdowne subdivision (Masterton);
- (d) Upper Katherine Mansfield Drive Bellbird Rise subdivision, involving wetland, stream and terrestrial vegetation habitat assessments.

1.8 The work examples listed above are all recent assessments involving potential "natural wetlands" under the new Proposed Natural Resources Plan ("**PNRP**") and the recent National Policy Statement for Freshwater Management 2020 ("**NPSFM**") and Resource Management (National Environmental Standards for Freshwater) Regulations 2020 ("**NES Freshwater**").

Involvement in Welhom Developments Limited plan change request

1.9 I have been involved with the site proposed for several years having undertaken a site survey for natural inland wetlands in August 2022 and then widened that survey in 2024 and 2025 as the property involved increased and have through those additional surveys added an assessment of other ecological matters. In total I have undertaken three site visits for the purpose of assessing ecological features (the stream, terrestrial and wetlands).

Code of Conduct

1.10 I confirm that I have read the Expert Witness Code of Conduct set out in the Environment Court's Practice Note 2023. I have complied with the Code of Conduct in preparing this evidence and will continue to comply with it while giving oral evidence before the Hearing Commissioners. Except where I state

that I am relying on the evidence of another person, this written evidence is 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 in this evidence.

2. SCOPE OF EVIDENCE

2.1 This statement of evidence will:

- (a) Present my ecological findings related to the site;
- (b) Discuss the ecological constraints and opportunities on the site;
- (c) Consider the potential effects of the plan change on ecology;
- (d) Summarise the key findings and recommendations from my ecological assessment; and
- (e) Respond to the Council Officer's report ("**Section 42A Report**") and the submissions received.

3. EVIDENCE

- 3.1 The site subject to the proposed plan change at 65 and 73 Ratanui Road, Paraparaumu is an area of some 12.65ha which is currently zoned Rural Lifestyle under the Kāpiti Coast District Plan and is rural in character and use.
- 3.2 Research and three site surveys show that there are no indigenous terrestrial ecological values of note or that should be considered that could meet the significance criteria in Policy 23 of the Greater Wellington Regional Policy Statement ("**RPS**"). Areas not fully grazed are a small area of blackberry and herbaceous weeds on a boundary sand hill or otherwise exotic trees.
- 3.3 Undertaking of the MfE 2020 natural wetland delineation protocol shows the presence of 14 small natural inland wetlands in the proposed plan change area (as well as several wetland appearing features that do not qualify). Some of those features do not present as natural inland wetlands year round and it depends on if water pepper is with foliage or not as to the meeting of the NPS FM criteria. I have included those that only seasonally meet the criteria as natural inland wetlands.
- 3.4 Appendix 1 presents my table of numbered features (which relate to locations in Figure 1) showing statistics and delineation test. Appendix 2 presents the

plant species list that determined these features natural inland wetlands. Appendix 3 photographs of example wetlands.

- 3.5 The area of the 14 wetland features sum to 628m². They are largely exotic vegetation assemblages in currently grazed pasture. While technically dune hollows, the features do not represent examples of those naturally rare and threatened dune slacks referenced by (Wiser *et al.*, 2013).¹ The features do not register as significant under the criteria of Policy 23 of the RPS and are all of low ecological value and function.
- 3.6 The features are in hollows vegetated in a mixture of creeping butter cup, *Juncus effusus*, *Juncus edgariae*, creeping bent, Yorkshire fog, *paspalum dilatatum* and chickweed. A range of other species occur sporadically in a number of the features across the site.
- 3.7 All of the features present on the site are highly modified, small low points in grazed paddocks. They do not fit the profile of a naturally uncommon dune deflation hollow (Wiser *et al* 2013), which are naturally uncommon ecosystems.
- 3.8 All the features (except feature 5) fail the rapid assessment required by the NPS-FM delineation protocol in that there is no observable clearly dominant cover of FACW and or OBL species (this is because of the seasonal dieback of water pepper).
- 3.9 For most of the features, it was dominance of ground cover by creeping bent, Junus species or, in feature 1, live Persicaria (waterpepper) that drove the result of it being classified as a natural inland wetland.
- 3.10 All the natural inland wetlands on the property have a very low² ecological value ranking because of the exotic dominance of pastoral use, highly modified with no rarity, contextual value or representativeness and none are significant through policy 23 of the RPS.

¹ Wiser, S; Buxton, R.; Clarkson, B.; Hoare, R.; Holdaway, R.; Richardson, S.; Smale, M.; West, C.; Williams, P. 2013. New Zealand naturally uncommon ecosystems. Ecosystems services in New Zealand: conditions and trends. Manaaki Whenua Press, Lincoln.

² Ecological Impact Assessment Guidelines for New Zealand 2nd Edition (2018) at p 69.



Figure 1. Potential wetland features (red circled) found on the property that qualify as natural inland wetlands are green filled. Blue line indicates the waterway.

3.11 Bisecting the site there is a highly modified waterway that is of very low aquatic value and often dry (Figure 2), such that there is unlikely to be any resident fish or permeant macroinvertebrate assemblage. It is currently crossed by a culvert crossing on the property (although there are other crossings off the property) and only has a rank grass riparian vegetation state. The bed is entirely earth and mud and sediment, often stock pugged.



Figure 2 The water channel looking north from upper culvert. Dry bed and stock pugged.

4. CONSTRAINTS AND OPPORTUNITIES

- 4.1 There are few ecological constraints on the site but reasonable opportunities to improve the state of natural wetland and the waterway.
- 4.2 A better ecological outcome on the site through this plan change would be the recognition of the potential to create a centralised indigenous wetland that is part of the hydrology management of the site (so as to maintain wetland hydrology). To this end, a stormwater management system that included a substantive indigenous wetland component would be feasible in and about the waterway, such that the end result of the development of the site is the creation of an integrated wetland and stormwater system with improved waterway riparian conditions.
- 4.3 The restoration of a riparian native buffer to the waterway would also be advantageous to the waterway and a potential outcome of the development of this site but such an enhancement will not improve the level of intermittent flow or instream conditions related to substrates etc but riparian native shade and leaf fall has a role in mitigating heavy metal contamination bioavailability.
- 4.4 There is no wider landscape linkage or connectivity potential with the surrounding area.

5. POTENTIAL ADVERSE EFFECTS

- 5.1 The potential adverse effects of any land development in terms of ecological features and values are limited in essence to water quality aspects during the operational phase. Construction phase stormwater discharge management on such flat catchments are not overly problematic but nor is the potential receiving environment (the waterway) in any way sensitive to sediments.
- 5.2 Where there is sufficient stormwater management of the new sites impervious surfaces that treat the potential water quality changes caused by conversion from farming (nutrients and faecal coliform enrichment) to urban (metal and PAH contaminant) the result is often better water quality in the receiving environment.

6. KEY FINDINGS AND RECOMMENDATIONS

- 6.1 The presence of 14 small modified very low ecological value natural inland wetlands gives rise to a significant opportunity to cause the creation of a large, cohesive more indigenous representative wetland through development and use of the stormwater and hydrological changes that could be brought to the site. The wetlands are unlikely to be enhanced and protected under the current regime.
- 6.2 That same process will more than likely result in better water quality leaving the site than does now.
- 6.3 The net ecological outcome for natural wetlands for development enabled under the plan change could be one of significant gain compared to the potential under the current land use.
- 6.4 My recommendation is to ensure that the area of natural inland wetland is offset through the development of one cohesive indigenous marsh wetland within and using the stormwater of the site, but not as part of the formal treatment train (ie receiving only treated stormwater).

7. RESPONSE TO SUBMISSIONS

- 7.1 There were no submissions related to ecology other than GWRC who do not appear to disagree with my findings or conclusions and recommendations.

8. RESPONSE TO SECTION 42A SUPPORTING ECOLOGICAL RESPONSE

- 8.1 Dr Dijkgraaf generally agrees with my reporting and evidence as to what and where the natural inland wetland features are and that they are of low value. However, two matters of difference were raised.
- 8.2 First, Dr Dijkgraaf questions my consideration of wetland 2 and 17 as excluded as natural inland wetlands because they were either purposefully created wetland or are a result of a deliberately created waterbody. Dr Dijkgraaf offers an appraisal of those areas by way of viewing the Retrolens 1942 aerial photograph. I examined this photo (and others) when undertaking my initial assessment. While it is clear that there is a dark shaped area in the photo at wetland areas 2 and 17, the photograph does not show any edge vegetation or any vegetation in the dark area. In a 1954 aerial there does appear to be vegetation limited to within the "hole", however later it is clearly a highly modified and developed feature (1980-1991-2005).
- 8.3 I maintain the exclusion of the wetlands and suggest that it cannot be determined that the historic features met the definition of a natural inland wetland from the photos, ie that there are wet adapted plants over 50% in cover and wet adapted animals present. It will be a matter for future debate and assessment at a resource consent process and will simply affect the effects management response and likely the quantum of offset proposed for natural inland wetland disturbance.



1954



1980



2005

- 8.4 Lastly there was a question of terminology. I had recommended the natural inland wetland offsets should ensure a net positive environmental gain while GWRC (and Dr Dijkgraaf) prefers the wording "at least a net gain in indigenous biodiversity outcomes" to align with the NES-F. The NPS FM (3.21) says "achieve no net loss, and preferably a net gain, in the extent and values of the wetland". I support either of the two proposed phrases as appropriate.

9. CONCLUSION

- 9.1 My ecological assessment demonstrates that the site contains no significant indigenous terrestrial ecological values and only a series of small, highly modified wetlands of low ecological value. The proposed plan change presents an opportunity to achieve a net ecological gain by causing through development the consolidation and enhancement of natural inland wetland areas through the creation of a cohesive indigenous marsh wetland as part of the possible development's stormwater management regime.
- 9.2 With appropriate mitigation measures related to natural inland wetlands and stormwater, particularly in relation to water quality, the development raised as the example in the plan change is likely to result in improved ecological outcomes compared to the current land use. The evidence of that outcome is broadly supported by the Council's ecologist, with only minor differences regarding the classification of certain features and the preferred terminology for biodiversity outcomes.

Vaughan Keesing

16 January 2026

Appendix 1. Wetland statistics & outcome of delineation test.

Note	Feature #	Rapid	Dominance	Prevalence	Dominant taxa	Hydric soil	hydrology	NPS Exclusions	Natural wetland	Area (m2)	seasonal wetlands
west access road garden bowl	1	yes	Yes (1)	1.95	water pepper	-	yes	no	Yes	16	
Large, constructed pond (dry)	2	parts	Yes (1)	2	Isolepis	-	yes	Constructed waterbody	No		
old dig site with bricks	3	No				No	No	pasture / artificial	No		
	4 (1)	Yes	Yes (1)	2.57	Juncus	No	No	no	Yes	9	
	4 (2)	No	Yes (0.67)	3.15		No	No	pasture	No		
	5(a)	Yes	Yes (1)	1.95	Juncus	No	No	no	Yes	36	
	5(b)	Yes	Yes (1)	2.38		No	No	no	Yes		
	5(c)	No	No (0.5)	3.2		No	No		No		
	6	Yes	Yes (1)	2.22	Juncus	No	No	No	Yes	35	
80% dead Persicaria leaving bare soil	7	No	No	3		No	No		No (but)		78
95% central dead Persicaria	8	No	No (but)	2.22	creeping bent	No	No	No	No (but)		78
	9(1)	Yes	Yes (1)	2.08	creeping bent	No	No	No	Yes		
	9(2)	Yes	Yes (1)	2.1	creeping bent	No	No	No	Yes	56	
pine hollow, tyres and sheet metal	10	No				No	No		No		
	11	No	Yes (0.67)	3.45	due to Centella	No	No	pasture	No		
	12	Yes	Yes (1)	1.59	Starwort	No	No	Yes	Yes (but)	25	
97% dead Persicaria and bare soil	13	No	No	3		No	No	no	No (but)		12
60% dead Persicaria and bare soil	14	No	No	2		No	No	no	No (but)		36
bare earth central circle	15 (1)	No				No	No	Yes	Yes	27	
outer 2m band	15(2)	Yes	Yes (1)	2.11	Juncus	No	No	no	Yes	40	
connecting swale	15(3)	No	No (0.5)	3.48		No	No	no	No		
second circle (centre dead Persicaria)	15(4)	No	Yes (0.67)	2.99		No	No	no	No (but)		40
	16	No	No	2		No	No	no	No (but)		40
House pond	17	Yes				No	No	Constructed waterbody	No		
	18	No	No	2		No	No	no	No (but)		40
	19	No	No	2		No	No	no	No (but)		40
	20(1)	No	No (0.33)	3.31		No	No		No		
70% dead Persicaria	20(2)	No	No	2.43		No	No		No (but)		20
Total Areas (m ²)										244	384



Green pass, red fail, orange boarder line (no except seasonally and so yes).

Appendix 2: Plant species recorded in wetland features.

<i>taxa</i>	<i>Common name</i>	
<i>Juncus edgariae</i>	<i>Wiwi</i>	<i>Indigenous</i>
<i>Juncus effusus</i>	<i>Leafless Rush</i>	<i>Exotic</i>
<i>Persicaria hydropiper</i>	<i>Water Pepper</i>	<i>Exotic</i>
<i>Ranunculus repens</i>	<i>Creeping Buttercup</i>	<i>Exotic</i>
<i>Lolium perenne</i>	<i>Perennial Rye Grass</i>	<i>Exotic</i>
<i>Crepis capillaris</i>	<i>Hawksbeard</i>	<i>Exotic</i>
<i>Plantago major</i>	<i>Broad-leaved Plantain</i>	<i>Exotic</i>
<i>Holcus lanatus</i>	<i>Yorkshire Fog</i>	<i>Exotic</i>
<i>Agrostis stolonifera</i>	<i>Creeping Bent</i>	<i>Exotic</i>
<i>Trifolium pratense</i>	<i>Red Clover</i>	<i>Exotic</i>
<i>Lotus pedunculatus</i>	<i>Lotus</i>	<i>Exotic</i>
<i>Rumex crispus</i>	<i>Curled Dock</i>	<i>Exotic</i>
<i>Paspalum distichum</i>	<i>Mercer Grass</i>	<i>Exotic</i>
<i>Paspalum dilatatum</i>	<i>Paspalum</i>	<i>Exotic</i>
<i>Centella uniflora</i>	<i>Centella</i>	<i>Indigenous</i>
<i>Callitriche stagnalis</i>	<i>Water Starwort</i>	<i>Exotic</i>
<i>Cerastium glomeratum</i>	<i>Annual Mouse-ear Chickweed</i>	<i>Exotic</i>

Appendix 3: photographs of the wetlands.

<p>4 - cluster of juncus</p>	
<p>5 - depression crescent with juncus and Isolepis</p>	

<p>Site 6 (similar to sites 7, 8, 9, 14, 16, 19) - water pepper centre and Juncus edge</p>	
<p>12 - starwort hollow</p>	

<p>13 - water pepper hollow (died off)</p>	
<p>15 - dumbbell shaped wetland juncus effusus and edgariae east, J. articulatus west</p>	

15, west arm



20

