Before the Independent Hearing Commissioner At Ashburton District Council

under:	the Resource Management Act 1991
in the matter of:	application LUC23/0109 to the Ashburton District Council relating to the proposed equestrian centre located on 279 Stranges Road, Ashburton
between:	Southern Parallel Equine Centre Limited Applicant
and:	Ashburton District Council Consent Authority

Statement of evidence of Mark Taylor

Dated: 20 March 2024

Reference: Jo Appleyard (jo.appleyard@chapmantripp.com) Lucy Forrester (lucy.forrester@chapmantripp.com)

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STATEMENT OF EVIDENCE OF MARK TAYLOR

INTRODUCTION

- 1 My full name is Mark James Taylor.
- 2 I worked as a Senior Technical Officer for Fisheries Research Division (*MAF*), and National Institute of Water and Atmospheric Research (*NIWA*), before establishing Aquatic Ecology Limited (*AEL*) in 2001.
- 3 I have been a member of the New Zealand Freshwater Sciences Society for many years, and in the past served on the Living Laboratory Trust for the Styx River (Board of Management, then Trustee) for 10 years. I have also served on an Environmental Canterbury technical panel establishing minimum flows for small waterways throughout Canterbury. AEL is currently commissioned by Environment Canterbury, on their behalf, to delineate wetlands under the NES-F 2020 legislation.
- 4 As Director of *AEL*, I also have had extensive greenfield survey work, mostly in Canterbury, for industrial, retail and residential developments. However, I also have significant experience with ecological surveys for local government, including the Christchurch City Council, Selwyn District Council, the North Canterbury and Mid-Canterbury Fish and Game Councils, and Environment Canterbury.
- 5 We have worked for the Ashburton District Council (*ADC*) on a few projects. In 2019, we were involved in the translocation of fish from a long reach of the Ashburton River when it had to be diverted for the installation of the wastewater pipeline (subcontracted by Seipp). In 2021 and 2022, ADC commissioned AEL for an ecological assessment of a redundant water race in the township of Willowby, followed by recommendations for its decommissioning and fish translocation.
- 6 In recent years, we have been involved in several other private initiatives in the Ashburton District, involve bridging, and private residential developments. To the north, we have been commissioned by Selwyn District Council in recent years for public waterway enhancements (Prebbleton Park), environmental monitoring involving bird surveys (Selwyn River), and aquatic ecology (Thomas River).
- 7 In this case, we have been engaged by Southern Parallel Equine Centre Limited (*SPEC*) to provide expert evidence regarding potential ecological effects in relation to its application for a resource consent (Application) to establish an equine centre in Lake Hood (the *Proposed Equine Centre*).
- 8 Along with field assistance from my employees, I prepared the "Assessment of Effects – Aquatic ecology, and assessment of

bridging works" dated November 2023 and attached at Appendix 10 of the Assessment of Environmental Effects of the Application.

CODE OF CONDUCT

9 Although this is not an Environment Court hearing, I note that in preparing my evidence I have reviewed the Code of Conduct for Expert Witnesses contained in Part 9 of the Environment Court Practice Note 2023. I have complied with it in preparing my evidence. I confirm that the issues addressed in this statement of evidence are within my area of expertise, except where relying on the opinion or evidence of other witnesses. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

- 10 My evidence provides the following:
 - 10.1 an assessment of the ecology of the land associated with the proposed Southern Parallel Equine Centre;
 - 10.2 an assessment of proposed bridging works; and
 - 10.3 a response to submissions and comments in the ADC Officer report.
- 11 In preparing my evidence, I have reviewed:
 - 11.1 the Application, including the memorandum on ecological constraints and opportunities prepared by Boffa Miskell Limited (*Boffa Miskell*) dated 8 November 2022 attached at Appendix 10 of the Assessment of Environmental Effects of the Application;
 - 11.2 submissions on the Application; and
 - 11.3 the section 42A report.

SUMMARY OF EVIDENCE

12 I provide an overview of the ecological values and conservation status of plants, fish, lizards and birds in the proposed development area. The proposed development area has some common native riparian plants which, while short of being ecologically significant, provide a basis of ecological enhancement with proposed riparian landscaping.

- 13 Vegetation surveys identified a typical list of pasture grasses and scrub species. Only four native species were identified, all common in the Low Plains Ecological District. These were a common *Carex* species, the NZ cabbage tree, NZ flax, and a bracken fern. An assessment, as requested from ADC under s 92, demonstrated the proposed development area does not qualify as a Significant Natural Area (*SNA*) under the NPS for Indigenous Biodiversity 2023.
- 14 Based on our October 2023 ecology survey, Lagmhor Creek had an aquatic invertebrate fauna that reflected poor stream health. This is likely to be a consequence of organic pollution and nutrients, sediment, and low and temporary flows in the summer months. Our fishing survey identified just two fish species, the native upland bully, and surprisingly, the introduced redfin perch. Fish access into the Lagmhor Creek may be compromised by drying reaches further downstream, either along the river course, or on the active braid plain of the Ashburton River.
- 15 Bird surveys led to the identification of thirteen bird species, of which seven were native, and of those, three were endemic. The two endemic species, which had elevated conservation status, were the black-fronted tern (nationally endangered) and South Island Pied oystercatcher (at risk: declining). These birds are likely to feed and nest both on pastured areas in the vicinity of Stranges Road, but also nearby on the Ashburton River bed. Neither of these species are considered to be compromised by changes from this proposal, with disruption by construction restricted by the consent conditions. Riparian plantings are likely to enhance riparian habitat for bush birds, but also aquatic insects which often have ecological links to native riparian plants for feeding and roosting.
- 16 In respect to habitat values for lizards, a desktop assessment by a herpetologist (Chris McClure) stated that the scrubby dry riparian vegetation offered potential lizard habitat. Consequently, the Applicant has agreed to a consent condition which provides for lizard surveys in the vicinity of the bridge locations prior to bridge construction, and potentially lizard translocation. Riparian landscaping is likely to enhance the habitat for indigenous lizards, as it does for other biota.
- 17 Adverse environmental effects from this development, provided sediment control is effective, are likely to be less than minor. There is little impervious area to modify the natural geohydrology, and groundwater recharge. The beneficial effects of the riparian vegetation will assist water quality, and both aquatic and terrestrial ecology, including birdlife.

I support the proposed consent conditions as they relate to controlling dust, and monitoring suspended sediment during the construction phase. I also recommend that works on the Haul Road and proposed bridge sites take place outside of the bird breeding season, that is works take place between February to June inclusive. Should works extend beyond June, then a survey by a qualified ornithologist be conducted prior to works to ensure ground-nesting birds are not in the vicinity of the Haul Road. All works should avoid nesting birds.

ECOLOGICAL FEATURES AND VALUES OF THE SITE AND SURROUNDING ENVIRONMENT

- 19 The aquatic macroinvertebrate fauna, collected from the lower Lagmhor Creek, was dominated by microcrustecea (i.e. Ostracods) with an indicative "poor" stream health score of 71. It is likely this is a consequence of organic pollution along with some sedimentation. In the warmer months, low oxygen and stagnation may reduce stream health.
- 20 AEL also recorded low freshwater fish values in the vicinity of the proposed bridging sites on Lagmhor Creek and a nearby roadside drain. The identified fish fauna was composed of just two freshwater fish species. The first was the native upland bully, which is nonmigratory, and common throughout Canterbury and the South Island. Its conservation status is unthreatened (Dunn *et al.* 2017). The second species was the redfin perch, with one specimen identified from lower Lagmhor Creek. Redfin perch is an introduced fish, and therefore has no conservation value. The redfin perch has been introduced into the neighbouring Lake Hood, and Lagmhor Creek does have a tenuous connection with Carters Creek, the latter the outlet from Lake Hood.
- 21 The low fish biodiversity, especially the lack of eels, suggests that the surface water connection from the Ashburton River into Lagmhor Creek may be discontinuous, preventing fish from accessing the waterway. This may be due to a drying reach in the lower Lagmhor Creek near the lower Ashburton River, and/or a disconnect between Lagmhor Creek and the Ashburton surface flow on the active braid plain. A drying reach provides extra assurance that any suspended sediment induced by bridge construction is unlikely to reach the Ashburton River, which has high ecological values.

- AEL undertook two bird surveys of the proposed development area, on a fine calm day last Spring (24/10/23). One survey was along the waterway corridors, checking for nests in the trees and ground. A 5-line transect survey of the ploughed field area for feeding and ground-nesting birds, burrows and droppings. A total of 76 birds were observed composed of 13 bird species, of which 7 species were native, of which 3 were endemic. No birds were observed nesting. The two native birds with the highest conservation status were the Black-fronted tern (conservation status-endangered (6)), and South Island pied oyster catcher (conservation status at Risk-declining (1)) (Robertson *et al.* 2021). These are both likely to have flown from the nearby Ashburton River, but were observed close to the Stranges Road. The same birds had been observed feeding on the paddock on the other side of this road.
- Five other native species do not have conservation status: pukeko, paradise shelduck, grey heron, the swamp (formerly Australasian) harrier, and the spur-winged plover (the latter relatively recently self-introduced). All benefit directly, or indirectly, from pastoral land, and I am of the view, that as the pastoral land area is not significantly reduced, they will not be adversely affected by this proposal.
- 24 The current land use is agriculture, and appears to be largely potato cropping, similar to neighbouring land use in the vicinity of Stranges Road. There was also some past bank erosion and slumping to some riparian margins in the proposed development area (App. II, Fig.ii). The change in riparian management will improve bank slope stability and structure, which will benefit the aquatic ecology.
- 25 Draft landscaping plans are available (DCM Conceptual Planting Plan Rev. A, App. III, Fig. i). They illustrate a reduced bank slope, with inherently greater stability. The overhanging indigenous vegetation, with a good mixture of ecological strata, will shade, enhance, and support the local aquatic ecology. The draft planting palette illustrates a river planting of purely indigenous species, maximising ecological synergies between the aquatic and riparian habitats.
- 26 Lagmhor Creek is an RMA river of natural origin, but which, for much of its length, has been aligned to roadsides and paddock boundaries. On NZMS BY21, Lagmhor Creek rises from north of Sheates Road, close to the South Branch of the Ashburton River, and 12 km north-west of the Ashburton township. The headwaters almost certainly receives ground water from the South Branch of the Ashburton River, and the lower reaches are used for agricultural purposes.

- 27 During our last October visit, Lagmhor Creek was flowing, but flowed over a bed with very little vegetation, terrestrial or aquatic. However, Ms Stuart provided photographic evidence of the dry bed in March 2024, and the terrestrial vegetation in the mid-channel suggested it had been dry for periods of months over the summer period. I would therefore describe the western arm of Lagmhor Creek as being seasonally intermittent, at least that through the proposed development area.
- 28 Last October, the northern tributary was dry for almost all of its length except for water ponding just upstream (north) of its confluence with Lagmhor Creek tributary, near the proposed bridge locations of Bridge 4 & 5, the reach was dry in October 2023, as it was again in March 2024 (Ms Stuart, pers. comm.). There was no wetland vegetation present in the Northern Tributary.
- 29 However, in October 2023, water was pooled at the confluence of Lagmhor Creek and the northern tributary, but the Creek gently flowed south downstream of the confluence. This is where the redfin perch was identified and the upland bully, but fish numbers were low in respect to fishing effort. Aquatic macrophytes were present, an indication of some aquatic habitat permanence, or some longterm habitat inundation. Aquatic invertebrates were also present in the lower Lagmhor Creek, but the stream health measures, based on ecological indicators, suggested poor stream health.
- 30 The most abundant fish population, it seemed, were in the roadside waterway along Stranges Road, which borders the development proposal. However, the Stranges Road waterway is not connected, or potentially affected by the site development, as its siphoned under the bed of Lagmhor Creek at Stranges Road.
- 31 A s 92 (Request for further information) was received from ADC on 29 November 2023, which, in part, requested an Assessment of Indigenous Biodiversity in respect to the respective National Policy Statement 2023, which involved more survey work. This was duly completed on 14 December 2023, with an inventory of terrestrial vegetation on the site, highlighting any indigenous (native) species. Native vegetation was limited to Cabbage Tree, Rauthai/cutty grass (Carex geminata), Harakeke/flax, and bracken fern. All identified indigenous vegetation had a status of not threatened. Using the NPS assessment of indigenous biodiversity, the area did not qualify as an SNA due to its low indigenous diversity, representativeness, rarity and distinctiveness. This means the application of construction effects follow the effects management hierarchy as outlined in the NPS-FM 2020. It is our understanding the flaxes will remain in their present form, and be complemented with other native plantings.

32 Based on a review of site conditions and photographs from the spring survey, and an inspection of historic aerial photographs, herpetologist Chris McClure concluded that the site had little potential lizard habitat other than along the banks of the waterways and fence lines, and therefore potentially where the bridges were proposed. Accordingly, ADC removed their initial request for a full herpetological survey of the area, but the Officer's Report provides, in its recommended conditions, that in summer a herpetologist shall survey the bridge locations for lizards and consider mitigation options (which I would anticipate would include translocation were that viable).

THE PROPOSED EQUINE CENTRE

- 33 It is my understanding that five bridging points will be constructed across the Lagmhor Creek waterways, at locations presented in our report, and replicated in App. I, Fig. I of my evidence. At all the bridging sites, the Applicant has stated that the channel will be bridged and not culverted. Bridges will be narrow, and at least one will be a narrow footbridge. Photographs of four of the proposed bridging points are provided in App. I, Fig. ii. I do not have a photograph of the bridging point for Bridge 4, but the habitat was dry in October 2023, and largely similar to that of Bridge 5. I have supplied a photo looking southwards toward Bridge 5 (App. III, Fig. v).
- 34 Ecologically, bridging a channel is preferable to culverting because it allows biota to pass underneath, not only fish and particularly the flighted lifestages of aquatic insects. Flying aquatic insects cannot negotiate culverts (Blakely *et al.* 2006).
- 35 Because an old small culvert will be removed, which is a barrier to biota dispersal, and bridges added, the cumulative environmental effect for potential ecological dispersal is an improvement on the *status quo*.

ASSESSMENT OF EFFECTS

36 I consider that the effects on waterways from these minor bridge works will be minor, and easily mitigated with standard sediment control measures often used in the civil construction industry. These included sediment fences, the direction of construction water to natural hollows to filter fines through topsoil, sediment baffle tanks, and other devices. Such techniques are commonplace on construction sites in Canterbury, and are documented in Environment Canterbury (2007), and the more recent online Sediment Control toolbox (Environment Canterbury 2024).

- 37 Haul roads will be required for the construction of the bridges and a number of small buildings (App. I, Fig. i). These include an equine veterinary clinic with attached stables, a larger detached stable complex, and a horse stud selling area. Sealed areas are small, and include a small (c. 120 m²) 45-car carpark (Letter "N" area in App. I, Fig. i). A feature of this proposed development is the very low reduction of its pervious area, with sealed areas limited to the carpark, and a single paved road from Stranges Road to the "Selling Centre". Therefore, the construction water (and finally stormwater runoff) will be of low volume and easily treatable on-site with enough flat ground for a number of practicable options.
- 38 Much of the construction water can be discharged, and filtrated, through the top soil. Resuspension of fines around bridging sites can be controlled with sediment fences. Transport of any remaining suspended fines can be minimised by timing bridging works in late summer, after the bird breeding season (as recommended), when water flows are minimal.
- 39 The only stony riffle areas in the development area, which could provide potential spawning habitat for the resident upland bully, was in the lower Lagmhor Creek. However, any impact on this habitat would be fully mitigated to the point that environmental effects would be less than minor. The reduction of refuge on stony upland bully habitats by sedimentation has been experimentally found to be reversible (Jowett & Boustead 2001). Following site development and the maturation of native riparian planting, the instream ecology is likely to improve from its current low baseline. This is because native riparian plants will protect the habitats from sediment, but also support the instream ecology.
- 40 A beneficial effect of the land use change is that bank structure and stability is likely to improve due to this proposal. With lower bank sediment inputs, more stable banks, and proposed bank plantings of native plants that support the stream ecology, the substrate will retain more exposed coarse material, especially in the lower Lagmhor Creek.

MONITORING AND RECOMMENDATIONS

- 41 Section 9 of the AEL report sets out some proposed recommendations, which I will list and briefly comment on below.
- 42 In respect to our first recommendation regarding a lizard survey from last spring; desktop analysis of lizard habitat potential was addressed by a herpetologist over the summer. This matter has already been discussed in my evidence in that, in summer, a herpetologist shall survey the bridge locations for lizards and consider mitigation options.

- 43 The bird fauna was typical of pastoral land adjacent to a large braided river, with some waterbirds commuting between the two habitats for feeding and nesting. Avoiding the bird breeding season by concentrating the limited construction activity into the late summer seems to be a prudent measure, and has been reflected in the proposed consent conditions.
- 44 Compliance with CLWRP (Rule 5.167) requires maximum TSS discharges for works within the riparian border of a waterway. In my opinion, Lagmhor Creek is spring and groundwater fed, and the 50 g/m³ maximum TSS discharge figure would apply. The conditions propose an Erosion and Sediment Control Plan that will minimise TSS production.
- 45 Stormwater runoff be treated before discharge to waterways, and due to the low amount of impervious area, and the amount of flat ground available, we expect a high standard of stormwater treatment to be achieved.
- 46 I note that a dust suppression plan is required by Environment Canterbury before the commencement of development ground works. My understanding is that this will again be picked up by the management plan requirements for the purposes of ensuring compliance with the Canterbury Air Regional Plan.

RESPONSE TO SUBMISSIONS

- 47 The submission of Craig, Annabelle, and Tim Read raises concerns about effects on significant indigenous vegetation and fauna. As set out above, I do not consider the site contains significant indigenous vegetation and fauna, nor do I consider the risk of increased nutrient input to be high, given that the waterway health is already exposed to high nutrient leaching from agricultural land for a significant distance of at least 21 km upstream to west of Sheates Road (see para 26). I remain confident too, that nutrient interception from riparian plantings and nutrient export initiatives (i.e. manure removal) will also provide effective mitigation against nutrification of waterways and waterbodies. Overall, I have assessed the effects of the Proposed Equine Centre and consider these to be less than minor, provided recommendations are implemented in respect to monitoring of effects.
- 48 In respect to the Skevington submission, I am of the view that removal of manure to a location where it can be disposed of, or even outside of the catchment, is likely to provide a workable solution to maintaining the water quality in neighbouring waterways and waterbodies, including Laghmor Creek and Carters Creek.

RESPONSE TO SECTION 42A REPORT

49 I have read the section 42A report, prepared by Mr Boyes, and agree with its conclusions in respect to ecological effects. Mr Boyes

appears to agree that the site's ecological values are currently not high, and with riparian plantings its ecological values could well improve.

50 I have not addressed the earlier Boffa Miskell memorandum, which I have read. It is more broad-ranging than the AEL report, and its scope was confined to a high-level desktop assessment. However, I do not disagree with its findings, and our study builds upon, and complements, the Boffa Miskell study, and covers matters raised by the authors in respect to initiating assessments for habitat for fish, lizard, birds and riparian plantings.

CONCLUSIONS

51 Having read the section 42A report, and various submissions, I remain of the view that the adverse ecological effects of this proposal will be less than minor, and the potential of ecological improvement is high. This conclusion is based upon an existing low base of existing ecological value, but with high potential following development due to a proposed low level of impervious area conversion, and an extensive enhancement of the riparian margins.

Dated: 20 March 2024

an

Mark Taylor

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APPENDIX I. Site Map from the AEL report.

Figure i. Locations of all proposed bridges within the 249 Stranges Road property boundary, overlying the draft development plan (Revision H, DCM Urban).

APPENDIX II, Figs, i-v. Photographs of the proposed bridging sites.



Figure i. Looking downstream along Lagmhor Creek in the approximate vicinity of Bridge 1, 24/10/2023.



Figure ii. Looking upstream along Lagmhor Creek, in the approximate vicinity of Bridge 3. 24/10/2023. Some bank erosion and slumping is evident here.



Figure iii. Looking south along the ephemeral tributary, in the approximate vicinity of Bridge 4. 24/10/2023.



Figure iv. Looking north along the ephemeral tributary, in the approximate vicinity of Bridge 5. 24/10/2023.



Figure v. Looking south along the ephemeral north tributary towards the Bridge 4 location.



APPENDIX III. Conceptual landscape cross-section through Lagmhor Creek.

Figure i. Conceptual cross-section of Lagmhor Creek, illustrating stable gentle bank slopes and over-hanging indigenous riparian vegetation.