Before the Expert Consenting Panel

under: the Fast-track Approvals Act 2024 (*FTAA*)

in the matter of: notices of requirement and applications for resource consents, wildlife approvals and archaeological authorities by the NZ Transport Agency Waka Kotahi to develop the Brynderwyn Hills section of the Alternative to the Brynderwyn Hills Project, a state highway from the intersection of State Highway 1 and Baldrock Road in the south, through the Brynderwyn Hills to Waipū in the north.

applicant: **NZ Transport Agency**

Requiring Authority and Applicant

Statement of Evidence of Graeme Ridley for NZ Transport Agency Waka Kotahi

Dated: 28 October 2026

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STATEMENT OF EVIDENCE OF GRAEME RIDLEY

INTRODUCTION

1 My full name is Graeme John Ridley.

2 I am an Erosion and Sediment Control (*ESC*) expert and the Director of Ridley Dunphy Environmental Limited, an environmental consultancy that specialises in ESC for infrastructure projects.

3 I have over 30 years' experience in ESC, stormwater management, construction related environmental management, resource consents and compliance, and senior management in local government. As a Certified Professional in Erosion and Sediment Control (Envirocert International) and a Registered Soil Practitioner in Erosion and Sediment Control (Soil Science Australia) my specialist area is focused on construction water management looking at all aspects of construction discharges.

4 I have provided specific technical advice on construction water management on many significant projects while also understanding the complexities and context of other disciplines to ensure consistency in approach and an overall better environmental outcome. My experience relevant to this Project is attached at **Appendix A** to this statement.

5 My knowledge of the soils, environmental conditions and the ESC risks and solutions for the Project allows for a focused assessment of associated effects and the management measures that can be implemented.

6 My evidence has been prepared to support NZ Transport Agency Waka Kotahi *(NZTA)* as part of the response to comments on the notices of requirement and applications for resource consents, wildlife approvals and archaeological authorities (together, the *Application*) to develop the Brynderwyn Hills section of the Alternative to the Brynderwyn Hills (*Project*), a state highway from the intersection of SH1 and Baldrock Road in the south, through the Brynderwyn Hills to Waipū in the north.

7 I have been involved with the Project since September 2025. I am the author of the Construction Water Assessment Report (*CWAR*) lodged as part of the Application on 8 April 2026.[1]

CODE OF CONDUCT

8 Although this matter is not before the Environment Court, I confirm that I have read the Environment Court's Code of Conduct for Expert Witnesses in its Environment Court Practice Note 2023. I agree to comply with that Code. My qualifications as an expert are

[1] Vol B, Appendix D10 – Construction Water Assessment Report (*CWAR*).

set out above. 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

9 My evidence:

9.1 Briefly summarises my original assessment of potential construction water-related effects from the Project, particularly as it relates to comments received.

9.2 Responds to comments from:

(a) The Director General of Conservation on behalf of the Department of Conservation (*DOC*);

(b) Northland Regional Council (*NRC*);

(c) Patuharakeke Te Iwi Trust Board (*Patuharakeke*); and

(d) Te Pouwhenua o Tiakiriri Kūkupa Trust, on behalf of Te Parawhau Hapū (*Te Parawhau*).

10 In particular, my evidence addresses

10.1 The approach to ESC for the Project, including the use of Construction Erosion and Sediment Control Plans (*CESCPs*);

10.2 The details of my sediment yield assessment, the associated sedimentation effects and the adequacy of the proposed ESCs for the Project (recognising the scale and nature of the earthworks and the values of the receiving environment);

10.3 Proposed measures / conditions to manage potential ecological impacts from sediment load related to construction activities, with a particular emphasis on the Waipū estuary; and

10.4 Comments on the ESC-related conditions from NRC, Patuharakeke and Te Parawhau.

SUMMARY OF ORIGINAL ASSESSMENT

11 At the outset, I want to note that my experience in ESC is drawn from involvement across a very broad range of infrastructure projects on a national basis. I have worked within the consenting, procurement and implementation phases of these projects, and through my involvement contributed to and witnessed various approaches to ESC. This experience includes involvement with large transport corridors (including Transmission Gully, Puhoi to

Warkworth and Warkworth to Te Hana) and other significant cut-to-fill activities for residential and industrial developments.

12 Within the CWAR, I have recommended a suite of structural and non-structural measures that the NZTA has adopted and will require implementation during the Project's construction period. These measures and methodologies have been proven in previous large-scale projects to appropriately manage the effects of erosion and sediment from earthworks and other land-disturbing activities. I have used my previous experience in the development of, and to inform, the CWAR for this Project. Through the CWAR, I have determined the best practice and most effective approach to ESC, refining methodologies and building on learnings from my involvement in other large-scale infrastructure developments. Considering the context of the Proposed Designation and the anticipated receiving environments, it is my opinion that these measures will be effective for this Project.

13 My key recommendations include:

13.1 Requiring incorporation of non-structural elements (eg. sequencing of works, having appropriately skilled persons and resources on-site and restrictions on winter works) as part of the ESC measures for the Project, and ensuring that conditions of consent (including specific implementation strategies) require these elements to be adopted as part of the final construction methodology. From previous experience, I consider these non-structural elements need to be emphasised in consent conditions, to ensure that appropriate resources, skills, works sequencing and methodologies are applied at all times. In the absence of these non-structural elements, and with a focus on structural elements alone, my experience confirms that achieving effective ESC outcomes can be difficult;

13.2 Use of CESCPs, which require site-specific methodologies and ESC measures and design to be prepared and documented for all earthwork locations prior to earthworks occurring. CESCPs allow for ongoing flexibility and input into earthwork methodologies and ESC measures to be implemented. By requiring CESCPs to be prepared for relevant stages of the Project, ESC measures can be continually adapted as necessary in response to outcomes from monitoring and Project implementation;

13.3 Progressive stabilisation of earthworks as they progress with a maximum 14-day period of "inactive" earthworks. This requirement is a key tool in ensuring sediment generation and yield (and eventual sediment load downstream) from open areas is reduced; and

13.4 Incorporation of a "Continuous Improvement Programme" (*CIP*) as part of the overarching Erosion and Sediment Control Plan for the Project. The CIP is a key implementation tool for the Project, and will require confirmation of the water quality outcomes from construction activities, which will feed into the ongoing continuous improvement of all ESC aspects. This CIP includes development of water quality triggers that have an associated trigger management response.

14 In my opinion, through implementation of the CWAR recommendations (secured through NZTA's proposed conditions of consent), potential adverse effects caused by construction earthworks will be mitigated such that the overall effect of the Project on the environment will be minor.

MODELLING OF POTENTIAL SEDIMENTATION EFFECTS ARE ACCURATE AND THE PROPOSED ESC MEASURES ARE APPROPRIATE

15 DOC's ecological experts have questioned the accuracy of statements relating to potential sedimentation effects in certain catchments[2] and have sought that the effects management measures:

15.1 include consideration of regional direction and existing restoration initiatives related to sedimentation of freshwater environments; and

15.2 set monitoring triggers based on turbidity levels that differentiate between base and flood flows, avoid effects on a species-specific basis, and follow frameworks such as Earth Science New Zealand's 'Setting maximum turbidity levels for riverine fish (DSS)'.[3]

16 As an ESC expert, I consider the ESC modelling contained in the CWAR appropriately reflects the level and risk of sediment yields that may result from Project construction works, and I consider the proposed ESC measures are appropriate without the amendments suggested by DOC, as outlined below.

17 I confirm that the increase in sediment loads from the Project (based on data from previous projects and specific water quality sampling results undertaken for those Projects[4]) are illustrated as a catchment wide percentage increase.[5] I acknowledge that the Project traverses a large geographic area and therefore may result

[2] Department of Conservation Comments (*DOC Comments*) at Appendix A – Freshwater, page 20 at paragraph 49.

[3] DOC Comments at Appendix A – Freshwater, pages 27-28 at paragraphs 71 and 72.

[4] CWAR, section 6.1 at page 29

[5] CWAR, section 6.3, Table 8 at page 35.

in discharges to a broad extent of receiving catchments. There are also non-Project activities that are located above the Project's Indicative Alignment that may discharge to these receiving catchments (as illustrated in **Figure 1** (reproduced from the CWAR below)).

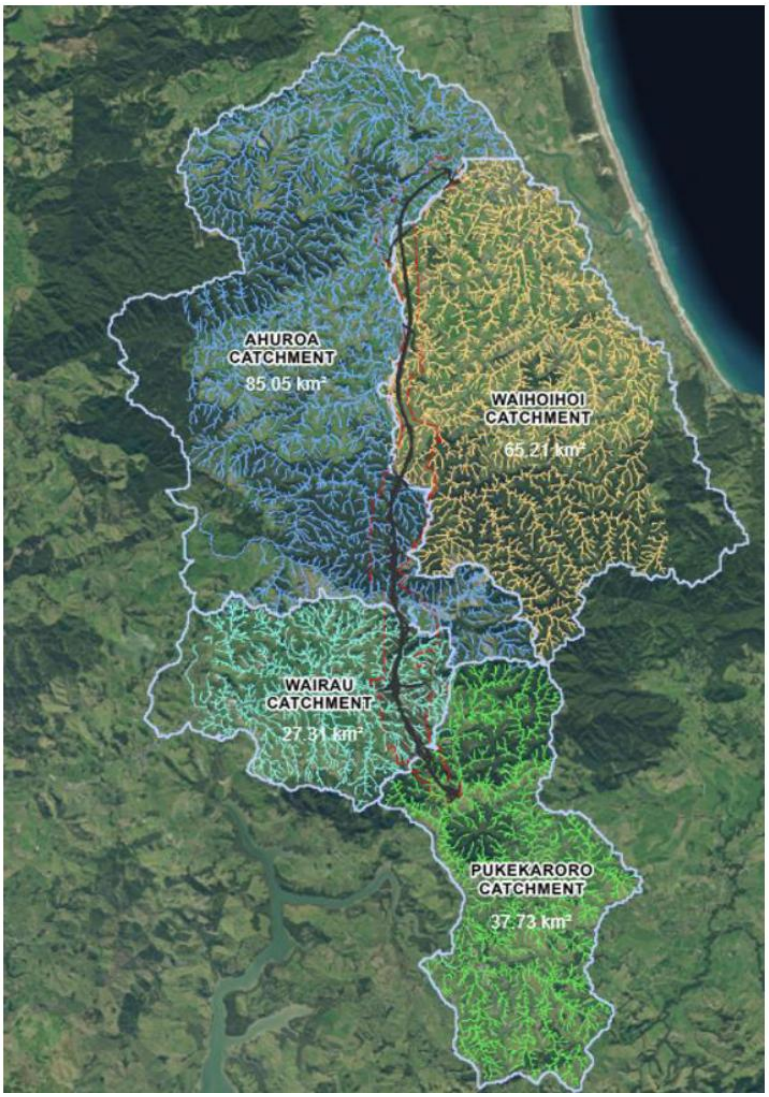

Figure 1 – Indicative Alignment overlaid with the different catchments that may receive discharge from the Project.

18 With reference to Figure 1 above, I confirm that the Indicative Alignment is typically located in the upper parts of the Ahuroa, Wairau and Pukekaroro catchments. The Indicative Alignment that traverses the Waihoihoi catchment is located more towards the mid-point of the catchment. However, given that much of this catchment is very flat, I have used a reduced sediment generation and yield in my calculations and assumptions accordingly.

19 Irrespective, the location of the Project alignment is somewhat irrelevant to the overall sediment loads to the ultimate receiving environment because:

19.1 Sediment yields from ESC devices will largely be of a fine particle size and this will travel in suspension for long distances downstream;

19.2 The Project will implement a series of ESC measures and also the CIP. I consider that implementation of these measures provides a robust and proven check and balance approach for all earthworks to ensure sediment yields, and loads, are minimised to the extent practicable; and

19.3 The percentage increases in sediment yields and loads are based on actual data from previous projects. I acknowledge that these sediment yields and loads will vary and are dependent on a number of factors. However, the CIP in particular is designed to continue to minimise sediment yields and loads throughout construction of the Project.

20 I further confirm that this Project is relatively short-term in nature (eg. 6-7 years). Therefore, even if there are some discharges to receiving environments, these discharges will not in any way compromise outcomes or initiatives of other sediment reduction activities that may be occurring within the catchments.

21 When considering the Waipū estuarine environment, this has both the Ahuroa and Waihoihoi catchments contributing to it. These two catchment areas have an estimated background sediment load (ie, without considering yields of the Project) of approximately 45,000 tonnes over the 4 years when the key earthworks are anticipated to occur (based on the assumptions within the CWAR). This estimated sediment load without the Project is significant. Therefore, the percentage increase from the Project for the short construction period, is minor.

22 I confirm that the ESC measures that will be implemented for the Project, including the important non-structural elements, are appropriate and effective (particularly in the context of the already significant sediment load within the relevant catchments). Of note, the overarching ESCP requires details of a CIP to plan for continuous improvement to the effectiveness of the ESC measures employed on the Project. This CIP must include the requirements outlined in Appendix C of the conditions, which includes:

22.1 TSS and / or NTU thresholds that trigger management responses;

22.2 Monitoring outcomes required following each Trigger Event; and

22.3 Procedures for undertaking water quality monitoring, qualitative monitoring and reporting.

23 The CESCP also requires risk identification and management measures to be addressed along with identification of discharge locations.

24 When implemented together, these measures will address any specific values or areas that need to be subject to different or higher levels of ESC management. I further note that Dr Vaughan Keesing has considered DOC's specific suggestion that turbidity levels should be set using Earth Science New Zealand's 'Setting maximum turbidity levels for riverine fish' (DSS), and does not consider these are necessary or appropriate for a Project of the scale in such modified farmland systems.

RESTRICTIONS ON WORKS THAT MAY IMPACT THE WAIPŪ ESTUARY

25 DOC has sought restrictions on works that could generate high sediment loads during the period that tara iti (fairy tern) use the Waipū estuary (August to March).[6] I do not consider such restrictions are necessary.

26 Importantly, as outlined at paragraph 21 above, the Project's ultimate receiving environments (including the Waipū Estuary), are already subject to sediment loads from existing land use activities. During rain events, total suspended solids within these waterways will increase as a result of existing land uses (irrespective of Project construction).

27 Where ESC measures for the Project discharge to receiving environments, this will typically be at times when there is significant rainfall, and will be for short periods of time only. In terms of effects, these factors mean that discharges from the Project will be to a stream system that is already high in turbidity and suspended solids.

28 The time between 1 May and 30 September is recognised as the winter period when rainfall volumes are most likely to be higher. Accordingly, this period also reflects the time of the year when discharge risk from ESC devices is higher, resulting in an increased risk of sediment yields to receiving environments. However, this period is also when earthwork activities are restricted, with works requiring additional certification by Councils before they can be undertaken, and many areas stabilised throughout that time period. Any works that are undertaken over this period would also be subject to additional restrictions such as increased monitoring, more stringent and focused staging of works and more progressive stabilisation of exposed surfaces. In light of the above, restriction of high sediment generating activities, if these can be identified, to

[6] DOC Comments at Appendix C – Frogs, lizards and avifauna feedback, paragraphs 17, 149-150 and 163 at pages 7, 56-57 and 61.

outside the August to March period would likely be ineffective in reducing effects of any sediment discharges.

29 I refer to the evidence of Dr Leigh Bull with respect to the Project's potential effects on tara iti, who does not consider this is necessary to manage effects on this species.

RESPONSE TO COMMENTS ON THE ESC-RELATED CONDITIONS

Defining a "suitably qualified person"

30 Te Parawhau considers that the person responsible for the implementation, monitoring and management of ESC measures, as specified in Condition RC22(d), should be a suitably qualified person, with relevant experience and expertise in ESC, freshwater management and environmental monitoring.

31 I agree with this position and in particular note the importance of these requirements in the context of the non-structural ESC elements that require emphasis for the Project. I consider the definition of a "suitably qualified person" must be clear and must include a person with suitable qualifications, training, technical knowledge and experience. NZTA has amended proposed Condition RC22(d) accordingly.

The CIP will ensure appropriate responses

32 Te Parawhau considers that Condition RC22(f) related to the CIP, should also respond to monitoring of receiving environments, waterways, wetlands, habitats supporting taonga species and the effectiveness of measures implemented to protect the mauri of ngā wai and the wider taiao.

33 I confirm that the CIP will respond to exceedances of TSS and / or NTU thresholds, including reporting to Council, investigating possible causes and effects, identification of potential linkages between on-site practices and these effects, assessing the effectiveness of on-site practices and remedial actions (where necessary). I consider the requirements of the CIP could be expanded to ensure it is clear that the investigation of trigger exceedances will include assessment of downstream environments and any associated effects. Appendix C to the NZTA's proposed conditions has been amended accordingly.

34 Patuharakeke provide further commentary related to ecological response to monitoring outcomes. My assessment as detailed in paragraph 24 addresses this concern.

35 Patuharakeke also note that Appendix C, CIP Requirements (b)(ii) should include an upper pH limit from discharges from SRPs and DEBs. I support this addition and Appendix C, CIP Requirements (b)(ii) has been amended accordingly.

36 NRC seeks inclusion of a condition controlling adverse effects on water quality at the reasonable mixing zone, based on template text from NRC's standard suite of consent conditions as follows:

> *The exercise of these consents must not cause any of the following effects on the water quality of the unnamed tributary of the..... Stream/River as measured approximately 20 metres downstream of a discharge point into the tributary/stream/river, when compared to a site upstream of all earthworks activities during the same sampling event:*
>
> a) *The production of any conspicuous oil or grease films, scums or foams, floatable or suspended materials;*
>
> *b) A conspicuous change in colour or visual clarity;*
>
> *c) An emission of objectionable odour.*

37 Rather than having a general non-Project specific condition, I consider the requirement for the ESCP to include a CIP (as per Condition RC22(f)) is more appropriate. The NZTA's proposed consent conditions requires that the CIP include (as per the requirements in Appendix C), a description of TSS and / NTU thresholds that trigger management responses and qualitative monitoring outcomes following heavy rainfall events. The CIP must also outline various procedures to monitor for, and respond to, potential exceedances of these thresholds and outcomes. By implementing these procedures, I consider NZTA will monitor and respond to circumstances where potential water quality issues may arise during the construction period if actions are not otherwise undertaken.

38 Overall, I do not consider the inclusion of NRC's generic conspicuous change condition is necessary to manage sediment-related effects for this Project. NRC's suggested condition would create potential ambiguous interpretation during implementation. In contrast, the proposed CIP will clearly link to specific triggers and effects that are Project-specific rather than generic visual clarity parameters.

CONCLUSIONS

39 With the addition of some minor amendments to conditions as specified above, I consider the ESCP, CESCPs and in particular the CIP, will provide a robust and proven apporach to earthworks and erosion and sediment control, and will ensure effective and appropriate outcomes.

40 I consider, my original assessment remains robust and appropriate, and with implementation of the CWAR recommendations (secured through NZTA's proposed conditions of consent), I consider potential adverse effects resulting from Project construction earthworks will be appropriately managed and mitigated.

Graeme Ridley
28 October 2026

APPENDIX A – RELEVANT QUALIFICATIONS AND EXPERIENCE

1 Acting as the construction water expert for the Warkworth to Wellsford proposed motorway project (12M m^3 of earthworks) including technical work package and consent documentation on behalf of the applicant.

2 Provision of specialist ESC advice for the Mount Messenger Alliance project. Development of associated documents for both the multi criteria analysis process and assessment of effects and expert evidence at hearing.

3 Provision of construction water management advice and input into the earthquake recovery programme and works for Kaikoura. Specific plan development and site-specific advice and audits.

4 Provision of specialist construction water management advice for Auckland's Northern Corridor Improvements project. Development of associated documents for assessment of effects and expert evidence as required for applicant.

5 Technical expert role for the Further North Alliance for the Puhoi to Warkworth Motorway project (8M m^3 of earthworks) for the purpose of obtaining consents and the Board of Inquiry process.

6 Primary expert for NZTA for the MacKay's to Pekapeka expressway project associated with ESC and general construction related environmental management. Provision of technical reports and BOI process.

7 Primary expert for NZTA for the Western Ring Route Waterview motorway project associated with ESC. Provision of technical reports and expert witness.

8 Part of wider environmental team preparing resource consent applications for NZTA Waterview Tunnel and Western Ring Route project, Auckland, including preparation of plans, documentation and attending consultation and liaison meetings.