

Before Independent Hearings Commissioners
appointed by the Northland Regional Council

under: the Resource Management Act 1991

in the matter of: an application by Meridian Energy Limited for resource consents for earthworks, associated stormwater diversion and discharges, vegetation clearance, and wetland removal for the construction of a solar farm at Ruakākā, Northland (APP.045356.01.01)

between: **Meridian Energy Limited**
Applicant

and: **Northland Regional Council**
Consent Authority

Summary statement – Tanya Cook (Ecology – wetland delineation)

Dated: 5 August 2024

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SUMMARY STATEMENT OF TANYA COOK

INTRODUCTION

- 1 My full name is Tanya Louise Cook.
- 2 My qualifications, experience and confirmation I will comply with the Code of Conduct are set out at paragraphs 2-7 of my statement of evidence.

SUMMARY OF EVIDENCE

- 3 I have been engaged by Meridian Energy Limited (*MEL*) since 2022. I undertook wetland delineations and assisted with the preparation of the assessment of ecological effects to support the resource consent application for the proposed solar farm development (*Proposal*).
- 4 The Proposal involves activities to construct and operate a solar farm across three sites in Ruakākā. Boffa Miskell undertook delineations and assessment of the wetlands across all three sites using the same methodology. The majority of the mapped wetlands are within Site 1, therefore, my evidence focuses on the delineation methodology, extent and values of the wetlands in Site 1 (referred to as the *Site* from here on).
- 5 The National Policy Statement for Freshwater Management 2020 (*NPS-FM*) provides the policy framework for the National Environmental Standard for Freshwater (*NES-F*), including a definition for natural inland wetlands, which are subject to regulatory controls under NES-F provisions.
- 6 To establish the typical extent of natural inland wetlands on the Site, Boffa Miskell applied the national protocols prescribed in the NPS-FM across the entire Site in 8 visits between October 2021 and March 2023. This involved rapid visual assessments in areas that were clearly wetland or non-wetland (as recommended in the national protocols), 72 vegetation plots, soil and hydrology assessments and walking the edge of natural inland wetlands features, across the entirety of the Site.
- 7 A total of 18.78 ha of natural inland wetlands were mapped on Site 1, of which 13.32 ha (70%) are intermittently wet features dominated by exotic vegetation with shallow water or saturated soil, 0.75 ha are intermittently wet features dominated by indigenous vegetation, and 4.71 ha are open pond habitats. The smaller open pond habitats are also intermittently wet features dominated by exotic vegetation. The largest of the open pond habitats is the only wetland on the Site which is permanently wet in most years.
- 8 The majority of the wetlands on the Site are highly degraded in their current state, due to the dominance of invasive exotic plant species,

grazing by stock, and the influence of the existing drainage on the Site, which must be maintained due to the Whangarei District Council discharge of treated wastewater on adjacent land.

- 9 Council's peer review ecologist Mr Warden disagrees with Boffa Miskell's mapped wetland extents and is of the opinion that the natural inland wetland extent on the Site is 29 – 30 ha. Mr Warden questions the accuracy and validity of Boffa Miskell's process based on concerns with the timeframe of the assessment, location and number of plots conducted, misidentification of plant species and (assumed) dependency on outdated aerial imagery.
- 10 In my evidence I respond to the concerns raised in Mr Warden's review and present the findings of additional fieldwork undertaken in 2024 to clarify the difference in wetland extent on the Site.
- 11 In my opinion, undertaking multiple site visits in a range of hydrological conditions and times of year provides higher certainty in the assessment of the natural inland wetland features, especially taking into account the dynamic nature of the features present on the Site and the abnormally wet conditions experienced in 2022/2023.
- 12 As I have already said, Boffa Miskell's process followed the national protocols, and incorporated sufficient field assessment, which was used in conjunction with contours and recent imagery, including the high-resolution drone imagery captured in September 2022, to accurately delineate wetland features. Boffa Miskell's process therefore, in my view followed best practice and is valid.
- 13 The additional assessments undertaken by Boffa Miskell in 2024 show that the exotic dominated wetlands that are on slightly higher ground rely on rainfall for their wetland hydrology in a normal climatic year. I consider that the observations that Mr Warden relies on to determine wetland extent are the result of a very wet growing season, as experienced in the 2022/2023 summer¹. As a result of the extremely high groundwater levels in February and March 2023, all wetland features within the Site were connected to groundwater and areas on higher ground that normally would not be wet had prolonged surface pooling and/or saturated soil. The effects of this abnormally wet year have persisted well into the next growing season.
- 14 The additional assessments in 2024 show that the majority of areas that Mr Warden considers to be natural inland wetlands that Boffa Miskell did not map as natural inland wetlands, are either clearly dry pasture, i.e., not wetland, or had vegetation dominated by facultative wetland plants for approximately a year (which coincided

¹ Note this is a correction to paragraph 87 of my evidence. Para. 87 should have referred to the "very wet growing season, as experienced in the **2022/2023** summer". Likewise para. 104 should state "particularly in 2023/2024 due to the elevated water levels during the **2022/2023** summer".

with Mr Warden's review), following the wet conditions in 2022/2023, and have already or are now reverting back to a dry upland pasture community.

- 15 These areas typically had a thin peat lens (< 20 cm deep) above free-draining dry sand, with groundwater greater than 60 cm below the surface in late June/early July. Thin peat (<30 cm thick) is not classified as an organic soil in the NZ Soil Classification (Hewitt 2010)² and therefore, is not a hydric soil. These areas are unlikely to meet the standard for wetland hydrology stated in the hydrology tool³. In my view the shallow peat is a relict wetland soil, as a result of the drainage and cultivation on the Site over the last 80 odd years.
- 16 Overall, while the results of the additional assessments show that the wetland extents have changed in some places compared to the 18.78 ha of wetlands mapped in the Assessment of Ecological Effects, this includes both expansions and contractions in extent. This is expected given the dynamic nature of the wetlands on the Site and the extremely wet conditions experienced over 2022 and 2023.
- 17 In my opinion the original wetland extents Boffa Miskell mapped are an accurate delineation of the natural inland wetlands on the Site at the time of our site visits and these extents are representative of the wetland extents under normal climatic and hydrologic conditions, noting that some areas mapped based on the March 2023 site visit and September drone imagery have mapped slightly larger extents than would be expected under normal conditions.
- 18 In summary, between October 2021 and July 2024 Boffa Miskell have undertaken over a hundred rapid visual assessments, 118 vegetation plots, hydrology and soil assessments and walked the edge of all natural inland wetland features identified on Site. I consider Boffa Miskell's process was comprehensive and robust and followed the NPS-FM requirements, resulting in an outcome that can and should be relied upon for the purposes of assessment of the Proposal.

5 August 2024

Tanya Cook

² Hewitt, A. E. (2010). *New Zealand Soil Classification*. 3rd Edition. Lincoln: Manaaki Whenua – Landcare Research Ltd. p. 35.

³ The standard for wetland hydrology from the NZ wetland hydrology tool: "*an area must be inundated for at least seven consecutive days during the growing season in most years (50 per cent probability of recurrence); or saturated at or near the surface for at least 14 consecutive days during the growing season in most years (50 per cent probability of recurrence, for example, 5 years in 10). Soils may be considered saturated if the water table is within: 15 centimetres of the surface for sands or 30 centimetres of the surface for all other soils*".