IBEFORE THE HEARING PANEL APPOINTED BY KAIPARA DISTRICT COUNCIL

Under the	Resource Management Act 1991 (**RMA**)
In the matter	of Private Plan Change 85 (Mangawhai East) to the Kaipara District Plan

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STATEMENT OF REBUTTAL EVIDENCE OF CLINTON JAMES CANTRELL ON BEHALF OF KAIPARA DISTRICT COUNCIL

Wastewater

9 February 2026

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1. INTRODUCTION

1.1 My full name is Clinton James Cantrell.

1.2 I prepared a statement of evidence dated 1 December 2025 on behalf of Kaipara District Council (**Council**) in relation to the application by Foundry Group Limited and Pro Land Matters Company (**Applicant**) for a private plan change to rezone land in Mangawhai East (**PPC85**). I refer to my qualifications and experience in my original statement of evidence and do not repeat them here.

1.3 Although this matter is not being heard by the Environment Court, I confirm that I have read and am familiar with the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2023 and I agree to comply with it.

1.4 I am authorised to make this statement on behalf of the Council.

2. SCOPE OF EVIDENCE

2.1 The purpose of this statement is to respond to the evidence-in-chief of Philip Fairgray (Civil Engineering) and Robert White (Water and Wastewater Reticulation and Transmission) on behalf of the Applicant.

2.2 As an opening statement, I would like to confirm that myself, Mr. Fairgray and Mr. White are in agreement on the following items:

(a) The proposed wastewater reticulation solution within PPC85 area itself is acceptable;

(b) The connection of the site to the Mangawhai WWTP will require existing public wastewater pump station and rising main upgrades/duplication; and

(c) The existing WWTP capacity and programmed upgrades and expected capacity are as outlined in my evidence-in-chief.

2.3 The key area of disagreement between myself and Mr Fairgray and Mr White is the level of confidence that can be applied now to the design, funding, consenting, and

delivery of a further long-term treated effluent disposal solution (beyond the effluent disposal solution identified at the Mangawhai Golf Course System) that is needed to increase the capacity of the Mangawhai Community Wastewater Scheme (**MCWWS**) to over 6,500 connections.

2.4 In relation to this, all infrastructure that is yet to be designed and programmed has a speculative element. This is normal, and in my opinion itself does not necessarily raise any red flags from a wastewater servicing perspective. However, in the early stages of infrastructure options assessments, particularly for ones which are highly complex and subject to assessment of a number of technical variables, it is common that options being considered turn out to not be feasible for one reason or another. In my expert technical opinion, I believe that treated effluent disposal options beyond the current Brown Farm and proposed Mangawhai Golf Course (**MCG**) system fall into this class, and at this stage should be considered as potentially not feasible. This is what I have focused my rebuttal evidence on.

2.5 In particular, I will address:

(a) paragraphs 35 to 40 in Mr. Fairgray's evidence in relation to potential future options to provide further wastewater effluent disposal as part of the MCWWS;

(b) paragraphs 43 to 47 in Mr. White's evidence in relation to "further expansion" to address the lack of available treated wastewater effluent disposal capacity in the MCWWS for servicing growth beyond what has already been approved by KDC; and

(c) paragraphs 23 to 26 in Mr. White's evidence in relation to the option of a "third pipe" system to supply treated wastewater effluent to residential properties for non-potable uses.

3. OPTIONS FOR ADDRESSING TREATED WASTEWATER EFFLUENT CAPACITY CONSTRAINTS

3.1 Mr. Fairgray's and Mr. White's evidence both include statements in response to my evidence-in-chief regarding capacity constraints for treated wastewater effluent disposal beyond plans currently in place by KDC. In particular, Mr. Fairgray states in paragraphs 39 and 40 of his evidence that:

"*Paragraph 4.9(c) of Mr Cantrell's evidence discusses the various options for the additional disposal capacity. Mr White also suggests investigation into recycling of the treated wastewater to reduce to amount of wastewater disposal. Again, I consider there are a range of suitable options, and there is sufficient time for this to be addressed prior to the demand occurring.*

Therefore, I consider that disposal is not an ongoing constraint for PC85."

3.2 Mr. White's evidence makes similar statements to Mr. Fairgray's, and refers to Mr. Fairgray's evidence in terms of options to address treated effluent disposal capacity constraints. Paragraph 46 of Mr. White's evidence states "In my view further expansions could service PC85."

3.3 However, Mr Fairgray and Mr White have not provided any evidence themselves in relation to the feasibility of these options, the technical and non-technical constraints they would face, and how these might be overcome.

3.4 In relation to the options available to provide further capacity in the MCWWS to dispose of treated effluent, KDC have conducted a number of high level assessments of treated effluent disposal options over the past decade. This has included assessment of options beyond the existing Brown Farm, and the new system proposed at the MCG. Options have only been assessed at a high level, and have not included any investigations beyond desktop assessment. The results of these assessments identified the proposed MGC subsurface irrigation system as the preferred option beyond the capacity limitations of Brown Farm.

3.5 Following the Council identifying subsurface irrigation at the MGC as its preferred option for further effluent disposal, more detailed work and assessment was undertaken in relation to the proposed subsurface drip irrigation at the MCG. KDC then applied to the Northland Regional Council for the required discharge consent.

3.6 At paragraph 4.8(c) of my evidence-in-chief I noted that the resource consent for the MGC sub-surface irrigation had been applied for. For completeness I can now confirm that on 15 December 2025 KDC was granted this consent.

3.7 In response to Mr. Fairgray's statement that "*Again, I consider there are a range of suitable options, and there is sufficient time for this to be addressed prior to the demand occurring. Therefore, I consider that disposal is not an ongoing constraint for PC85*." and Mr. White's statement "*In my view further expansions could service PC85*.", in my opinion these statements are highly speculative. They do not reflect the considerable technical, economic and non-technical risks that must be carefully assessed before KDC will have any certainty on the viability of additional treated wastewater effluent disposal options.

3.8 Based on previous assessments and my knowledge of KDC's wastewater systems, in my opinion, the options which would likely be considered to increase effluent disposal capacity beyond the Brown Farm and MGC systems (i.e. to provide for capacity above 6,500 connections) are a long-sea outfall, or an additional farm system similar to Brown Farm.

The key technical and non-technical risks associated with a long sea outfall

3.9 While disposal of treated effluent via a long sea outfall is an option for further effluent disposal, in my opinion there are key technical and non-technical risks associated with this option. I address these below.

3.10 Key technical risks associated with a long sea outfall option include:

(a) unknown onshore and offshore ground/seabed conditions affecting constructability;

(b) the reliability and resilience of a long pumped transfer and marine diffuser system (including power dependence and contingency storage); and

(c) uncertainty in the effluent quality requirements for a marine discharge (particularly disinfection and any additional standards needed to protect recreational water quality and kai moana), which could materially change treatment upgrade scope i.e. the works would include not just a pipeline but could require further upgrades to the treatment plant.

3.11 Non-technical risks associated with a long sea outfall option include:

(a) consenting risk: an application for resource consent for an ocean outfall and to discharge treated effluent to the CMA would need to be supported by a detailed and robust Assessment of Environmental Effects (**AEE**). The AEE would also need to address engagement with iwi and the cultural acceptability of the proposed structures and discharge. Overall, an ocean outfall and discharge could be difficult to consent, or if granted consent could be appealed; and

(b) uncertainty in cost estimation and the risk of costs being higher than predicted: the risk of costs being higher than predicted is high due to marine construction uncertainty and consenting requirements. I understand current estimates of the capital cost for this option are in the order of ~$75m to $80m + gst. However, there is the potential for costs to escalate materially if additional treatment, land acquisition, more complex construction methods, or extended consenting processes are required.

The key technical and non-technical risks associated with further land based disposal

3.12 Providing for further disposal of treated effluent to land via a new land disposal farm option is a known and culturally acceptable approach. However, in my

opinion there are key technical and non-technical risks associated with this option. I address these below.

3.13 Key technical risks associated with the land based disposal option include:

(a) identifying a site with suitable conditions of a sufficient size for disposal of treated effluent to land (noting that the land area required is likely to be substantial and in the order of 150-200 ha);

(b) technical risks around pipeline ground conditions (noting that depending on the location of the site, a pipeline of a substantial length, and new pumps is likely to be required); and

(c) identifying a site with suitable separation from neighbours to avoid reserve sensitivity effects (noting that if this is not possible, additional drip/subsurface irrigation could be required, at higher cost).

3.14 Key non-technical risks associated with the disposal to ground option include:

(a) consenting risk: an application for resource consent for land based disposal would need to be supported by a detailed and robust AEE, and could be subject to consenting risk (including possible opposition from neighbours); and

(b) uncertainty in costs and the risk of costs being higher than predicted: there is a risk of costs being higher than predicted due to the extensive land acquisition requirements, construction uncertainty and consenting requirements. I understand current estimates of the capital costs for this option are in the order of ~$60m to $65m. However, there is the potential for costs to escalate materially if additional treatment, land acquisition, more complex construction methods, or extended consenting processes are required.

The use of treated wastewater for non-potable purposes

3.15 Mr. White is of the opinion that a further option to dispose of treated wastewater is by using a "third pipe" system to supply treated wastewater effluent to residential properties for non-potable uses (Paragraphs 23 to 26 of his evidence).

3.16 In my opinion, this option is feasible from a technical perspective. However, while this option is feasible, it presents substantial risks in terms of ensuring that no cross contamination of non-potable and potable water occurs.

3.17 I believe that approval of a third pipe system under the Building Act and code is uncertain due to numerous factors, risks and uncertainties. A "purple pipe" (dual reticulation / third-pipe) system supplying non-potable water to residential properties is often treated with caution due to its high whole-of-life cost and elevated public health and operational risks. The key risk is cross-connection or misconnections between the recycled and potable systems (including within private plumbing), which can have severe consequences and therefore requires stringent design, commissioning and ongoing auditing. The option also creates permanent operational complexity by requiring a second reticulation network (pipes, meters, storage, pumping, monitoring and customer management), and it can be vulnerable to low or variable demand causing stagnation and the need for flushing. In addition, it requires consistent and reliable achievement of non-potable treatment and disinfection standards across all wastewater plant operating conditions, including variable loads and wet weather peak flows, which can materially increase treatment, monitoring and compliance requirements.

3.18 It is also worth noting there is a well-recognised class of "emerging contaminants" (also called contaminants of emerging concern, CECs) that can be present in treated municipal wastewater at very low concentrations, but which can still be important from a human health, environmental, and social licence perspective for any scheme that proposes reticulated reuse to residential areas (e.g., purple pipe supply for toilet flushing/outdoor use). Examples include disinfection byproducts, endocrine

disrupting compounds, pharmaceuticals and personal care products, Per- and Polyfluoroalkyl Substances (PFAS), and micro-plastics. This may limit the likelihood of treated wastewater being considered acceptable to be used for non-potable residential use.

Feasibility of expanding the treatment plant beyond 6,500 connections

3.19 At paragraph 31 of his evidence Mr Fairgray states:

"*There does not appear to be any physical constraints on the MWWTP expansion, rather the constraint is purely one of timing and cost. To this end I note that the site the current WWTP is on is approximately 30-hectares in area, so there does not appear to be any land limitation to delivering upgrades that could service a greater population / number of dwellings*."

3.20 In response to this, the existing Mangawhai WWTP is located on a parcel which has a total area of 32.5 hectares. However, much of this area is not suitable for future expansion of the plant due to the topography, location of adjacent properties and other ground conditions which would prove to be very challenging. The current upgrade plans include layouts/footprints for new processes and other required facilities to service up to approximately 6,500 connections. This layout uses up most of the readily available space for future plant expansions. The space required for treatment beyond 6,500 connections will likely require significant and expensive ground works which will be technically challenging.

4. CONCLUSION

4.1 As outlined in my evidence-in-chief and rebuttal evidence, the MCWWS has different capacity constraints that need to be addressed before it could service growth enabled under PPC85.

4.2 The upgrades required to the pump stations and rising main are relatively straightforward from a technical perspective. Upgrading the capacity of the

Mangawhai WWTP to service more than 6,500 connections is likely to require significant and expensive ground works and be technically challenging. However, overall, there is a reasonably high level of confidence these required upgrades can be delivered, subject to funding being available.

4.3 The key future constraint to the growth of the MCWWS is the ability to provide further capacity for increased effluent disposal. In relation to this, there is a reasonably high level of confidence that the MCWWS can be expanded to service up to 6,500 connections based on effluent disposal being provided at Brown Road Farm and the further effluent disposal planned by the Council for at the MCG.

4.4 However, increasing the capacity of the MCWWS beyond 6,500 connections requires identification of a further effluent disposal option. In this case this is likely to be either a long-sea outfall, or additional discharge to land. Based on my technical experience and knowledge of Mangawhai, I consider that both of these options are likely to face significant technical and non-technical hurdles such that they are potentially not feasible.

4.5 Overall, in my opinion, the ability to deliver an additional effluent disposal option in Mangawhai that is required to service more than 6,500 connections is highly speculative, and cannot be relied on.

Clinton Cantrell

9 February 2026