

BEFORE A HEARING PANEL CONSTITUTED BY KĀPITI COAST DISTRICT COUNCIL

IN THE MATTER OF

Resource Management Act, Schedule 1
Subpart 6 being the Intensification
Streamline Planning Process

AND

IN THE MATTER OF

Proposed Plan Change 2, a Council-led
proposed plan change to the Kāpiti Coast
District Plan in accordance with the
directives of the National Policy Statement
on Urban Development

STATEMENT OF EVIDENCE OF ANNA PRUE SISARICH CARTER

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Section A – Introduction

Name, qualifications and experience

- [1] My full name is Anna Prue Sisarich Carter. I am employed as a Senior Planner at Land Matters Limited based in Ōtaki.
- [2] I graduated with a Bachelor degree in Resource and Environmental Planning with a major in ecology from Massey University in 1997.
- [3] I have been a Full Member of the New Zealand Planning Institute since 2001. I have 23 years experience as a planning and resource management professional in New Zealand.
- [4] I have worked in central government, local government and private consultancy. I have prepared resource consent applications for various projects for greenfield residential developments, commercial activities and industrial projects. I have been involved in private plan changes and plan development in several regions of New Zealand and have appeared before the Environment Court for resource consent and district plan matters.

Expert Code

- [5] While this is not an Environment Court hearing, I have met the standards in that Court for giving expert evidence.
- [6] I have read the Environment Court Practice Note 2023 Part 8 in respect to the preparation of evidence and Part 9 in respect of the Code of Conduct for expert witnesses. I agree to comply with the Code of Conduct. I am satisfied that the matters addressed in this statement of evidence are within my expertise. I am not aware of any material facts that have been omitted or might alter or detract from the opinions expressed in this statement of evidence.

Roles Held

- [7] I have prepared the submission and further submission on behalf of the Waikanae East submitters (submission S087 and further submission S087.F.1) in relation to the land identified as containing 40.45 hectares of land (referred to in my evidence as 'Waikanae East').

- [8] I have also prepared submissions on Proposed Plan Change 2 ('PC(N)') for the following submitters:
1. The Loyalty Initiative (reference S026)
 2. Anna & John Carter (reference S068)
- [9] Within the last seven years I have prepared resource consent applications for two of the landowners who form part of the Waikanae East submission. This included a land use consent and consents to discharge to air and water for Goodman Holdings Ltd ('Goodmans') for their sites at 4 and 6 Anne Street and 32A Elizabeth Street, Waikanae in respect of the operation of their site. These consents were granted in 2017 by Kāpiti Coast District Council ('KCDC' - RM170308) and Greater Wellington Regional Council ('GWRC' - WGN180135).
- [10] As part of Goodmans resource consent application, the applicant engaged AWA Environmental Ltd to model the flood plain and prepare flood attenuation detailed design; and Morphum Environmental Ltd to design water sensitive urban design solutions including a constructed wetland for this site. Other environmental monitoring was undertaken in the watercourses and in the Waikanae River as part of the Goodman applications.
- [11] More recently I have prepared and lodged land use and subdivision applications with KCDC for AWA Iti Ltd for the site at 4 Reikorangi Road, Waikanae (KCDC reference RM220337). As part of this application, the applicant engaged Miyamoto Geotechnical engineers to assess effects from development within the *Ohariu Uncertain - Constrained Fault Avoidance* area within their site.
- [12] As part of preparing this evidence, I have relied on some of the advice received in respect of the resource consents lodged for Goodman Holding Ltd and the AWA Iti Ltd.
- [13] This evidence will also be relying on the following expert evidence that has been prepared in support of the submissions as follows:
1. Structure planning prepared by Dr. Frank Boffa, Landscape Architect; and
 2. Transportation evidence prepared by Harriet Fraser, Transport Engineer;

- [14] The submitters also engaged Te Rangimarie Williams, a principal consultant and director of Te Kōnae Ltd who prepared an assessment of values associated with the land at “Waikanae East” on behalf of Āti Awa ki Whakarongotai.
- [15] We acknowledge the minute of the Hearing Panel dated 11 November 2022 requesting that submitter expert evidence be available to the parties and on Council’s website no later than 5.00pm, Monday 13 March 2023 (para 23); and that in respect of submissions requesting land to be re-zoned beyond that identified in the notified PC 2, for the panel to receive relevant supporting information earlier than directed in paragraph 23(b).

Extent and Application of Evidence

- [16] **Appendix 1** of my evidence contains the **proposed extent of rezoning requested shown by a solid yellow line around the perimeter of Waikanae East**. The extent of rezoning includes all land owned by the submitters and includes General Industrial zoned land and General Rural zoned land. It proposes to rezone all this land to General Residential zone. A small area of Industrial zoned land (approximately 7,000m²) is proposed to be ‘swapped’ for a similar sized area of General Rural land as part of consolidating the activities of Goodman Holdings Ltd. The proposal also seeks to apply Precinct A within 800m of a walkable catchment from the Waikanae Railway Line and has generally adopted boundaries for this area as set out in Appendix E – Spatial Application Policy and includes all land within 800m of a walkable catchment to the railway station.
- [17] This evidence has been prepared in accordance with section 32 of the Resource Management Act 1991 (‘RMA’). In addition to the evidence that has been commissioned specifically for this evidence as set out in paragraph [13], I have relied on expert advice provided to submitters in support of previous resource consent applications pertaining to land identified within the Waikanae East submission as described in paragraph [11].
- [18] I have also referenced the evaluations undertaken by the Council in its section 32 report to support the proposed intensification of existing urban areas, to determine the extent of information Council’s section 32 evaluation report

relied upon as a proxy to determine the level of evidence required to support Waikanae East's submission.

[19] This evidence relies on the following information:

1. **Indicative spatial plan and wider context plan set** (included in **Appendix 1**); and **evidence prepared by Dr. Frank Boffa** showing likely extent and typical densities of urban development within the site; roading connections; open space and cycleway, walking and bridleway (CWB) networks; indicative location and extent of stormwater treatment areas; indicative location and extent of flood attenuation areas; and buffers from noise generating activities. The wider context plan shows the wider area of Waikanae East to Huia Street extension in the north, and the Main Highway and beyond to the west and how the proposed rezoned land will connect with those areas;
2. **Transportation evidence** that reviews the existing roading network and determines likely vehicle capacity for the existing railway crossing to Waikanae West; and assesses how additional demand may be accommodated.
3. **Statement of cultural values** (refer **Appendix 2** of my evidence) prepared on behalf of Āti Awa ki Whakarongotai at the request of the submitters. The author of this document was provided with the above information;
4. **Water and wastewater capacity assessments** have relied on statements made in the Kāpiti Housing the Business Assessment (2022) and used in Council's own section 32 report;
5. **Stormwater capacity and flood extent modelling** relies on statements made in Kāpiti Housing Business Assessment (2022) and used in Council's own section 32 report. Where applicable, the design parameters for stormwater treatment areas and design and for flood attenuation areas, recommended by AWA Environmental Ltd for Goodman Holdings Ltd in their resource consent applications to KCDC and GWRC (KCDC reference RM170308 and GWRC WGN180135) have been applied to the *indicative spatial plan* areas. All flood extent areas identified by KCDC in their

Operative District Plan ('ODP') as being *River Corridor* overlay GWRC have also been adopted in the structure plan. Confirmation of the extent of the modelled *River Corridor* and likely depth of inundation provided in an email from GWRC as part of the resource consent application for AWA Iti Ltd (KCDC reference RM220337), have also been relied upon and applied where applicable (refer **Appendix 4** for reports and relevant correspondence); and

6. **Geotechnical investigations** undertaken by Miyamoto Ltd in respect of the Ohariu Fault Avoidance area identified in KCDC's OPD in support of the resource consent application for AWA Iti Ltd have been relied upon and applied where applicable (refer **Appendix 4** for this report);

[20] The submitters did approach AWA Environmental Ltd, Miyamoto Ltd and KCDC's reticulation modellers to provide site specific evidence in relation to flood modelling, geotechnical site investigations and wastewater and potable water reticulation modelling. However the time frames for delivery were too constrained and it was agreed to rely on the data that already existed across parts of the site, as this was considered sufficient for the purpose of identifying extent of non-developable and developable areas and to determine the suitability of the site for residential development.

[21] My evidence also includes consideration of the proposed activities against the relevant provisions of the National Policy Statement for Freshwater Management 2020 (NPS-FM) and the National Policy Statement for Highly Productive Land (NPS-HPL). I have relied on the New Zealand Land Use Inventory and the LRIS webportal (<https://iris.scinfo.org.nz/layer/48076-nzlril-land-use-capability-2021/>) for determining the land use capability classifications for the land as required under the NPS-HPL.

[22] In preparing this evidence, I have reviewed the following documents:

- a) Plan Change 2 as notified ('PC(N)');
- b) Advice from Simpson Grierson to Jason Holland, Kāpiti Coast District Council providing legal advice on scope of plan change 2 dated February 2022; and dated 31 January 2023;

- c) Minute from the Hearing Panel dated 11 November 2022;
- d) Supporting section 32 reports prepared for KCDC in support of PC 2 and in particular:
 - (i) Evaluation Report
 - (ii) Evaluation Report Appendix E: Boffa Miskell Ltd 2022. *Spatial application of NPS-UD Intensification Policies*
 - (iii) Evaluation Report Appendix L: Boffa Miskell Ltd 2022. *Kapiti Coast Urban Development Intensification Assessment Parts 1 and 2* prepared for Kapiti Coast District Council
 - (iv) Evaluation Report Appendix M: Property Economics 2022. *Assessment of Kapiti Coast Residential Intensification Area Feasibilities*
 - (v) Evaluation Report Appendix N: Boffa Miskell Ltd 2022. *Kapiti Coast Urban Development Greenfield Assessment Parts 1 and 2* prepared for Kapiti Coast District Council
 - (vi) Evaluation Report - Appendix V: Areas proposed to be rezoned as General Residential Zone
- e) Kapiti Coast District Council Housing and Business Assessments (2019 and updated May 2022);
- f) The expert evidence commissioned and described at paragraph 12;
- g) Consultant reports prepared in respect of the subject site in relation to geotechnical investigations, flood modelling and stormwater design referred to at paragraph 16;
- h) KCDC's Long Term Plan 2021- 41; and KCDC's Development Contributions Policy 2021 in relation to planned capital projects including transportation projects and cost allocation of capital infrastructure projects;

- i) Submissions received in support of, and opposition to the proposed rezoning of Waikanae East and in particular the following submissions:
- (i) S16 by Amos Mann
 - (ii) S28 by Infill Tapui Ltd
 - (iii) S53 and FS.1 by Waka Kotahi
 - (iv) S054 and FS.1 by Malu Jonas
 - (v) S071 by Anne Juchnowicz
 - (vi) S097 by GWRC
 - (vii) S100 by Āti Awa ki Whakarongotai
 - (viii) S110 by Chris Mitchell and Sue Smith
 - (ix) S112 by Ministry of Education; and
 - (x) S122 by Kainga Ora

Scope of Waikanae East Submission 'on' Proposed Plan Change 2

[23] We note the Panel's advice in their Minute dated November 2022 at paragraph 22 requesting the Council provide a view of out-of-scope requests. We also note the Minute has highlighted at paragraph 41, whether requests for new rezoned areas raises questions of scope, and that the Panel's recommendations are not limited by conventional scope constraints under the Resource Management Act ('RMA') as provided for in Schedule 1, subpart 6 cl. 99(2). Nevertheless, I have addressed the matter of whether I consider Waikanae East's submission is 'on' Proposed Plan Change 2 in the following paragraphs below.

[24] A relevant residential zone does not include large lot residential zones or an urban area that is recorded as having a resident population of less than 5,000 people. According to Statistics New Zealand, Waikanae urban area (refer **figure 1 below**) has a population of 12,099 people (comprised of Waikanae East with a population of 2,391; Waikanae West with a population of 4,374; Waikanae Park with a population of 2,085; and Waikanae Beach with a population of

3,249). Waikanae East geographic boundary shown in the map below includes all the land owned by the landowners of the Waikanae East submission (submission S087), and includes the Industrial zoned land located between the NIMT railway line to the west and the currently General Rural zone to the east. The geographic boundary also includes all General Rural zoned land up to Reikorangi Road. As such, the land proposed to be rezoned General Residential is non-residential zoned land that is part of the Waikanae Urban area.

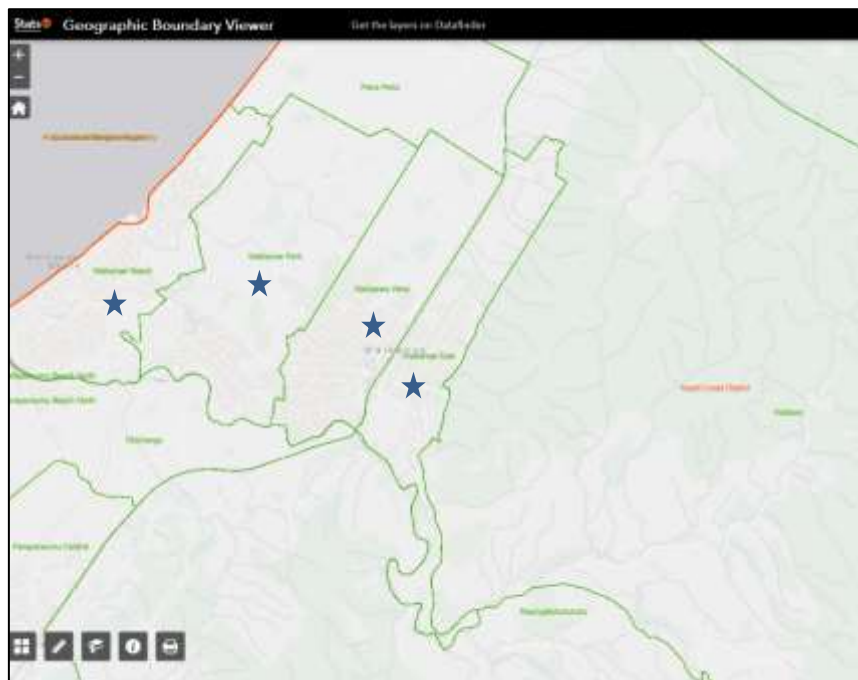


Figure 1: Geographic Boundaries for Waikanae Urban Area denoted by ★ (Source: Stats NZ)

- [25] At paragraph 9 of the legal advice provided to KCDC by Simpson Grierson ('SG') in February 2022 the question was asked, "*is the Council required to give effect to policy 3 of the PNS-UD in residential and **urban non-residential zones** in each of these areas under ss77G(2) and 77N(2)?* In response, SG responded, "*yes, because each of these areas is within an urban environment and is either a residential zone (s77G(2)) or urban non-residential zone (s77N(2)).*" SG states further on that, Section 80E [of the RMA] governs the scope of what *must* be included in an IPI ['Intensification Planning Instrument'] and what may be included if they support or are consequential to the mandatory matters. Section 80E requires KCDC's IPI to provide for the following:

1. Incorporate the Medium Density Residential Standards ('MDRS') in all *relevant* residential zones listed in standard 8 of the National Planning Standards and includes:

- (i) Low density residential zones
- (ii) General Residential zones
- (iii) Medium Density Residential zones; and
- (iv) High Density Residential zones;

and to

2. Give effect to policies 3 and 4 of the NPS-UD;

[26] In the legal advice provided to KCDC by SG in January 2023 states that:

1. [Para 12] "*Submitter needs to demonstrate the necessary link between the amendment sought and achieving one of the mandatory outcomes to prove it is 'on' the plan change*"; and
2. [Para 31] "*... if the s.32 report evaluated the potential change ... in that no substantial further s.32 analysis would be required, then the submission may be 'on' the plan change.*" and
3. [Para 35] "*although an area needed to meet all four criteria to be considered for inclusion in PC2, our view is that some level of consideration for inclusion in PC2, our view is that some level of consideration has been given to the areas included in the Appendix N assessment, as part of the preparation of the plan change, even if to conclude that their inclusion in PC2 is not appropriate*" and
4. [Para 36] "*For that reason, our view is that a submission on any area covered by the Appendix N assessment may be considered to be a submission on PC2 ...*"

[27] Mandatory Outcomes: Policy 2 and policy 3(c) of the NPS-UD requires that in relation to tier 1 urban environments, district plans must enable intensification

in urban areas where one or more criteria apply as set out in objective 3 and Policies 2 and 3 of the NPS-UD as follows:

“Objective 3: *Regional policy statements and district plans enable more people to live in, and more businesses and community services to be located in, areas of an urban environment which one or more of the following apply:*

- (a) *the area is in or near a centre zone or other area with many employment opportunities*
- (b) *the area is well-serviced by existing or planned public transport*
- (c) *there is high demand for housing or for business land in the area, relative to other areas within the urban environment.*

“Policy 2: *Tier 1, 2 and 3 local authorities, at all times, provide at least sufficient development capacity to meet expected demand for housing and for business land over the short term, medium term and long term.”*

and

“Policy 3

...

- (a) *Building heights of at least 6 storeys within at least a walkable catchment of the following:*
 - (i) *Existing and planned rapid transit stops*
 - (ii) *...*
 - (iii) *...*
- (b) *Within and adjacent to neighbourhood centre zones, local centre zones, and town centre zones (or equivalent), building heights and densities of urban form commensurate with the level of commercial activity and community service.”*

[28] In determining whether a submission is ‘on’ the plan change, the Council’s planning report has relied on two legal tests set out by the High Court’s

approach in *Clearwater Resort Ltd v Christchurch City Council*¹ and *Motor Machinists Ltd v Palmerston North City Council*² and as set out in Council's evidence as follows:

1. *A submission can only fairly be regarded as "on" a variation if it is addressed to the extent to which the variation [read plan change] changes the pre-existing status quo. But if the effect of regarding a submission as "on" a variation [read plan change] would be to permit a planning instrument to be appreciably amended without a real opportunity for participation by those potentially affected, this is a powerful consideration against any argument that the submissions is truly: "on" the variation [read plan change].*³;

And test 1 above would be unlikely to be met if:

2. *A submission raises matters that should have been addressed in the section 32; or a submission seeks a new management regime for a particular resource (such as a particular lot) when the plan change did not propose to alter the management regime in the operative plan.*

[29] Council's planning evidence summarises these two tests at paragraphs 601 and 608 as follows:

1. **[601] The first test:** *"in the context of PC2, the first test asks if the proposed plan change is altering the status quo in the District Plan in relation to an issue raised by a submission. If not, the issue is unlikely to have been addressed in the section 32 evaluation and report, and the submission is unlikely to be 'on' the plan change. However if the change was analysed in the section 32 report, or the change is "incidental or consequential", in that no substantial further section 32 analysis would be required, then the submission may be "on the plan change."*
2. **[608] The second test:** *"the second test is whether affected persons have had a real opportunity to participate in the process."*

¹ [2017] NZHC 138

² [2013] NZHC 1290

³ KCDC PC 2 Planning Evidence. Paragraph 598

- [30] In relation to Waikanae East's submission (S086), Council's planning evidence considers that because PC(N) did not propose to alter the status quo and the submission does not request a consequential amendment to adjacent rezoning, and the site is not considered within the body of the Section 32 Report, it does not meet test 1.
- [31] The Council's planning evidence determines that in respect of test 2, that the only opportunity for affected person to participate in the process of rezoning for this submission was at the further submission stage and that this is not considered sufficient to meet this test.
- [32] The same tests have been applied to previous Council plan change processes. In 2007 the Council invited submissions on Plan Change 72A in relation to rezoning of Town Centre zoned land in Paraparaumu to Commercial/Retail zones. Submissions were received requesting other similar land to also be rezoned. The Council was criticised by submitters for *picking* landholdings in the notified plan change that benefited the Council from rezoning and ignored land that would give effect to a well-functioning urban environment. The independent hearing commissioner, Mr Christopher Mitchell in his decision, referenced the *Clearwater Resort Ltd v Christchurch City Council* case identifying the tests set out above. Mr Mitchell notes in his decision that, "*both questions, are ultimately matters of degree on which a judgement needs to be exercised.*" Mr Mitchell in respect of Plan Change 72A found that the *decision sought by the submitters is essentially an extension of the rezoning proposed by the plan change to include their adjoining or nearby properties. The submitters seek a modification to the zone provisions proposed for the Council (or, more accurately, an unmodified zone), but in substance these are not significant differences...these properties are mostly 'greenfield' sites, albeit more ready for immediate development than the Council land. On this approach, the key issues raised in the submission is the boundary of the rezoning to be effected by the plan change, and in my view, such an issue is very much 'on' the proposed change⁴.*"

⁴⁴ KCDC, Plan Change 72A. Report and recommendation of Christopher Mitchell, independent hearings commissioner. Pp 8 & 9.

- [33] On the second test, Mr Mitchell in his deliberations on whether submissions seeking new land to be rezoned through proposed Plan Change 72A would have provided an adequate opportunity for those potentially affected to participate, he states that the rezoning had been *considered* during the draft proposed plan change (as Waikanae East’s land had been through the section 32 evaluation and analysis); and on this basis he did not think, “*that any other section of the community could claim surprise at the request* [for land to be included in the plan change]. Mr Mitchell, in making a recommendation on proposed change 72A stated that in coming to his decision he needed to, “*consider the significance of the proposed zoning change vis a vis residential neighbours.*”
- [34] Council’s decision on proposed plan change 72A upheld Mr Mitchell’s recommendations to include the submitter’s request to rezone their land.
- [35] The decision made by the Council in respect of plan change 72A is not dissimilar from that sought by the Waikanae East submission.
- [36] Is the submission ‘on’ PC32(N) and were the substantial issues covered by the section 32 evaluation report? The site that is the subject of submission S086 was identified in the Section 32 Evaluation Report - Appendix N⁵ under the description “WA-04” being the label given to it in *Te tupu pai, Growing Well*, the District’s Growth Strategy adopted by Council in September 2021. The area WA-04 was clearly delineated in Appendix N of the Section 32 report (which includes its appendices and maps) by its cadastral boundaries shown in red containing all General Rural Zoned land that is the subject of submission S086, as depicted on the following page.

⁵ Section 32 Evaluation Report: Appendix N – Kāpiti Coast Urban Development Greenfield Assessment (Boffa Miskell, 2022)

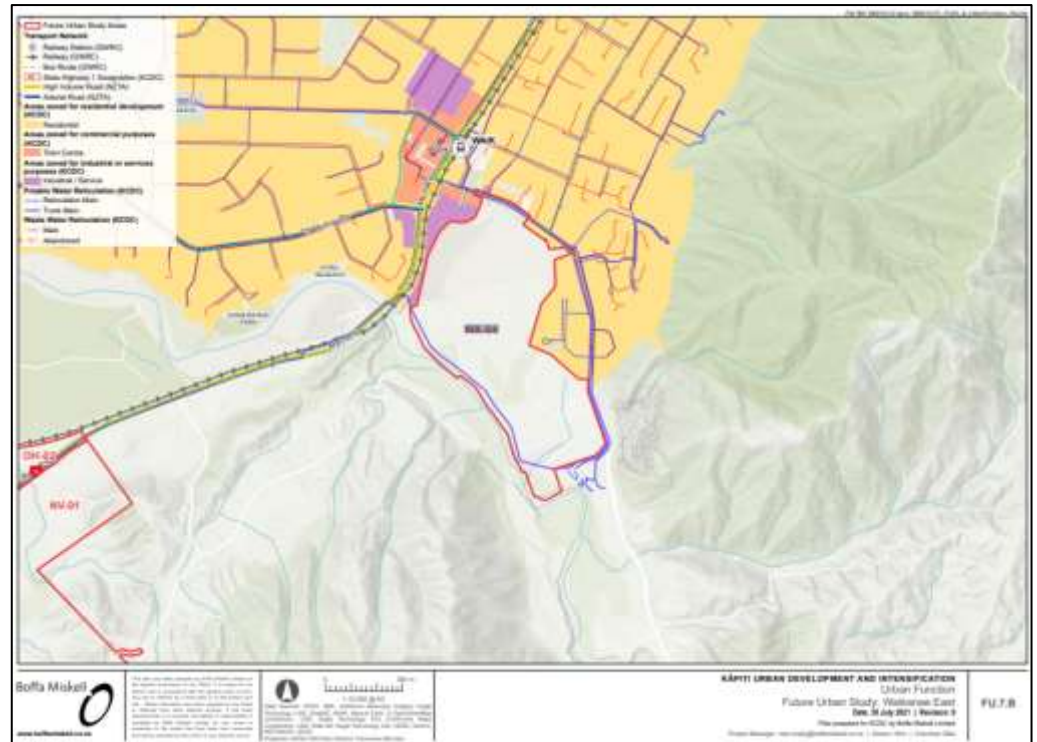


Figure 2: Extent of WA-04 (Section 32 Evaluation Report Part 1: Appendix N, Spatial Influences and Constraints Mapping – Urban Function Pg 51)

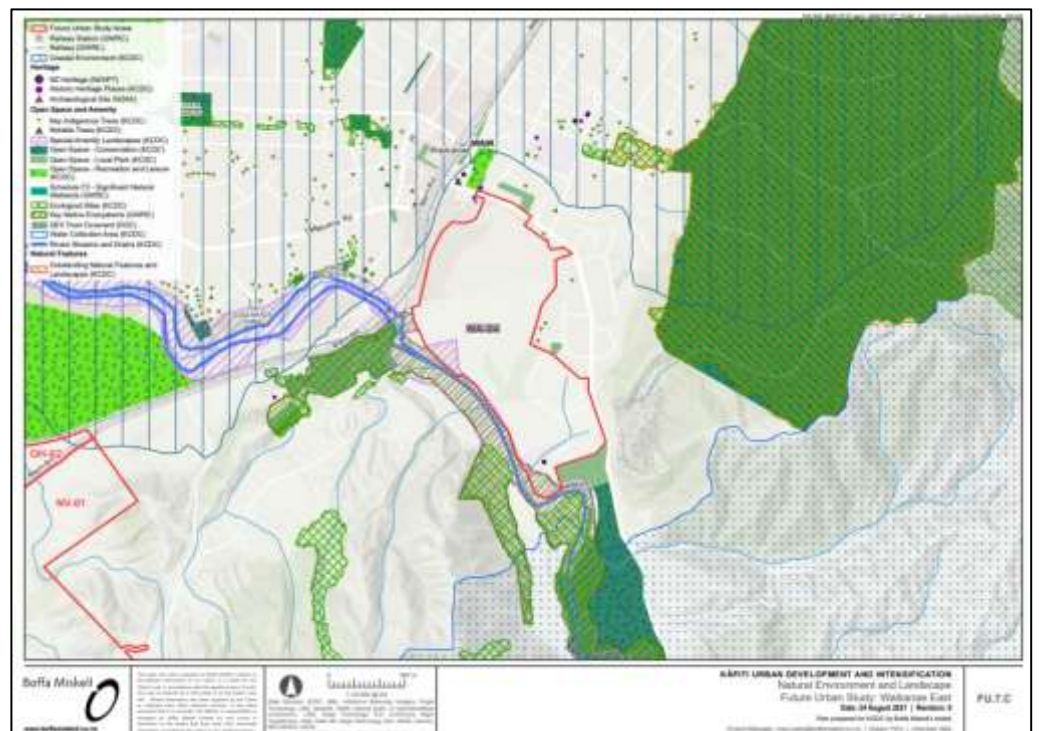


Figure 3: Extent of WA-04 (Section 32 Evaluation Report Part 1: Appendix N, Spatial Influences and Constraints Mapping – Natural Environment and Landscape Pg 66)

- [37] The walkable catchment area within Waikanae East was also clearly depicted in the Section 32 Evaluation Report – Appendix L, although the southern boundary was further north than what the submitters are requesting.



Figure 4: Urban Intensification Study Areas in red (source: KDC Urban Development Intensification Assessment – Appendix L)

- [38] With the exception of the industrial zoned land, the cadastral boundaries identified in Appendix N for area WA-04 and in the section 32 intensification maps align with the cadastral boundaries of the submitter’s properties as identified in the aerial below.

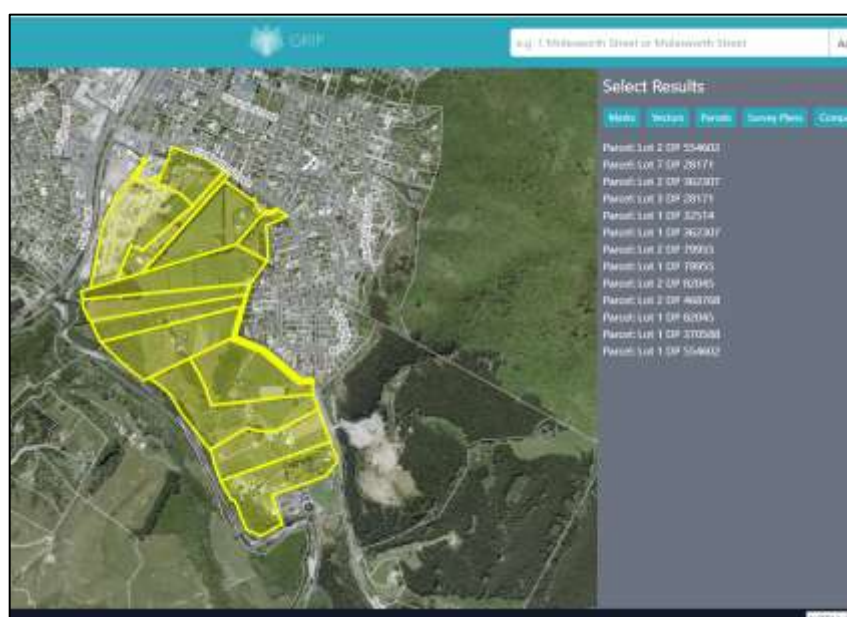


Figure 5: Extent of WA-04 by cadastral boundaries as shown in yellow (source: GRIP <https://app.grip.co.nz/>)

- [39] The Industrial zoned land owned by Goodman Holdings Ltd runs alongside the North Island Main Trunk ('NIMT') railway line and directly adjoins the Town Centre zone. It is proposed that land where it adjoins the railway line also be included in the area to be rezoned to a General Residential zone. A similar sized parcel of General Rural land is proposed to be rezoned General Industrial land.
- [40] WA-04 also included the land adjoining the Waikanae Water Treatment plant located at 22 Reikorangi Road and which is the subject of a submission opposing the rezoning of their land (refer submission S071). There is no objection to submission S071 by the submitters for Waikanae East and I consider that retaining the land at 22 Reikorangi Road in the General Rural zone would form a buffer between a residential zone and the activities of the water treatment plant.
- [41] Appendix N identified WA-04 as a priority group 1 as *"the area is a good candidate for short or medium term urban development"* (pp12, 14) with a theoretical dwelling estimate of 650 dwellings.
- [42] Appendix N considered all priority 1 greenfield land and found that, *"after consideration of constraints, there is a theoretical capacity of 14,280 dwellings in areas that exhibit low to moderate degrees of combined constraints (priority groups 1 and 2A), so long as these constraints can be overcome. Development of these areas would result in an urban form characterised by consolidation of existing urban areas, alongside the extension of urban environments around Paraparaumu, Waikanae and Ōtaki⁶."*
- [43] Appendix N contained assessment criteria which WA-04 was assessed against. Appendix N lists assessment criteria for consideration of WA-04 for rezoning to General Residential zone on pages 23 to 26 of Appendix N of the Section 32 evaluation report, under five themes of *urban environment* (with assessment criteria on urban form, local neighbourhoods, activity centres, residential development, business land); *function* (with assessment criteria on transport networks, infrastructure and servicing); *natural environment and landscape* (with assessment criteria on water bodies and landscape and open space); and

⁶ Boffa Miskell (2022). *Section 32 Evaluation Report – Appendix N*. Pg15.

land development (with assessment criteria on heritage values, topography, natural hazards and land risks, land use compatibility, highly productive land) and Mana whenua (with assessment criteria on climate change and low-carbon futures, mana whenua, and iwi development). Appendix N, by identifying WA-04 as a priority 1 (green) area for greenfield redevelopment acknowledged that “development in the area is likely to align with the assessment criteria. The area is relatively free of constraints, or there are some constraints, but these could be readily managed. Development in the area may also be an opportunity to resolve existing constraints or achieve positive outcomes⁷.”

[44] During the development of Kāpiti Coast District Council’s Growth Strategy - *Te tupu pai: Growing Well*, the Council publicly released and requested community feedback on Boffa Miskell’s greenfield evaluation report⁸. Our firm represented many members of the public with that process including appearances at Council meetings to discuss the issues. The greenfield assessment carried out as part of *Te tupu pai: Growing Well* involved a number of individual study areas including WA-04. The summary table in that document, confirmed WA-04 as a priority 1 greenfield area for redevelopment on the basis that there is a lack of constraints (refer to **Figure 7** on the following page for this summary table). As this information was publicly available at the time of PC(N) and was referenced in the Section 32 Evaluation report, it is reasonable to consider the landowners of WA-04 and other people in the community were aware of their ability to lodge a submission in support or opposition to potential residential development of this area despite the Council not *recommending* it for inclusion in the IPI. This is evidenced by the submissions made by Waikanae East landowners (submission 087), and the submission made in opposition to the rezoning of a landowner parcel identified within WA-04 by submission prepared by Anne Juchnowicz (submission 071) as well as the submission made by Jona Malus (submission 054).

[45] Boffa Miskell’s draft greenfield report had been updated for Council’s Section 32 Evaluation Report and contained in Appendix N. Boffa Miskell’s greenfield assessment also contained a detailed site-specific analysis for WA-04 as

⁷ Boffa Miskell (2022). *Section 32 Evaluation Report – Appendix N*, Para 2.4, pg 5

⁸ Boffa Miskell (31 Oct 2021). *Draft KCDC Urban Development Greenfield Assessment*

Appendices 3A, 3B, and 3C” as indicated by the contents page of Appendix N depicted in **Figure 6** below.

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Figure 6: Contents page of S.32 Evaluation Report - Appendix N

(source: <https://www.kapiticoast.govt.nz/your-council/forms-documents/district-plan/closed-for-further-submissions/proposed-plan-change-2-intensification/about-pc2/#supporting-for-notification>)

The analysis for WA-04 and Waikanae East set out in the Summary Table referenced in Appendix N is replicated in **Figure 7** on the following page.

Future Urban Study Areas **Assessment Summary**

Ref.	Location	Area (ha)	Key Constraints	Key Opportunities	Mana whenua values	Iwi development aspirations	Urban form	Local neighbourhoods	Activity centres	Residential development	Business land	Transport networks	Infrastructure & servicing	Natural ecosystems	Waterbodies	Landscape and open space	Heritage	Topography	Natural hazards & land risks	Land use compatibility	Highly productive land	Climate change (low-carbon futures)	Theoretical dwelling estimate	Overall priority group		
ŌTAKI																										
WA-04	Waikanae (south)	45.0ha	<ul style="list-style-type: none"> Highly productive land. Flood hazard in parts. Congestion at the Elizabeth Street intersection. 	<ul style="list-style-type: none"> Close proximity to Waikanae town centre. Relatively unconstrained, low risk area. 																						
																								480	1	

Figure 7: Summary table of assessments showing WA-09 identifying no constrains (in green) against criteria across urban form, local neighbourhoods, activity centres, residential development, natural ecosystems, topography, and for climate change and low carbon futures. The table does show some constrains (in orange) across business land, transportation networks, infrastructure and servicing, natural hazards, and land use compatibility; and identifies the land as highly productive (in red). (source: Section 32 Evaluation Report - Appendix N Appendix 3.1)

- [46] Following the submission period on PC(N), the Council published maps showing the extent of proposed areas of new General Residential zones and this included the area that is the subject of Waikanae East's submission. These maps were then published on the Council's website on the 14 November 2022 in order to give sufficient time for anyone wanting to make a further submission in respect of those rezoning proposals. As result of this new information, further submissions were received in respect of Waikanae East's submission (refer to submission S054 and submissions from Āti Awa ki Whakarongotai and Waka Kotahi).
- [47] Concluding remarks on scope of the submission: In its recommendations in the Section 42A report, the Council officer determined that Waikanae East's submission was out of scope based on the submission not meeting test 1 being that the PC(N) did not propose to alter the status quo under the operative plan; and did not meet test 2 which was that the Section 32 evaluation report did not clearly indicate that the site was considered for zoning and therefore did not give affected persons the opportunity to participate in the process.
- [48] The site was clearly identified by cadastral boundaries in both the Section 32 report and appendices and in the Kāpiti Coast Growth Strategy - *Te tupu pai:: Growing Well* referenced in the Section 32 appendices which the Council relied upon in the development of PC(N). Both these documents contained detailed site analysis of constraints and opportunities of the Waikanae East area.
- [49] The community were well aware of the potential for new areas to be rezoned as part of the IPI process through PC(N) on the basis of what had been proposed for future growth areas under *Te tupu pai:: Growing Well*. The draft and the proposed Growth Strategy were both publicly notified and submissions and feedback sought through a multitude of platforms (Council website, Council's social media pages and in the local newspapers). Despite Waikanae East not being identified in PC(N) for rezoning, the Council received a submission on that area by Anne Juchnowicz (submission S071) and from Malu Jonas (submission S054). Following the public release of maps showing proposed rezoning requested by submitters, further submissions were received both in support

and opposition (refer submission S054.FS.1). Submissions were also received from Āti Awa ki Whakarongotai and Waka Kotahi generally in support of the proposed rezoning. There were also general submissions seeking intensification around centres and rapid transport stops (submission S016 and S028 and the submission from GWRC).

- [50] A small area of one of the three parcels of Industrial Zoned land located off Anne Street is also proposed to be included within the area of Waikanae East to be rezoned General Residential as identified on the proposed rezoning plan (refer to **Appendix 1** of this evidence). Through the process of preparing this evidence, it was identified that residential use and development of this land would achieve better environmental outcomes and contribute to a well-functioning urban environment than if it remained for industrial activities. While the industrial zoned land was not identified spatially in Waikanae East's submission, it was identified in Council's Section 32 Evaluation Appendix E as falling within the walkable catchment of the Waikanae Railway Station (refer **Figure 8** below):

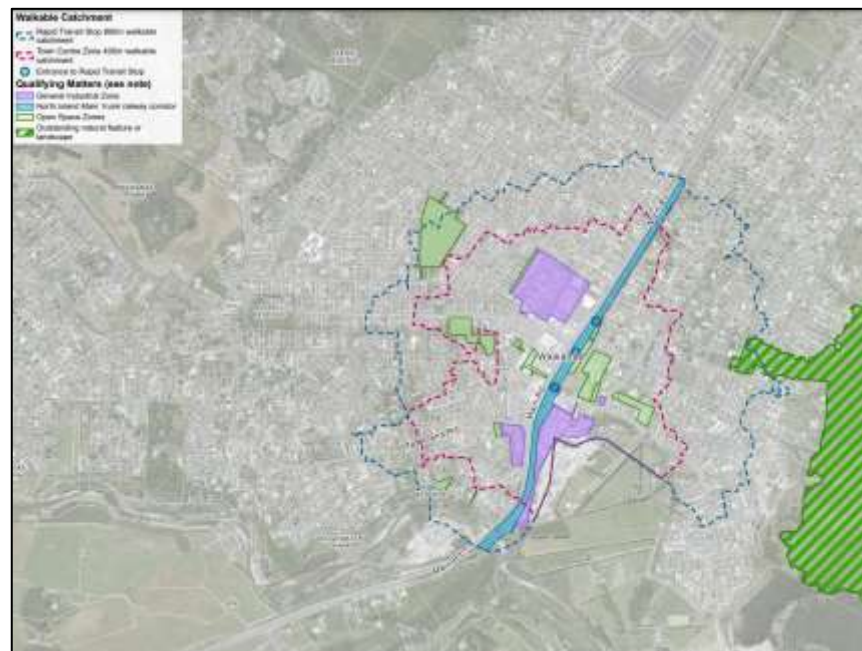


Figure 8: Walkable catchment within Waikanae Urban Area showing qualifying matters (Source: KCDC's S.32 Report - Appendix E, Plan QM.3, dated 1 June 2022).

- [51] I consider that the submission by Waikanae East related to areas identified in the Section 32 report and that there was sufficient information available to the wider community for them to prepare submissions in support or opposition to

the proposed rezoning. I also consider that the rezoning of this Industrial zone achieves the purpose of the NPS-UD through the rezoning of a similar sized parcel of land, currently zoned General Rural, into General Industrial zoned land.

[52] I recommend the Hearing Panel adopt the proposed rezoning, including for the Industrial Zoned land on the basis that it gives effect to the NPS-UD within the Waikanae urban area in the short to medium term. The residential development of all this land will contribute *significant development capacity* within a walkable catchment of adjoining existing or planned rapid transit stops. The development of the land outside of the walkable catchment area but within Waikanae East is consequential to the development of the land within the walkable catchment, in that it provides for roading and CWB connections, and provides for other opportunities to ensure sufficient land for stormwater treatment and flood storage. All land within Waikanae East will give effect to the MDRS if it is zoned General Residential as provided for by policy 4 of the NPS-UD section 80E(1)(b)(iii) of the RMA.

Section B – Assessment Against Relevant Policy Documents

[53] The policy documents I consider to be of most relevance to these activities are:

- National Policy Statement on Urban Development ('NPS-UD')
- National Policy Statement on Highly Productive Land ('NPS-HPL')
- National Policy Statement on Freshwater Management ('NPS-FM'); and
- GWRC's Proposed Change 1
- Resource Management Act, Section 32 Evaluation

National Policy Statement – Urban Development ('NPS-UD')

[54] Ten land parcels of land within Waikanae East being 21.9 hectares in area, including the three industrial zoned land parcels, are located within a walkable catchment of the Waikanae Railway Station which is identified as an existing rapid transit stop as described in Policy 3 of the NPS-UD. The boundary of this area is identified in the *indicative spatial plan* (included in **Appendix 1** of this evidence) with a red dotted line around the perimeter of these land parcels.

[55] Waikanae East land adjoins and is also adjacent to Town Centre zoned land located along Elizabeth Street and the Main Highway; and adjoins the General Residential zone located along Elizabeth Street and He Awa Crescent in Waikanae and is part of what makes up the *Waikanae Urban Area*.

[56] The boundary of this land proposed in the *indicative spatial plan* was determined applying generally the methodology set out in *Spatial Application of NPS-UD Intensification Policies* document⁹. The following methodology has been applied to the Waikanae East area:

1. Walkable catchment distance of 800m as the minimum walkable distance as measured from the Waikanae Railway station through the site;
2. Walkability followed roads, indicative roads and indicative walkways into submitter's land 'Waikanae East';
3. The edge of the intensification area conforms to property boundaries; and
4. All qualifying matter areas as proposed by PC(N) being natural hazards including the Ohariu Fault Avoidance zone; flood hazard layers including the river corridor, stream corridor and ponding areas; sites of significance to iwi; and general industrial zone are applicable to Waikanae East.

[57] The updated 2022 Kāpiti Housing and Business Assessment ('HBA') identified 17,983 total *plan enabled* sites currently within the Kāpiti Coast's urban area. The HBA calculates that of that number, the Kāpiti Coast has a *feasible* residential capacity of 10,097 dwellings. Of this number, 7,331 dwellings could be *reasonably expected* as infill/redevelopment capacity¹⁰ and **2,766 as greenfield capacity**. A further test of the likelihood of development identifies a *realisable development capacity* of 7,818 dwellings over the next 30 years to 2051.

[58] With only 7,818 feasible dwellings being constructed over the next 30 years, the HBA report has identified a **shortfall of 8,367 dwellings** for the Kāpiti Coast

⁹ KCDC (June 2022). Section 32 Evaluation Report Appendix E

¹⁰ Table 1.16 and Table 1.17, Wgtn Region HBA

urban area of which 38% or approximately 4,000 dwellings will be required within the short to medium term¹¹.

- [59] Of this the HBA report identified that strongest demand is in the Waikanae and Paraparaumu urban areas, “*which accounts for nearly two thirds of all projected growth, with 30 and 28 percent respectively*¹²” which translates to approximately **2,510 new sites required in the Waikanae Urban area**. The updated HBA report notes that standalone housing will make up to 57%¹³ of all future demand with higher levels in Waikanae and Ōtaki reflected by greater greenfield opportunities; and demand for joined housing (terraces, town houses and low-rise apartments) will increase from 12% to 43% of future demand.
- [60] Table 1.14 of the Regional HBA 92019) states that infill and redevelopment land has a lower feasibility rate than greenfield land and is somewhere between 12% - 42%¹⁴. The updated 2022 HBA report states that 89% of all developable greenfield land is feasible; whereas in general terms only 49% of all infill and redevelopment land is feasible. For the infill/redevelopment of the existing Waikanae East urban area the feasibility drops to 47%¹⁵. When calculating *realisable* capacity for Waikanae East, it is considered to be around 30%¹⁶. Harriet Fraser, transportation engineer has adopted a range from low to high potential infill yield for the intensification area of Waikanae East, of between 196 to 688 dwellings (refer to Harriet Fraser’s evidence). This is based on realising 12 – 42% of the theoretical dwelling capacity identified in Table Appendix L, Part II for this area.
- [61] As part of validating the shortfall identified in the Section 32 report for Waikanae Urban Area, I have collated the number of theoretical dwelling capacity as set out in Appendix L (Intensification sites) and Appendix N (for Greenfield sites) and applied the feasibility figures noted in paragraph [59] above. Based on information provided in Council’s HBA report only 1,847 new

¹¹ Kapiti 2022 HBA, Table 8, Projected dwellings by type, by housing area, inflated Sense Partners median forecast 2021 - 2051

¹² Kapiti 2022 HBA, Chapter 5, pg 20

¹³ Kapiti 2022 HBA reports that this is a change on the 2019 HBA report which reported a much higher demand would continue for stand alone dwellings of around 84% in Kāpiti

¹⁴ Table 1.15, Wgtn Region HBA

¹⁵ Property Economics (Dec 2021). Table 8 – Residential Feasibility Capacity by Suburb

¹⁶ Property Economics (Dec 2021). Table 12 – Residential Realisable Capacity by Suburb

dwelling sites are likely to be realised under PC(N). This is a shortfall of some 667 dwellings for the Waikanae Urban Area.

Sites ¹⁷	Theoretical Dwelling Capacity	Feasible Dwelling Capacity (30% for infill and 89% for greenfield)
UI-WA Waikanae town Centre and Railway Station: Infill	4,403	1,228
UI-WB Waikanae Beach Local Centre: Infill	408	122
269 – 289 Ngarara Road: Greenfield Sites	140	124
174 – 211 Ngarara Road: Greenfield Site	390	347
112 Ngarara Road: Greenfield	10	9
18 Huiawa Street: Greenfield	19	17
TOTAL FEASIBLE DWELLING CAPACITY (based on Council's estimates)		1847

Table 1: Feasible Dwelling Capacity for Waikanae Urban Area based on Council's s.32 Evaluation reports identifying theoretical dwelling capacity

- [62] Feasibility variables consider land value; improvement ratio; local sale prices; and development costs including site preparation, build costs and fees including development contributions and profit margins. The HBA feasibility model is not a straight comparison between greenfield and infill as the model used assumes that only standalone housing will be constructed within greenfield sites which will assume higher development costs¹⁸. Nevertheless, greenfield development is considered more *feasible* than infill and redevelopment based on this model.
- [63] Despite the higher feasibility of greenfield land, the updated HBA report states that not all greenfield land will be *realised* on the basis that landowners still need to decide whether they will develop their land. More information was provided in the Property Economics' assessment of residential feasibility¹⁹. The support of all the landowners for 'Waikanae East's' landholdings is, in my view, an indication of the likelihood of development potential for this site.

¹⁷ KCDC Section 32 Evaluation – Appendix L (Part I, pp 18, 19; Part II Pg 15); and Appendix V

¹⁸ Kapiti 2022 HBA, paragraph 6.1, pg 30

¹⁹ Property Economics (Dec 2021). *Kapiti Coast Commercially Feasible Residential Capacity Assessment*.

- [64] The number of new Residential zoned sites created through PC(N) identified in Appendix V of the 32 evaluation report, proposes to rezone only five greenfield sites in the Waikanae urban area totalling 30.52 hectares, with the development potential of only 497 dwellings that are likely to be realised. This represents only 20% of the HBA assessment required for Waikanae over the short, medium and long term. None of the greenfield sites proposed within PC(N) are within walking distance of a rapid transit stop or adjacent or adjoining a neighbourhood centre or town centre zone. In my opinion the proposed greenfield sites identified in PC(N) do not provide for intensification to the level anticipated in Policy 3 for the Waikanae urban area and in particular do not reflect the most appropriate location for this new development that will create a “*well functioning urban environment.*” I also note that Waka Kotahi’s submission on PC(N) opposes the rezoning of two of those sites located on Ngarara Road.
- [65] The *indicative spatial plan* prepared on behalf of the submitters (refer **Appendix 1** of my evidence) indicates that the 40 hectares of land at Waikanae East could **contribute somewhere between 469 to 1,641 new dwellings** within the medium to long term. The higher end of the likely yield was based on the following:
1. higher density dwellings located within a proposed Precinct A based on 80 dwellings per hectare²⁰ and 80% feasibility for greenfield sites; and
 2. medium density dwellings located outside Precinct A but within a General Residential zone subject to MDRS based on 16 dwellings per hectare and 80% feasibility for greenfield sites.
- [66] Yet Waikanae East was excluded from consideration on the basis that it was located within the General Rural zone (refer Appendix E of the Section 32 Evaluation Report). In my experience, with land at the edge of the current Waikanae Town Centre area, there has been considerable market demand and it is likely that the subject land could come to market in the short to medium term.

²⁰ Based on Mid-rise apartments up to 6 floors with average dwelling size of 125m²

[67] In addition to the zoning, Council's section 32 evaluation report²¹ and the section 42A report²² noted that Waikanae East was of a complexity that required a 'structure plan.' This being one of four criteria that was being applied to the intensification assessments set out in the Section 32 report. Those criteria are listed below:

1. The site is located next to an urban area that is connected to infrastructure services;
2. The site has a relatively low degree of constraints (and any existing constraints can be managed through existing District Plan rules);
3. The site is not sufficiently large or complex enough to require a "structure planned" approach;
4. The site would provide a notable contribution to plan-enabled housing supply, or where this is not the case, re-zoning is appropriate to regularise the area into the surrounding zoning pattern.

[68] The Council's criteria appear to have been loosely based on the criteria set out in Clause 3.4 of the NPS-UD for what constitutes '*plan-enabled and infrastructure ready*' development capacity as described below. However, clause 3.4 provides for non-residential land (such as General Rural land) where redevelopment of it would contribute to the necessary development capacity requirements within the medium term; and where infrastructure either exists to support that development or where it could be appropriately funded through Council's long term plan.

3.4 Meaning of plan-enabled and infrastructure ready

(1) Development is plan-enabled for housing or for business land if:

(a) in relation to the short term, it is on land that is zoned for housing or business use (as applicable) in an operative district plan

21 KCDC Section 32 Evaluation Report, paragraph 4.2.3

22 KCDC PC2 Planning Evidence, paragraph [603]

(b) in relation to the medium term, either paragraph (a) applies, or it is on land that is zoned for housing or for business use in a proposed district plan

...

(3) Development capacity is infrastructure-ready if

(d) in relation to the short term, there is adequate existing development infrastructure to support the development of the land

(e) in relation to the medium term, either paragraph (a) applies or funding for adequate development infrastructure to support development of the land is identified in the long term plan

...”

[69] Beyond assessing a site’s constraints as required by section 32, and provided it meets the requirements of clause 3.4 of the NPS-UD, there is no clause or provision in the NPS-UD that restricts the inclusion of General Rural land within an urban area in an IPI. I acknowledge Policy 55, subclause (c) of Proposed Change 1 to GWRC’s Regional Policy Statement does reference *‘whether a structure plan has been prepared’* but that question is not asked in isolation and isn’t required where Policy 55(d) applies which is, *“any urban development that would provide for significant development capacity regardless of if the development was out of sequence or unanticipated by growth or development strategies.”* Nor is a structure plan mandatory even if Policy 55(d) did not apply; simply *“particular regard”* must be given to these things as part of ensuring the proposal, *“contributes or maintains the qualities of a well functioning urban environment”*

[70] According to the Section 42A report, these criteria were designed based on, *“Council’s understanding (informed by legal advice) about the type of rezoning that could be included within an IPI.”* The Section 42A report states that the chosen sites for rezoning, *“would not go beyond incorporating the MDRS into the District Plan”* giving effect to section 77G(4) of the RMA. In applying these criteria to Waikanae East land, Council have ignored its mandatory obligations to provide for building heights of at least 6 storeys within at least a walkable

catchment of existing and planned rapid transit stops; and disregarded their duty to give effect to policy 3 in non-residential zones under section 77N of the RMA.

- [71] The Council in its Section 32 report and subsequently under its Section 42A report also made assumptions about how it should give effect to section 77G of the RMA in the application of MDRS provisions as required under Policy 3. Section 77G is a directive in relation to relevant residential zones in a district plan and requires a specified territorial authority to use an IPI to do this; while section 80E also notes that a specified territorial authority may also amend or include objectives, policies, rules, standards and zones that support or are consequential on the MDRS; or policies 3, 4 and 5 of the NPS-UD as applicable. This includes applying changes to a district plan's urban non-residential zones if applicable as provided for in section 77F of the Act.
- [72] While the Section 42A report makes a reference to Council, *"giving consideration to preparing a separate plan change (outside the IPI) focused on future urban development, where it would be more appropriate to address large or complex rezonings that went beyond simply incorporating the MDRS,"* this is not an option provided for in the NPS-UD for land within a walkable catchment of a rapid transit stop or adjoining a local centre zone. The only exceptions to the intensification within walkable catchment areas are in respect to qualifying criteria matters.
- [73] The section 32 report noted that it did not, *"provide for larger greenfield or brownfield areas that may involve a range of land-uses and require more complex design and planning approaches (such as structure planning)."* In my view, this approach should not have been relied upon across all greenfield sites, and particular consideration should have been given to greenfield sites that achieved the outcomes sought in Policy 3 of the NPS-UD, particularly where constraints were identified as low as is the case for WA-04 being Waikanae East and where they were within a walkable catchment of a rapid transit stop or a metropolitan or town centre zone.
- [74] Three of the land parcels included in the *indicative spatial plan* (refer **Appendix A** of this evidence) are located within the General Industrial zone and totals 2.51

hectares of land. The land is accessed via Anne Street and adjoins or adjacent to Town Centre zone. As part of the justification for proposing to rezone a small parcel of this Industrial zoned land, it is important to provide some background. When Goodman Holdings Ltd obtained a land use consent and discharge consents from both KCDC and GWRC to utilise part of their landholdings located within the General Rural zone, it enabled them to utilise General Rural zoned land for industrial activities. That land use consent covered an area of just under 5 hectares and is identified in the **Figure 9** below:



Figure 9: 6 Anne Street (black outline), the site that is subject to resource consents to enable Goodman Holdings Ltd to undertake their contracting business

- [75] The intention is that, subject to their land being rezoned General Residential through this IPI, Goodman Holdings Ltd ('Goodmans') are proposing in the short to medium term (within 10 years) to consolidate their operations within the land directly off Anne Street to the north of their site and continue to operate under their existing use rights and resource consents. The purpose of this timeframe is to give Goodmans sufficient time to find suitable industrial zoned land to relocate their business to, while at the same time beginning to plan for the residential development of their remaining landholdings. The consolidated area that Goodmans operations would remain within, would in the short to medium term, include part of the existing Industrial zoned land and part of the land within 6 Anne Street. This is shown in 'Plan 1' in the *indicative spatial plan* (refer **Appendix 1**).

[76] In the medium to longer term, it is possible Goodman’s industrial activities would vacate the area and relocate to a more suitable site and subject to a future plan change the remaining industrial land could be freed up to be redeveloped for residential purposes. This is shown as ‘Plan 2’ on the *indicative spatial plan* set (refer **Appendix 1**). The eventual residential development of the land vacated by Goodman’s operations is intended to occur within the medium term²³ thus giving effect to Policy 2, Clause 3.2(2)(a), and Clause 3.5(1)(b) of the NPS-UD:

“Policy 2: Tier 1, 2 and 3 local authorities, at all times, provide at least sufficient development capacity to meet expected demand for housing and for business land over the short term, medium term and long term.

Clause 3.2 Sufficient development capacity for housing

(1) Every tier 1, 2 and 3 local authority must provide at least sufficient development capacity in its region or district to meet expected demand for housing:

(a) in existing and new urban areas; and

(b) for both standalone dwellings and attached dwellings; and

(c) in the short term, medium term and long term

(2) In order to be sufficient to meet expected demand for housing, the development capacity must be

(a) plan-enabled (see clause 3.4(1)); and

(b) ...”

Clause 3.4 Meaning of plan-enabled and infrastructure ready

(1) Development capacity is plan-enabled for housing or for business land if:

²³ The NPS-UD defines the medium term as meaning “between 3 and 10 years.”

(a) in relation to the short term, it is on land that is zoned for housing or for business use (as applicable) in an operative district plan

*(b) In relation to the **medium term**, either paragraph (a) applies, or it is on land that is **zoned for housing** or for business use (as applicable) **in a proposed district plan***

(c) ...”

[77] To secure the rezoning of the Industrial land along the railway line under this IPI, it is proposed to undertake a ‘land swap’ creating a similar sized parcel of Industrial zoned land to the north of their site over what is currently General Rural zoned land. Goodmans will be able to consolidate within this part of their site and operate through the application of existing use rights in respect of the existing Industrial zoned land, and also through giving effect to their resource consents which would run with the land until they cease operations and eventually relocate.

[78] This is the most appropriate outcome for this land for several reasons. Access from Elizabeth Street and potentially from a new east-west connection, can be provided directly to new residential development within Waikanae East without having to traverse an industrial zone; industrial activities can be appropriately separated from residential activities through suitable natural buffers and roading; residential activities can be located much closer to the Town Centre zone and a rapid transit stop while industrial activities can be relocated within the site further away from the more sensitive receiving environment of the Waikanae Awa.

[79] According to Council’s section 32 evaluation report, the HBA 2019 report identified that there is sufficient business land development capacity within the district to meet anticipated demand²⁴. As part of this evidence and as shown on the *indicative spatial plan* (refer **Appendix 1**), and on the advice of Dr. Boffa, it is considered appropriate for the small area of Industrial Zoned land within

²⁴ KCDC (2022). Section 32 Evaluation Report, pg 72

Waikanae East landholdings to also be rezoned General Residential zone under this IPI.

- [80] Provided there is sufficient business land development capacity, and given the location of this Industrial zoned land, it is considered that the rezoning would achieve the mandatory requirements of Policy 3 of the NPS-UD and as provided in Policy 8 of the NPS-UD which allows local authority decisions to be responsive where plan changes, *“would add significantly to development capacity and contribute to well functioning urban environments, even if the development capacity is (a) unanticipated by RMA planning documents; or (b) out of sequence with planned land release.”* It is also considered that this achieves the objectives and policies set out in Policy 55 of GWRC’s Proposed Change 1 to the RPS. This is discussed further in my evidence.

National Policy Statement – Highly Productive Land (‘NPS-HPL’)

- [81] The land within Waikanae East contains both class 1 and class 3 soils as categorised under the New Zealand Resource Inventory Land Use Capability classification system (NZ RLUC) as shown in **Figure 10** below:

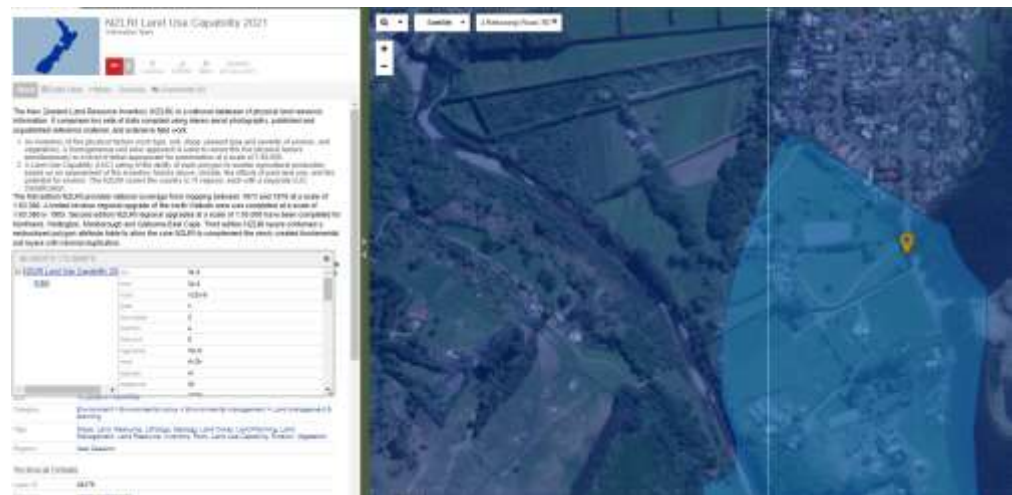


Figure 10: Land located within #2, 4 and 12 Reikorangi Road contain class 3s 2 LUC soils (source: LRIS portal)

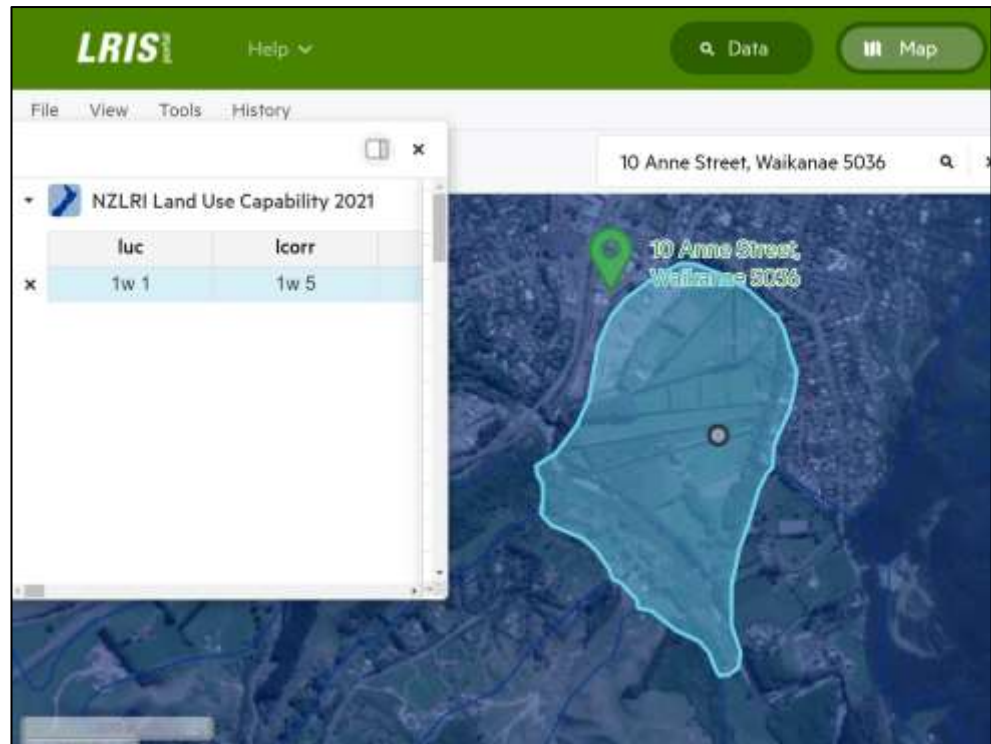


Figure 11: Land located within LUC class 1 soils (source: LRIS portal)

- [82] Clause 3.4 of the NPS-HPL states that every regional Council must map *highly productive land* that is in a general rural zone or rural production zone and is predominantly LUC 1, 2 or 3 land, and forms a large and geographically cohesive area. Subclause (2) states however, “*despite anything else in this clause, land that, at the commencement date, is identified for future urban development must not be mapped as highly productive land.*” Subclause (5)(d) states that, “*small, discrete areas of LUC 1, 2 or 3 land need not be included if they are separated from any large and geographically cohesive area of LUC1, 2 or 3 land.*”
- [83] As the Council’s growth strategy *Te tupu pai: Growing Well*, which was adopted by Council in October 2021 prior to the gazetting of this national policy statement; and as the Strategy had identified WA-04 being Waikanae East as a priority 1 area for greenfield urban development, the land identified by Waikanae East’s submission will not be required to be mapped as highly productive by the Regional Council as provided for by clause 3.4.
- [84] Until the land is mapped by the Regional Council under clause 3.4, Clause 3.5 of the NPS-HPL applies and in particular subclause (7) which states that:

“7) Until a regional policy statement containing maps of highly productive land in the region is operative, each relevant territorial authority and consent authority must apply this National Policy Statement **as if references to highly productive land were references to land that**, at the commencement date:

(a) is

- zoned general rural or rural production; and
- (ii) LUC 1, 2 or 3 land; but

(d) **Is not:**

(i) **Identified for future urban development; or**

(ii) Subject to a Council initiated, or an adopted, notified plan change to rezone it from general rural or rural production to urban or rural lifestyle.”

[85] The NPS-HPL defines the term, ‘**identified for future urban development**’ as meaning:

(a) Identified in a published Future Development Strategy as land suitable for commencing urban development over the next 10 years; or

(b) Identified in a strategic planning document as an area suitable for commencing urban development over the next 10 years and at a level of detail that makes the boundaries of the area identified in practice.”

[86] Council’s planning evidence on PC(N) refers to *Te tupu pai: Growing Well* as Councils Growth Strategy. This strategy has been published on Council’s website and identified the land within Waikanae East as being suitable for commencing development in the short to medium term. It therefore meets the definition under (a) above of being **identified for future urban development over the next 10 years**. As such, the land within Waikanae East is exempt from the provisions of the NPS-HPL.

National Policy Statement – Freshwater Management ‘NPS-FW’

[87] The NPS-FW sets environmental bottom lines for the management of water quality and water quantity for the purpose of improving degraded waterbodies and maintaining or improving all other waterbodies. It seeks to give effect to

Te Mana o te Wai through involving tangata whenua and communities to set out long term visions in the Regional Policy Statement ('RPS') through prioritising the health and wellbeing of water bodies, then the essential needs of people, followed by other uses. GWRC have given effect to the provisions of the NPS-FW in the Proposed Natural Resources Plan ('PNRP') and through proposed change 1 to the Regional Policy Statement. The Waikanae Awa is identified in the PNRP as a Schedule B – Ngā Taonga Nui a Kiwa; a Schedule C river – sites with significant mana whenua values – Parikawau; Schedule F site in the PNRP as a significant habitat of freshwater species; Schedule H1 – regionally significant primary contact recreation; and Schedule 1 – important trout rivers and spawning waters. The Waikanae AWA is also identified as a Category 1 and Category 2 surface waterbody. Ātiawa ki Whakarongotai has set out its values for the Waikanae Awa as it affects this site in a statement of a values. This statement was commissioned by the landowners of Waikanae East to better understand Ātiawa's values (refer to **Appendix 2**).

- [88] The Resource Management (National Environmental Standards) Freshwater Regulations ('NES-FW') came into force on 3 September 2020 include new regulations in relation to urban and rural streams, groundwater and wetland management.
- [89] Any future residential development of Waikanae East will need to have regard to the matters set out in the NPS-FW and NES-FW as required under GWRC's PNRP. Furthermore, the intensification of the site would be subject to all section 6 matters set out in the RMA including the preservation of the natural character of wetlands, lakes, rivers and their margins and protection from inappropriate subdivision. This would be achieved through compliance with relevant rules in the Regional Plan and in the District Plan.
- [90] In relation to the District Plan, where intensification (i.e. activities including subdivision, earthworks and new dwellings) is affected by the qualifying matter of a flood hazard, the activity will trigger Restricted Discretionary status where Council's matters of discretion include managing the "*effective functioning*" and "*avoidance or mitigation of adverse effects on the effective functioning*" of the overflow path, residual overflow path or ponding areas. In relation to the River Corridor, which is also identified as a flood hazard in the Operative District Plan,

the District Plan rules restrict any buildings or structures in this area; earthworks with the exception of activities carried out for emergency purposes by the regional Council or territorial authority are limited to 10m³ in a 10 year period; fences are limited to post and wire so that they do not impede flood waters; and any subdivision will be subject to the relevant objectives and policies and rules²⁵ which seek to “*avoid inappropriate buildings, activities, heights and densities*” within these areas.

- [91] In addition, existing permitted activity rules within the Operative District Plan relating to requirements for water reuse requirements (i.e. the requirement for all new dwellings to utilise a 10,000 litre water tank or a greywater system) will contribute to the appropriate management of stormwater discharges within this area.
- [92] In relation to the Regional Plan of the NES-FW, where intensification results in discharges of stormwater to land as a result of earthworks exceeding 3,000m², new culverts, works within a natural wetland, diversions or reclamation of any watercourse including groundwater, and discharges of stormwater to water will all trigger resource consents whereby the activity status will range from permitted through to prohibited.
- [93] All potential adverse effects on water, including managing flood risks, as a result of intensification of Waikanae East can be appropriately managed through appropriate design of any development considered at the time of resource consent. Consents will be required from both GWRC and KCDC for the development of this land. In considering relevant matters the NPS-FW, the NES-FW, and the provisions of the PNRP and other non-statutory documents such as Water Sensitive Urban Design Guidelines will be applicable. This is likely to result in the creation of attenuation and flood storage areas; maintaining hydraulic neutrality (i.e post development flow rates are no greater than pre-development flow rates); constructed stormwater treatment facilities within the site for all on-going stormwater discharges off new roads and developed sites; setbacks from water for earthworks and erosion and sediment controls

²⁵ Refer PC2(N), Policy UFD-Px, UFD-P13, and GRZ-Px2

during construction; creation of esplanade reserves and riparian areas; and opportunities to daylight piped stormwater networks within Waikanae East.

Regional Policy Statement including Proposed Change 1

[94] **Policy 55 of Proposed Change 1 to GWRC’s Regional Policy Statement (‘RPS’)**, seeks to provide for appropriate urban expansion where:

“... particular regard shall be given to:

(a) contributes to establishing or maintaining the qualities of a well-functioning urban environment, including:

(i) the urban development will be well-connected to the existing or planned urban area, particularly if it is located along existing or planned transport corridors;

(ii) the location, design and layout of the proposed development shall apply the specific management or protection for values or resources identified by this RPS, including:

1) Avoiding inappropriate subdivision, use and development in areas at risk from natural hazards as required by Policy 29,

2) Protecting indigenous ecosystems and habitats with significant indigenous biodiversity values as identified by Policy 23,

3) Protecting outstanding natural features and landscape values as identified by Policy 25,

4) Protecting historic heritage values as identified by Policy 22,

5) Integrates Te Mana o Te Wai consistent with Policy 42,

6) Provides for climate resilience and supports a low or zero carbon transport network consistent with Policies CC.1, CC.4, CC.10 and CC17,

7) Recognises and provides for values of significance to mana whenua / tangata whenua,

8) *Protecting Regionally Significant Infrastructure as identified by Policy 8; and*

- (b) *Urban development is consistent with any Future Development Strategy, or the regional or local strategic growth and/or development framework or strategy that describes where and how future urban development should occur in that district or region, should the Future Development Strategy be yet to be released; and*
- (c) *A structure plan has been prepared and/or*
- (d) *Significant development capacity regardless of if the development was out of sequence or unanticipated by growth or development strategies.”*

[95] Policy 55 of Proposed Change 1 of the RPS ('Policy 55') does not exclude greenfield or brownfield sites simply on the basis that a 'structure plan' has not been prepared. Policy 55(d) continues to provide for inclusion of greenfield sites where, "*any urban development [that] would provide for significant development capacity ...*"

[96] The rezoning of WA-04 for General Residential Zone achieves the outcomes sought by Policy 55 of Proposed Change 1 to the RPS. Policy 55(a)(i) seeks new development is well-connected to existing or planned urban areas and in particular existing or planned transport routes. Policy 55(a)(ii) seeks to ensure any constraints can be managed through District Plan provisions. Policy 55(b) requires areas to be rezoned as General Residential zone are consistent with *Te tupu pai: Growing Well*, which is the Council's Growth Strategy.

[97] Policy 55(d) which provides for *significant development capacity* regardless of whether Policies 55(c) being the provision of a structure plan exists.

[98] It is my view that the work involved in the preparation of *Te tupu pai: Growing Well* and through PC(N), as well as the further work collating information to support Waikanae East's submission has following the process of structure planning²⁶ which included:

²⁶ Refer to Quality Planning website: <https://www.qualityplanning.org.nz/node/1139>

- Defining the area of the structure plan
- Undertaking an initial review of existing information on the area
- Preparing a constraints identification and analysis
- Identifying the overall outcomes desired of the structure plan
- Developing implementation timeframes taking into account development pressures, making provision for infrastructure and anticipating up-take of development opportunities
- Identifying key stakeholders
- Determining the methods of implementation (statutory, non-statutory or both); and
- Risk assessment (costs and benefits)

[99] I acknowledge Ātiawa's position on this matter as set out in their statement of values contained in **Appendix 2**. It is my view that structure plans that are embedded in a District Plan and District Plan maps, are an ineffective tool to create the environmental and urban design outcomes that we are all collectively seeking; as they are not responsive to changes in best practice and market drivers. In my view, a far more effective approach to achieving these outcomes is through a collaborative planning process which gives effect to a range of values where they are identified early on in a planning process. This in my view can be achieved through the combination of zoning proposed for Waikanae East; and the application of qualifying matters, relevant objectives and policies, and development that gives effect to urban design best practice. These practices are now provided for through PC(N) and in KCDC's Operative District Plan and include managing flood risk for the 1% AEP event plus climate change including through maintaining flood storage areas and pre-development flood flow rates and levels; designing and providing for water sensitive urban design including treatment of stormwater discharges; protection and enhancement of natural systems including wetlands and terrestrial forests and water margins including through daylighting watercourses and restoration of riparian margins; development that takes considers crime prevention; identification of public open space; and provision of a transport network that supports decarbonisation.

Evaluation under Section 32, Resource Management Act

[100] Section 77J of the Act requires a territorial authority, in amending its district plan and as provided for in section 77G (i.e. giving effect to Policy 3 and the MDRS) to prepare an evaluation report on the proposed changes effectiveness in achieving the required outcomes. The evaluation report must, in addition to the matters set out in that section, identify any qualifying matters and the costs and impacts of those qualifying matters if recommended to be included. No new qualifying matters are proposed for this site beyond what has been identified in PC(N) and PC(R1).

[101] Section 32 requires the evaluation of the proposal evaluate whether it is the most appropriate way to achieve the purpose of the Act; and it must contain a level of detail that corresponds to the scale and significance of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the proposal.

[102] I have undertaken an evaluation of Waikanae East land in accordance with the requirements of section 32. In undertaking this evaluation I have relied on information as set out in paragraph [18] of this evidence. That evidence is described in more detail in Section C below it relates to site specific matters.

[103] The IPI process is the most effective mechanism to give effect to the intensification of Waikanae East within the short to medium term. While Council reports have referenced utilising other planning mechanism such as the Schedule 1 plan change process, there is no certainty that process will occur within the short to medium term. A Schedule 1 process can take anywhere from three to five years from the date of notification, before a proposed change becomes operative. It is unlikely that the Council is likely to prepare a plan change for this site in the short term given that no provision has been made for it in Council's annual or long-term plans. Furthermore, I have been advised in personal communications with Council planning staff that they consider it unlikely a Schedule 1 process for greenfield land not included in the IPI, will be pursued, on the basis that no new plan-enabled residential zoned land is likely to be necessary to meet the housing bottom lines.

[104] I do not consider a Schedule 1 plan change process as being a '*reasonably practical option*' when considering how best to give effect to Policy 3 and the application of the MDRS in the Waikanae urban area.

[105] There has been a number of references to 'structure plans' and the lack of a structure plan to support the rezoning of Waikanae East. A structure plan that is embedded in the District Plan such as the 'Waikanae North Development Area' structure plan, is an ineffective method to achieve the purpose of the NPS-UD. Structure plans are problematic in that they can often reflect a utopian situation based on a point of time, that is not responsive to a market once the plan change has become operative. Waikanae North is a case in point whereby the underlying structure plan has been extensively ignored in favour of new consented developments. What is left at Waikanae North are lots with inappropriate and illegible zoning and where development is constrained by conditions of consent. A much more effective process is the IPI process where land is zoned General Residential but where activity status is constrained in areas where there are qualifying matters. This enables site specific planning to occur taking into account those qualifying matters. This is the approach favoured for Waikanae East.

[106] Waikanae East's submission has been prepared showing *indicative* development potential based on an *indicative spatial plan*. This plan is not intended to be embedded into the IPI as it may be through a Schedule 1 process through creation of a 'Development Area'. Instead, it has been provided to illustrate the area of land that could reasonably expect to be developed outside any constraints. It also identifies critical roading connections into the site as *notional roading* connections. The overall density that can reasonably be expected to be developed based on this plan is set out in paragraph [57] of my evidence.

[107] The *indicative spatial plan* indicates that Waikanae East could **contribute somewhere between 469 to 1,641 new dwellings** within the medium to long term based on the following methodology:

1. higher density dwellings located within a proposed Precinct A based on 80 dwellings per hectare²⁷ and 80% feasibility for greenfield sites; and
2. medium density dwellings located outside Precinct A but within a General Residential zone subject to MDRS based on 16 dwellings per hectare and 80% feasibility for greenfield sites.

[108] In my opinion the proposed rezoning of this land, including the Industrial zoned land, achieves the objectives of the NPS-UD and contributes to the necessary development capacity required for the Waikanae urban area within the medium term. Waikanae and Ōtaki have been identified in Council reports as the area where most of the future residential development is likely to take place on the basis that it has greater opportunities for greenfield development. Without the contribution of land within Waikanae East, I do not consider there will be sufficient plan-enabled housing that will be infrastructure ready, feasible that will be realised for residential development in the Waikanae urban area by the medium term.

Section C – Site Specific Evidence

Dr. Frank Boffa's Evidence

[109] Dr. Boffa has given careful consideration to the opportunities that the submitter's land presents for contributing to a well functioning urban environment within Waikanae. Dr. Boffa has identified a number of these elements including the potential for more direct links into the Waikanae Town Centre as well as to the wider river corridor open space networks; better utilisation of land alongside the railway corridor through consolidation of the industrial land to the north; and integration of infrastructure including stormwater infrastructure and flood storage areas with open space green areas.

[110] In identifying the proposed zoning boundaries and likely or *indicative development areas*, Dr. Boffa was provided with likely minimum design requirements for stormwater treatment areas, flood storage areas and the

²⁷ Based on Mid-rise apartments up to 6 floors with average dwelling size of 125m²

likely building restrictions around the Ohariu Fault avoidance zone where it falls within Waikanae East.

[111] Dr. Boffa's evidence also reiterates the appropriateness of locating higher density development (such as 3 or possibly 4 storey residential buildings) within this site, whereby it won't be particularly visible or out of character with the wider Waikanae residential landscape.

Harriet Fraser's Evidence - Transportation

[112] Ms. Fraser was engaged by the submitters to review existing traffic conditions and household vehicle trip generation rates and forecast traffic activity based on the intensification of land within Waikanae East as proposed under PC(N). In calculating forecast traffic activity, Ms Fraser has relied on applying a feasibility rate of between 12% and 42% to the theoretical dwelling capacities identified for this area in Council's Section 32 Evaluation reports at Appendix L and as described at paragraph [60] of my evidence.

[113] Ms. Fraser has identified the constraints around the road network servicing Waikanae East as documented in Council's section 32 analysis as a constraint occurring in the medium term. Ms Fraser states in her evidence that existing available (i.e. within the short term) capacity for the left turn out of Elizabeth Street during the weekday morning peak hour is around 723(vph) vehicles. Within the medium term this capacity will reduce to 660vph and 600 vph in the long term. The reduced capacity over the medium and long term is based on an assumption of additional trains being added to the Kāpiti line.

[114] Ms. Fraser concludes that the available capacity within the roading network will be satisfactory in the short to medium term. Beyond the 10-year timeframe, the capacity is expected to be exceeded and there will be a need to provide additional capacity across the railway line.

[115] Should the submitters land at Waikanae East not be included in the IPI, Ms. Fraser concludes that additional capacity for the existing railway crossing is likely to peak in the medium term shortly after the 10 year period.

[116] Ms. Fraser has identified a number of opportunities to improve roading connectivity within Waikanae East including:

1. Working with the Ministry of Education to use school zoning and locations of primary schools to minimise the likelihood of children living on the opposite side of the railway to the school they attend;
2. Minimising no-residential activity on the eastern side of the railway that does not serve the immediate needs of residents on the east side; and
3. Improved bus services into and out of Waikanae East.

[117] Having reviewed Ms. Fraser's evidence, I consider that the constraints relating to the roading network on the eastern side of the railway line can be adequately addressed in the short to medium term. Within and beyond the next ten years, the Council will need to address a second east-west connection over the railway line through its Long Term Plan. The Council's evaluation report indicates that early investigations have begun by Council into a second connection via Huia Street extension.

[118] According to Table 12 of KCDC's Long Term Plan ("LTP") \$23.5 million has been planned for capital expenditure between 2021 and 2041 to address major east west connections. Of the \$23.5 million, approximately half is expected to be funded through other sources and \$2.3 million is expected to be funded to meet growth. I note that KCDC's Development Contributions Policy²⁸ states that the Kāpiti Traffic Model will be used to identify areas of stress on the roading network and where new works need to be planned to cater for increasing traffic numbers, the model will be updated with that information. The DC Policy²⁹ states that, *"to assess the impact of growth, the district wide traffic generation proposition is applied to part of the capital works programme (new assets/upgrades). If traffic volumes are expected to grow by 10% then the Development Contribution is set at 10% of future capital projects (new assets/upgrades) is met by development contributions."*

²⁸ KCDC Development Contributions Policy – refer paragraph 62

²⁹ KCDC Development Contributions Policy – refer paragraph 81

Ātiawa ki Whakarongotai Values for Waikanae East

- [119] Ātiawa ki Whakarongotai ('Ātiawa') have reviewed the *indicative spatial plan* and likely layout of development and provided a statement of their values and how they might relate to any future residential development. This is contained in **Appendix 2** of this evidence.
- [120] Ātiawa's statement has identified the strong whakapapa/genealogical lineage to this site and its surrounds including identifying the historical and present-day Kāinga along the length of the awa including the original Parata Township which was located near Anne Street and the first parts of Elizabeth Street; and sites along the awa associated with mahinga kai and swimming.
- [121] The concept of Te Ao Tūroa being the ability for the awa to flow naturally including onto its river plains, allowing the awa to express itself naturally is fundamental to Ātiawa's ability to exercise kaitiakitanga. Other aspects include the ability for waterways to connect to tributaries and wetlands to enable natural processes to take place such as the migration of taonga fish species.
- [122] Climate change was identified as an "unprecedented threat" to the concept of Te Ao Tūroa. Ātiawa have stated that they are planning for climate change through the Whaitua Kāpiti and Takutai Kāpiti projects.
- [123] Development within close proximity to the Waikanae Awa was identified as having the potential to generate adverse effects on the awa and the value of Te Ao Tūroa by potentially restricting the area to which the Waikanae Awa can flow in high flows due to development; by requiring flood protection measures to protect built development which may impact on natural systems; by reducing connectivity between tributaries and the Waikanae Awa; and by increasing risks to Ātiawa's values and relationships as climate change is felt.
- [124] Urban and industrial development near the Waikanae Awa and the risks generated by stormwater and industrial contaminants, particularly on where they are generated on floodplains is considered to have direct impacts to health of mahinga kai species through ingestion of contaminated stormwater; and the

mauri of wai through decreased dissolved oxygen levels and increased turbidity and decreased water clarity from increased sediment discharges.

[125] While Ātiawa have not opposed the proposal to rezone the land, they are seeking further work be undertaken to ensure that Te Mana o te Wai is provided for throughout the site; and that access to special sites is maintained; and to understand the potential cumulative flooding impacts from increased residential development including to downstream communities. Ātiawa considers that a structure planning process that is developed through a 'future urban development' plan change (i.e. schedule 1 process) is more appropriate for this site. Ātiawa would look to ensure that any recommendations from the Whaitua Kāpiti and Takutai Kāpiti projects would inform this plan change process.

[126] I acknowledge all that has been written and within such a short time period in respect of Ātiawa's values for the Waikanae Awa and in respect of the submitter's land. As stated earlier in my evidence, I do not agree that structure plans are an effective tool to achieving the environmental and urban design outcomes sought here, as they are too rigid and are not flexible enough to adjust to changing best practice or market drivers. I consider that a far more effective approach to achieving the outcomes sought through Te Mana o te Wai is through collaborative planning processes which identify and give effect to the range of values that can be protected and enhanced. These values are already provided for through the NPS-FW and also the NES-FW and GWRC's PNRP. KCDC's Operative District Plan and PC(N) contain minimum requirements for managing flood hazards including through requirements for detailed modelling of sites. No new residential development is proposed in the flood plains as this area is recommended to be retained in the General Rural zone.

[127] The Whaitua project has come out of new national regulations (NPS-FW and National Environmental Standards for Freshwater) that seek to protect and restore the health of New Zealand's waterways as a matter of national significance. The regional council is responsible for implementing these new regulations and monitoring the health of our waterways including giving effect to Te mana o te Wai and through preventing further loss of natural wetlands and streams, preserving habitat and passages for fish; and addressing high-risk

farming activities. While the Whaitua Kāpiti implementation programme will, “inform new regulations and programmes of action to protect and restore freshwater across Kāpiti³⁰”, it is my understanding that the intention is for GWRC’s PNRP’s chapter 10 (relating to minimum flows, minimum water levels and core allocation rights) to be updated as a result of recommendations of whaitua committees³¹. This in my view, will mostly be in respect of water takes which are unlikely to be affected by residential development. All other potential adverse effects generated by residential development of this site, including managing discharges of stormwater and contaminants; protecting fish passage and avoiding loss of wetlands are already regulated and provided for now under the new national and regional regulations.

[128] It is my understanding that the Takutai Kāpiti project is dealing with coastal issues and coastal hazards and would not extend to this site. According to information on the Takutai Kāpiti website, it is KCDC’s response to addressing climate change and adaptation through its District Plan³² to “*manage **coastal issues** and guide an approach to help the district deal with **coastal hazards** in the future.*” Confirmation of preferred pathways (phase 3 of this project) will not be available until March 2024³³, after which a Schedule 1 process under the RMA will still need to be followed.

[129] The timeframes to give effect to both the Whaitua Implementation Plan and the Takutai Kāpiti recommendations through a Schedule 1 process to be several years off, with final operative plan changes unlikely to be completed for several more years after that. I have also been informed that the KCDC is not considering a future urban development plan change in the short term and there is no indication through Council’s annual plan or long term plan that it will

³⁰ Refer to GWRC’s website here on the Whaitua process:

<https://www.gw.govt.nz/environment/freshwater/protecting-the-waters-of-your-area/whaitua-kapiti/>

³¹ Refer Chapter 10, PNRP <https://pnrp.gw.govt.nz/assets/Uploads/Chapter-10-Kapiti-Coast-Whaitua-Appeal-version-2023.pdf>

³² Takutai Kāpiti website states that the Takutai Kāpiti project is the district’s “coastal adaptation project.” existing coastal hazard provisions will continue to apply until replaced by a future change to the district plan. Refer here for FAQ on the Takutai Kāpiti project:
<https://takutaiKapiti.nz/articles/frequently-asked-questions/>

³³ Refer slide 3 of document available here: <https://takutaiKapiti.nz/wp-content/uploads/2022/04/CAP-Meeting-22nd-July-2022-Presentation.pdf>

occur in the medium term either. The requirements of the NPS-UD are that tier 1 councils must give effect to Policy 3 and provide for medium density residential development, to provide sufficient residential zoned land to meet demand for housing in the short and medium term in all urban areas and particularly where they are located within 800m walkable distance to a rapid transit stop or within 400m of a town centre zone. The only exception to these requirements are where qualifying matters apply. The process proposed by Ātiawa is unlikely to achieve the outcomes required under the NPS-UD, within the timeframes specified.

Flood Hazard Management

Waikanae East adjoins the Waikanae Awa. The District Plan has identified a River Corridor flood hazard extent (shown in red in **Figure 12** below) the entire length of the site's boundary with the Awa. This identifies land that may be subject to inundation during a 1% AEP event.

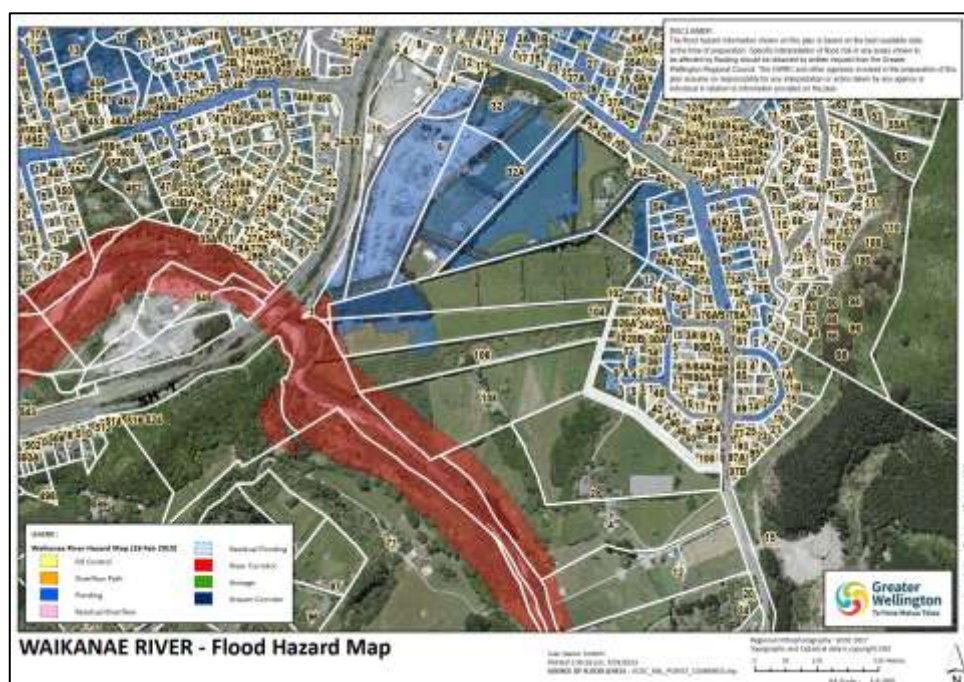


Figure 12: Waikanae River Flood Hazard Map showing extent of flood hazard in Waikanae East (source: GWRC)

[130] GWRC have advised that the Waikanae River is due to be modelled again in the next couple of years by GWRC³⁴. I understand a Regional Council Flood Exposure model is currently in development for the Waikanae Awa including for

³⁴ Pers com. Email from GWRC Flood Protection Team (March 2023).

this site. However, this exposure model is not intended to be used for detailed flood extent estimates and modelling is still required, as the flood exposure model is produced by only combining the hazard from short and longer duration rainfall events and does not model bridge structures or small waterway crossings such as culverts. As such flooding behind these structures are shown conservatively in a “blocked” position.

- [131] A more recent detailed flood model using Mike 12 software had been prepared by AWA Environment in 2017 for a large area of Waikanae East (see **figure 13** below). As a result of flood mitigation works carried out as part of the Goodman Holdings consent, part of the site is now free from the flood hazard as a result of mitigation provided including stormwater attenuation that was created within the constructed stormwater wetland.

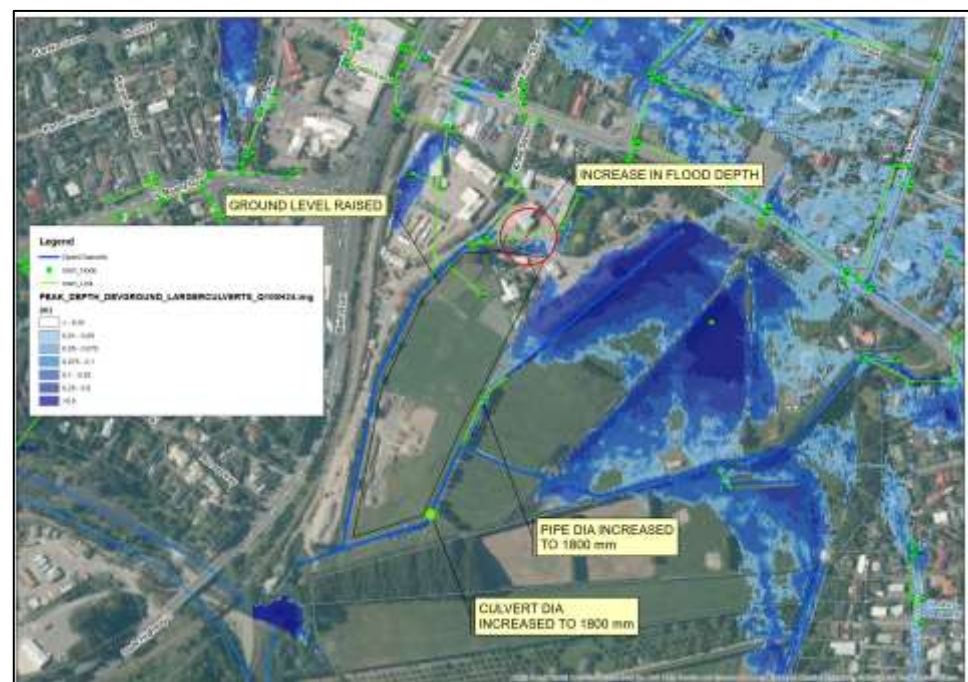


Figure 13: Modelled peak depths of ponding post-development within submitters land of Waikanae East (source: Prepared by AWA Environmental Ltd for Goodman Holdings Ltd - 2017)

- [132] The ponding area shown on in **figure 13** above shows ponding depths in the blue to dark blue areas of between 0.25 – 0.5m and 0.5m+. The ponding is caused by localised stormwater runoff from the adjacent urban area and is not generated by outbreaks from the Waikanae River which are generally contained within the River Corridor area.

- [133] AWA identified the constraints in the existing flood model as two existing culverts which were subsequently upgraded as part of the mitigation provided through the Goodman Holdings consent.
- [134] No development is proposed within the River Corridor flood hazard overlay area. This area is identified in PC(N) as a qualifying matter and development within it is managed under the provisions of the Operative Plan. As discussed already in my evidence, earthworks in the River Corridor are limited to 10m³ in a 10-year period and all other activities including subdivision and new buildings require a resource consent as a non-complying activity and subject to policies restricting development in these areas.
- [135] Outside the River Corridor, the flood hazards within the site are identified as ponding and stream corridors (which discharge stormwater from Elizabeth Street, Seddon Street and Winara Avenue).
- [136] Development within any of the flood hazard overlay areas will trigger resource consents required under the Operative District Plan in respect of those provisions. I anticipate that any residential subdivision and/or development will require modelling of the flood plain as was required by Goodman's consent. That modelling will determine the likely extent of any flood storage area that may be required. Based on the existing extent of ponding identified in the District Plan maps, there is sufficient land within the submitter's land to provide that flood storage.
- [137] I consider that there is sufficient area within the submitters land at Waikanae East to accommodate flood storage while also providing a feasible quantity of development potential.

Stormwater Treatment

- [138] AWA Environmental Ltd also prepared the initial design for the constructed wetland that has been constructed within the Goodman's site and that is designed to treat all stormwater coming off the site from industrial activities. A copy of the preliminary and final designs for this constructed wetland are contained in **Appendix 3** of my evidence and shown in the image below:



Figure 14: Existing constructed wetland located within Goodman's site (source: Final Approved Consented Drawings RM170308)

[139] The design created 2,600m³ of volume, and covered an area of 2,500m². The design was based on the Auckland Regional Council technical publication TP010 and treats stormwater for a 2 year storm event over a 24 hour duration with a bypass for larger events. The constructed wetland was designed to treat stormwater generated from an impermeable area of approximately 40,000m² (4 hectares).

[140] A second constructed wetland or an extension to the existing constructed wetland, of a similar size to what exists, is anticipated to treat stormwater from within the walkable catchment and high density area³⁵. A similar sized wetland or series of stormwater treatment areas would also be required to treat stormwater from the remainder of the Residential zoned land within Waikanae East³⁶.

³⁵ Assumes a developable area of 4.5 hectares within the higher density area.

³⁶ Assumes a developable area of approximately 5.4ha outside the walkable catchment.

[141] I conclude that subject to detailed design there will be suitable land within Waikanae East to sufficiently treat stormwater generated by residential development to avoid adverse effects on the sensitive receiving environments.

Geotechnical Assessments undertaken in Waikanae East

[142] The landowners at 4 Reikorangi Road (at the south end of what is identified as Waikanae East) commissioned Miyamoto Ltd to undertake geotechnical site investigations for the purpose of assessing natural hazard risks to their proposed subdivision. Miyamoto also reviewed the risks around development within the Fault Avoidance Zone within the site. The soils found within the lower terrace at 4 Reikorangi Road extend all the way across Waikanae East's land (shown in pink in GWRC's Soils Map) as illustrated below:

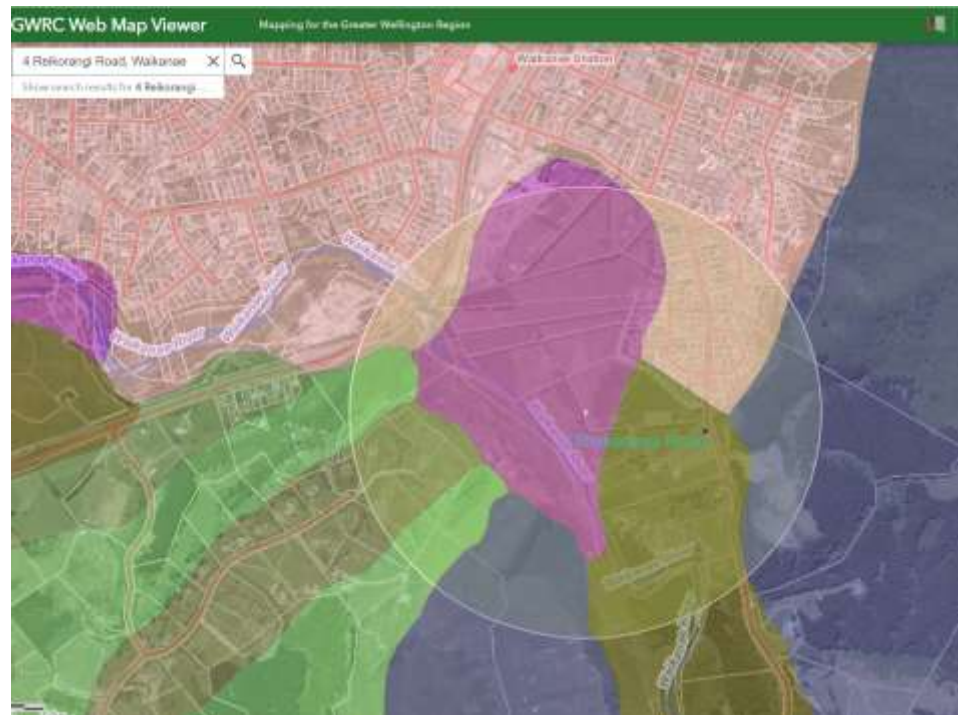


Figure 15: GWRC Soils of the Wellington Region (source: GWRC)

[143] While I am not applying the findings of Miyamoto's site investigations of 4 Reikorangi Road across all of Waikanae East land as that work is site specific, I reference Miyamoto's findings for 4 Reikorangi Road as it is one of the properties included in the submission for Waikanae East (a copy of Miyamoto's site investigations is attached in **Appendix 4** of my evidence).

[144] As part of its assessment for 4 Reikorangi Road, cone penetrometer tests ('CPTs') of the site at the upper terrace and the lower terrace were undertaken. The testing identified ground water levels and determined potential risks from ground shaking (earthquake hazards). CPTs were to a depth ranging from 3.6m below ground level (bgl) to 6.8m bgl. The testing found that the site is typically underlain by a relatively thin layer of sand and silty sand overlies with dense sandy gravels that are likely to contain large cobbles and boulders around 4m to 6m below ground level. Ground water was encountered closer to the surface on the upper terraces at between 1m and 2m. Groundwater was not encountered in the lower river terrace areas and Miyamoto's report suggests groundwater is located at least 4m bgl at these locations. Miyamoto reports that groundwater within the lower terrace is likely to be similar to the water level of the Waikanae Awa at its normal flow.

[145] Miyamoto's report had also confirmed that potential adverse effects from slope failure and ground shaking on this site were low to moderate and the site is surrounded by an area of low liquefaction risk. For this site, Miyamoto's report concludes that the site is not likely to be subject to liquefaction in a 1/25 year SLS or ILS (1 in 100 year intermediate event) level earthquake and only moderate effects could occur to shallow foundations and the ground surface in a 1/500 year ULS event.

[146] Miyamoto conclude that for the site at 4 Reikorangi Road, given the subsoils across the site not being subject to liquefaction in an SLS or ILS level earthquake, and only a moderate effect in a ULS event, lateral spreading is not considered to be a significant hazard for this site.

[147] A desktop exercise by Miyamoto suggests the likely location of Ohariu Fault trace is located somewhere within the uncertain-constrained fault avoidance area as identified on the Operative District Plan maps. Within this area, Miyamoto recommends that a single storey timber framed dwelling no larger than 300m² be constructed in accordance with GNS and MfE 2003 report *Planning for development on land on or close to active faults*. This approach is consistent with the approach adopted by the Operative District Plan.

[148] I conclude that the current provisions of the Operative District Plan can effectively mitigate any potential geotechnical risks associated with earthquakes. As these provisions are a qualifying matters under PC(N) no changes are necessary to the IPI to give effect to these provisions.

Reticulation Modelling and Capacity for Wastewater and Potable Water

[149] The main reticulation pipeline carrying treated potable water from the Waikanae Water Treatment to Waikanae and Paraparaumu crosses through the submitters land. However, connections are unlikely to be made into this water main; instead, connections to the reticulation water main in Elizabeth Street will be required.

[150] Reticulated wastewater is available within Elizabeth Street up to the beginning of Reikorangi Road.

[151] According to the updated HBA report Appendix 5.2, there is sufficient capacity within Waikanae East's (the urban area to the east of the railway line) reticulation network to accommodate growth in the short to medium term. The forecasting was based on forecast dwelling growth of 1,225 over the long term; and between 130 to 311 new dwellings in the short to medium term. This is within the projected *feasible dwelling capacity* for new growth within both the infill residential area and the proposed Waikanae East greenfield area.

[152] There are no indicated constraints identified in Council's reports in the reticulation system for Waikanae East within the short, medium or long term.

Summary and Conclusions

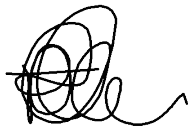
[153] I conclude that:

- a. Waikanae East's submission meets the two tests for determining scope in that it was raised as a potential site in the Section 32 report and associated documents, such that the community would have been aware that the landowners may seek for it to be rezoned;
- b. The intensification of this non-residential zoned land is required to meet the objectives set out in the NPS-UD to provide sufficient plan-enabled, infrastructure ready, feasible and realisable land for residential development in the Waikanae urban area;
- c. That the proposed rezoning, including the application of the qualifying matters as proposed by PC(N) and PC(R1) is the most efficient and effective way to give effect to the NPS-UD; and that a structure plan embedded into the District Plan is not necessary and that all relevant matters have been sufficiently canvassed through this process;
- d. There are no constraints identified for residential development capacity forecast in the short to medium term for this land. From the medium term onwards, a second east west connection will need to be provided for and this can be managed through Council's long term planning process;
- e. The proposed rezoning of Waikanae East to General Residential zone is not contrary to the objectives and policies of the relevant national and regional policy documents (including the NPS-HPL and NPS-FW and GWRC Proposed Change 1);
- f. Waikanae East is in a better position than other greenfield sites in terms of infrastructure servicing. Where constraints have been identified in respect of transport connections, it is considered that there is sufficient time within the short to medium term, prior to development coming on stream, for the relevant stakeholders (KCDC, Waka Kotahi and Kiwi Rail)

to undertake the necessary investigations into an alternative east-west connection; and

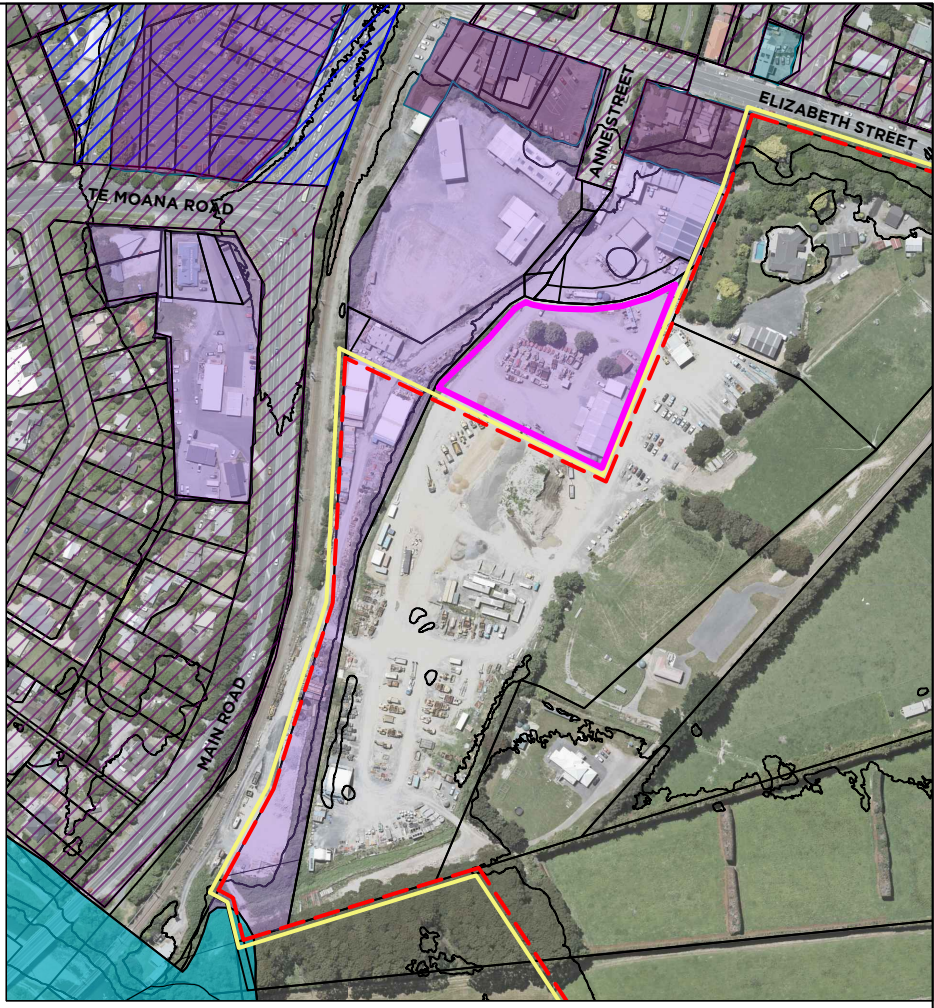
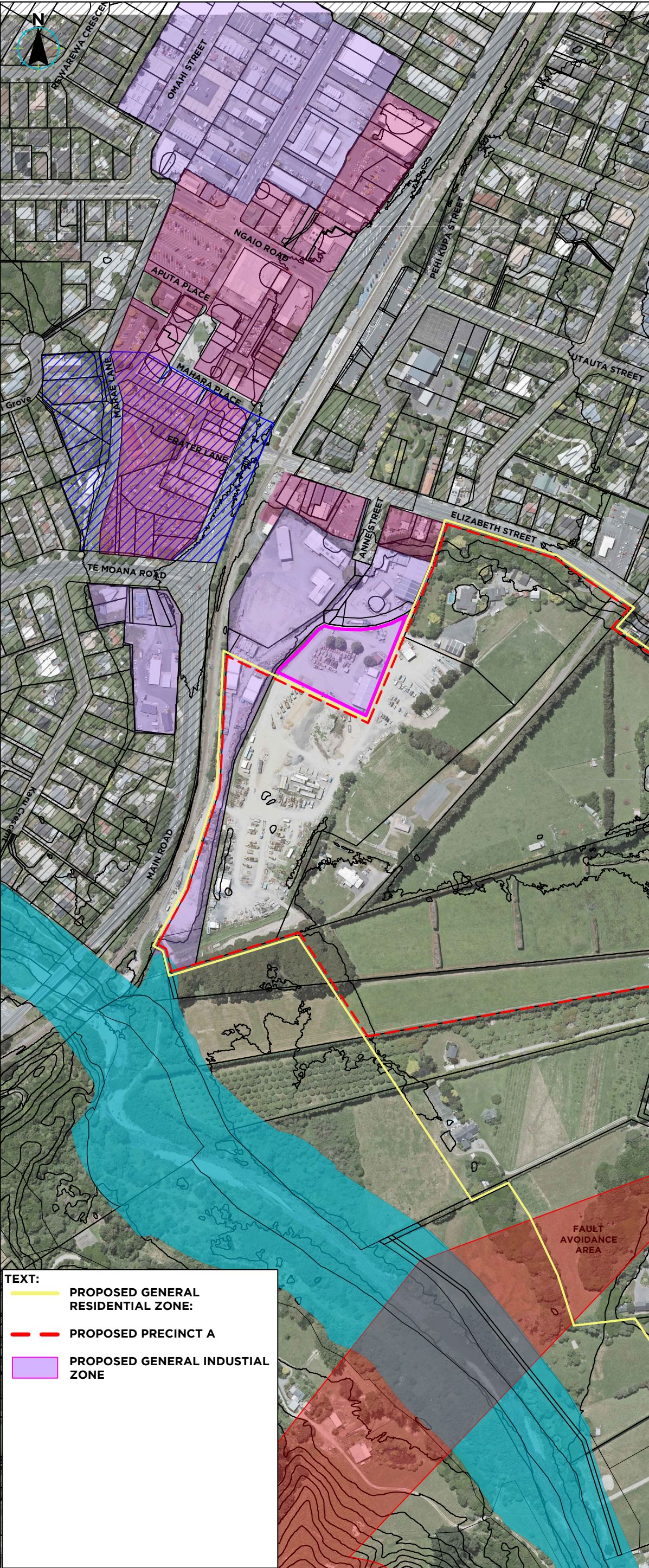
- g. The proposed rezoning of Waikanae East, including the Industrial Zoned land, to a General Residential zone are consistent with the purpose of the RMA.

Dated 10 March 2023



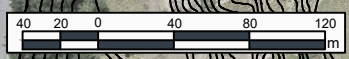
A Carter

Appendix 1: Proposed Rezoning Plan; and Indicative Spatial Plans



TEXT:

- PROPOSED GENERAL RESIDENTIAL ZONE:
- PROPOSED PRECINCT A
- PROPOSED GENERAL INDUSTRIAL ZONE



PREPARED BY

LAND MATTERS

CLIENT

WAIKANA E EAST SUBMITTERS

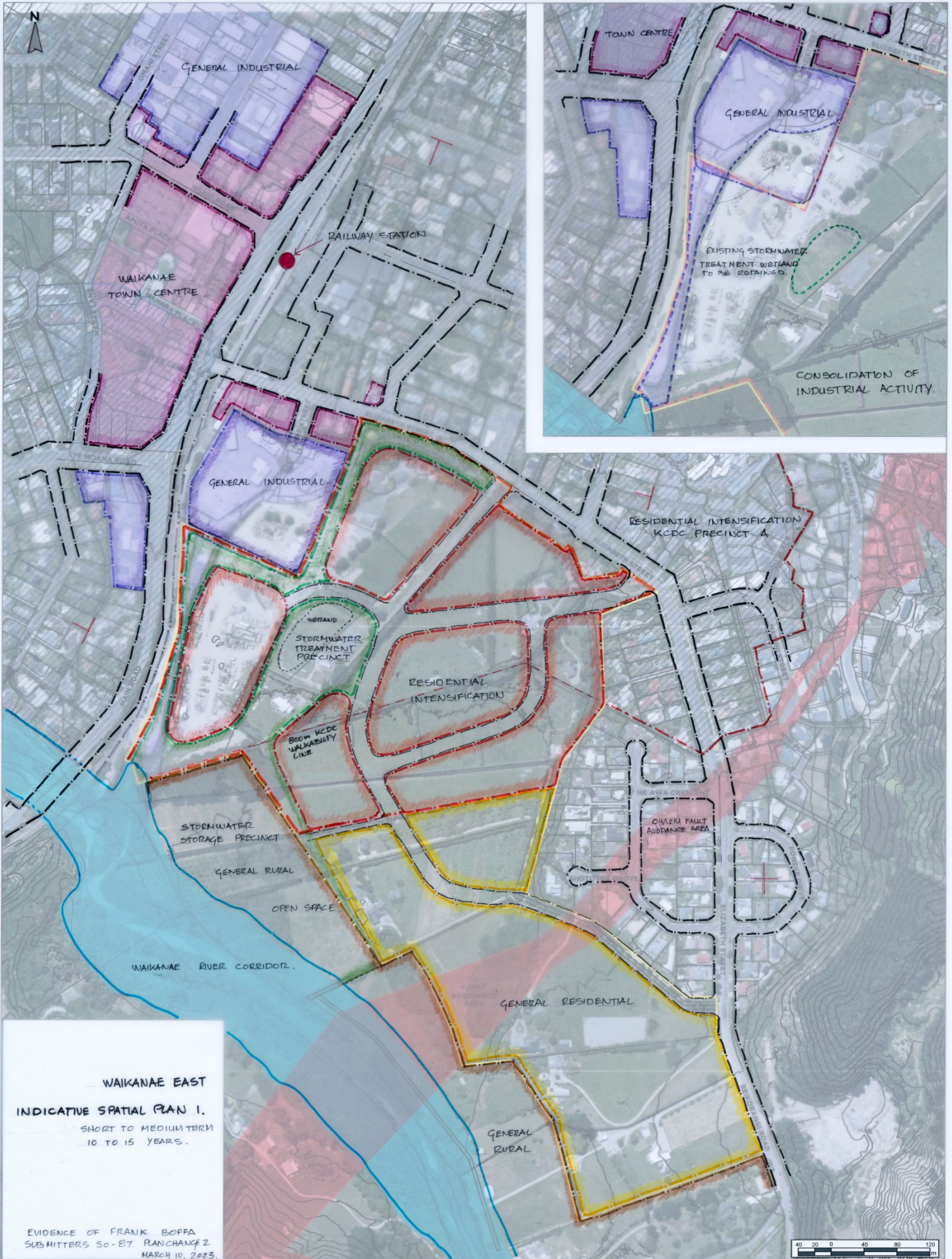
PROJECT

KCDC - PC2

DRAWING TITLE

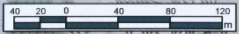
WAIKANA E EAST - PROPOSED ZONING

DATE	PROJECT NO.
08/03/2023	1035
SCALE	REV
1:2000 @ A1	1:4000 @ A3
DRAWING NO.	REV
1035-CP-101	A

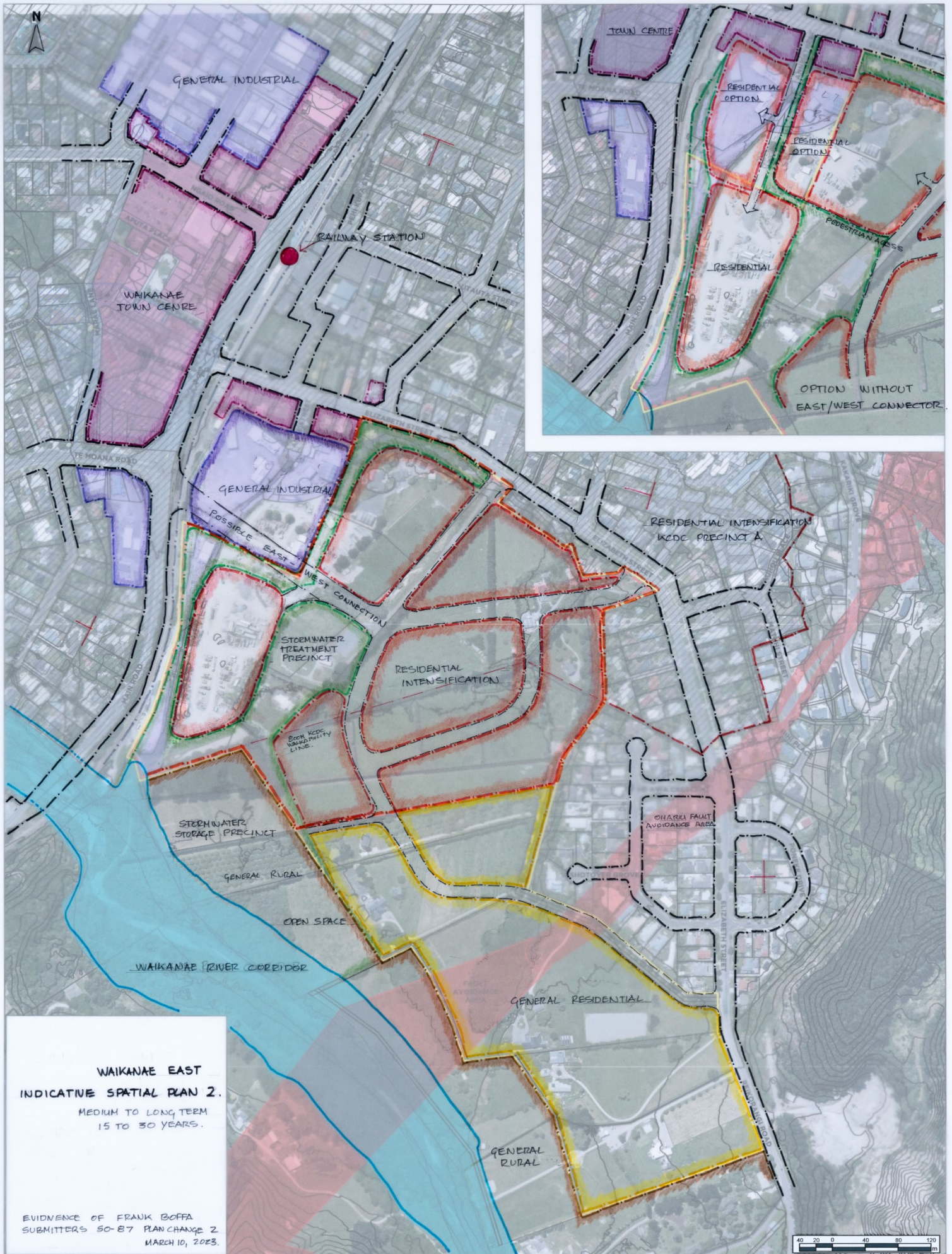


WAIKANAE EAST
INDICATIVE SPATIAL PLAN 1.
 SHORT TO MEDIUM TERM
 10 TO 15 YEARS.

EVIDENCE OF FRANK BOFFA
 SUBMITTERS 50-87 PLAN CHANGE 2
 MARCH 10, 2023.




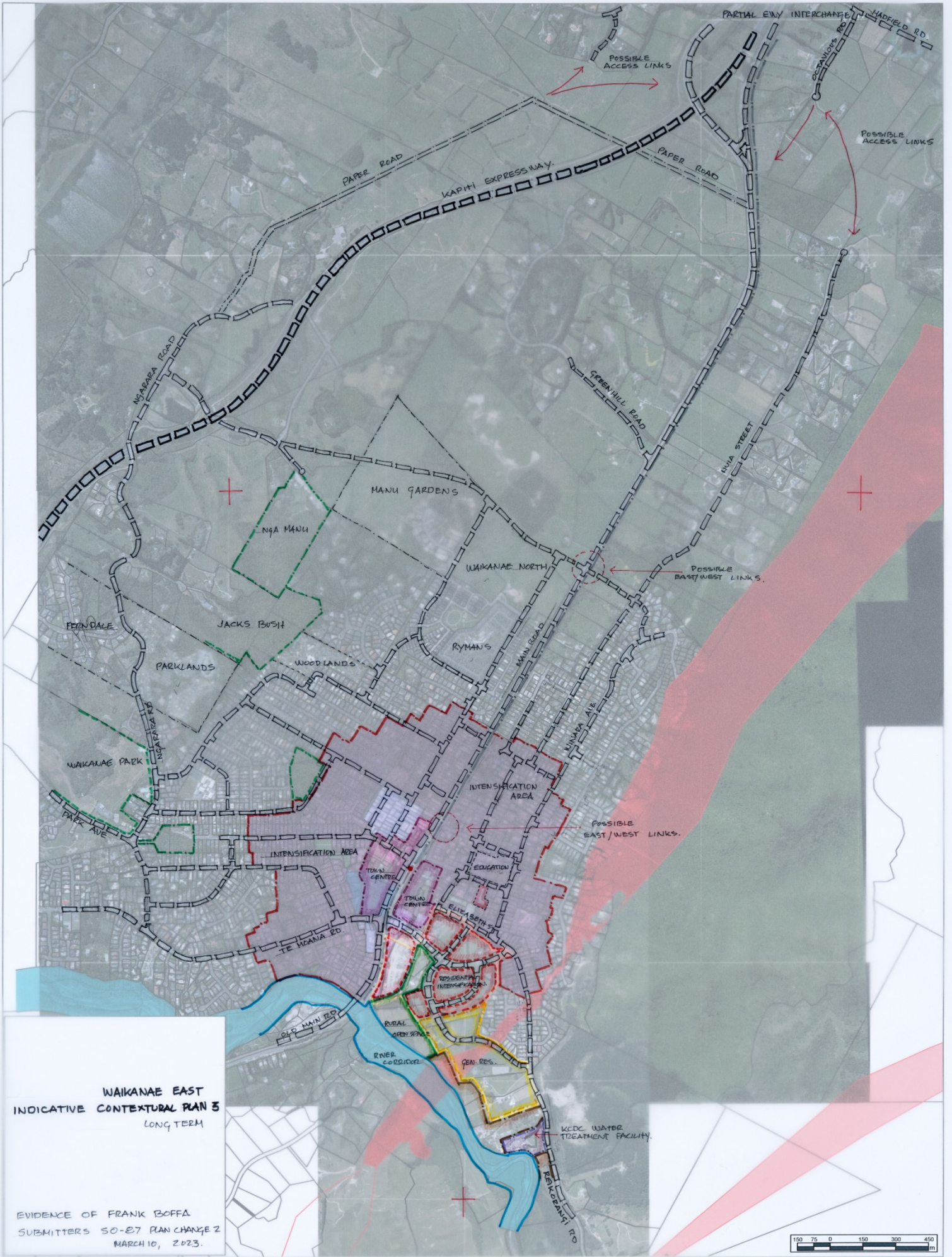
PREPARED BY LAND MATTERS	CLIENT LAND MATTERS - CONSULTANCY	PROJECT KCDC - PC2	DRAWING TITLE WAIKANAE EAST - STRUCTURE PLAN 5m CONTOURS	DATE 01/03/2023	PROJECT NO. 1035
				SCALE 1:2000 @ A1 1:4000 @ A3	DRAWING NO. 1035-CP-101



WAIKANAË EAST
INDICATIVE SPATIAL PLAN 2.
 MEDIUM TO LONG TERM
 15 TO 30 YEARS.

EVIDENCE OF FRANK BOFFA
 SUBMITTERS SC-87 PLAN CHANGE 2
 MARCH 10, 2023.

PREPARED BY  LAND MATTERS	CLIENT LAND MATTERS - CONSULTANCY	PROJECT KCDC - PC2	DRAWING TITLE WAIKANAË EAST - STRUCTURE PLAN 5m CONTOURS	DATE 01/03/2023 PROJECT NO. 1035 SCALE 1:2000 @ A1 1:4000 @ A3 DRAWING NO. 1035-CP-101 REV A
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**WAIKANAĒ EAST
INDICATIVE CONTEXTURAL PLAN 3
LONG TERM**

EVIDENCE OF FRANK BOFFA
SUBMITTERS 50-27 PLAN CHANGE 2
MARCH 10, 2023.

PREPARED BY



LANDMATTERS

CLIENT

**LAND MATTERS -
CONSULTANCY**

PROJECT

KCDC - PC2

DRAWING TITLE

**WAIKANAĒ EAST -
STRUCTURE PLAN
WITH EXTENDED AREA**

DATE	PROJECT NO.
01/03/2023	1035
SCALE	REV
1:7500 @ A1 1:15000 @ A3	A
DRAWING NO.	REV
1035-CP-101	A

Attachment 2: Ātiawa ki Whakarongotai - Statement of cultural values



ĀTIAWA KI WHAKARONGOTAI CHARITABLE TRUST

Assessment of Ātiawa ki Whakarongotai Values Associated with “Waikanae East”

Date: 9 March 2023

Introduction

1. Waikanae East (the **Site**), describes approximately 40 hectares of land held in 12 lots across Anne Street, Elizabeth Street and Reikorangi Road in Waikanae. The Site is located within an area of significance to Ātiawa ki Whakarongotai (**Ātiawa**), with the Waikanae River directly adjacent to the Site. The majority of the Site is zoned General Rural and is within Precinct 40 – the Rural Plains Precinct. The Goodman’s site at 6 Anne Street, forms part of the Site and is zoned Industrial.
2. Kāpiti Coast District Council’s (**KCDC**) Plan Change 2 (**PC2**) responds to central government requirements to encourage increased residential development. PC2 proposes to rezone land within the district to General Residential to support increased residential development.
3. PC2 does not include the Site as an area to be rezoned to General Residential. The owners of the Site (the **Landowners**) submitted on PC2 in opposition (the **Submission**) and seek to:
 - a. Rezone the Site to General Residential Zone.
 - b. Include the precinct area PRECx1 - Residential Intensification A for Waikanae East.
 - c. Make provision within the District Plan maps to include new connections into Waikanae East from Anne Street, Elizabeth Street, and/or Reikorangi Road.
4. In its further submission, the Ātiawa ki Whakarongotai Charitable Trust (the **Trust**) submitted “support in part” on the Submission on the following bases:
 - a. Insufficient information has been provided in the Submission to adequately assess the effects of the proposal.
 - b. The Trust wished to avoid pre-empting Takutai Kāpiti decisions for sites close to the coast.
 - c. The Trust considered it appropriate to consider the Submission for rezoning as part of KCDC’s Future Urban Development Plan Change scheduled as part of implementing the District Growth Strategy.
5. The Trust noted in its further submission that we would like to see a further assessment of environmental effects, including s6 RMA matters and cumulative effects of rezoning all or some of the proposed sites or deferring for future plan change.
6. The Landowners have approached the Trust to understand the Trust’s considerations in relation to the Site. The Trust have prepared this assessment which sets out the values Ātiawa hold in

relation to the site (the **Values Assessment**). These values include Whakapapa, Te Ao Tūroa, and Mauri. This Values Assessment also makes comments on proposals the Landowners have for the Site as set out in a series of indicative spatial plans.

Ātiawa values for Waikanae East

Whakapapa

7. Whakapapa, our genealogical lineage to land and water, is a fundamental value for Ātiawa. Through our whakapapa we connect to our tupuna, our taiao, and our Atua, and it is through this whakapapa that we inherit our birthright and responsibility as kaitiaki of all that is living and existing within our rohe.
8. The relationship between Ātiawa and the Waikanae awa has informed the development of our collective identity, with the awa layered with a history of intimate relationships between the awa and whānau forming a cultural landscape that enables Ātiawa to connect to our whakapapa. There are many historical and present-day kāinga along the length of the awa including the original Parata Township which was located near Anne Street and the first parts of Elizabeth Street.
9. Whakapapa is also felt through our connection to certain mahinga kai species, sites, and customary practices. The activity of mahinga kai and bathing is central to our way of life. The ability for our whānau to visit mahinga kai sites and bathe in awa renews whakapapa connections to place, to the atua and to one another. As set out under *Mauri* the stretch of the Waikanae that is adjacent to the Site contains a number of significant Ātiawa mahinga kai sites. The reservoir bend is also a regular Ātiawa swimming spot. The Waikanae at SH1 Bridge is a significant whanaungatanga site, and it is common place for people to enjoy fishing, swimming and being together.
10. Urban development at the Site has the potential to adversely impact the Ātiawa value of whakapapa through adversely impacting cultural landscapes including through restricting our ability to undertake our practices, and restricting our cultural pathways and sightlines to the awa. This includes restricting access to significant sites either as an indirect result of stormwater contaminants or through increased flood waters, placing our whānau at risk. Protecting and enhancing the ability for Ātiawa to continue our practices and connect to our special sites will support our value of whakapapa.

Te Ao Tūroa

11. Te Ao Tūroa is a value that reflects natural order, balance and pattern that underlies and is fundamental to the world we live in. Te Ao Tūroa ensures balance between all the atua of the natural world and the processes they reflect, in what would otherwise be a chaotic world. Valuing the natural order of the environment is about valuing the natural āhua or character of the environment. This includes ensuring the appropriate flow, and the right bed morphology in awa. Development should recognise and provide for nature as the ultimate designer by designing development around natural processes, including natural flows of the Waikanae Awa. Allowing the Waikanae to flow naturally for example, on to its river plains by prohibiting built infrastructure here, allows the awa to express itself naturally.
12. Te Ao Tūroa also reflects that one component of the environment cannot be understood in isolation from the whole. The concept that all things are connected is fundamental to the exercise of kaitiakitanga and informs our understanding that change in one part of the system will have

effects across the whole system. For example, our waterways must connect to tributaries and wetlands to enable natural processes to take place such as the migration of our taonga fish species.

13. Wetlands are a key habitat to Ātiawa, providing a key connection between land and waterways. Water that passes through wetlands to land is cleaned as sediment drops out, and the organisms living in wetlands remediate contaminants they might bring. Wetlands also provide natural flood protection by attenuating high flood flows from waterways, reducing flooding to interconnected whenua. Thriving and abundant wetlands within the Ātiawa rohe are a key indicator that Te Ao Tūroa is being supported.
14. Climate change is causing an unprecedented threat to the natural order, balance and patterns of the environment. Climate change has set in place new system dynamics that are working to re-establish balance and order, which may ultimately result in changes to the climate and planet that make our existence in it impossible. These new climate and environmental dynamics are altering the patterns and consequently the occurrence of environmental indicators that our people have relied upon to guide their interactions with the environment for many generations. The Trust is planning for climate change, including through the Whaitua Kāpiti and Takutai Kāpiti Project. This includes considering how to manage and respond to changes in our natural systems whilst at the same time responding to the current, oftentimes urgent, needs of our taiao, as the pressure to develop increases. Through these projects, the Trust may be identifying areas we consider require protection from development to ensure our values are upheld and our relationship to the taiao is supported.
15. The Site is located adjacent to a significant stretch of the Waikanae awa. The Waikanae is referred to as the lifeblood of our people and is a highly valuable taonga to Ātiawa – its protection and enhancement being of paramount importance. The Site is also identified in the District Plan as being located within the stream corridor of the Waikanae. Development in close proximity to the Waikanae awa introduces the potential to generate adverse effects to the Waikanae awa and the value of Te Ao Tūroa:
 - a. Built development restricting the area to which the Waikanae can flow in high flows.
 - b. Potential to require flood protection measures to protect built development will impact on the natural systems of the Waikanae, as well as the ability for Ātiawa to undertake cultural practices.
 - c. Reducing connectivity between the Waikanae and its tributaries, impeding fish passage.
 - d. Increasing risk to Ātiawa values and relationships to taiao as climate change effects are felt.

Mauri

16. Mauri is a value that recognises the essential energy that underlies and is essential for all life to thrive. Mauri gives rise to a diversity and abundance of life. All life has mauri, and human mauri thrives when the mauri of our environment thrives, including where the quality of our kai and water is excellent and able to support our health and healing.
17. Ātiawa kaumātua recall a time when there was an abundance and diversity of mahinga kai species. However, over time this has depleted due to poor mauri of our waterways. Ātiawa are concerned with heavy metal contamination in our waterways and soil which pose a serious threat to mauri.

Ātiawa seeks to restore the mauri of our soil and waterways which will in turn support a return to the abundance and diversity of mahinga kai species.

18. Te Mana o te Wai is the fundamental concept for the National Policy for Freshwater Management 2020, recognising the fundamental importance of water to the health and wellbeing of the wider environment. Te Mana o te Wai protects the mauri of wai and requires that the health and wellbeing of waterbodies and freshwater ecosystems is prioritised ahead of human health and the ability of communities to provide for their social, economic and cultural well-being.
19. The protection of the mauri of the Waikanae River is of utmost importance to Ātiawa. The stretches of the Waikanae in close proximity to the Site hold significant mahinga kai value for Ātiawa. The area closest to the reservoir is a significant mahinga kai site containing tuna and trout. Moving toward the SH1 bridge, there is a significant mahinga kai site known as Parikawau and at the SH1 bridge is a significant mahinga kai site, well known for its smaller tuna. Ātiawa access to and its relationship to these sites must be protected through the protection of the mauri of the awa.
20. Urban and industrial development near the Waikanae, particularly on its floodplains, has the potential to generate significant effects to the mauri of the Waikanae and the relationship Ātiawa have with the Waikanae, particularly through the discharge of stormwater contaminants to the awa. Stormwater and industrial contaminants adversely impact the mauri of wai within the Waikanae and the health and abundance of mahinga kai, including:
 - a. Direct impacts to the health of mahinga kai species who ingest stormwater and industrial contaminants.
 - b. Impacts to the mauri of wai including through decreased dissolved oxygen levels.
 - c. Increased turbidity and decreased water clarity from increased sediment discharge.

Waikanae East Indicative Spatial Plan

21. The Landowners have provided to the Trust a series of Indicative Spatial Plans culminating in the Spatial Plan appended to this Assessment (see **Appendix A**) (the **Spatial Plan**). The Spatial Plan shows indicative development areas based on likely constraints. The Spatial Plan does not represent final zones or precincts but has been used to confirm *likely* densities and development areas for Waikanae East. The Spatial Plan envisions the following:
 - a. High Density Residential zoned land within an 800m walkable catchment of the Waikanae Railway Station. Land in this area can be developed up to six storeys high subject to meeting Medium Density Residential Standards for Intensification A precinct and subject to managing any qualifying matters.
 - b. General Residential zone across Waikanae East, outside of the 800m walkable catchment of the Waikanae Railway Station. Land in this area can be developed in compliance with the Medium Density Residential Standards i.e. up to three dwellings per lot, 50% site coverage, subject to qualifying matters.
 - c. General Industrial zone across the existing Goodman's site (6 Anne Street). Goodmans are seeking to consolidate their industrial area to the north of 6 Anne Street. The proposal is to

rezone approximately 7,000m² of Industrial Zone land along the railway to General Residential, in exchange for approximately 7000m² area of General Rural land becoming General Industrial zoned land.

22. The Landowners have provided additional drawings that show how they could potentially provide for qualifying matters throughout the Site including potentially:
- a. Doubling the water treatment constructed wetland areas currently on the Industrial Zoned land.
 - b. Providing extensive water storage areas outside the river corridor area to provide for compensatory storage for any new development, including within ponding areas.
 - c. Options for a new connection over / under the North Island Main Trunk Railway.
 - d. Protection of large tracks of open space to create buffers; to create public open space and provide CWB connectison including along the railway line, parts of Elizabeth Street, existing watercourses within the Site, along Waikanae awa.
23. At this stage, the Landowners have not undertaken modelling to support the feasibility of the Spatial Plan and consider this can be undertaken at consenting stage. The Landowners consider the Site could potentially provide 469 to 1,641 new dwellings depending on the level of intensity the Site is developed at.

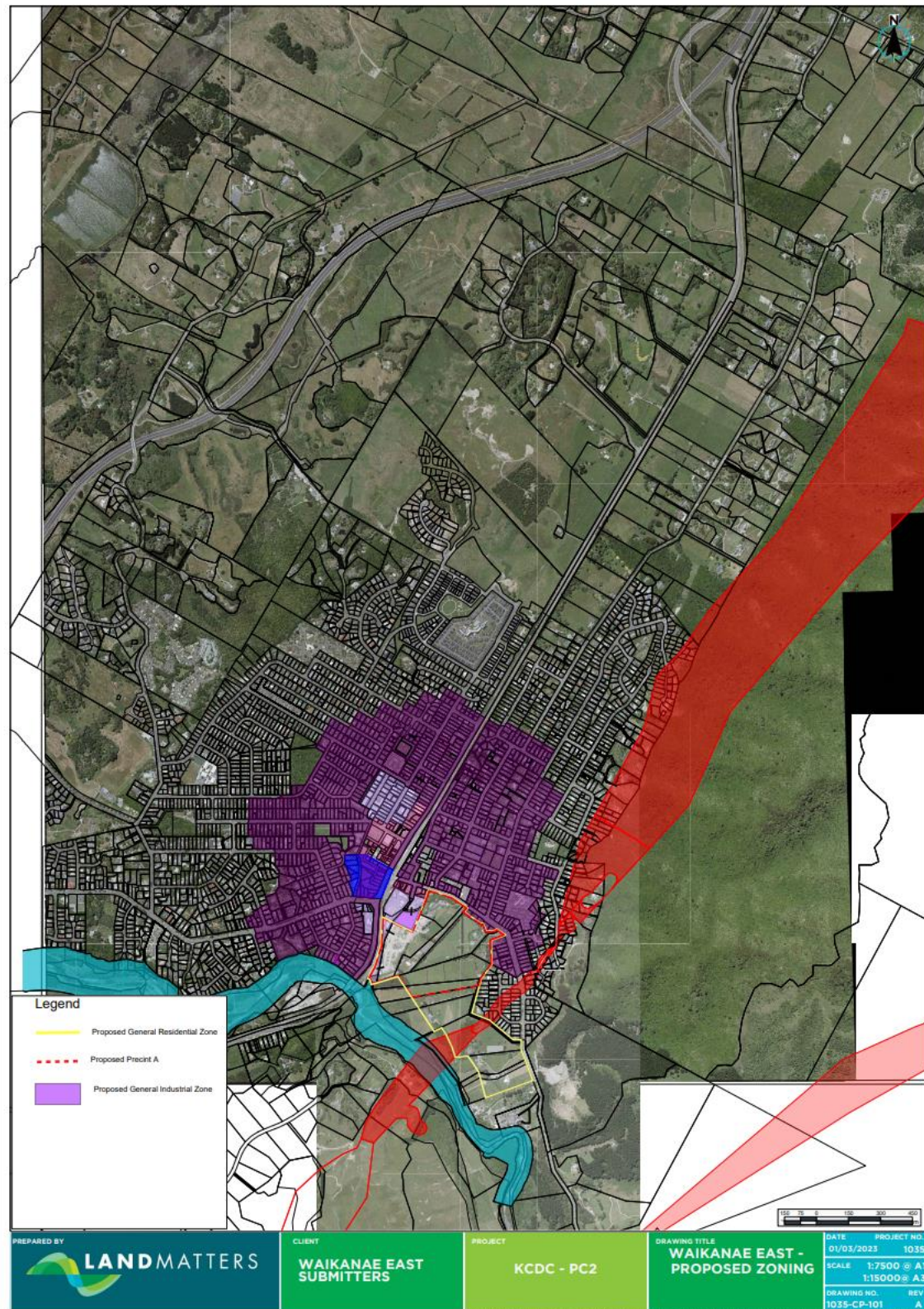
Trust's Comments on Indicative Spatial Plan

24. The Trust appreciates that the Landowners have engaged with the Trust to understand our considerations for the Site. The Trust considers this engagement is a good start to considering how the Site can be developed. However, our position is that further engagement is required for the Trust to fully understand the risk the Landowners' proposal will pose to Ātiawa values and our relationship to the Site. The Trust is concerned that there is a potential risk we will be significantly impacted by rezoning of the Site. This includes, but is not limited to:
- a. How Te Mana o te Wai will be provided for throughout the Site including the extent of buffer along the awa, the provision for connections between waterbodies, and how mauri will be supported and enhanced.
 - b. How our cultural landscapes will be impacted, including the ability to access special sites and undertake cultural practices.
 - c. Understanding how Te Ao Tūroa will be provided for, particularly understanding potential flooding effects including cumulative flooding effects from increased residential development across Waikanae. This includes flooding effects to downstream communities.
 - d. Potential impacts to our taonga fish species.
25. There are likely more risks to Ātiawa values and our relationship to the taiao that the Trust has not yet identified given the pressured timeframes and inability to engage thoroughly. The Trust does

not consider it appropriate that these matters are addressed at consenting stage. Although there is potential for some of the elements shared by the Landowners to support Ātiawa values, there is no guarantee those elements will be adopted given the plans are indicative only. As such, the Trust could be placed in a very difficult position where we are required to advocate for our values through a consenting process that seeks to establish high density development in close proximity to the Waikanae awa, an awa of high significance to the Trust. The Trust considers a more appropriate process would be for the Landowners to engage thoroughly with the Trust to develop a structure plan proposal for Waikanae East through the Future Urban Development Plan Change.

26. Both the Whaitua Kāpiti and Takutai Kāpiti projects will make recommendations to Councils with respect to development near waterways and the coast. The Trust understands these recommendations will inform the Future Urban Development Plan Change. The Trust wishes to engage on future development for the Site once we have had the opportunity to consider the outcomes of these projects through the Future Urban Development Plan Change. This will ensure our values are adequately provided for through any development.

Appendix A: Spatial Plan



**Attachment 3: AWA Environmental Ltd - Flood Modelling & Constructed Wetland
Designs for Goodman Holdings Ltd**

KAPITI COAST DISTRICT COUNCIL

Authorised to commence work subject to my letter of **N/A**

And/or amendments marked on the plan for consent number **RM/170308**

Signed and approved by development control team, and other Council teams for various aspects of design

D C team *[Signature]* Date: **11/3/19**

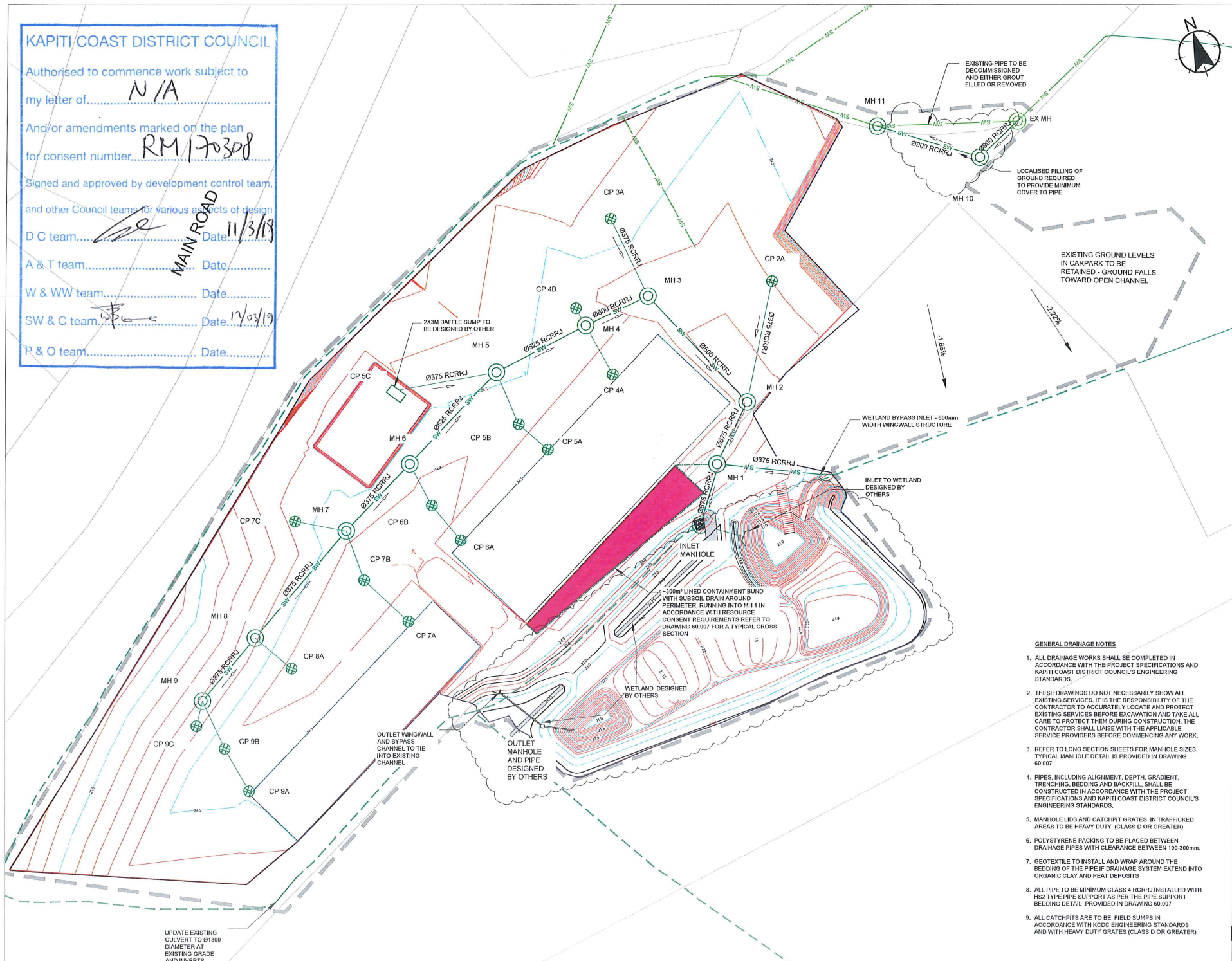
A & T team Date: _____

W & WW team Date: _____

SW & C team *[Signature]* Date: **11/03/19**

R & O team Date: _____

MAIN ROAD



NOTES
DO NOT SCALE THIS DRAWING
CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ALL ERRORS AND OMISSIONS TO THE ENGINEER

LEGEND

- EXTENT OF WORKS
- PR STORMWATER PIPE
- PR STORMWATER MH
- PR CESSPIT
- OPEN CHANNEL
- EXISTING STORMWATER
- ESTIMATED GROUND SLOPE

EXISTING GROUND LEVELS IN CARPARK TO BE RETAINED - GROUND FALLS TOWARD OPEN CHANNEL

Rev	Date	By	Issue
3			BYPASS CHANNEL UPDATED
2			FOR ENGINEERING APPROVAL
1			FOR CLIENT APPROVAL

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Client: **GOODMAN HOLDINGS LTD**
Project: **GOODMANS WAIKANAE YARD EXTENSION & SITE REDEVELOPMENT**

Drawing Title: **DRAINAGE PLAN**

Project No:	J000060	Drawing No:	60.004
Scale:	1:200 (AS)	Date:	21/10/18
Sheet:	1	Total:	1

- GENERAL DRAINAGE NOTES**
- ALL DRAINAGE WORKS SHALL BE COMPLETED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND KAPITI COAST DISTRICT COUNCIL'S ENGINEERING STANDARDS.
 - THESE DRAWINGS DO NOT NECESSARILY SHOW ALL EXISTING SERVICES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ACCURATELY LOCATE AND PROTECT EXISTING SERVICES BEFORE EXCAVATION AND TAKE ALL CARE TO PROTECT THEM DURING CONSTRUCTION. THE CONTRACTOR SHALL LIAISE WITH THE APPLICABLE SERVICE PROVIDERS BEFORE COMMENCING ANY WORK.
 - REFER TO LONG SECTION SHEETS FOR MANHOLE SIZES. TYPICAL MANHOLE DETAIL IS PROVIDED IN DRAWING 60.007
 - PIPES, INCLUDING ALIGNMENT, DEPTH, GRADIENT, TRENCHING, BEDDING AND BACKFILL, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND KAPITI COAST DISTRICT COUNCIL'S ENGINEERING STANDARDS.
 - MANHOLE LIDS AND CATCHPIT GRATES IN TRAFFICKED AREAS TO BE HEAVY DUTY (CLASS D OR GREATER)
 - POLYSTYRENE PACKING TO BE PLACED BETWEEN DRAINAGE PIPES WITH CLEARANCE BETWEEN 100-300mm.
 - GEOTEXTILE TO INSTALL AND WRAP AROUND THE BEDDING OF THE PIPE IF DRAINAGE SYSTEM EXTENDS INTO ORGANIC CLAY AND PEAT DEPOSITS
 - ALL PIPE TO BE MINIMUM CLASS 4 RCRRJ INSTALLED WITH HS2 TYPE PIPE SUPPORT AS PER THE PIPE SUPPORT BEDDING DETAIL PROVIDED IN DRAWINGS 60.007
 - ALL CATCHPITS ARE TO BE FIELD SUMPS IN ACCORDANCE WITH KCDC ENGINEERING STANDARDS AND WITH HEAVY DUTY GRATES (CLASS D OR GREATER)

UPDATE EXISTING CULVERT TO Ø1000 DIAMETER AT EXISTING GRADE AND INVERTS



Design Summary Report

Goodmans Constructed Wetland

Document Status (Final)

Prepared for Goodmans Holdings Limited by Morphum Environmental Ltd
December 2018



The union of engineering
design and nature.



Engineers & Consultants

Document Control

Client Name: Goodmans Holdings Limited
Project Name: Goodmans Wetland
Project Number: P01954
Document: Design Summary Report

Revision History

Status	Date Issued	Author	Reviewed By	Released By
Final	19/12/2018	Stu Farrant	Reuben Ferguson	Caleb Clarke

Reviewed by:

Reviewer: Reuben Ferguson

Signature:

Released by:

Reviewer: Caleb Clarke

Signature:

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1.0 Introduction

Morphum Environmental Limited (Morphum) have been engaged by Goodmans Holdings Limited (Goodmans) to design a constructed wetland to manage runoff generated from the upgraded yard at 4 Anne Street, Waikanae. The wetland has been designed to mitigate the impact from site-generated stormwater runoff and the potential resultant contaminants including sediment, heavy metals, hydrocarbons and nutrients. In addition, it will also mitigate the potential impact of large areas of impervious (including heavily-compacted gravel areas) and paved surfaces including elevated temperatures and flashy flows in small rainfall events. The wetland will treat runoff associated with this development prior to its discharge into the existing un-named tributaries (modified open channels) of the Waikanae River and the Waikanae River itself.

The constructed wetland is required in accordance with resource consent conditions stipulated by Greater Wellington Regional Council. The wetland has been designed based on research and applied practice throughout New Zealand and Australia. This is based on supporting long-term treatment via complex biological and physical processes through controlled water levels, hydraulic structures, and bathymetry to support extensive vegetation. The wetland has also been integrated with the required flood attenuation to support flood management requirements to protect downstream property during infrequent large flood events. The design is based on modelling and design parameters which form the basis of the currently draft Wellington Regional Wetland Design Guidelines (being developed by Wellington Water).

This design report focusses largely on the wetland design, hydraulic function, and corresponding operation. A separate operation and maintenance plan and construction specification have been prepared.

AWA Environmental (AWA) have been engaged separately by Goodmans to undertake the hydraulic modelling and design of the site-wide reticulated stormwater network and flood management. AWA have undertaken refined flood modelling based on the inclusion of the wetland to demonstrate flow attenuation performance under a range of conditions.

2.0 Background and Site Context

The existing Goodmans yard at 6 Anne Street, Waikanae, is to be upgraded to support and improve various commercial uses by Goodmans related to their earthmoving business. This will include storage of machinery and materials, servicing facilities (workshops) and enclosed buildings for administration roles. Goodmans currently use the land for similar purposes, however, there is currently no water quality treatment of runoff generated from the site.

The upgraded yard will be almost entirely covered with engineered constructed surfaces and paving. This includes some areas of unpaved gravel which will be placed on heavily compacted subbase with very limited infiltration. This will increase the quantity of runoff generated from the site during rainfall events. Furthermore, the runoff is expected to have elevated levels of some vehicle-derived contaminants given the proposed use of the site. These contaminants have the potential to be damaging to the aquatic receiving environment if left untreated.

Greater Wellington Regional Council (GWRC) has granted consent for the project to go ahead provided Goodmans are able to contain the stormwater impacts of the development using a wetland. The wetland will need to provide water quality treatment, extended detention for moderate rainfall events, and flood storage capacity for large storm events.

Further detail on the specifics of the upgrade and site-wide stormwater modelling are provided in separate reports and should be referred to as required. This report solely provides a brief summary of the design and function of the constructed wetland system. Construction issue drawings should be referred to for specific details as required.

3.0 Wetland Design Elements

The proposed wetland has been designed to operate under a variety of flow conditions with the primary function to provide water quality treatment and the secondary function to provide both attenuation of frequent rainfall events and flood storage during infrequent rainfall events. This will ensure that discharges into the Waikanae River from the Goodmans site will not increase contaminant loads or flooding impacts.

The design of the wetland has optimised the water quality treatment that can be achieved within the designated footprint by creating a bathymetry which distributes flow evenly across the full width to optimise the interaction between water and treatment processes. The wetland has been designed in an 'offline' configuration to allow control of flows entering the wetland. This is a critical aspect of the design as it will ensure that moderate storm events will not have damaging impacts on biological processes which are integral to the water quality function, whilst still enabling the wetland to provide significant flood attenuation during infrequent large storm events.

3.1 Hydraulic function

The following sequence outlines the general operation of the wetland across a variable flow regime. All elements referred to are shown in Construction Drawings.

- Under frequent low flow conditions, the 'first flush' flows from the site will be diverted into the wetland from the stormwater network. The first flush is taken as being the 1/3 of the peak 2-year ARI flow from the site. Based on AWA's hydrologic modelling (and verified using the rational method), the 2-year ARI (10-minute duration) flow rate is taken to be 300 L/s. The water quality flow rate is therefore capped at 100 L/s which diverts approximately 85% of the mean annual flow volume into the wetland. This will be facilitated by a diversion manhole fitted with a low-level internal control plate (throttle) and higher opening to enable larger flows to bypass the wetland via the existing open channels. The pipe connection to the forebay shall be the same diameter as the upstream network (675 mm) to enable the bypass channel to be temporarily taken offline if required and support future adaptation through changing the inlet controls if required.
- Flows from the developed site will discharge initially into the sediment forebay via the 675 mm diameter pipe. The forebay is sized to support physical settlement of the largest component of suspended sediments which would otherwise smother the wetland. The forebay therefore supports long-term maintenance activities (removal of sediment) and resilience of the wetland. Flows move over a level spreader bund at the downstream end of the forebay which will evenly distribute flows across the full width of the wetland before entering the vegetated body of the wetland.
- Flows pass through a sequence of shallow (up to 200 mm deep) and deep (up to 350 mm deep) heavily vegetated areas which continue to distribute flows across the full width and optimise contact with plant stems and substrates. The depth of water in the wetland is important to ensure that it will sustain vegetation cover over at least 80% of the total footprint.
- Treated flows from the wetland discharge to the downstream end of the bypass channel, which runs along the north-western edge of the wetland, via the submerged outlet pipe which connects to the outlet control manhole. The manhole includes an internal baffle and weir plate sized to throttle flows to engage the extended detention depth (EDD). The 350 mm EDD effectively attenuates potentially contaminated inflows and increases the contact time between influent and wetland treatment processes. The outlet is designed for the EDD to draw down over approximately 24 hours following cessation of rainfall. The outlet weir is designed to be

readily adaptable in the instance that modifications are required. The outlet manhole is positioned in an easily accessible location on the batter to support regular inspection on foot.

- During rainfall events where either the flow rate exceeds 100 L/s or the duration of inflows cause full engagement of the EDD, the water level in the inlet manhole will increase and engage the side opening to divert flows to the bypass channel. This protects the wetland from potentially damaging flows which can resuspend accumulated sediments and strip biofilms from plant stems.
- The bypass channel conveys moderate flows (which exceed the water quality flow rate) around the side of the wetland to prevent damage and/or remobilisation of contaminants.
- Overland flows from the existing open drain to the north of the site shall discharge directly into the wetland. These shall only occur during infrequent large events when the detention storage is engaged in the wetland.
- During large rainfall events, the water level in the bypass channel will rise until it reaches RL 23.0. At this point, flows will overtop the 5 m long breach point in the embankment at RL 23.0 m and engage the flood detention within the wetland.
- The entire footprint of the wetland shall be increasingly engaged depending on the magnitude of the flood event. The wetland shall support up to 5,950 m³ of flood storage above the NWL with a maximum water level of RL 24.0 m.
- As flood flows pass, the wetland will drain flood flows through the low point in the embankment and the wetland outlet. Once the water level drops below the embankment, the wetland will only drain from the wetland outlet until it reaches the normal water level (NWL) at RL 22.5 m.

3.2 Eel Exclusion

Mana whenua have expressed a preference for eel and other indigenous fish species to be excluded from the wetland to avoid them interacting with potentially contaminated water and environs. In a practical sense this is complicated by the fact that eel will travel over ground to access suitable habitat and therefore full exclusion will be difficult. Eel exclusion has been incorporated into the wetland design through the design of the hydraulic structures. This will be supported through the outlet pipe from the wetland being a smooth-walled HDPE pipe which will discharge above the invert of the concrete wingwall upstream of the confluence with the eastern drain. This will limit access due to elevated flow rates at all times and the need to jump into the fast-moving water.

Any eels which access the wetland through any means will need to be identified through periodic trapping as part of the routine maintenance. This shall involve placing eel traps in the wetland overnight and checking them 12 hours later. Any eels caught will then need to be relocated. The location where they are relocated will need to be confirmed with local Iwi and comply with any relocation protocols and regulation.

3.3 Operation and maintenance

Operation and maintenance have been carefully considered in the design of the wetland and shall be undertaken by Goodmans. This will ensure that the wetland will operate as per the design and can be easily maintained. Key aspects that have been considered are:

- Design of the wetland offline to peak flows to prevent sediments being flushed into the main vegetated area of wetland which would smother plants and is difficult to remove without damage to plants.
- Easy access to the sediment forebay to support clean out with suitable machinery.
- Internal bathymetry to dissipate energy and engage full footprint to reduce risk of uneven sediment deposition within the vegetated wetland.

- Impermeable liner (compacted clay) to maintain water level and reduce risk of weed ingress.
- Easy access to key hydraulic structures, i.e. inlet diversion manhole, outlet manhole. This allows for regular inspections to be completed as well as completion of any works that may need to be done.
- Control of water level in wetland with weir plates. This allows for infrequent draw down of wetland water surface which is needed when removing settled sediments from the forebay.

3.4 Plant species

The species of plants within the wetland have been carefully selected for the variable depth ranges and their role in optimising treatment. Wetland plants will support the following functions:

- Provide a surface for algal biofilms to grow on. These biofilms are fundamental to trap very fine colloidal particles.
- Oxygenate saturated soils to create soil conditions to support chemical transformations and denitrification.
- Physical uptake of a small proportion of dissolved contaminants.
- Amenity of wetland.

Details of planting zones and species can be found in the planting specification within Construction Specifications (Appendix A).

4.0 Wetland Operating Parameters

The wetland footprint and operating water levels have been designed based on the land parcel available, existing pipe inverts, and previous analysis completed by AWA. The levels have been designed off the invert level of the piped flows from the developed site, the invert level of the outlet channel, and the topographic levels across the site (provided by Goodmans). The wetland footprint has been optimised to maximise the treatment achieved within the available footprint while also maximising flood storage during infrequent rainfall events. Operating levels have been determined for both the main treatment wetland section as well as flood storage levels which engage during infrequent rainfall events.

4.1 Wetland footprint

The wetland has been sized based on the original area identified during the consent application and its relationship with the contributing catchment. The upgraded Goodmans yard results in a stormwater catchment of approximately 4 ha. This is taken to be almost entirely impermeable for the purposes of stormwater generation given the highly compacted nature of the paved and unpaved surfaces. This is considered to be conservative (i.e. wetland oversized) as initial losses from regular small rainfall events will be higher on the compacted gravel as compared to fully paved areas.

The wetland has a footprint of 2,640 m² measured at the normal water level of RL 22.50 m. Based on a contributing catchment of 4 ha this equates to over 6.5% of the catchment. Recent modelling undertaken for Wellington Water to support wetland sizing found that a footprint of approximately 5% of the contributing catchment was required to treat an average of 85% of the mean annual runoff volume in a fully impervious catchment. This was based on a 10-year rainfall timeseries at 5-minute intervals and is not expected to be substantially different for the Waikanae site. The wetland footprint is therefore considered to be conservative and will provide a high level of treatment and buffering capacity.

A further 745 m² shall be engaged during rainfall as the extended detention is engaged. The total footprint when full flood detention is at capacity will be 4,670 m².

4.2 Operating Levels and volumes

The key operating water levels are the normal water level (NWL), the extended detention water level, and the flood storage water level. The wetland surface has been set to enable it to function under normal conditions with free outfall. Based on site levels and hydraulic connections, a NWL of RL 22.50 m will support functionality during regular flow events while allowing for extended detention during rainfall events and supporting storage volume above this for flood attenuation.

The extended detention depth of 350 mm will provide 1,100 m³ of attenuation during regular small to moderate rainfall events which will be drawn down over 24 hours. The top of the extended detention depth (EDD) will be at RL 22.85 m.

The flood storage capacity will provide up to 1.5 m of flood storage (measured from NWL) with a maximum water surface at RL 24.00 m. This will provide up to 5,950 m³ of storage during high flow rainfall events in order to manage peak flows downstream.

4.3 Hydraulic controls

The function of the wetland will be based on the construction of a number of hydraulic structures which control inflows and outflows. These are fundamental to support both the water quality function as well as flood storage. The following hydraulic elements are provided:

- **Diversion manhole and diversion structure** - A diversion manhole will be connected to the piped flows from the developed site adjacent to the wetland. Within the manhole, a weir plate with a 335 mm diameter orifice opening will allow flows to discharge into the sediment forebay of the wetland. The orifice has been sized to control the maximum inflow rate in the wetland which is set at 100 L/s. On the south-eastern face of the manhole, an opening of 800 mm wide by 650 mm high shall be cut with the bottom invert level at RL 22.85 m. When the capacity of the inlet to the wetland is exceeded, flows will choke, and the water level within the manhole will rise. Once the water level reaches RL 22.85 m (EDD), flows will breach the opening in the manhole which will allow flows to enter the bypass channel.
- **Wetland outlet** - Treated flows from the wetland will discharge into the adjacent bypass channel via a submerged 450 mm diameter pipe from the downstream (south-western) end of the wetland via a manhole located on the accessible adjacent batter edge. A weir structure will be built within the manhole to control both the rate of water discharging from the wetland and the permanent water surface of the wetland. This will be controlled through a baffle with steel weir plate.
- **Bypass channel** - The bypass channel will be used to convey flows which exceed the capacity of the wetland. It will receive flows from the bypass outlet within the manhole and treated flows from the wetland downstream of the outlet point. The channel will be formed through minor works to the existing open channel with an invert falling from 22.85m at the inlet manhole to 22.25 at the downstream end of the culvert. During prolonged dry periods, it is expected that this channel will remain dry for extended periods.
- **Flood controls** - Engagement of the flood storage will occur during infrequent rainfall events. During rainfall events which exceed the design inflow rate of 100 L/s (based on 1/3 of the 2-year ARI rainfall event), flows will engage with the bypass channel. In the case where a rainfall event causes the water level in the bypass channel to rise to the level of the low point in the embankment (set at RL 23.0 m), flows will be able to freely enter the littoral extent of the wetland. This area will be designed to be inundated with an additional 1.5 m of flood storage.

**Attachment 4: Miyamoto Ltd – Geotechnical Investigations for 4 Reikorangi Road,
Waikanae for Awa Iti Ltd**

Preliminary Geotechnical Assessment Report

4 Reikorangi Road, Waikanae

Issue Date: 2 November 2022

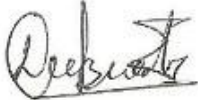

Miyamoto Ref.: 220100-RP-001[A]

Prepared for: Land Matters Limited

Report Tracking – 4 Reikorangi Road, Waikanae

Revision	Status	Date	Prepared by	Reviewed by
A	FINAL	2 November 2022	Deval Master	J. Aramowicz

Authorisation

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1. Introduction

Miyamoto International NZ Ltd (Miyamoto) was engaged by Land Matters Limited (the Client) to conduct a geotechnical investigation of 4 Reikorangi Road, Waikanae. And to assess the geotechnical suitability of the site for the proposed residential subdivision.

The purpose of this geotechnical report is to advise the client and Council of whether the site is likely to be subject to any significant risks from Natural Hazards, and to identify the measures needed to avoid, remedy or mitigate the risk of natural hazards. It is expected that this report is submitted as part of the application for subdivision consent to the Kapiti Coast District Council (KCDC).

1.1 Scope of Work

Miyamoto were engaged to undertake the following scope of work;

- A desktop study to identify relevant available geotechnical information;
- A geotechnical site investigation, comprising:
 - Five (5) Test Pits (TP) holes;
 - Five (5) Dynamic Cone Penetrometer (DCP) tests;
 - Four (4) Piezocone Penetration Test (CPT);
 - One (1) Dynamic Probe Test.
- Geotechnical assessment and reporting of the findings, including comment on potential earthworks and preliminary recommendations for future foundations.

The geotechnical investigation and assessment of the proposed subdivision area was intended to be undertaken in general accordance with the recommendations of the Ministry of Business, Innovation & Employment (MBIE) and New Zealand Geotechnical Society (NZGS) Guidance documents Earthquake geotechnical engineering practice - Modules 1 to 4 (November 2021).

2. Site Description

The site is currently occupied by a residential dwelling and several other structures near the mid-part of the site. The site is accessed from Reikorangi Road and has a net area of around 5.1 hectares. The site is irregular in shape and forms an 'L - shape'. For the purpose of this report, the description of the south part of the site is referred to as the 'south wing' and the west part of the site as the 'west wing'.

The west wing is located along the true right (east) bank of the Waikanae River. Refer to the site location plan in Figure 1.



Figure 1: Site Location Plan (from KCDC GIS)

3. Proposed Development

The proposed scheme plan prepared by Landmatters, dated 28/10/2022 identifies the intention to subdivide the property into six (6) residential lots, by two subdivision stages. Refer to Figure 2, Figure 3 and Appendix A.

Stage 1 of the subdivision will result in Lot 2, Lot 3, Lot 4 and Lot 5 being formed along the west part of the site in the area referred to as the ‘west wing’. Refer to Figure 2.

Balance Lot 1 will then be subdivided as part of Stage 2 to form Lot 1, Lot 2, and Lot 3 along the southeast part of the site in the area referred to as the ‘south wing’. Refer to Figure 3.

The proposed ROW driveway that will provide vehicle access to the six lots is to be formed along the south boundary and along the west parts of the site. Refer to Figure 2.



Figure 2: Proposed Scheme Plan (Stage 1)

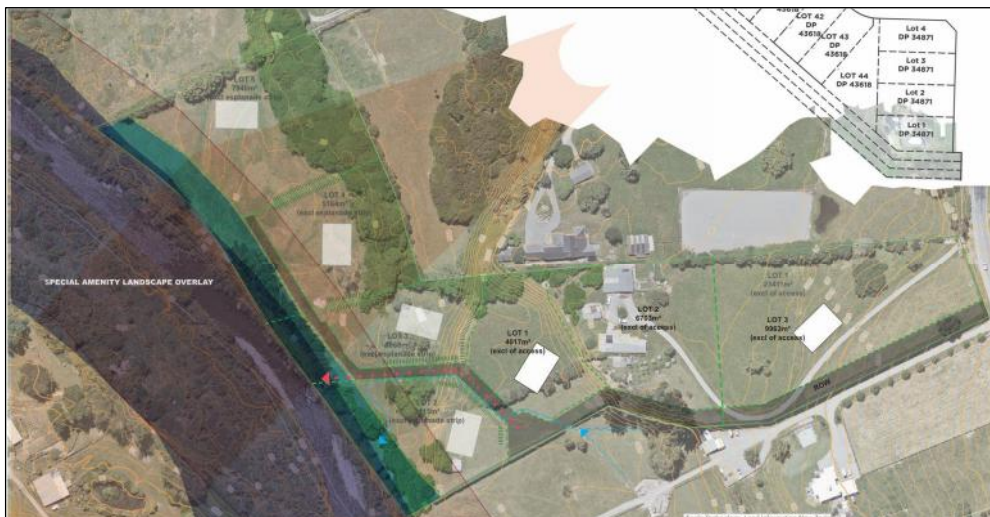


Figure 3: Proposed Scheme Plan (Stage 2)

4. Desktop Study

4.1 References

Miyamoto have undertaken a desktop review of the following sources of information:

- Greater Wellington Regional Council (GWRC) GIS Viewer;
- Kapiti Coast District Council (KCDC) Map Viewer;

- Koordinates – Earth’s Data Platform;
- GNS Science – Geological Maps;
- New Zealand Geotechnical Database (NZGD);
- ‘Planning for Development of Land on or Close to Active Faults’ by GNS for Ministry for the Environment;
- ‘Earthquake Fault Trace Survey Kapiti Coast District’ by GNS;
- Scheme Plan by Landmatters dated 7 September 2022 (Appendix A).

4.2 Geology

GNS’s 1:250K Geology Web Map indicates the site is underlain by two geological units. Most of the west wing is underlain by “*well sorted floodplain gravels*” while the remainder of the site is underlain by “*Poorly to moderately sorted gravel with minor sand or silt underlying terraces; includes minor fan gravel*”.

4.3 Active Faults

The northeast to southwest tending Ohariu Fault is inferred to extend across the west wing of the site. Previous assessments indicate the fault is capable of producing a magnitude M_w 7.6 earthquake and is estimated to have a rupture recurrence interval of somewhere between 2,000 to 3,500 years.

Part of the ‘west wing’ is within the Ohariu Fault Avoidance Zone.

4.4 Site Topography

The topography across the site is irregular, but generally falls down to the north.

There is a moderate to steep slope with a north-south orientation across the mid-west part of the ‘*south wing*’, and another moderate to steep slope across the northwest corner of the ‘*south wing*’. Refer to Figure 4.

The moderate to steep slope that extends across the northwest corner of the *south wing* extends across the southeast corner of the *west wing*. The topography across the main part of the ‘*west wing*’ generally slopes down to the northeast and northwest. The ground levels along the western part of the site are typically around 4 to 5m above the bed of the Waikanae River. There is a moderate to steep riverbank along the western boundary of the site. Refer to Figure 5.



Figure 4: Topographic contours across ‘south wing’ area (Source: Kapiti Coast District Council)



Figure 5: Topographic contours across 'west wing' area (Source: Kapiti Coast District Council)

4.5 Existing Natural Hazard Mapping

Natural hazard mapping by GWRC indicate the site is subject to the following natural hazards;

- Ground shaking: *Low-Moderate*
- Liquefaction: *Not mapped*. However, the site is surrounding by an area of Low liquefaction risk.
- Slope failure: *Low - Moderate*.
- Combined Earthquake Hazard: *Moderate - High*.

Hazard mapping by the Kapiti Coast District Council identifies the western part of the site is with a Flood Hazard area. Refer to Figure 6.



Figure 6: KDCD Flood Hazard Mapping (28 Oct 2022).

5. Geotechnical Site Investigation

5.1 Existing Geotechnical Data

At time of Miyamoto’s desktop investigation, there was no relevant geotechnical data that was recorded on the New Zealand Geotechnical Database (NZGD) that could be used to infer the subsoil conditions at the site.

5.2 Site-Specific Investigation

Four piezo cone penetration (CPT) tests, one Dynamic Probe Test (DPSH), and five test pits (TP) were undertaken across the area of the proposed subdivision by Griffiths Drilling on 27 July 2022. In addition, five dynamic cone penetration (DCP) tests were completed by Miyamoto on 27 July 2022. The CPT, DPSH, TP and DCP tests were carried out on the instruction of Miyamoto’s geotechnical engineer.

A summary of the results of the geotechnical investigations is provided in Table 1 and the locations of the site-specific testing are shown below in Figure 7. The combined DPSH, TP and DCP logs and the CPT plots are presented in Appendix C.

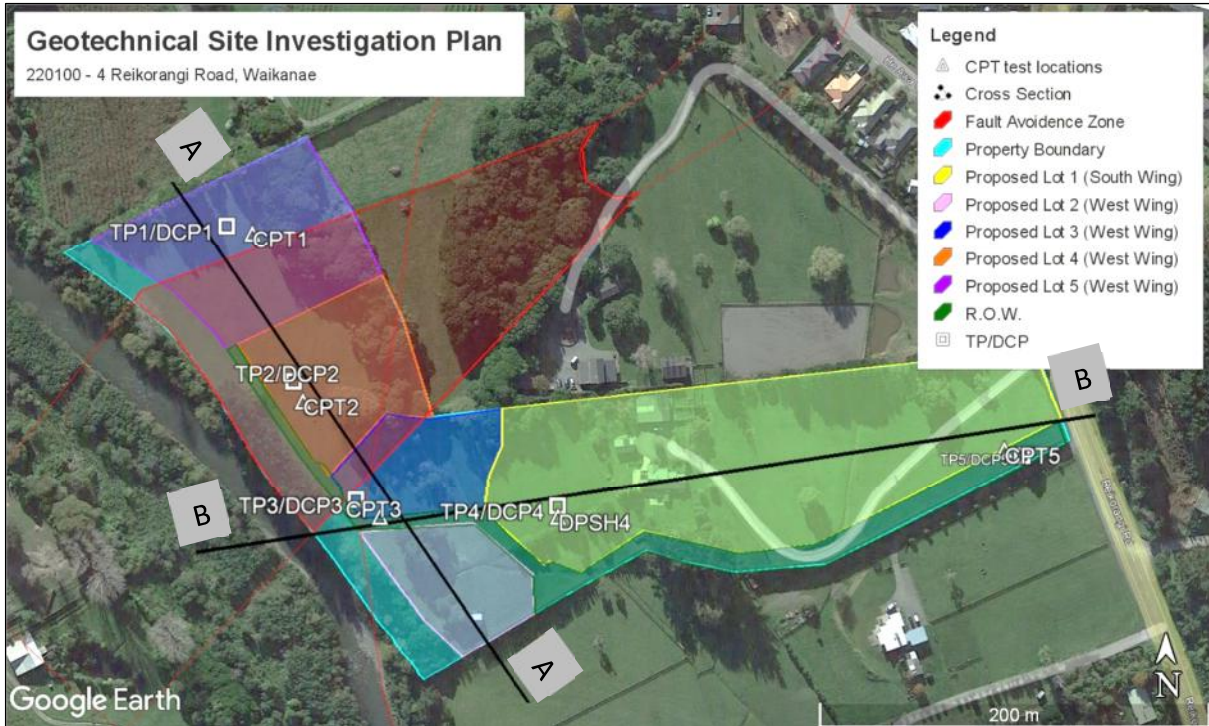


Figure 7: Geotechnical Site Investigation Test Location Plan

Table 1: Geotechnical Investigation Summary

Test Ref.	Source	Source Ref.	Test Type	Approximate ground level at test location (mRL)	Depth of testing (m)
CPT01/DPSH	Griffiths	220727	CPT	+27.5	4.6/5.4
CPT02				+29.0	3.6
CPT03				+28.5	4.2
CPT05				+42.5	6.8
DPSH4				+32.5	1.4
TP01/DCP01	Griffiths/Miyamoto	220100	TP/DCP	+27.5	2.3/0.6
TP02/DCP02				+29.0	2.3/1.2
TP03/DCP03				+28.5	1.8/2.0
TP04/DCP04				+32.5	2.0/0.4
TP05/DCP05				+43.0	3.0/2.1

6. Geotechnical Evaluation and Assessment

6.1 Ground Profile

Based on the nature of the soils recovered from the discreet test locations, and the results of the shallow test pits, and the DCP and CPT testing, Miyamoto have inferred the deeper ground conditions across the site most

likely comprise dense to very dense sandy gravels with cobbles, as shown in inferred cross-sections AA & BB in Figure 8 and Figure 9, below. The location of cross sections AA and BB are identified on Figure 7.

In summary, site is typically underlain by a relatively thin layer of sand and silty SAND overlies dense to very dense sandy gravels that are likely to contain large cobbles and boulders around 4 to 6m below ground level (where CPT testing met practical refusal)

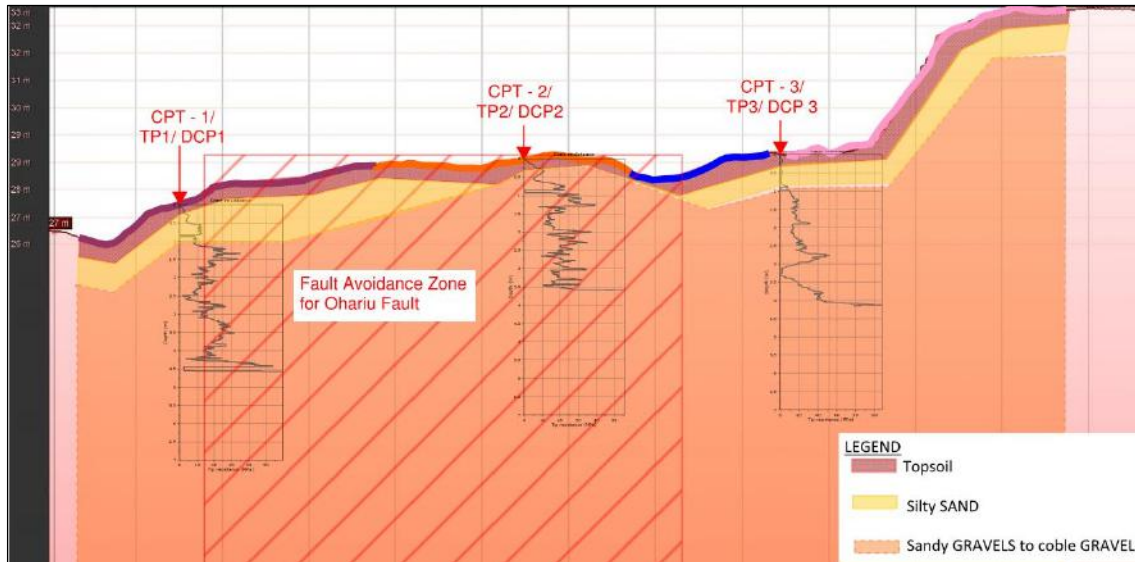


Figure 8: Cross Section AA

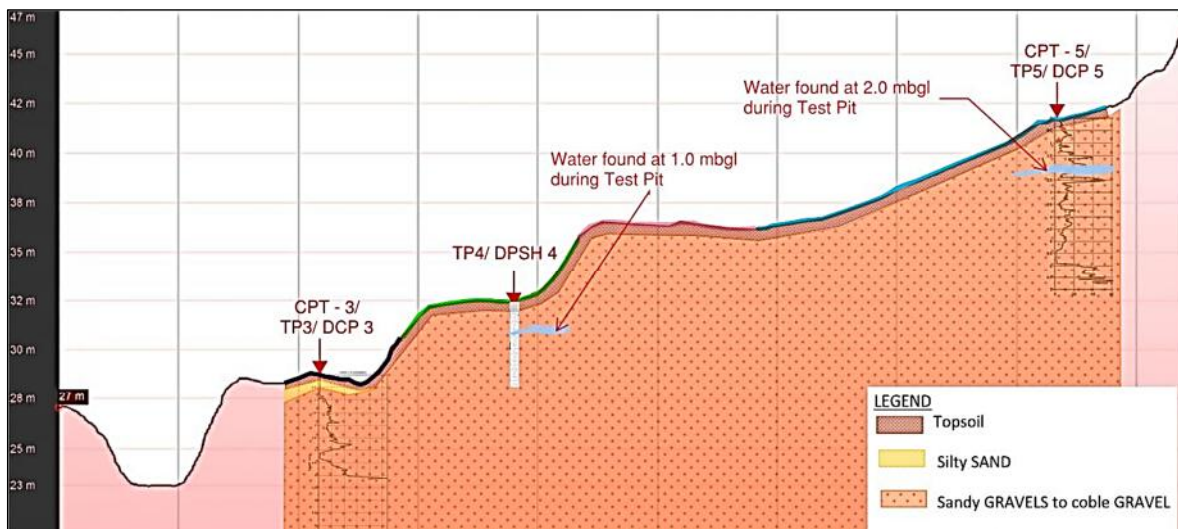


Figure 9: Cross Section BB

6.2 Site Subsoil Class

The results of the limited site-specific investigation and geological mapping do not indicate the depth to bedrock, nor the thickness of the dense gravels that were encountered around 4-6m bgl. Given this, as a conservative approach, in terms of the criteria set out in NZS1170.5, Miyamoto recommends any structural engineering design assume the site is underlain by 'Class D – Deep or Soft Soil'.

6.3 Groundwater

Test pits TP1, TP2 and TP3 were excavated to 2.3, 2.3 and 2.0m bgl and did not encounter groundwater. Pore pressure measurement data from CPT tests 1, 2 and 3 also indicate groundwater was not encountered within the 4-6m depth of testing. This suggests groundwater is located at least 4m bgl at these locations. Given this,

groundwater is likely to be similar to the water level of the Waikanae River which is located immediately west of the site and has a water level of 23 to 24mRL under normal low-flow conditions.

Groundwater was only encountered in two of the test pits, TP4 at 1.0 mbgl¹ and TP5 at 2.0 mbgl that were undertaken at the upper south and southeast parts of the site. There are a number of small ponds that are located approximately 100m from TP5, and it is possible that surface pond water is seeping into the ground and may locally influence the depth to groundwater/saturated ground in some areas.

7. Liquefaction Hazard Assessment

7.1 Ground Motion Parameters

The ground motion parameters that are to be adopted for geotechnical analysis, including liquefaction hazard assessment, have been assessed using the recommendations set out in the MBIE – NZGS Earthquake Geotechnical Engineering Practice Module 1 (November 2021):

The recommended seismic hazard of New Zealand for geotechnical assessments is presented in Table A1 (Appendix A of Module 1) for peak ground acceleration (a_{max}) and earthquake magnitude (M_w) values for Site Classes A, B, C, D and E, for level ground conditions.

The derived ground motion parameters for the design events are summarised in Table 2 following the current and interim NZ seismic hazard.

It should be noted that the parameters shown in Table 2 are for intended to be used for geotechnical analysis and design purposes only. Any ground motion parameters that are required for structural analysis and design should be derived in accordance with the requirements of NZS 1170.5:2004.

Table 2: Design Ground Motion Parameters for Geotechnical Evaluation

Earthquake scenario / return period*	Magnitude	Peak horizontal ground acceleration a_{max}
Table A1 (Appendix A of Module 1): Peak Ground Acceleration (a_{max}) and Earthquake Magnitude (M_w) values recommended for Geotechnical Assessment, for Site Classes A, B, C, D and E, for level ground conditions		
1/25-year SLS event	6.5	0.13g
1/100-year Intermediate Event	7.1	0.28g
1/500-year ULS event	7.7	0.68g

* Importance level 2 (IL2) buildings with 50-year design life.

7.2 Depth to groundwater

A conservative approach for the purpose of liquefaction assessment, Miyamoto have assumed;

- a static groundwater level of 25 mRL for assessment of the results of CPT tests 1, 2 & 3, and
- a local groundwater level of 40.5 mRL for assessment of of the results from CPT test 5.

7.3 Liquefaction Susceptibility and Triggering

A liquefaction triggering assessment has been carried out using proprietary liquefaction assessment software (Cliq by GeoLogismiki), in general accordance with MBIE – NZGS Earthquake Geotechnical Engineering Practice Module 3 and the latest technical publications.

The methods adopted for this liquefaction hazard assessment were:

- Boulanger and Idriss (2014) simplified CPT-based methods for liquefaction triggering;

¹ mbgl = metres below ground level

- Zhang et al. (2002) post-liquefaction volumetric strain calculation for estimating the free-field settlements (it should be noted that these settlement estimates only account for the free-field component of the expected settlement. Actual total settlements under design earthquake loading may be greater or less);
- Liquefaction assessment, including evaluation of vulnerability indicators (free-field settlement values, Liquefaction Severity Number (LSN) and Liquefaction Potential Index (LPI) damaging criteria) based on the CPT data.

7.4 Risk of Liquefaction-induced damage to shallow foundations

Taking into account the assumptions outlined above, and by adopting the calculation methodology to assess liquefaction severity to shallow foundations, Miyamoto conclude the site is not likely to be subject to liquefaction in a SLS or ILS level earthquake, and only moderate effects could occur to shallow foundations and the ground surface in a ULS event.

Refer to

Table 3

Table 3: Summary of liquefaction hazard assessment

Earthquake scenario	Estimated 'Free field' Ground Settlements (full depth tested)	Liquefaction Potential Index (LPI) and Liquefaction Severity Number (LSN)	Performance Level (as per Table 5.1 of MBIE – NZGS Module 3)
1/25-year SLS event	Does not liquefy	LPI=0, LSN ~0	L0: Insignificant effects
1/100-year Int. event	< 5 mm	LPI=0, LSN<1	L0: Insignificant effects
1/500-year ULS event	25 to 30 mm	LPI<6, LSN<7	L2: Moderate effects

* **LSN = Liquefaction Severity Number.** LSN (van Ballegooy et al., 2014) is a vulnerability indicator (damage index) quantifying liquefaction-induced damage developed to reflect more damaging effects of shallow liquefaction on residential land and foundations following the Canterbury Earthquakes (2010-11). LSN considers depth weighted calculated volumetric densification strain within soil layers as a proxy for the severity of liquefaction land damage likely at the ground surface.

7.5 Risk of Lateral Spreading

Given the subsoils across the site are not susceptible to liquefaction in a SLS or ILS level earthquake, and only moderate effects could occur in a ULS event, it is Miyamoto’s opinion that lateral spreading is not to be a significant hazard at this site.

8. Natural Hazard Assessment & Recommendations

Section 106 of the Resource Management Act (RMA) (2017) requires any significant risk associated with natural hazards to be identified and avoided, mitigated or remedied. The potential natural hazards that have been considered by Miyamoto for the proposed subdivision were: inundation, erosion, sedimentation, falling debris, slippage, and Fault Avoidance Zone (FAZ).

8.1 Inundation

Hazard mapping identified on the Kapiti Coast District Council’s website indicates inundation is not a likely hazard for the proposed buildable areas of Lots 1-6.

8.2 Erosion and Sedimentation

The Waikanae River is located along the west part of the site. An esplanade strip will be formed along the west boundary of the lots that have a river boundary, and therefore any future building areas will be set back from

the current riverbank. There was no evidence of significant active erosion occurring to the true right bank of the river that is likely to have a significant effect on future building platforms.

There were no large alluvial fans present across the site that may indicate a potential for sedimentation to occur.

8.3 Falling Debris

There were no rock outcrops across the site. Therefore, rock fall and rock-roll onto the site is not a likely hazard.

8.4 Subsidence

The shallow soils encountered by at the discreet testing locations comprised insitu silts, sands, and gravels. No uncontrolled landfill materials, rubbish, putrescible waste, peat, or soft clays were encountered.

Given the presence of dense sands and gravels at relatively shallow depth, subsidence under static conditions is not a likely hazard.

Likewise, calculations indicate the underlying ground would not liquefy in a SLS and ILS level earthquake, and only minor amounts of liquefaction would occur in a ULS level earthquake. Given this, liquefaction-resistant stiffened foundations are not specifically required at this site.

8.5 Land Slippage

The moderate slopes across the site are grassed and did not have any topographical scarps, or areas of localised steepening or sharp changes in ground level. This indicates these areas are not likely to be subject to slope instability.

However, consideration will need to be given to the potential effects that could occur from any proposal to carry out excavation and filling earthworks on or near sloping ground, and the need for any retaining structures. To avoid the risk of slope instability occurring, Miyamoto recommend that any areas that are to be raised by placement of compacted earth fill, or areas that are to be lowered by excavation and will result in over-steepened cut banks, or areas where stormwater is to be discharged onto/into land, should be subject to further geotechnical investigation, analysis, and specific engineering design.

8.6 Fault Avoidance Zone (FAZ)

There is a fault avoidance area (FAA) that extends across the west part of the site that is associated with the Ohariu Fault. Refer to Figure 10 below;



Figure 10: Fault Avoidance Area

The proposed scheme plan identifies the extent of the FAA and it is obvious the proposed building platform areas on Lots 2 and 4 are located outside of the FAA and therefore can be built on without any limitations to the size and structure, however, all of Lot 3 will be within the FAA. Refer to Figure 11 below.

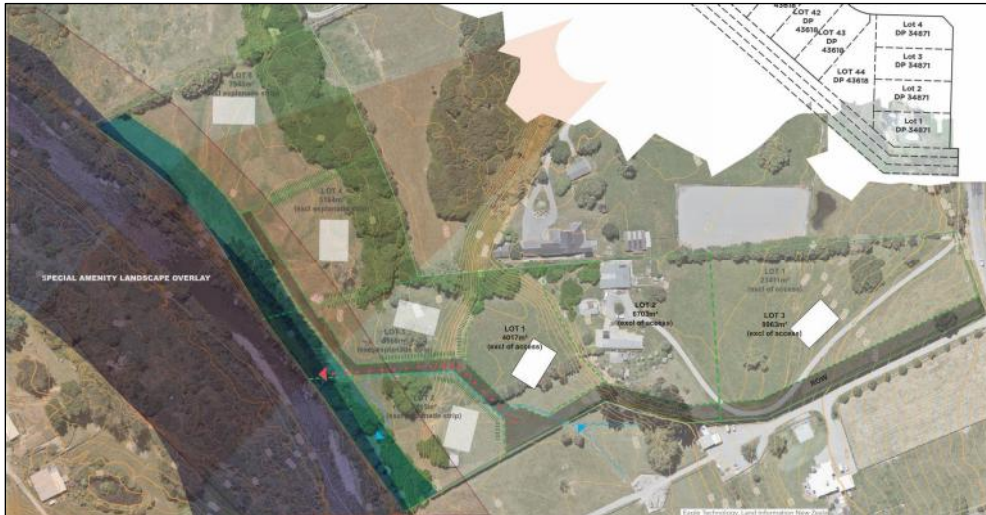
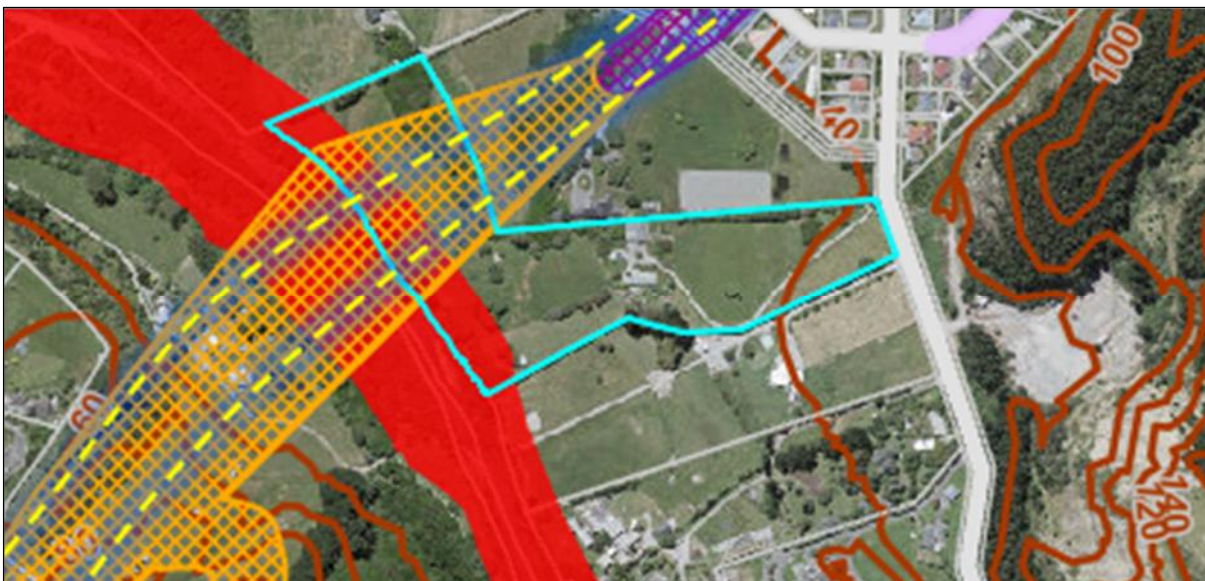


Figure 11: Location of Fault Avoidance Area in relation to proposed lot boundaries.

The part of the Ohariu Fault that extends across the site is mapped as *uncertain – constrained* (Refer to the GNS report ‘*Earthquake Fault Trace Survey Kapiti Coast District*’, 2003), but is ‘*well-defined*’ just northeast of the site.

Miyamoto have reviewed historic aerial photography and the topographic contours in the area of the FAA but were unable to identify any obvious steps in the ground surface that were obviously formed by fault rupture. However, there is a deeply incised gully just west of the Waikanae River that may have been formed because of historic fault rupture. If this is correct, then extrapolation of the well-defined extension at the northeast, down to the gully, would imply the fault zone is narrower than shown by the FAA, albeit that it would still encompass most, if not all, of proposed Lot 3. Refer to below;



Given the absence of any obvious surface expression of historical fault rupture across the site, then to be able to determine with more confidence the subsurface location of historic rupture would require extensive geophysical investigation and mapping.

Taking into account the recommendations set out in the GNS 2003 report, which are generally consistent with the current recommendations of the MfE’s “*Planning for development of land on or close to active faults: A guideline to assist resource management planners*”, and the classification of the fault across the site as *uncertain – constrained*, Miyamoto recommend that only Lot 3 be authorised to construct a new dwelling within the FAA, and that a new dwelling on Lot 3 be limited to a single storey NZS3604 timber framed structure with a ductile timber floor on shallow timber piles.

While an Importance Level 2 (IL2) structure with this construction would not prevent damage in a large earthquake, it is more likely to be able to avoid collapse if ground rupture occurred under the dwelling and is therefore likely to satisfy the performance expectations of Clause 1.3.1 of the New Zealand Building Code contained in the First Schedule of the Building Regulations 1992.

8.7 Summary

Providing all the engineering recommendations outlined in this report are followed, then Miyamoto are generally satisfied that the proposed subdivision can be designed and constructed in a manner that will not be at significant risk from natural hazards.

9. Preliminary Geotechnical Advice

It should be noted that at the time of writing this report, Miyamoto have not been provided with any detailed engineering designs or building proposals. Given this, the recommendations made below are considering the wider site and the recommendations for a site-specific earthwork may differ than the below as per the detailed site-specific investigation.

9.1 Excavated Slopes

All permanent excavated banks should be battered to no more than 28 degrees before re-topsoiling and revegetating.

Temporary slopes should be able to be excavated to around 0.5H:1V for not more than 3.0 metres in height, providing there is no significant seepage occurring, and adequate control of surface stormwater runoff is provided, and that the works are carried out during a period of dry weather. Any proposal for cut banks exceeding 3m in height should be subject to specific engineering assessment and design of temporary works.

All cut banks (temporary and permanent) should be inspected by an experienced geotechnical engineer at time of excavation to determine if the excavation is likely to remain stable or if further mitigation measures should be employed.

9.2 Earth fill

Any proposal to place earth fill to raise ground levels for road and residential land should be reviewed by the geotechnical engineer to assess the risk of consolidation settlement and to determine the materials and construction methodology to be followed.

The maximum dry density (MDD) and optimum moisture content (OMC) of each type of earth fill material that is to be used onsite will need to be determined by an accredited soils laboratory using the *Standard Compaction Test*.

All earthworks that are to be undertaken as part of the subdivision construction will need to be carried out in strict accordance with the requirements of *NZS 4431:2022 – Engineered fill construction for lightweight structures*. Essentially this requires all unsuitable soils to be removed and the subgrade prepared carefully before placing and compacting thin layers of earth fill in a manner that minimises the risk of subsidence from loose, poorly compacted fill.

9.3 Re-use in-situ soils for controlled fill

The shallow investigations indicate the near surface in-situ soils comprise silts, sands and sandy or silty gravels.

Typically, the in-situ inert silts and sands will be able to be excavated and reused as controlled, compacted earth fill that is placed and compacted in accordance with *NZS 4431:2022 – Engineered fill construction for lightweight structures* providing all topsoil, organic matter, rubbish and any soft/reactive clays that may be encountered are stripped and removed at time of excavation.

Any imported soil mounds, or areas of disturbed ground, that are present in the area of the proposed subdivision will need to be inspected at time of the earthworks to determine if they are geotechnically suitable for re-use as controlled, compacted earth fill. Caution should be taken if any uncontrolled earth fill is encountered to ensure that it does not contain unacceptable concentrations of contaminants that could make it unsuitable for

residential land use. A SQEP experienced in soil contamination matters should assess any historic fill materials that are present on the site to advise if they satisfy the requirements of the NES:CS for residential land use.

9.4 Retaining Walls

At this stage, no plans have been provided that indicate the likely finished ground levels, or height of any retaining that may be necessary.

Regardless, given the nature of the slope and the shallow soils, all retaining structures will require specific geotechnical engineering investigation, design and construction observation. The geotechnical engineer will need to ensure any new wall and areas of earth fill do not lead to slope instability and that any consolidation settlement that occurs at time of construction will be carefully managed.

Due to the nature of the gravels and possible cobbles, it deep bored foundations may be difficult to excavate. For this reason, Miyamoto recommend retaining walls be design with shallow-type foundations.

As an initial guide, we recommend the following conservative geotechnical properties be adopted for the design of any retaining structures.

Table 5: Indicative Soil Parameters

Geotechnical Property	Soil Type	
	Sandy Silt	Sandy Gravels
Unit Weight (γ)	17.5 kN/m ³	22kN/m ³
Friction Angle (ϕ)	28 degrees	35 degrees
Cohesion (c')	0 kPa	0 kPa

9.5 Future Foundations

9.5.1 Outside of the Fault Avoidance Area

Based on Miyamoto’s experience in the local area, as preliminary comment only, it is likely future dwellings could be constructed using one of the following foundations options;

- NZS3604 ‘Standard’ Type C foundations (concrete perimeter foundation and slab on ground), or
- A Stiffened Concrete Waffle Slab
- NZS3604 Timber subfloor and floor supported on shallow timber piles.

9.5.2 Within the Fault Avoidance Area

Due to the risk of rupture of the Ohariu Fault and the difficulty in establishing this exact location of any historic ground rupture, only a part of proposed Lot 5 & Lot 3, and an entire Lot 4 shall be authorised to establish a new dwelling with the FAA.

The new dwelling on the proposed lots that will be located within the FAA will need to be limited to a single storey NZS3604 timber framed structure with a ductile timber floor on shallow timber piles (MBIE Type A foundations).

While the proposed foundations will not prevent damage, it is intended the building and foundation system be relatively ductile in order to satisfy the ULS performance criteria (life-safety) required by the Building Code.

9.5.3 Geotechnical Ultimate Bearing Capacity

The DCP testing carried out in July 2022 typically required at least 5 blows per 100mm through the gravels that were present around 0.5m bgl. The DCP penetration resistances appear to satisfy the requirements of NZS3604 for ‘Good Ground’. Given this, it is recommended all foundation bear uniformly onto the dense gravels. With this in mind, shallow foundations are likely to be able to be designed assuming the insitu dense gravels will provide an ultimate bearing capacity of $q_u=300\text{kPa}$.

9.5.4 Site-specific geotechnical investigation and reporting

The foundation recommendations suggested above for the entire site are a preliminary only. Miyamoto recommend they be engaged to provide further site-specific geotechnical investigation and foundation recommendation reporting for each lot once the nature and location of each proposed dwelling is known.

10. Additional Services

As Miyamoto have undertaken the initial investigation and are familiar with the site, it would be pleased to undertake ongoing geotechnical assessment and design services to support subdivision engineering design, subdivision construction observation, site-specific geotechnical investigation & reporting, and foundation design services.

Please contact us to discuss how we can assist with the geotechnical and structural engineering aspects of the proposed subdivision.

11. Limitations

This report is subject to the following limitations:

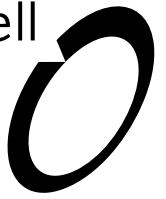
- This report has been prepared by Miyamoto for the Client for the purpose/s agreed with the Client (Purpose). Miyamoto accepts no responsibility for the validity, appropriateness, sufficiency, or consequences of the Client using the report for purposes other than for the Purpose, as described in this report.
- This report is not intended for general publication or circulation. This report is not to be reproduced by the Client except in relation to the Purpose, without Miyamoto's prior written permission. Miyamoto disclaims all risk and all responsibility to any third party.
- This report is provided based on the various assumptions contained in the report.
- Miyamoto's professional services are performed using a degree of care and skill reasonably exercised by reputable consultants providing the same or similar services as at the date of this report.
- The sub surface information has been obtained from investigation carried out at discrete locations, which by their nature only provide information about a relatively small volume of subsoils. While Miyamoto has taken reasonable skill and care in carrying out the investigation to determine the subsoil condition, the subsoil condition could differ substantially from the results of any sampling investigation. Miyamoto is not responsible for and does not accept any liability in respect of any difference between the actual subsoil conditions and the results of our investigation.
- Any susceptibility analysis carried out in respect of liquefaction is based on Miyamoto's current understanding as an experienced professional engineering consultant of the data, methods etc. Future seismic events may change our understanding of liquefaction and its affects, which may affect the content of this report. Miyamoto is not responsible for and does not accept any liability where the content of this report is changed due to a change in industry knowledge of matters relating to liquefaction.
- This report specifically excludes assessment and advice relating to hazardous materials, such as soil contamination and asbestos.
- Where the Client provides information to Miyamoto, including design calculations and drawings of the as-built structure, or where the report indicates that we have obtained and/or relied upon information provided from a third party, Miyamoto has not made any independent verification of this information except as expressly stated in the report. Miyamoto assumes no responsibility for any inaccuracies in, or omissions to, that information.
- A change in circumstances, facts, information after the report has been provided may affect the adequacy or accuracy of the report. Miyamoto is not responsible for the adequacy or accuracy of the report because of any such changes.

12. References

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**Attachment 5: Boffa Miskell (31 Oct 2021). Draft KCDC Urban Development
Greenfield Assessment for WA-04**

Boffa Miskell

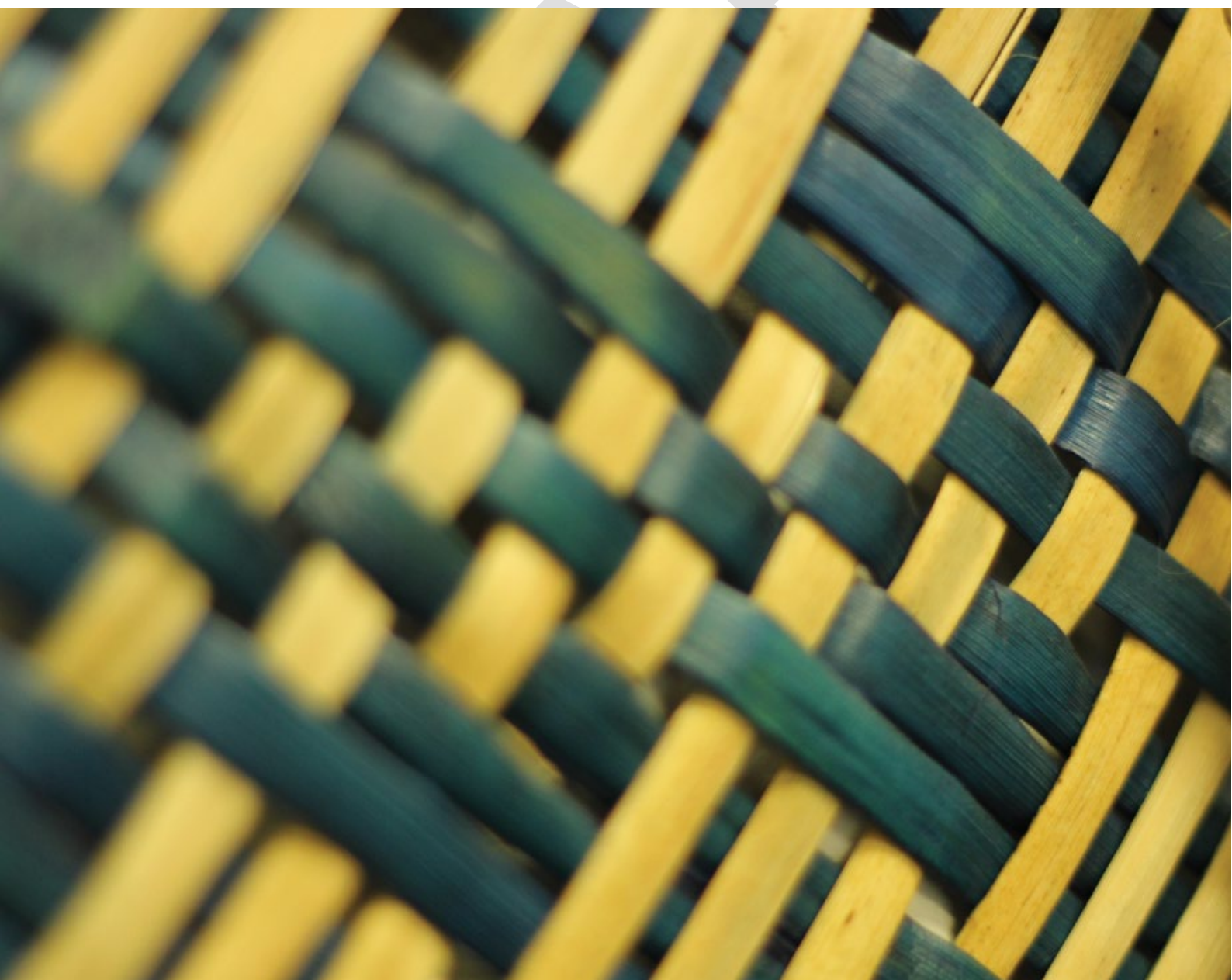


Kāpiti Coast Urban Development Greenfield Assessment

Prepared for Kāpiti Coast District Council

DRAFT

13 October 2021



Future Urban Study Area WA-04



Area information	
Locality	Waikanae
Location	The area to the south of Elizabeth Street in central Waikanae, to the east of the Waikanae River
Total area (ha)	45.0ha
Existing zoning	Rural Production Zone

Key constraints	Key opportunities
<ul style="list-style-type: none"> Highly productive land. Flooding in parts. Congestion at the Elizabeth Street intersection. 	<ul style="list-style-type: none"> Close proximity to Waikanae town centre. Relatively unconstrained, low risk area.

Theoretical dwelling estimate									
Gross theoretical development area	Public realm provision (roads and reserves)	Net theoretical development area	Density mix					Estimated dwellings	Notes (refer to covering report for methodology and general notes)
			Low (20d /ha)	Low-Med (40d /ha)	Med (60d /ha)	Med-high (80d /ha)	High (100d /ha)		
21.5ha	30%	15.1ha	0%	80%	20%	0%	0%	660	<ul style="list-style-type: none"> Theoretical development area avoids flood hazard in the north. Density mix is assumed to be supported by proximity to Waikanae town centre.

Criteria	Observations	Rating
Mana whenua	<ul style="list-style-type: none"> There are no mapped sites of significance within the area. The Waikanae river, to the east of the area, is identified as a site of significance to Te Ātiawa ki Whakarongotai. The areas near the river may be particularly sensitive to the effects of urban development. 	
Urban form	<ul style="list-style-type: none"> Development of the area would function as a cohesive extension of the established urban form at central Waikanae. 	
Local neighbourhoods	<ul style="list-style-type: none"> Development of the area would be an extension of the established neighbourhood at eastern Waikanae. 	
Activity centres	<ul style="list-style-type: none"> The area is located immediately to the south of the Waikanae town centre. Development of the area is likely to support the development of the existing Waikanae town centre. The nearest schools are located in Waikanae to the west. 	
Residential development	<ul style="list-style-type: none"> Development of the area has the potential to contribute to housing supply. Close proximity to Waikanae town centre and station may encourage the development of a range of typologies, including higher density typologies. 	
Business land	<ul style="list-style-type: none"> There is existing general industrial zone land located to the north-west of the area. While not zoned for business uses, a portion of the area adjacent to the industrial zone appears to be used for industrial purposes. 	
Transport networks	<ul style="list-style-type: none"> There are three points of access to the site along Elizabeth Street and Reikorangi Road. The existing intersection at Elizabeth Street and Main Road is already constrained, and development of the area is likely to put further pressure on this intersection. The area is within a walkable catchment of the Waikanae railway station. 	
Infrastructure and servicing	<ul style="list-style-type: none"> The area is located adjacent to the existing Waikanae water treatment facility. Existing water supply trunk mains run around both sides of the area. Existing waste water reticulation runs along Elizabeth Street, although this may need to be extended down Reikorangi Road to access the southern extent of the area. Depending on scale, development in the area may trigger upgrades to the existing waste water plant, and/or pipes and pump stations between the area and the plant. 	
Natural ecosystem values	<ul style="list-style-type: none"> There are no identified ecological sites located within the area. The banks of the Waikanae river, which run adjacent to the south-western extent of the area, are recognised as a key native ecosystem. 	
Water bodies	<ul style="list-style-type: none"> A tributary drain to the Waikanae river runs through the southern extent of the area. The Waikanae river runs adjacent to the south-western extent of the area. 	
Landscape and open space values	<ul style="list-style-type: none"> A special amenity landscape associated with the Waikanae river is located within the western extent of the area. The area would have relatively good access to established open spaces within Waikanae to the north, however development of the area would likely need to be supported by new open spaces. 	
Heritage values	<ul style="list-style-type: none"> The Union Parish Church, located in the southern extent of the area, is recognised as a historic place by Heritage New Zealand. It would be possible to manage development in the area to complement and support existing heritage values. There are no identified archaeological sites within the area. 	
Topography	<ul style="list-style-type: none"> The topography of the area is relatively flat. 	
Natural hazards and land risks	<ul style="list-style-type: none"> The northern portion of the area, and the area adjacent the bank of the Waikanae river, is subject to flooding risk. A fault avoidance area runs through the central portion of the area. The area is not identified as being subject to high liquefaction risk. 	
Land use compatibility	<ul style="list-style-type: none"> Development of the area may have reverse sensitivity effects on the adjacent industrial area. Development of the area may have reverse sensitivity effects on the adjacent quarry. Development of the area may have reverse sensitivity effects on the railway line. 	
Highly productive land	<ul style="list-style-type: none"> The entire area is likely to meet the definition of highly productive land, with a majority of it being LUC 1. 	
Climate change (low-carbon futures)	<ul style="list-style-type: none"> Consolidation of existing urban form and connecting to established infrastructure services is likely to be less resource intensive. The area has good access to activity centres and regional public transport, with reasonable opportunities for access to these areas by active modes of transport. 	