

## COMMENTS FOR EXPERT CONSENTING PANEL, ENVIRONMENTAL PROTECTION AUTHORITY

Application Name: Quarterdeck  
EPA Reference: FT 000089  
Applicant: Box Properties Investments Ltd

From: Cockle Bay Residents and Ratepayers Association (CBRRA)  
Date: 8 April 2024

### 1 Executive Summary

- 1 This commentary on the application to construct about 70 apartments on land currently zoned for single housing in Auckland submits that the Environmental Protection Authority (EPA) should refuse the application. It reaches this conclusion based on multiple reasons.
- 2 Firstly, a very similar proposal from the same developer for about 70 apartments on the same location has already been refused by an Independent Hearing Panel, who ruled that it was not a genuine Integrated Residential Development (IRD), nor did it comply with the “gateway” tests set out in S104D(1) of the RMA. The Commissioners also ruled that the proposal was contrary to the relevant objectives and policies of the Auckland Unitary Plan (AUP); it was not consistent with the purpose of the RMA; the effects would be more than minor, particularly in relation to the amenity of the area in general and the neighbouring residents; and that there was a high potential for an undesirable precedent to be set.
- 3 Secondly we suggest that although the applicant has indicated that the Single House Zone rules will be abolished in the area, this is by no means certain. Auckland Council have indicated that the current rules are what must prevail. The Minister of Housing has stated that councils may have the ability to not apply Medium Density Residential Standards as intended earlier. The timeline for recommending changes to comply with legislation and adopt Plan Change 78 (PC 78) has been extended. We suggest the applicant cannot rely on new zoning policies and objectives which have not yet been adopted.
- 4 Thirdly, we challenge many of the assertions made by the applicant. Our commentary draws attention to multiple failures to comply with regulatory requirements set out in the AUP on points such as diversion or discharge of water onto neighbouring properties, or adequate consideration of the New Zealand Coastal Policy obligations. We also draw the Commissioners attention to inconsistencies in some statements from the applicant, such as the network being able to accommodate all wastewater, but then, to the contrary, that Watercare has concerns about capacity.
- 5 Fourthly, we dispute some of the calculations relied on by the developer, in particular related to stormwater. We note that in the previous, and then withdrawn, Environment Court application for a smaller development a number of other challenges on calculations were accepted during

Expert Conferencing, but a number were also left undecided until a judgement was made by the Court. Because the application was withdrawn no ruling on some important points of principle have been made.

- 6 Fifthly, we have noted that some important issues, such as sewerage reticulation, stormwater management, and construction traffic management have not yet been finalized or costed. There will be enormous pressure on institutions such as Watercare and Healthy Waters to agree on a sub optimal solution in order to not delay development of an approved construction if consent were to be granted without definitive agreement on the dimensions of the problems to be resolved; the risks to the community; and the most effective solutions.
- 7 Next we have highlighted some of the major non compliance concerns, not the least of which is the assumption that consent might be granted based on possible zoning changes, which are not likely to occur before 2025 at the earliest, or possibly 2026. In fact, the zoning changes may not apply at all for this location.
- 8 Finally, we point out that it is hard to accept the conclusions in the traffic analysis when the assumptions made are not stated; there are significant questions about some of the claims made; with unexplained data inconsistency. Local residents have quite different perceptions of reality.
- 9 Taken overall, we believe that the application remains non-compliant with current zoning. We also believe that the planning rules that underpinned the Independent Hearing Panel decisions on the first application currently remain unchanged, meaning their decision remains valid. We submit that there are too many failures to adequately address obligations on developers; too many examples of questionable calculations; and simply too much risk of unintended consequences for the EPA to grant approval.

## **2 Introduction**

- 10 Cockle Bay Residents and Ratepayers Association (CBRRA) represents local residents in the Cockle Bay area. We have a distribution list of some 290 households. Although we have not surveyed our correspondents to provide a quantified analysis we can state that a clear majority are opposed to the proposed development. A number of residents were Section 274 parties to the since withdrawn Environment Court developer's application for a smaller number of apartments. Twenty-seven of these parties authorized CBRRA to speak on their behalf under the "Single Case" principle designed to expedite the Court proceedings. A number of these people have asked CBRRA to continue to speak on their behalf, even though there appears to be no "single case" mechanism under the Fast Tracking procedures.
- 11 We request the Expert Consenting Panel to reject the application for a number of reasons, elaborated on in the following Sections.
- 12 This commentary is divided into 4 parts. Part A deals with decisions on an earlier application from the same developer for a similar development on the same site, and the reasons given for its rejection. Part B comments on the proposed zoning considerations, and their relevance to the current application. Part C questions whether the application provides sufficient environmental protection required to comply with regulatory requirements, while Part D questions a number of other aspects of the application.

## **Part A. DECISIONS ON EARLIER APPLICATIONS**

### **3 Precedent Case**

- 13 This is not the first application by the developer to construct about 70 units on the same site on the basis that it was an Integrated Residential Development (IRD). On 1 and 2 July 2019 an application by Box Properties Investments Ltd to have a similar consent application in the same location approved as an Integrated Residential Development was considered by Independent Hearing Commissioners.
- 14 The Panel concluded that the development was not an IRD<sup>1</sup>. They also concluded that the proposal failed to satisfy the 'gateway' tests set out in S104D of the Resource Management Act (RMA); that it was contrary to the relevant objectives and policies of the AUP; that the effects of the proposal would be more than minor; that there was a high potential for an undesirable precedent; and that the proposal was not consistent with the purpose of the RMA.

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<sup>1</sup> Application numbers BUN60324132, LUC60323963, WAT60324133 and DIS60324134. The full decision can be forwarded on request.

- 15 The current zoning for the site(s) is Single House Zone (SHZ). It is unclear when – or if – this zoning will change under PC 78. We address the question of a possible change in Section 4 of this commentary.
- 16 In the meantime, we submit that the earlier decision to refuse consent made after due consideration by the Independent Hearing Panel be upheld.
- 17 The remainder of this Section elaborates in some detail on the reasoning underpinning the decision of the Independent Hearing Panel.
- 18 Under the Auckland Unitary Plan (AUP) the site was zoned as Single House Zone. This is particularly pertinent because the current zoning of the site(s) is still SHZ and the zone description, objectives and policies still apply until any changes are adopted by Council.
- 19 An IRD is described in the AUP J.1 as “a residential development on sites greater than 2000m<sup>2</sup> which includes supporting communal facilities such as recreation and leisure facilities, supported residential care, welfare and medical facilities (inclusive of hospital care), and other non-residential activities accessory to the primary residential use. For the avoidance of doubt this would include a retirement village.”
- 20 We cannot do better than to quote some of the key considerations and conclusions of the Panel:
- i) “In accordance with section 104B, consent for a discretionary or a non-complying activity may be granted or refused, and may be subject to conditions under section 108 of the RMA and section 104D provides for particular restrictions for non-complying activities.” (Paragraph 26)
  - ii) “In accordance with section 104(1)(b)(i)-(vi) of the RMA, we have had regard to relevant policy statements and plan provisions. Under the AUP:OP, we have considered the provisions of Chapter H3 Residential – Single House Zone, the planning assessment has referred to the provisions relevant to an IRD in the Mixed Housing Suburban Zone, the provisions relating to stormwater management, land disturbance and earthworks, transportation, groundwater and dewatering, and contaminated land.” (Paragraph 28)
  - iii) On the inclusion of the swimming pool and BBQ etc they noted: “We are inclined to agree with most of Mr Putt’s comments above, (that an IRD must have ‘good quality’ facilities and it comes down to ‘quantum’ [of communal facilities]) but reach a different conclusion: Many (if not most) apartment developments have communal facilities of one sort or another, and it is our opinion that the provision of communal facilities must be relative to the residential development proposed. It is a question of quality and quantum and in our view, this proposal fails on both. There is also the question of management, which we address below.” (Paragraph 95).
  - iv) “One of the submitters, Mary Bird, neatly encapsulated the Commissioners’ concerns about this proposal being treated as an IRD:

*To try to better understand the issue, as a lay person, I have looked at the dictionary. Two dictionary definitions of “integrated” from the Cambridge dictionary are “mix and join a society or group”, or “combine things”. The Merriam-Webster dictionary says integrated is “marked by unified control”. Rest homes and retirement homes match these definition[s]. They are owned and operated by organisations that offer a right to occupy and a wide range of services to residents. This is real integration – shared use of multiple facilities under a single ownership structure. The proposed development is for individual apartments to be sold to individuals. Having a swimming pool and BBQ is not integration in the above senses of the word. It is simply a cheap attempt to by pass the rules. One of my neighbours is presenting a comparison of features for retirement homes with those offered for this proposed development. The only integration offered by the proposed development is inclusion of a swimming pool; a BBQ, a little grass area and a café “that can be converted to an apartment”. These might be a marketing advantage. But more likely they are an attempt to by-pass the Council rules.” (Paragraph 96)*

21 The Panel proceeds to present an analysis of definitions within the AUP, noting that Section J.1.1 (1) provides that “The meaning of the provisions in the Plan must be ascertained from all relevant text in the Plan and in the light of the purpose of the Resource Management Act 1991 and any relevant objectives and policies in the Plan”. They concluded that “there is the intentional inclusion of activities in the zone which are not traditional single housing, but may be compatible with it: such as retirement villages, community residential facilities, boarding houses and visitor accommodation, the latter three activities having a low threshold of numbers for a permitted activity, providing an appropriate sense of scale for proposed developments in the zone.” (Paragraphs 99 – 109).

22 In the next (paragraphs 112 – 114) the Panel considered the purpose of the SHZ as defined in Section H 3.1 of the AUP:

*The purpose of the Residential – Single House Zone is to maintain and enhance the amenity values of established residential neighbourhoods in number of locations. The particular amenity values of a neighbourhood may be based on special character informed by the past, spacious sites with some large trees, a coastal setting or other factors such as established neighbourhood character. To provide choice for future residents, Residential – Single House Zone zoning may also be applied in greenfield developments.*

*To support the purpose of the zone, multi-unit development is not anticipated, with additional housing limited to the conversion of an existing dwelling into two dwellings and minor dwelling units. The zone is generally characterised by one to two storey high buildings consistent with a suburban built character.*

23 The Panel then addressed the zone objectives and policies, and concluded that any proposed development should be “compatible with the existing built character and in keeping with the amenity values of the established residential neighbourhood”. (Paragraph 116).

24 Next the Panel referred to a High Court decision by Justice Muir that “the interpretation of a provision when considering its meaning as ‘direct evidence of the drafter’s intention’”. This was then examined in the light of the Hearing Topics 059 – 063, Residential Zones. (Paragraphs 119 – 122). Their conclusion was that in the examples quoted there was a degree of management and control lacking in the application. (Paragraph 122)

- 25 The conclusion of the Commissioners was that the proposal was for a multi-unit development and not an IRD. They considered there were minimal supporting communal facilities, which were not, in their view, sufficient to distinguish this as an IRD, also noting that the swimming pool, raised lawn area and communal BBQ were little different in size than those of the single residential dwelling at 42 Sandspit Road. (Paragraph 129). Subsequent paragraphs raised additional concerns about the facilities and their active management.
- 26 Having concluded that the proposal was not for an IRD the Commissioners considered it as a non-complying activity, to be assessed under the S104D Gateway tests, under which they may only grant a resource consent if, in summary, the adverse effects on the environment will be minor or the application was for an activity that would not be contrary to the objectives and policies of the AUP.
- 27 Their conclusion on the first of these tests was that “the development is a far step from the existing or planned suburban character of the area, and will have adverse effects on the amenity of the local area as a whole .... and a negative impact on the qualities and characteristics of the area that contribute to an appreciation of its pleasantness and aesthetic coherence.” The Commissioners also accepted the proposed street tree planting would not mitigate the impact of the development, the more so since retention of the trees could not be guaranteed. (Paragraphs 148 and 151). In summary, the Commissioners considered that the adverse effects of the proposal will be more than minor, and that the proposal failed to meet the first gateway test of S104D.
- 28 The alternative gateway test is whether the proposed activity is contrary to the objectives and policies of, in this case, the AUP. After evaluating a number of propositions the Commissioners concluded that multi-unit development is not anticipated within the Single House Zone and that the intensity of development is expected to be compatible with the existing suburban built character. (Paragraphs 162 -163) They state that (under the rules currently in force) intensification is not expected in every locality within the urban area, and that under Section B11 Monitoring and Environmental Results Anticipated the Single House Zone is not included as an area zoned for residential intensification. (Paragraph 165). This principle has not currently changed.
- 29 Based on their evaluation of the arguments, the Commissioners concluded:
- i) The proposal will result in significant adverse effects on the amenity of the area in general and on neighbouring residents, as set out above.
  - ii) The proposal is contrary to the relevant objectives and policies taken together, as set out above.
  - iii) In light of the above, consent cannot be granted as the proposal has failed to satisfy the requirements of either ‘gateway’ test set out in S104D(1) of the RMA. (Paragraphs 167 – 169).

- 30 The question of precedent was also considered, including the risk that approving the proposal would result in a proliferation of materially indistinguishable applications with a result that public confidence in the administration of the AUP was undermined. The Commissioners agreed with submitters that, at worst, this would allow “carte blanche development of multi-storey apartments in the SHZ under the guise of an IRD”. (Paragraph 183).
- 31 The major findings of the Commissioners were<sup>2</sup>:
- i) That the application is not for an IRD but for a multi-unit residential development;
  - ii) Consent cannot be granted as the proposal has failed to satisfy the requirements of either of the ‘gateway’ tests set out in S104D(1) of the RMA;
  - iii) The effects of the proposal will be more than minor, particularly effects relating to the amenity of the area in general and on neighbouring residents;
  - iv) The proposal is contrary to the relevant objectives and policies of the AUP;
  - v) There is a high potential for an undesirable precedent to be set if this consent was granted; and
  - vi) The proposal is not consistent with the purpose of the RMA.

## **Part B. Proposed Zoning Considerations**

### **4 Which Zone Policies and Objectives Apply?**

- 32 We referred above to the Independent Hearing Panel decision to refuse consent for a largely similar application from the same developer as an IRD or under the “gateway” tests. We presume that the EPA will accept the decisions of the previous Independent Hearing Commissioners, rather than seeking to re-litigate the question of whether this is an IRD or whether the application complies with the Gateway tests.
- 33 We have seen a heavily redacted Comments on the Application submitted on behalf of Auckland Council by Russell Butchers Principal Project Lead, Premium Resource Consents on 13 March 2023. Statements of interest include:
- i) It is unlikely that PC 78 will have been fully adopted by the time that the EPA considers a fast-track application for this proposal, and therefore the proposal would need to be considered against the objectives and policies of both the SHZ and MHUZ.
  - ii) There is a well-known significant flooding issue downstream of the application site.
  - iii) Auckland Council notes that Watercare have identified that there is insufficient wastewater capacity to cater for the proposed development due to downstream capacity constraints.

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<sup>2</sup> Independent Hearing Panel Decision 12 August 2019 Paragraph 191

Any local network upgrades and extensions required as a result of the proposed development must be fully funded by the developer.

- 34 We draw the EPA's attention to the fact that the Hearing Panel considering PC 78 is currently seeking clarification from the Minister on whether the completion date for Hearings is now March 2026.<sup>3</sup>
- 35 The Watercare statement is consistent with the fact that the development is located within a Qualifying Matter area – Water and/or Wastewater Constraints Control. Under the PC 78 submission process Box Properties Investments has applied for exemption from this Qualifying Matter. CBRRA has opposed this exemption. No decision has yet been made.
- 36 There seems no dispute that the current zoning for this property is Single House Zone. This is acknowledged in the application. This zoning remains in force until such time as a Plan Change is formally adopted by Auckland Council. The application is therefore non compliant. Until such time as a Plan Change is formally approved, if in fact such a change is adopted, the Single House Zone policies and objectives govern all consents.
- 37 Auckland Council have stated that the proposal cannot rely on Medium Density Residential Standards (MDRS) rules; that the "live zoning" is Single House Zone and the developer cannot assume the zoning changes envisaged under PC 78 will become operative during the time that the application is considered. The Council would give greater weight to the SHZ objectives and policies as the live zoning. It also draws attention to the qualifying matters applicable to the site<sup>4</sup>.
- 38 We question the accuracy of the applicant's statement that PC 78 "has immediate legal effect"<sup>5</sup> but acknowledge that later in the AEE the applicant's argument shifts to saying that this is not so. It continues on to suggest the application should stand on its merits under the SHZ rules<sup>6</sup>. A decision has, of course, already been made on this point at the time of the first application was refused.
- 39 The applicant refers to the Waimere Decision that PC 78 and MHUZ rules should carry a greater weighting than the operative SHZ provisions, even though a qualifying matter applied to the site. However, our own view is that:
- i) Auckland Council has been very specific in its advice to the applicant that the SHZ rules apply;
  - ii) The Minister for Housing has indicated that legislation regarding intensification may be changed by the newly elected government. The media have also reported statements that Councils may be permitted to not apply MDRS rules as originally envisaged under the Resource Management (Enabling Housing Supply and Other Matters) Act 2021.

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<sup>3</sup> Minute from Hearing Panel 4 April 2024

<sup>4</sup> Appendix 8 Consultation with Utility Providers Section 1.2

<sup>5</sup> AEE page 13

<sup>6</sup> AEE page 17



- iii) Auckland Council has been given an extension of time to finalize PC 78 principles;
  - iv) The possibility of a further extension is still being discussed with the Minister;
  - v) Planning consents should not be granted based on what might be the case 2 – 3 years in the future.
- 40 Auckland Council's Practice and Guidance Notes for IRDs, published in August 2022, states that the Notes do not alter the AUP, and that they may need to be reviewed following the appeal before the Courts<sup>7</sup>. The Practice Notes state that Council accepts the recommendations of the Independent Hearing Panel hearing the original application. They also confirm that the size and scale of the development; how it responds to its surround and the planned character of the zone, are all relevant when considering consent applications.
- 41 We do concur with the statement that the site is in a rundown state and does not contribute positively to the urban environment in this location. It has been owned by the developer since 2016. Apart from closure of an outboard motor servicing facility the main changes have been the installation of a chain linked fence topped by barbed wire, and the periodic presence of a number of containers and storage bins on site. But this alone is not a justification for consenting to a development that fails to comply with the zoning rules.
- 42 We submit that the application must be appraised against the existing rules for the location, and not alternative rules that may, or may not, be adopted.

## **5 Howick Local Board Response**

- 43 The Howick Local Board is not a notified party to the application. However, the Local Board did make a presentation to the Independent Hearing Panel considering the original application. Their views echo our own.
- 44 The background information submitted with the application includes an email dated 11 September 2022 addressed to Adele White and John Spiller, 2 of the 3 Howick Local Board representatives involved in the first application. We have not seen a response. However, Mr Damian Light, the current Chair of the Local Board has confirmed in writing to us that the Board remains opposed to the proposed development on the same grounds as their opposition to the original application for about 70 apartments. Their objections to the earlier proposal of about 70 apartments on the site included:
- i) Traffic issues – including references to the high volume of pedestrian traffic associated with the schools; the significant vehicular traffic and potential danger to residents of the proposed development; vehicular traffic; cyclists and pedestrians. It should be noted that the Board Chair at the time of the submission is a former Traffic Officer and police officer with responsibility for safety within the area.

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<sup>7</sup> This refers to Box Properties Investments Ltd application (since withdrawn) to the Environment Court to construct 54 apartments at Sandspit Road

- ii) Infrastructure – in particular the inadequate and dated stormwater and sewerage infrastructure which has created a history of flooding and damage. The Board commented on the risk of disastrous results
- iii) Traditional Planning controls
- iv) The character of the area

45 A copy of the original presentation notes, supplied to us by Mr Light, is attached at Appendix 1.

46 This reinforces our submission that the earlier decision refusing consent should be confirmed because does not comply with the current zoning for the site(s).

## 6 Non Compliance Concerns

47 In the applicant's own words: "The proposal is not fully consistent with other objectives and policies of the Single House zone which seeks to maintain an existing or achieve a planned suburban built character and adverse character effects could result. The proposed built form creates a substantial change in character."<sup>8</sup>

48 It is therefore hard to accept contradictory statements from the applicant that "The proposal is consistent with and implements key relevant objectives, policies and assessment criteria of the AUP"<sup>9</sup> , and "The present application is consistent with many of the objectives and policies of the SHZ in respect of an IRD, relevant Auckland-wide chapters of the Auckland Unitary Plan (AUP), relevant provisions of the Regional Policy Statement ("RPS") and relevant National Policy Statements as well as the more pertinent and mandated objectives and policies relating to an IRD under PC 78 MHUZ provisions."<sup>10</sup> The conclusions of the Independent Hearing Panel considering the original application clearly refute these conclusions.

49 It is also misrepresenting the existing situation to claim that the proposed development will respond to a shortage of apartments in the area<sup>11</sup> when, in fact, under existing zoning rules apartments are not a permitted activity.

50 The applicant accepts that "The effect on the character of the immediately surrounding environment is more substantial", whilst maintaining that "the effects of dominance, shading and overlooking have been managed so that they have only minor amenity effects on adjoining / nearby owners."<sup>12</sup> However, in our opinion, at a macro level, the bulk and height of the development is inconsistent with the policies and objectives of the SHZ and completely out of character compared to the other local dwellings.

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<sup>8</sup> AEE page 25

<sup>9</sup> AEE page 10

<sup>10</sup> AEE page 10

<sup>11</sup> AEE page 10

<sup>12</sup> AEE Page 8

- 51 It is worth mentioning that 2 of the 3 Auckland Council planners involved in assessing the first application also expressed concerns<sup>13</sup> about the character impact. More importantly, the Hearing Panel considering the application determined that the effects were more than minor.
- 52 At a micro level, assuming that the application is assessed against the policies and objectives of the SHZ then the application indicates a number of areas of non compliance<sup>14</sup>. These include:
- i) Building height – the actual height being 13.8 metres, compared to the SHZ maximum of 8 m. or 9 m for a sloping roof
  - ii) Site coverage – “with maximum site coverage of 35% being 49.3%”
  - iii) Minimum Landscape areas – 36.27% not 40%
  - iv) Yards – minimum required is 3 m for apartments
  - v) Front, side and rear fences (unclear from text, and we have not had time to examine this in more detail)
  - vi) Noise and Vibration (unclear from text, and we have not had time to examine this)
- 53 Even under PC 78 the applicant states that “Not all development controls are able to be complied with, so an application for an RD under Rule C1.9(2) of the AUP is applied for.”<sup>15</sup>
- 54 Equally, the application fails to comply with MDRS requirements in the following respects<sup>16</sup>:
- i) Building height – with the 11 metre height limits being exceeded by a heights of 2.817, 2.41, and 2.182 metres for the 3 larger blocks
  - ii) Front Yards
  - iii) Outdoor Living spaces
  - iv) Deep soil requirements
  - v) Water and Wastewater Qualifying Matters – but with a claim that this does not apply under the technical assessment in the AEE (which the document challenges).
- 55 We also draw the EPA’s attention to a relatively small number of areas listed in Table 6 of the AEE, where the proposed development does not comply with PC 79, and others where a vague “mostly complies” assessment has been made. The latter point aligns with our concerns on a number of other issues which are left with further work being required after (or if) a planning consent is provided. We suggest that this is not acceptable. Having said that, our preference is for a consent to be refused.

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<sup>13</sup> See IHP Decision 12 August 2019

<sup>14</sup> AEE Table 3

<sup>15</sup> AEE page 54

<sup>16</sup> AEE Table 4 MDRS MHUZ Provisions

56 We appreciate that planners are allowed discretion when considering consent applications. Unfortunately, for the average person in the street, the analogy would be that a thief is allowed to say “I should be allowed to steal, as long as it is only a little, from many different sources”. Citizens believe that when a rule is set, it should be adhered to.

## **Part C. Environmental and Associated Infrastructure Concerns**

### **7 National Environmental Standards**

57 Ms Fiona Rankin has provided a comprehensive analysis of requirements to protect the environment under legislation and government policies, and the extent to which the proposed development complies with them. We wholeheartedly endorse her detailed analysis.

58 Of particular importance in her commentary:

- i) The applicant considers the National Policy Statement – Freshwater Management 2020 “irrelevant as the proposal is not near any freshwater ecosystems or wetlands and does not discharge into them”.<sup>17</sup> This viewpoint is at variance with that of expert planners who concluded that it was applicable to the developer’s now withdrawn application before the Environment Court for consent to construct 54 apartments on the same location. Geomaps clearly indicates that a number of streams provide drainage from close to the vicinity of the site.
- ii) Although the applicant acknowledges the need to comply with the NZ Coastal Policy Statement 2020<sup>18</sup> it is somewhat hard to accept the assurances that the stormwater and wastewater discharges will be adequately managed when they assume that the nearest coastal area is Chisbury Terrace. Chisbury Terrace is not linked to the geographical catchment in which the development is to take place. It is adjacent to the upper part of a small stream estuary, and not part of the coast in the popularly accepted definition of the term.
- iii) Little or nothing is said about how the developer will “adequately manage” and comply with obligations under the Coastal Policy, except an incorrect statement that all discharges are via public infrastructure.
- iv) The Panel will no doubt be very familiar with the fact that the Coastal Policy Statement policies including references to activities inland can have a major impact on coastal water quality and the need for integrated management of natural and physical resources.
- v) The question therefore becomes whether the EPA is prepared to accept somewhat vague assurances that the work will be in accordance with best engineering practices when other statements indicate that the applicant appears unaware of the physical geography, or the

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<sup>17</sup> AEE National Environmental Standards, page 129

<sup>18</sup> AEE 9.2.2 Page 135

presence of multiple streams draining to a different catchment-driven coastal location. Without further information, and in the light of debates on the accuracy of stormwater calculations (see paragraphs 81 and 84 below) submitters have little confidence in bland assurances that adverse effects were found to be less than minor on both the environment and neighbouring properties; that they will be offset by positive effects of the development; and that the proposal will align with the New Zealand Coastal Policy Statement.<sup>19</sup>

- vi) Ms Rankin refers to multiple flooding events in Cockle Bay in 2018, and the limited-capacity culvert used by streams flowing down from immediately below the proposed development.

59 Panel members will no doubt be aware that a number of submitters have requested Auckland Council to include stormwater management constraints as a qualifying matter under PC 78. The importance of this additional planning protection was emphasised by the Auckland floods in early 2023.

60 Our focus in the remaining part of our commentary on wastewater and stormwater is more broad based. It continues to question the validity of a number of claims made by the developer. We submit that if the Panel considering this application agrees with the challenges made by both Ms Rankin and other submitters such as ourselves, then it will not be enough to impose conditions on any approved development. It will require a decision of refusal of consent.

## 8 Infrastructure and Utilities

### *a) Qualifying Matters – Water and/or Wastewater Constraints Control*

61 There is what might best be described as an ambiguous tension between various statements regarding wastewater. Auckland Council have placed a qualifying matter of Water and/or Wastewater Constraints on the area, indicating a general level of concern regarding capacity at a macro level. The Assessment of Environmental Effects (AEE) states that Watercare have stated that its infrastructure has sufficient capacity, but then goes on to say Watercare is concerned about the potential impacts of the proposed development during heavy rain events when stormwater enters the wastewater transmission network. More specifically there is a concern that large rainfall events may result in an influx of stormwater in the wastewater transmission network and that Watercare has concerns about additional wastewater from the development in the transmission network during those high rainfall events.<sup>20</sup>

62 The DHC Infrastructure Report of 6 November 2023 states:

In the Watercare meetings of July and October 2023 and in correspondence between Watercare and Box Properties, Watercare have advised that there is a present capacity concern as a result of the transmission network downstream of the site overflowing in large storm events. (Page 14) and: Watercare has concerns about additional wastewater from the development in the transmission network during those high rainfall events". It is understood Watercare are working through feasibilities and preliminary designs to remediate

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<sup>19</sup> AEE 8.2 Page 128

<sup>20</sup> AEE page 9

this existing transmission network problem, however it is likely the remediation will not be completed onsite until 2028.

- 63 Progress towards a resolution appears to have stalled.
- 64 Our understanding from presentations from Watercare to local Community Based Organizations is that the whole of the Cockle Bay Catchment sewerage network is at or near capacity. Before it can be upgraded it will be necessary to construct the “Howick Diversion” – a multi million dollar main sewer connection that will re-route the local network contents inland to treatment plants. We are very surprised to read the developer’s implication that this the networks will be operating correctly by 2028. Our impression from our discussions with Watercare is that the Howick Diversion is a precursor to upgrading the catchment collection network and that currently it is not even scheduled. If necessary the EPA could ask to see Watercare’s long term capital investment plan relating the Howick Diversion and local upgrades to confirm the correct timing status.
- 65 Quite apart from the timing of the Howick Diversion we are aware that Watercare have a policy of endeavouring to accommodate all requests for connections<sup>21</sup>. However, we question the equity of allowing a single multi-story development in what is currently a SHZ with capacity constraints to utilise what may be a substantial proportion of the remaining spare capacity. We are even more concerned to read “Watercare has not to date been able to provide detailed calculations of how much additional capacity could be accommodated under the current network before an unacceptable cumulative capacity would be reached”<sup>22</sup>.
- 66 The applicant states that discussions with Watercare are ongoing and that the assessment may be updated with new information. However, there appears to have been no firm resolution of these concerns. DHC record that at an online meeting with Watercare in July 2023 it was noted that Watercare did not see the immediate benefit of them spending costs on surveying the local network anymore<sup>23</sup>.
- 67 We are therefore concerned to read that the developer is asking for consent when fundamental quantification of overflow issues that potentially effect the health and wellbeing of residents, who already experience sewerage overflows, has not been finalized.
- 68 The AEE states that “There are several shorter term solutions available to overcome and or mitigate the above scenario, that would provide for the proposed development to have no further negative effects on the existing situation, with Watercare and Box Properties continuing to consult to finalise these solutions”<sup>24</sup>. This ambiguity concerns us. If a consent is granted then there will be undue pressure on regulatory institutions such as Watercare and Healthy Waters to adopt any one of the multiple solutions that have been proposed, in order to enable the development to proceed in a timely manner.

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<sup>21</sup> Statements made by Watercare at a meeting to discuss the first consent application.

<sup>22</sup> Consultation with Utility Providers – Watercare bullet points

<sup>23</sup> DHC Report Page 15

<sup>24</sup> AEE page 9

69 We suggest it is not enough to impose conditions on development if there has been no agreement between parties of the precise problems and solutions; the cost of those solutions, and any additional contribution by the developer to their implementation over and above the Infrastructure Growth Charge (as mentioned in paragraph 33). It is also a concern that the developer is indicating that mitigation measures could be surrendered by 2028 – which will possibly be not long after the buildings will be fully occupied. The reason why the qualifying matter of water – and more specifically wastewater – is proposed under PC 78 for the area as a whole is that it is a potential limitation on intensification.

70 We note that Mr Jon Brett has also raised concerns on a number of points relating to the accuracy of calculations; stormwater; wastewater and other issues. We share his concerns.

71 We ask that these implications be carefully considered by the decision makers.

### ***b) Healthy Waters and Stormwater***

72 Section 8.1.3 of the AEE states that “The site is located in a well-established suburban environment, without the presence of any streams, watercourses or ecological areas. As such, the proposal is unlikely to affect any ecosystems or result in the physical disturbance of habitats” and “No other natural hazards have been identified” and “as such, there is no risk to the neighbourhood, the wider community or the environment”<sup>25</sup>.

73 Geomaps plainly indicates this is inaccurate.

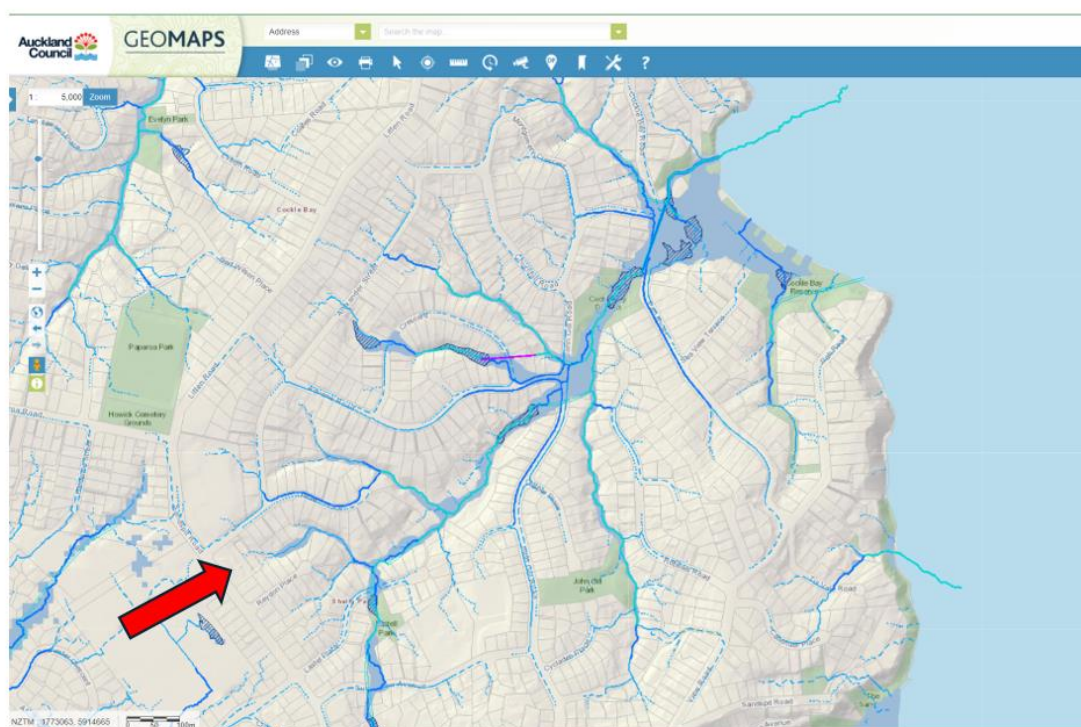


Figure 1 Geomaps of the area indicating the presence of local streams providing drainage and flood prone areas. (Red arrow indicates site)

<sup>25</sup> AEE 8.1.7

- 74 The DHC Infrastructure Report states that there is no need to consider floodplains or overland flow paths for development (Section 5 page 12) even though the aerial view on the same page includes a reference to a 1% AEP floodplain only a short distance from the site. In these circumstances we would have thought that the developer has a duty of care in assessing downstream impacts of waterflows, all the more so as Healthy Waters has deemed the streams are on private property.
- 75 Possibly the above statements are disingenuous. There are no streams, watercourses or flood plains on the site itself. But as Ms Rankin's submission and Geomaps clearly show, there are multiple streams draining this catchment, including a stream flowing through adjacent properties located on Reydon Place and another close to Trelawn Place, which, like Reydon Place, borders the development. Geomaps also shows a number of floodplains on these streams.
- 76 The submission from Ms Rankin refers to the history of flooding downstream from the site. Going still further, if we understand the stormwater schematics correctly, part of the stormwater which initially enters a stormwater pipe then discharges directly into one of these streams – a point drawn to the attention of the developer during responses to the first consent application. Finally we wish to point out that parts of the coastal area below the proposed development have the designation of a Special Ecological Areas, despite assertions to the contrary.
- 77 The AEE states that the closest proximity to the coast is at Chisbury Terrace. (Chisbury Terrace itself is elevated, but land behind the sections and the Chisbury Reserve slopes steeply to cliffs and the estuary. However, Chisbury Terrace is separated from the proposed development site by a number of ridgelines. It is not on the natural waterflows, which are through multiple streams that flow to Cockle Bay and Howick beaches. Whether Chisbury Reserve is "on the coast" is debateable. It adjoins the Mangemangeroa Creek rather than the open sea. It also lacks any walkways or tracks, (except the Mangemangeroa Reserves shoreline track) so cannot really be considered a suitable spot for recreation.
- 78 The next major issue is the calculations used for stormwater. In this, we are guided by Mr. Yuva Adhikary, a qualified Water Resources Engineer with multi-national experience. Mr Adhikary was an expert witness in the now withdrawn Environment Court application by the developer for 54 apartments on the site. A number of points discussed have a direct relevance to the current application. During expert conferencing on the Environment Court case the following points (summarized) were agreed or noted<sup>26</sup>:
- i) Impervious Areas - The quantification of existing and proposed impervious areas was AGREED. The proposed and existing impervious areas have increased since reported previously.

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<sup>26</sup> DHC Report Appendix G



- ii) It was AGREED that Nigel Fernando's statement of 24 February 2021 on the existing impervious areas was misleading, specifically points 7.5 – 7.7.
  - iii) It was AGREED that the proposed 51m<sup>3</sup> of retention and detention mitigation met the requirements of SMAF2 - being 36m<sup>3</sup> detention and 15m<sup>3</sup> retention. NF mentioned that should additional detention be required, the developer would be open to increasing the detention on site
  - iv) It was AGREED that based on the assumed grade of the doubtful 375 mm pipe at 10 Reydon Place, it could have capacity issues should it be flatter than assumed. Yuva's view was that this pipe is inadequate for grade he has assumed (1.95% based on the site contour (Geomaps). There is no site survey for this pipe.
  - v) It was AGREED that the Cockle Bay catchment has existing stormwater capacity and flooding issues.
  - vi) It was AGREED that there was channel scour of bed of stream from storm events.
  - vii) It was AGREED that there was a history of sewer overflows (Mott MacDonald's Report) and that there is an issue with the existing wastewater network.
  - viii) It was AGREED that there was flooding to downstream residential properties.
  - ix) The occurrence of channel scour was AGREED.
- 79 A number of other points were deferred for consideration by the Environment Court, as follows:
- x) NO AGREEMENT was reached that the proposal adequately assesses the increased risk of downstream flooding, erosion and other potential adverse effects from the uncontrolled flows and volumes from larger storm events including from 10 year Average Recurrence Interval (ARI) and 100 year (ARI) from the proposed development site.
  - xi) NO AGREEMENT was reached on the estimation of stormwater flows and volumes from the site.
  - xii) NO AGREEMENT was reached that a 100 year ARI overland flow path including the location of discharge and its potential effects to downstream neighbouring properties has not been assessed.
  - xiii) No decision was reached on whether there was regular maintenance of the stream by Council/Healthy Waters as JN was not able to confirm whether maintenance was carried out by Healthy Waters in particular.
  - xiv) There was no decision whether that there could be groundwater contamination issues.
- 80 The full summary is available at appendix G of the DHC Report.
- 81 The Panel may also wish to consider the relevance of the Council views on methodology, and whether it reflects Council obligations, quoted in the Expert Conferencing Minutes:

On GD01 statement on page 261, Mark Iszard's advice is "This approach is suitable and appropriate when sizing stormwater management devices **but I do not believe it was proposed or written to be applicable to assessing the effects of flooding under an RMA framework**". (Bold in original Minutes).

- 82 In a follow-up to the Expert Conferencing it was confirmed that Healthy Waters do not undertake maintenance on streams as these are on private property. This raises issues of "nuisance water" which are addressed later in this section.
- 83 We have asked Mr Adhikary to review the current application, within the limits of his available time. His conclusions are attached as appendix 2 (and may also be part of the submission from Mr Selwyn Pratt).
- 84 Of particular relevance are:
- i) Whether the applicant has addressed the risks of inundation of buildings on other properties in the event of up to 1 percent annual exceedance of probability (AEP)<sup>27</sup>
  - ii) That divergence and discharge must not cause or increase nuisance or damage to other properties<sup>28</sup>
  - iii) A difference in calculations suggesting an underestimate of 5,000 litres resulting from the applicant using combined pervious and impervious areas to calculate runoff volumes<sup>29</sup>
  - iv) Calculations suggest a failure to comply with Council's Stormwater Code of Practice relating to habitable building floors. Mr. Adhikary's calculations suggest an additional 31 l/s of floodwaters, and 178,000 litres of stormwater, thus failing the requirement of AUP8.6.1 (3)(b) <sup>30</sup>.
  - v) A failure to comply with requirements relating to nuisance water and the requirements of AUP8.6.1 (4)<sup>31</sup>
  - vi) Whether the Auckland Code of Practice for Land Development and Subdivision, Section 4.3.5.6 has been correctly followed. It is suggested that this failure risks severe damage downstream.<sup>32</sup>
- 85 As is the case with wastewater, we are concerned that once again the developer is asking for consent when there is ambiguity about preferred solutions to managing risk and capacity.
- 86 The developer refers to the water table being from 3.3 m to 7.6 m below ground level. We agree that wide variations are possible. Local residents talk about multiple springs appearing in the area after heavy rain. This makes it difficult to reconcile the statement that excavations of (at

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<sup>27</sup> AUP E8.6.1

<sup>28</sup> *ibid*

<sup>29</sup> Y Adhikary Stormwater Comments on Quarterdeck , Table 1 Row 1 My comments

<sup>30</sup> *Ibid* Table 1 Table 1 Row 2

<sup>31</sup> *Ibid* Table 1 Row 3

<sup>32</sup> *Ibid* Table 1 Row 4

least) 3.6 metres will not extend below the ground water table, which may at times be less than 3.3 metres.<sup>33</sup>

- 87 On the question of safeguarding streams, it should be noted that, as an example, the stream that runs through the backyards of Reydon Place is a known habitat for local species. It is our understanding that as part of the Environment Court application for 54 apartments the applicant was to have a stream inspection undertaken by qualified professionals. To the best of our knowledge this never occurred. Some time after the current application now being heard was approved by the Minister two men, with no ready identification, did arrive unannounced at the home of Ms Mary Bird, requiring access to her garden. This was refused. They left, swearing. Civix was approached by Mr S. Pratt and informed that if a formal arrangement was made, with a fixed appointment, then access would be made available. There was no follow up request for an appointment.

## **Part D Adequacy of Other Provisions in the Current Application**

### **9 Economic Assessment**

- 88 We have little to say about the Economic Assessment except that:

- i) What they describe as the Study area is not representative of the area in question, leaving doubts about the validity of the financial analysis. The study area used for the economic analysis covers much of the Howick Local Board area, representing different zonings and socio-economic areas. The actual location is characterized by its presence on a ridge line with properties to the east sloping down to the sea. The location is located within the Single House Zone, and characterized by single house dwellings. To refer to terrace housing and apartments in the area, and a shortage of apartments in the area, is misleading at best. They are not a permitted activity within the immediate area under the SHZ rules.
- ii) The presence of apartments and terrace houses on a ridge line which has previously been single house zone is more likely to destroy economic value of the existing housing stock than create affordable housing.
- iii) We note that currently there is a shortage of labour within the construction industry<sup>34</sup>, making part of the rationale for the application for Fast Track Consenting immaterial.

- 89 It is also worth noting that the AUP was structured to provide long term housing growth, targeted towards areas with adequate infrastructure capacity. This contrasts with the proposed location, which is constrained by the need for investment in wastewater infrastructure.

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<sup>33</sup> AEE page 38

<sup>34</sup> BDO 2023 Construction Sector Report

90 For a number of good reasons (infrastructure constraints; geological fragility etc) the AUP maintained the SHZ characteristics that they inherited from the previous Manukau City Council. The area has long been a SHZ (and earlier Heritage 7). Of course, therefore, “apartments are a typology undersupplied within the suburb”<sup>35</sup>, as apartments are not permitted.

## 10 Neighbourhood Effects on Character

91 The applicant correctly states that while the development represents a change from commercial<sup>36</sup> (in part) to residential (some of which are 1-2 stories) with a built form that is substantially taller than the existing character. This would be noticeable from across Sandspit Road (which is zoned Mix Housing Suburban, not Single House zone, and from the schools which are not residential<sup>37</sup>.

92 We find it hard to agree that the statements that the potential for adverse effects upon the prevailing landscape character introduced by the physical changes to the landscape introduced by the proposal can be considered to be Very Low<sup>38</sup>.

93 The applicant states that “by placing built form that is considerably lower than what the SHZ permits at the boundary with the neighbours, the effects of dominance, shading and overlooking have been managed so that they have only minor amenity effects on adjoining / nearby owners”<sup>39</sup>. We are certain that local residents will not agree that the effects of the proposed buildings heights are only minor. At least the applicant goes on to say “The effect on the character of the immediately surrounding environment is more substantial”.

94 Despite the claim that there will be only minor amenity effects, there is an admission that “the proposal will have a significant impact to the neighbours at 1 and 3 Reydon Place, and that the outcome will be a substantial change to the current state of the site. This impact is justified by stating that it is inconsistent with the PC 78 planned urban environment”<sup>40</sup>. This conveniently overlooks that the future planned urban environment has not yet been ratified.

95 The applicant states that “The proposal will amend the streetscape character to one that is consistent with the planned environment and sits comfortably with the potential of three storey buildings on adjacent neighbouring sites (under the MDRS)”. It is claimed that the impact of the fourth level on the streetscape is considered to have low adverse effects to the amenity of the street, which will be mitigated through design response and varied built form. At least it is recognized that “the impact of the proposed apartments will be noticeable but is not considered to cause adverse effects. The fourth level will not materially alter the impact.”<sup>41</sup> We leave it to

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<sup>35</sup> AEE page 137.

<sup>36</sup> The commercial element is really an aberration and dates back to the legacy Manukau City Council. The site should not be being used commercially, as the zoning is SHZ.

<sup>37</sup> AEE page 26

<sup>38</sup> AEE page 29

<sup>39</sup> AEE page 8

<sup>40</sup> AEE page 26

<sup>41</sup> AEE pages 25-26

the EPA to decide whether they agree with these subjective claims, bearing in mind this is still SHZ.

96 We also question the conclusions of the applicant that “Based on the above assessments, the proposal is considered to result in less than minor adverse effects to the neighbourhood or the wider community. The proposal instead offers substantial social and economic benefits<sup>42</sup>.” We have questioned the underpinning of the economic analysis.

97 Similarly, we cannot accept that “The proposal contributes to the aesthetic values of the location<sup>43</sup>,” or that “The development complements the surrounding character of the area” and “there will be no adverse aesthetic effect<sup>44</sup>”. We do agree that the present site has been allowed to become an eyesore – but that is not, in itself, a justification for an inappropriate development.

98 Of greater weight than our own opinion, the Independent Hearing Panel considering the first application by the developer also considered the effects more than minor, particularly effects relating to the amenity value of the area in general and on neighbouring residents<sup>45</sup>

## 11 Landscape

99 The applicant refers to local reserves strongly influencing the streetscape. We presume he must be referring to the nearby cemetery and a rugby league sports field – with the latter largely hidden by houses on Litten Road. Other reserves are not visible from the location.

100 Despite claims to the contrary, landscaping is highly unlikely to mitigate the considerable bulk and dominating effect of the development on the area as a whole – not just on the immediate properties but also along the line of sight of the ridgeline, particularly as one approaches from the south.

101 We would be very surprised to see the proposed Pohutukawa trees lasting much more than the design phase. The planting area is narrow. They will shield the lower apartments from sunlight, while their spreading nature, from within a very narrow planting base, will soon impede high traffic including double decker buses.

## 12 Traffic

102 Other submitters will no doubt comment on traffic. We ask the Panel to pay particular attention to the following points:

- i) Despite what is implied in the Commute Transportation Consultants (“Commute”) Transportation Assessment Report of November 2023, at school opening and closing times there is extensive traffic congestion and difficulties finding parking spaces. Many

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<sup>42</sup> AEE page 121

<sup>43</sup> AEE page 125

<sup>44</sup> AEE page 124

<sup>45</sup> Decision of Panel Paragraph 191

parents deliver and collect their children from the 2 schools adjacent to the proposed development, or the other 2 schools in relatively close proximity.

- ii) In addition to cars there are multiple buses carrying pupils – in fact so many buses that many are parked some 5 – 10 minutes drive away on Somerville Road. They then arrive as scheduling and space permits.
  - iii) Parking in the vicinity in school term time is always a problem. There are time limits for parking in areas surrounding the schools, with senior pupils frequently “escaping” school in order to move their cars.
  - iv) At peak traffic times residents from both Reydon Place and Trelawn Place already experience difficulty turning right (and to a lesser extent left) onto Sandspit Road.
  - v) The Commute report makes only one reference to Howick College (“...there is a significant difference in the traffic volumes along Sandspit Road between Trelawn Place and Reydon Place. This is due to Howick College.”)<sup>46</sup>. But Sandspit Road is continuous between Reydon Place and Trelawn Place, with the only connections being 5 residential properties, plus access to about 45 teachers car parks and bus bays at the College. However, surprisingly, the observations over the 2 day survey period do not record any vehicle using this access.
  - vi) Commute make no reference to Cockle Bay Primary School, which is on the corner of Sandspit Road and Trelawn Place, and opposite both Howick College and the proposed development. The school is a major source of traffic at peak times.
- 103 The fact that some of the traffic data is 8 years old<sup>47</sup> possibly explains the differences between local residents’ experience and the conclusions stated in the Commute report, including statements such as “the intersections operate well”<sup>48</sup>. In reality, Sandspit Road, from the roundabout with Paparoa and Litten Roads through to Meadowlands Drive some distance south, will typically be bumper to bumper with stationary or slow moving traffic, particularly in the morning.
- 104 We understand the survey dates used were 1 and 2 days before the end of term, so traffic volumes are probably understated. On one of the days (the Wednesday) the college Year 11, 12 and 13 students finish at 1.40 pm, leaving only Years 9 and 10 students at College. The traffic count will, therefore, reflect reduced attendance.
- 105 Even after making allowances for growth in traffic volumes since 2016, some of the survey data and the timings leave unanswered questions and therefore raise queries about the validity of the conclusions. The introductory paragraph to Section 2.2.2 refers to a 2 hour morning peak and a 3 hour evening peak, but Figures 2 and 3<sup>49</sup> quote data for only 1 hour in the morning, and an

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<sup>46</sup> Commute Transportation Assessment November 2023 Page 3

<sup>47</sup> Ibid Section 2.2.1

<sup>48</sup> Ibid page 14.

<sup>49</sup> Ibid page 3

evening peak from 4.45 pm to 5.45 pm. The latter bears little resemblance to what local residents regard as the evening peak, which is around the time that the schools close (or starting around 2.30 pm as parents arrive trying to find a place to park).

- 106 If we understand Figure 2 (page 3) correctly Commute suggest that in the morning 605 vehicles (including 6 turning right from Reydon Place) pass Reydon Place heading towards the 2 schools and Trelawn Place but by the end of the block (which will form the total frontage of the proposed development), this has reduced to 386 vehicles, plus 98 that succeed in turning into Trelawn Place (1.6 vehicles per minute on average, despite the 413 vehicles travelling in the opposite direction at the same time, and the delays and queues caused by the pedestrian controlled traffic light operations). It stretches credibility to believe that 121 vehicles have successfully parked during this short distance and time period. The site survey recorded no vehicles turning into the Howick College car park, which has approximately 45 teachers car parks, many of which would be occupied before the time of the survey, or the 5 residential properties on this part of the road. Travelling in the opposite direction in the morning, the 538 vehicles that passed Trelawn or turned left out of Trelawn onto Sandspit Road had, by the time they reached Reydon Place, increased by 20 to 558, including 5 which turned into Reydon Place. This is despite the fact that there are no adjoining roads.
- 107 In the so-called evening peak, measured from 4.45 pm to 5.45 pm, the situation is equally curious. The 436 vehicles (including turning vehicles) that passed Reydon Place heading towards Trelawn Place had increased to 460 (including turning vehicles) by the time they reached Trelawn Place. The traffic volume at this point also exceeded the morning school time rush hour by 21 vehicles – a highly unlikely scenario given the schools' finishing time. Also in the evening peak, the number of vehicles shown as passing Trelawn Place, at 407, exceeds the morning peak of 386, although the latter period would be expected to be higher because of school traffic. The data does not equate with reality. At 169, the stated reduction of vehicles passing Reydon Place towards Trelawn Place between morning and evening peaks is more understandable, but makes the other reported increases even harder to comprehend.
- 108 It is noteworthy that whilst Commute state that they there are “no significant safety concerns” Auckland Transport has stated that it has concerns around safety in the area and is planning to raise the pedestrian crossing in Litten Road because of these perceived risks. It should be noted that traffic is also a concern for the Howick Local Board (see Section 5 whose view reflect those of an elected representative who is a former police officer for the area.
- 109 Figures 18 to 21 show proposed morning and evening vehicle movements at the Trelawn and Reydon Place intersections. No assumptions are stated indicating how the traffic engineers reached their conclusions, nor do the summaries specify the time periods involved. This is not helpful, especially when trying to assess peak congestion periods. The text following the tables implies the same one hour as used for the survey period. There is no assessment of additional on-street parking required to accommodate the likely total number of vehicles owned by

residents, since the 115 on-site garaging and parking spaces are likely to be insufficient, based on statistics of existing per capital car ownership in the area. No mention is made of movements of the 70 bicycles which are to be accommodated on the development or how they will influence traffic flows.

- 110 The definitions used in these tables are also unclear as no legend is included. For instance, travelling south at Trelawn Place “R2” cannot mean a right hand turn because the turn is to the left. More importantly, if R2 represents vehicles turning into Trelawn, then the projections suggests a morning increase of 42 vehicle turning movements, compared to the survey period, but only 489 vehicles on the approach row (in the table). This is compared to a total of 538 (including left turning vehicles) in the survey period. Turning traffic is even more relevant. At Trelawn Place, which will be the subject of most vehicle movements (because of the garaging for 102 vehicles), the survey recorded a total of 307 vehicle movements in the morning<sup>50</sup>. But Figure 18 records a projected total of only 178 vehicles – a reduction of 129 vehicles<sup>51</sup>. Similarly in the evening the survey reported 132 movements into or out of Trelawn, but Figure 19 projects only 50 vehicle movements (the “approach” row on the table). We accept that we may have misinterpreted these projections. Our point with these examples is that the Panel needs to be completely confident in the dependability of the data used to justify the conclusion that the addition of 115 parking spaces will have “minimal effect on the safe and efficient operation of the surrounding road network”<sup>52</sup>.
- 111 Figures 18 and 19 (Sandspit Road / Trelawn Place) report average vehicle speeds at the location ranging from 51.6 km/hour to as high as 59.9 km/hour and 48.5 km/hour to 59.9 km/hour for morning and evening respectively. This is despite the fact that the speed limit is 50 km/hour, reducing to 40 km/hour during school opening and closing times; the heavy congestion at peak times, and the fact that there is a pedestrian controlled traffic light very close to Trelawn Place. If the speeds quoted are correct then the whole area must surely be a serious safety risk, with attendant risks for vehicles leaving both Reydon Place and Trelawn Place. The more likely explanation is that the figures were recorded elsewhere and that Commute do not have a sound appreciation of the locality.
- 112 Figures 18 and 19 project no heavy vehicles on Sandspit Road at Trelawn Place in the morning or evening, despite this being a bus route. In contrast, Figures 20 and 21 (Sandspit Road / Reydon Place) shows that in this short distance miraculously 5 heavy vehicles have appeared for both morning and evening on each of North and South Sandspit Road and also the Reydon Place cul-de-sac. These 5 vehicles are then, as an example of the statistics, stated to represent 5% of vehicles for each of the 622 approach vehicles for South Sandspit Road and also 5% of the 23 vehicles for East Reydon Place. Clearly this is mathematically impossible.

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<sup>50</sup> 60 into Trelawn Place plus 24 and 125 exiting to the right and left respectively, plus 98 vehicles northbound on Sandspit Road

<sup>51</sup> Ibid Figure 18 East Trelawn Place Approach

<sup>52</sup> Ibid page 16



- 113 Similarly, if we understand Figures 18 and 19 correctly then the suggestion that current number of vehicles queuing in the morning on Sandspit Road at Trelawn Place ranges from 0.0 to 0.4 vehicles is, quite frankly, unbelievable. Howick College actually need a teacher on traffic duty to manage entry and exit of buses when school finishes.
- 114 Of less importance in terms of the reliability of proposed movement projections, we question the applicability of using Urban Arterial Median Traffic flows as a parameter in traffic modelling (Figure 7) when Sandspit Road is not an arterial road and both Reydon Place and Trelawn Place are cul-de-sacs. Equally, but still of less importance, we note that Figure 28 shows traffic entering the proposed underground parking by a left hand turn from Trelawn Place. Unless a “no right turn” on Trelawn Place is proposed the reality is that most vehicles will make a right hand turn, having accessed Trelawn Place from Sandspit Road, rather than transiting through somewhat constricted side roads. The anomaly suggests once again a lack of understanding of the local environment, calling into question the other conclusions in the report.
- 115 Section 10 of the Commute report states that the construction methodology has not yet been finalized. Bearing in mind the volumes of excavation, some of which is hazardous or contaminated material, and the presence of 2 schools adjacent to the development site, the methodology will be important. We concur with the list of requirements proposed for the Panel to consider, but in addition we would want to see Cockle Bay School included, and limitations placed on tradesmen and contractor parking.
- 116 Taken overall, the Commute report seems to be not convincingly evidence-based. It is so far divorced from the realities experienced by local residents that we believe the Panel must evaluate the conclusions with a high degree of caution.
- 117 We note that Commute state that the Reydon Place parking access does not comply with the AUP<sup>53</sup>. No doubt the Panel will consider this, along with all other non compliance issues, when making a decision on the consent application.

### **13 Public Transport**

- 118 The AEE states that the location is “well serviced” (and has “good access”) to readily available public service networks. It should be noted that for much of the day this means up to 4 buses per hour. The ferry service mentioned from Half Moon Bay does not operate from 9.15 a.m. until 3.15 p.m. then with only an hourly service until 7.25 p.m.. The ferry service from the city does not operate from 8.30 a.m. until 2.25 p.m., with the last departure from the city at 6.40 p.m.

### **14 Conclusion**

- 119 We submit that the EPA should refuse this consent application, based on:

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<sup>53</sup> Ibid 2.2.1

- i) The earlier decision on a similar application for the same site, including the detailed assessment of compliance with RMA requirements
- ii) The fact that currently SHZ rules govern development at the site
- iii) The uncertainty about future intensification directives from central government on intensification, and the associated timelines
- iv) What residents see (and to some extent the applicant accepts) the incompatibility with SHZ specifications, meaning that there are cumulatively more than minor effects
- v) The failure to understand the receiving environment; the lack of clarity on compliance with national policy statements
- vi) The lack of clarity on investments required to ensure wastewater infrastructure upgrades to enable it to handle increased volumes
- vii) questionable traffic data and projections

## Appendix 1 Feedback from Howick Local Board to Independent Hearing Panel considering the first application for development.<sup>54</sup>

My name is Adele White, I am a member of the Howick Local Board.

Thank you for the opportunity to present feedback from the Local Board in response to the proposed residential development at 30 – 40 Sandspit Road, and 2 & 4 Reydon Place, Cockle Bay, Howick.

Can I begin by saying that our board **acknowledges the significant growth in our ward, and is supportive of intensification**; however we collectively believe that **this development is unsuited to this location, and could bring with it significant problems to the immediate and wider neighbourhood**. We support the growing fear among the community that allowing a development of this nature to proceed could set a **dangerous precedent**.

Cockle Bay is a charming seaside residential suburb of more than 100 years. It has been susceptible to growth over the last 50 years because of its desirable location, and the ability for its many large “quarter acre” type sections to be sub-divided. There has also been the addition of a number of new residential subdivisions on blocks of previously undeveloped land.

### TRAFFIC ISSUES

The first significant concern shared by the Howick Local Board is that of the potential of **additional traffic in this already vulnerable location**.

As a former Traffic Officer and Police Officer specialised in Youth Education, the safety of children as they moved to and from all the schools in the Howick Ward was my responsibility for over 30 years. As a result I have worked extensively in, and around all the schools that service the Cockle Bay area.

There are **FOUR schools** and all are located **within a 1 km radius of the proposed development**. Cockle Bay School and Howick College are on Sandspit Road within sight of numbers 30 – 40. Shelly Park School is around the corner in Sunnyview Avenue, and Somerville Intermediate School is close by in Somerville Road.

Consequently **there is a high volume of pedestrian traffic** using Sandspit Road in both directions, to all four schools. This group is made up of all ages from 5 years to adults –and will often include pushchairs, and toddlers – walking, and on small bikes. Throughout the day, and into the evening this is a commonly used walking route for the elderly, young people, dog walkers and joggers.

The Howick Local Board continues to promote walking and cycling throughout our ward. This is supported by the four Cockle Bay Schools with cyclists aged from 10 years old using this road.

The schools bring **significant vehicular traffic** – mainly between 7.30 and 9.15 am in the morning and 2.30 to 3.45 pm in the afternoons, **travelling both ways on Sandspit Rd**. This is compounded by **commuter traffic** using this main route throughout the day.

Sandspit Road is the **main route for the timetabled bus network** and the schools are also served by a **large number of school buses** at both ends of the school day. It is assumed that residents of the proposed apartment block would introduce a minimum of **at least 70 vehicles**.

We are concerned that an increased number of **cars exiting onto Sandspit Road** would pose an additional danger to the residents of the proposed development, other vehicular traffic, cyclists and pedestrians.

### INFRASTRUCTURE

Another major concern of the Howick Local Board is that the inadequate and dated stormwater and sewerage infrastructure which currently serves the Cockle Bay area would not be sufficient to safely and efficiently service such a development.

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<sup>54</sup> Bolding is in original text.

Auckland Council and Watercare are already attempting to resolve numerous issues of flooding, and damage to residents' properties due to a system already fraught with issues.

And we are constantly hearing of frankly unacceptable situations where health and safety is already compromised.

We are confident that additional load on current infrastructure will have disastrous results.

The Local Board would not be in a position to fund the extensive and expensive damage this could potentially cause. David Collings will now address you with further concerns.

### **Howick Heritage 7 Overlay**

When the draft Unitary Plan was being developed the Howick Local Board advocated for an overlay to protect provisions in the former HH7 Zone from the Manukau District Plan. This was the only area within the entire Howick Ward with any special provisions and we felt it important to protect. We were also instrumental in the introduction of two levels of Mixed Housing (Urban and Suburban) as we felt there needed to be another layer of hierarchy in the zoning and this reiterates the uniqueness of this area.

In regards to this application (the board) on behalf of the community, suggests the proposed development does not fit within the outcomes sought by the HH7 conditions of which the primary purpose was to control intensification and is interested to understand better how this application will be assessed with regards to the provisions of the area now zoned "Single House."

There has been some confusion over the existence of the overlay being adopted into the Unitary Plan and board members were never informed that it had been dropped. The only communication from council was that the density restrictions had been increased from the previously prescribed section sizes of Average Minimum of 700m<sup>2</sup> and Absolute Minimum of 600m<sup>2</sup> being reduced to a minimum of 500m<sup>2</sup> due to the now underlying "Single House" zone.

We note that this particular rule, that was set up to protect the character and therefore heritage value of the area, was in affect a limit on density. And while the overlay itself was not adopted, the area remaining "Single House" with a limit on section size of no less than 500m<sup>2</sup> (although far less than the board and community would have liked to have seen) is still a mechanism to address density.

It is because of this that the board feels that the density restrictions on this area should be upheld.

### **Character of area**

We also raise concerns that due to the fact that a number of sections are proposed to be amalgamated, and therefore allowing exemptions to the limit on density, that this should not be allowed and ask that commissioners consider that this particular area does have a unique character that Adele has previously alluded to.

We would like to reiterate our involvement I mentioned previously, in securing the two levels of "Mixed Housing." When these matters were adopted by council, firstly we saw the sections sizes halved meaning the density and therefore intensification was allowed to double.

With the second iteration of decisions then saw the section sizes and density rules removed altogether. However in this area zoned as "Single House," again the only area within our large ward that we sought to protect and due to being zoned as such having a limit on density through the provision of a minimum section size we felt there was a sanctuary from infill, from urban spread from looking out of your windows into your neighbours.

We would ask "what is the point" of having a limit on section sizes, in this case to protect a unique area, when developers can override such conditions. If there is anywhere in our area or in fact in Auckland full stop that conditions should be up held then surely it is in the "Single House" zone.

When one looks to the Unitary Plan, it's principles are quite clear and in fact not too different to the Auckland Regional Growth Strategy dating back to the year 2000. Principles such as intensification around town centres where there is retail, community facilities and services and of course public transport.

The idea then and is still now is to develop around these nodes where this community infrastructure exists not to mention the infrastructure Adele previously referred to. The plan was never to develop in quaint seaside settlements where none of this exists.

Thank you for your time and in leaving can I clarify the board, on behalf of the community, is concerned that the proposed development does not fit with the overall character of the area.

We feel it would be in conflict with the intent of the zoning which we believe was confirmed in an attempt to preserve some of the provisions of the HH7 zoning instigated to protect residents' and the overall amenity values through the provision to maintain section sizes.

## Appendix 2 Queries and Advice from Mr Y. Adhikary on Quarterdeck Application

The Auckland Unitary Plan (Operative in part, 29 September 2019) contains the provisions of Section E8.6.1 – General Standards that must be met by the proposed developments. The following provisions are relevant to Box Property Investments Limited’s Application (the applicant) concerning the discharge and diversion of stormwater for their proposed development at Sandspit Road and Reydon Place.

(3) the diversion and discharge must not result in or increase the following:

(a) flooding of other properties in rainfall events up to the 10 per cent annual exceedance probability (AEP);

or (b) inundation of buildings on other properties in events up to the 1 per cent annual exceedance probability (AEP).

(4) The diversion and discharge must not cause or increase nuisance or damage to other properties.

The applicant has proposed onsite detention facilities to address provision (3) (a), namely controlling the rainfall events up to the 10 per cent annual exceedance probability (AEP).

However, the proposal fails to address the provisions contained in (3) (b) and (4) above. The stormwater proposal also fails to meet the requirements of the Auckland Code of Practice for Land Development and Subdivision, Chapter 4- section 4.3.5.6 Secondary Flow Paths. I have serious concerns about the applicant not assessing and addressing these requirements which will adversely affect and harm downstream properties and environments. The provisions, requirements, applicant’s proposals and my comments are presented in Table 1 below.

**Table 1 The provisions, requirements, applicants' proposals and my comments**

Item	Provisions	Requirements	Applicants' proposals to meet requirements	My comments
1	E8.6.1 General standards <sup>55</sup>	(3) The diversion and discharge must not result in or increase the following: (a) flooding of other properties in rainfall events up to the 10 per cent annual exceedance probability (AEP).	The applicant has proposed onsite detention facilities to address this requirement. Detention of 100 m <sup>3</sup> <sup>59</sup> has been provided to cover SMAF2 -retention, SMAF2 - detention and control of the post-development 10% AEP flow to its predevelopment level.	Please refer to Appendix A for calculations : For the same pervious and impervious areas, the same 24-hour rainfalls and the same climate change factors, my calculation is 641 m <sup>3</sup> for the post-development scenarios and 555 m <sup>3</sup> for the pre-development scenarios compared to the applicant’s results of 602 m <sup>3</sup> and 521 m <sup>3</sup> respectively <sup>61</sup> suggesting that the applicant’s calculations are underestimated by 5,000 litres. This discrepancy has resulted from the applicant using combined pervious and impervious areas to calculate runoff volumes compared to the requirement of TP108 <sup>62</sup> to calculate volumes separately for pervious and impervious areas. The provision of 100 m <sup>3</sup>

<sup>55</sup> E8 Stormwater – Discharge and diversion.

<sup>59</sup> Infrastructure Report DHC, 6 November 2023.

<sup>61</sup> Infrastructure Report DHC, 6 November 2023.

<sup>62</sup> Guidelines for Stormwater Runoff Modelling in the Auckland Region -TP108.

				detention to control a 10% AEP flow is reasonable. However, this detention is not enough to control 1% AEP to meet the requirement of E8.6.1 (3) (b) as discussed below in item 2.
2	E8.6.1 General standards <sup>56</sup>	(3) The diversion and discharge must not result in or increase the following: (b) inundation of buildings on other properties in events up to the 1 per cent annual exceedance probability (AEP).	The assessment of a 1% AEP flood (100-year event) and its downstream adverse effects have not been considered and assessed by the applicant.	As per the Council's Stormwater Code of Practice, the habitable building floors in Auckland are protected from the 1% AEP flood (100-year event) with the provision of an appropriate freeboard <sup>63</sup> . It is to be noted that two habitable floors downstream of the proposed site were flooded ( Figure 1 in Appendix A) by three storms from a 2-year (50% AEP) to a 10-year (10% AEP) storm that occurred in 2018 <sup>64</sup> . My calculations show that the proposed development site will generate and release an extra 31 l/s of flow and 178,000 litres of floodwaters during a 1% AEP storm event. The proposal has not considered or analysed a 1% AEP (100-year) storm event nor has assessed how an extra 31 l/s of flow and 178,000 litres of uncontrolled stormwater volume will adversely affect the downstream property floors that are already flooded from events lesser than 1% AEP. Under these circumstances, the applicant in their AEE Report <sup>65</sup> has stated that "No adverse effects are generated in downstream areas in terms of stormwater runoff" which is not acceptable to the affected people. The proposal does not meet the requirement of E8.6.1 (3) (b). Therefore, a consent condition be imposed on the application to provide onsite detention of 178

<sup>56</sup> E8 Stormwater – Discharge and diversion.

<sup>63</sup> The Auckland Code of Practice for Land Development and Subdivision Chapter 4: Stormwater, January 2022.

<sup>64</sup> The conference paper entitled "Quantifying the contribution of rainfall and tide levels on flooding in low-lying coastal areas" by Cheryl Bai (Auckland Council) and Josh Irvine (WSP Opus): 2019 Stormwater Conference & Expo.

<sup>65</sup> Resource Consent Application & Assessment of Environmental Effects, CIVIX, 30 November 2023

				m3 to control a 1% AEP storm instead of their proposal of 100 m3 to detain a 10% AEP storm.
3	E8.6.1 General standards <sup>57</sup>	(4) The diversion and discharge must not cause or increase nuisance or damage to other properties.	The applicant has not assessed to determine if uncontrolled flow and volume at a 1% AEP will cause or increase nuisance or damage to the downstream properties and waterways which are at risk of flooding, erosion and sedimentation.	<p>In the absence of clear provisions and requirements in the Council's Code in relation to the definition of nuisance water and the responsibility of higher land owners to prevent damages from nuisance water, reference is made to Professor F.M Brookfield's publication. In his publication on "Surface Waters - The Natural Rights of Drainage and Disposal"<sup>66</sup> Professor Brookfield discusses the limitations of disposal in section 6(a) on page 475. One of these limitations states.... "when a higher land owner discharges water to the lower land owner's land, the higher owner cannot by means of an artificial work or structure such as a drain, a building, a deposit of soil etc. on his own land cause water to flow on to other's land, in a manner in which it would not otherwise have done and to the injury of that land".</p> <p>The unnatural and uncontrolled extra flow of 31 l/s and an extra volume of 178 m3 released from the site at a 1% AEP storm event will adversely affect the hydraulics and habitats of streams and waterways downstream, it will cause erosion and sedimentation on streams and bays and will cause nuisance water occurrences on downstream properties frequently inconveniencing the land owners.</p> <p>The proposal does not meet the requirements of E.8.6.1 (4). The applicant be asked to demonstrate that the extra discharge from their site at</p>

<sup>57</sup> E8 Stormwater – Discharge and diversion

<sup>66</sup> Professor F M Brookfield, Surface Waters - The Natural Rights of Drainage and Disposal - NZULR (1965) Vol 1



				a 1% AEP does not cause or increase nuisance or damage to other properties.
4	The Auckland Code of Practice <sup>58</sup> - Section 4.3.5.6 Secondary flow paths	The plotted secondary flow path entry point on the upstream boundary and the exit point on the downstream boundary shall not be altered by site development.	The applicant has not prepared an overland flow path assessment report nor has provided a secondary flow diagram across the site. The Infrastructure report <sup>60</sup> states "From the proposed finish levels for the development, the overland flow paths from the site have been directed towards the north-west to Trelawn Place/Reydon Place", we do not envisage this change to affect the downstream areas".	Secondary overland flow paths for the site should be designed with sufficient capacity to accommodate a 1% AEP (100-year) storm event, assuming primary drainage pipes across the site up to 600 mm dia to be completely blocked <sup>67</sup> . This is in accordance with section 4.3.5.6 of the Code of Practice (proposed stormwater pipes are 300 mm dia and less in size). My calculation using TP108 shows that the post-development uncontrolled 1% AEP flow from the site is 192 l/s. If not managed appropriately on the site and not discharged safely via the defined outflow point, this flow can cause severe damage downstream. The site profile SWM H1-SWMH2-SWMH3-SWMH4 shows that a low point is created at SWMH2 from where an overland flow outlet is not evident. Trelawn Place appears to be higher than the site so overland flow discharge to Trelawn Place as stated in the Infrastructure Report is not practical. Currently, the site contour shows that the overland flow would exit behind 3 Trelawn Place. Even if the levels are allowed to discharge to Trelawn Place, it will alter the exit point of the existing overland flows which is not allowed by the Council's Code and will adversely affect the downstream environments. Therefore, the applicant be asked to provide an overland flow assessment report for a 1% AEP event clearly showing flow paths across the site and the point of discharge. Any protection measures required to protect

<sup>58</sup> The Auckland Code of Practice for Land Development and Subdivision Chapter 4: Stormwater, January 2022

<sup>60</sup> Infrastructure Report DHC, 6 November 2023

<sup>67</sup> The Auckland Code of Practice for Land Development and Subdivision Chapter 4: Stormwater, January 2022

				downstream properties from this discharge must be assessed and designed to minimise the adverse effects.
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## **APPENDIX A**

### **STORMWATER CALCULATIONS**

Appendix A shows TP108 calculations for a 10 % AEP (10-year ARI) and a 1% AEP (100-year ARI) storm events. To be consistent with the calculations provided in the Infrastructure Report<sup>68</sup>, the areas provided in this report are used.

The following data were used:

- Total site area = 5417m<sup>2</sup> (Infrastructure Report)
- Post development Impervious area = 3082 m<sup>2</sup> (Infrastructure Report)
- Post development pervious area = 2335 m<sup>2</sup> (Infrastructure Report)
- Predevelopment impervious area = 30820 m<sup>2</sup> (Infrastructure Report )
- Predevelopment pervious area = 2335m<sup>2</sup> (Infrastructure Report )
- 10-year ARI 24-hour rainfall depth without climate change = 130 mm<sup>69</sup>
- Climate change factor for 10-year ARI rainfall by the end of 2100 = 13.2%.<sup>70</sup>
- 10-year ARI 24-hour rainfall depth with climate change = 147mm
- 100-year ARI 24-hour rainfall depth without climate change = 200mm<sup>71</sup>
- Climate change factor for 10-year ARI rainfall by the end of 2100 = 16.8%.<sup>72</sup>
- 100-year ARI 24-hour rainfall depth with climate change = 234mm
- TP108 was used to calculate runoff volumes and peak discharges
- TP108 was used for impervious and pervious areas separately<sup>73</sup>
- to obtain accurate runoff volumes.

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<sup>68</sup> Infrastructure Report DHC, 6 November 2023.

<sup>69</sup> Guidelines for Stormwater Runoff Modelling in the Auckland Region -TP108.

<sup>70</sup> The Auckland Code of Practice for Land Development and Subdivision Chapter 4: Stormwater, January 2022.

<sup>71</sup> Guidelines for Stormwater Runoff Modelling in the Auckland Region -TP108.

<sup>72</sup> The Auckland Code of Practice for Land Development and Subdivision Chapter 4: Stormwater, January 2022.

<sup>73</sup> Guidelines for Stormwater Runoff Modelling in the Auckland Region -TP108.

Table 2 Summary of Flows and Volumes

Description	10 -year ARI flow (l/s)	10-year ARI Volume (m3)	100-year ARI Flow (l/s)	100-year ARI Volume (m3)
Pre-development Pervious Area = 2335 m2	33	170	59	312
Pre-development Impervious Area = 3082 m2	66	385	102	601
Total Area = 5417 m2	99	555	161	913
Post-development Pervious Area = 2335 m2	39	204	73	385
Post-development Impervious Area = 3082 m2	75	437	119	706
Total Area = 5417 m2	114	641	192	1091

Differences between post-development and predevelopment scenarios are below:

#### 10-year ARI:

Difference in peak flows = 15l/s

The difference in volumes= 86,000 litres

#### 100-year ARI

Difference in peak flows = 31 l/s

The difference in volumes= 178, 000 litres to be detained on site.

## TP108 Calculations

### 10-year ARI

TP108 Calculations		10 yr prede pervious 30-40 Sandspit Rd, Cockle Bay				
		Weighted CN	Pervious	Impervious	Notes	
Channelisation Factor (Pipe)	C	0.6	0.6	0.6	From Table 4.2 TP108	Calculate Value (see below)
Slope	S <sub>c</sub>	0.05	0.05	0.05	From equal area method	Measured Value
Curve Number	CN	74.00	74.00	98.00	From TP108	Self Calculating
Rainfall depth	P <sub>24</sub>	130	130	130	From TP108 isohyres	Area (ha) => 0.234
Area (km2)	A	0.002	0.0023	0.0000	Measured	% Imperviousness => 0%
Length	km	0.03	0.03	0.05	Measured	
						% Perviousness => 100%
Initial Abstraction	la	5.00	5.00	0.00	From Table 3.1 TP108	Weighted CN => 74.00
Soil Storage	S	89.24	89.24	5.18	From CN	
Time of Concentration	tc	0.17	0.17	0.17	uses C, L, CN, S	Min of 0.17 from TP108
Runoff index	c*	0.40	0.40	0.93	From P <sub>24</sub> , la, S	
Specific peak flow rate	q	0.11	0.11	0.16	From c*, t <sub>c</sub>	
Peak flow rate	q <sub>p</sub>	0.033	0.033	0.000	From A, P <sub>24</sub> , q	
Runoff Depth	Q <sub>24</sub>	73	73	125	From P <sub>24</sub> , la, S	
Runoff Volume	V <sub>24</sub>	170	170	0	From Q <sub>24</sub>	
			0.033		<= Total Peak Flow	
			170.3		<= Total Runoff Volume	

TP108 Calculations		10 yr prede impervio			30-40 Sandspit Rd, Cockle Bay	
		Weighted CN	Pervious	Impervious	Notes	
Channelisation Factor ( Pipe)	C	0.6	0.6	0.6	From Table 4.2 TP108	Calculate Value (see below)
Slope	S <sub>c</sub>	0.05	0.05	0.05	From equal area method	Measured Value
Curve Number	CN	98.00	74.00	98.00	From TP108	Self Calculating
Rainfall depth	P <sub>24</sub>	130	130	130	From TP108 Isohyets	Area (ha) => 0.308
Area (km2)	A	0.003	0.0000	0.0031	Measured	% Imperviousness => 100%
Length	km	0.0	0.030	0.05	Measured	
Initial Abstraction	I <sub>a</sub>	0.00	5.00	0.00	From Table 3.1 TP108	% Perviousness => 0%
Soil Storage	S	5.18	89.24	5.18	From CN	Weighted CN => 98.00
Time of Concentration	t <sub>c</sub>	0.17	0.17	0.17	uses C, L, CN, S	Min of 0.17 from TP108
Runoff index	c*	0.93	0.40	0.93	From P <sub>24</sub> , I <sub>a</sub> , S	
Specific peak flow rate	q*	0.16	0.11	0.16	From c*, t <sub>c</sub>	
Peak flow rate	q <sub>p</sub>	0.066	0.000	0.066	From A, P <sub>24</sub> , q*	
Runoff Depth	Q <sub>24</sub>	125	73	125	From P <sub>24</sub> , I <sub>a</sub> , S	
Runoff Volume	V <sub>24</sub>	385	0	385	From Q <sub>24</sub>	
			0.066		<= Total Peak Flow	
			385.3		<= Total Runoff Volume	

TP108 Calculations		10 yr post dev pervic			30-40 Sandspit Rd, Cockle Bay	
		Weighted CN	Pervious	Impervious	Notes	
Channelisation Factor ( Pipe)	C	0.6	0.6	0.6	From Table 4.2 TP108	Calculate Value (see below)
Slope	S <sub>c</sub>	0.05	0.05	0.05	From equal area method	Measured Value
Curve Number	CN	74.00	74.00	98.00	From TP108	Self Calculating
Rainfall depth	P <sub>24</sub>	147	147	147	From TP108 Isohyets	Area (ha) => 0.234
Area (km2)	A	0.002	0.0023	0.0000	Measured	% Imperviousness => 0%
Length	km	0.03	0.03	0.05	Measured	
Initial Abstraction	I <sub>a</sub>	5.00	5.00	0.00	From Table 3.1 TP108	% Perviousness => 100%
Soil Storage	S	89.24	89.24	5.18	From CN	Weighted CN => 74.00
Time of Concentration	t <sub>c</sub>	0.17	0.17	0.17	uses C, L, CN, S	Min of 0.17 from TP108
Runoff index	c*	0.43	0.43	0.93	From P <sub>24</sub> , I <sub>a</sub> , S	
Specific peak flow rate	q*	0.11	0.11	0.16	From c*, t <sub>c</sub>	
Peak flow rate	q <sub>p</sub>	0.041	0.039	0.000	From A, P <sub>24</sub> , q*	
Runoff Depth	Q <sub>24</sub>	87	87	142	From P <sub>24</sub> , I <sub>a</sub> , S	
Runoff Volume	V <sub>24</sub>	216	204	0	From Q <sub>24</sub>	
			0.039		<= Total Peak Flow	
			203.6		<= Total Runoff Volume	

TP108 Calculations		10 yr post dev imp			30-40 Sandspit Rd, Cockle Bay	
		Weighted CN	Pervious	Impervious	Notes	
Channelisation Factor ( Pipe)	C	0.6	0.6	0.6	From Table 4.2 TP108	Calculate Value (see below)
Slope	S <sub>c</sub>	0.05	0.05	0.05	From equal area method	Measured Value
Curve Number	CN	98.00	74.00	98.00	From TP108	Self Calculating
Rainfall depth	P <sub>24</sub>	147	147	147	From TP108 Isohyets	Area (ha) => 0.308
Area (km2)	A	0.003	0.0000	0.0031	Measured	% Imperviousness => 100%
Length	km	0.0	0.0	0.03	Measured	
Initial Abstraction	I <sub>a</sub>	0.00	5.00	0.00	From Table 3.1 TP108	% Perviousness => 0%
Soil Storage	S	5.18	89.24	5.18	From CN	Weighted CN => 98.00
Time of Concentration	t <sub>c</sub>	0.17	0.17	0.17	uses C, L, CN, S	Min of 0.17 from TP108
Runoff index	c*	0.93	0.43	0.93	From P <sub>24</sub> , I <sub>a</sub> , S	
Specific peak flow rate	q*	0.16	0.11	0.16	From c*, t <sub>c</sub>	
Peak flow rate	q <sub>p</sub>	0.068	0.000	0.075	From A, P <sub>24</sub> , q*	
Runoff Depth	Q <sub>24</sub>	142	87	142	From P <sub>24</sub> , I <sub>a</sub> , S	
Runoff Volume	V <sub>24</sub>	398	0	438	From Q <sub>24</sub>	
			0.075		<= Total Peak Flow	
			437.6		<= Total Runoff Volume	

## 100-year ARI

## TP108 Calculations

100 yr prede perviou 30-40 Sandspit Rd, Cockle Bay

		Weighted CN	Pervious	Impervious	Notes	
Channelisation Factor ( Pipe)	C	0.6	0.6	0.6	From Table 4.2 TP108	Calculate Value (see below)
Slope	S <sub>c</sub>	0.05	0.05	0.05	From equal area method	Measured Value
Curve Number	CN	74.00	74.00	98.00	From TP108	Self Calculating
Rainfall depth	P <sub>24</sub>	200	200	200	From TP108 Isohyets	Area (ha) => 0.234
Area (km2)	A	0.002	0.0023	0.0000	Measured	% Imperviousness => 0%
Length	km	0.0	0.0	0.05	Measured	
Initial Abstraction	I <sub>a</sub>	5.00	5.00	0.00	From Table 3.1 TP108	% Perviousness => 100%
Soil Storage	S	89.24	89.24	5.18	From CN	Weighted CN => 74.00
Time of Concentration	t <sub>c</sub>	0.17	0.17	0.17	uses C, L, CN, S	Min of 0.17 from TP108
Runoff index	c*	0.52	0.52	0.95	From P <sub>24</sub> , I <sub>a</sub> , S	
Specific peak flow rate	q'	0.13	0.13	0.17	From c', t <sub>c</sub>	
Peak flow rate	q <sub>p</sub>	0.059	0.059	0.000	From A, P <sub>24</sub> , q'	
Runoff Depth	Q <sub>24</sub>	134	134	195	From P <sub>24</sub> , I <sub>a</sub> , S	
Runoff Volume	V <sub>24</sub>	312	312	0	From Q <sub>24</sub>	
			0.059			<= Total Peak Flow
			312.4			<= Total Runoff Volume

## TP108 Calculations

100 yr prede imperv 30-40 Sandspit Rd, Cockle Bay

		Weighted CN	Pervious	Impervious	Notes	
Channelisation Factor ( Pipe)	C	0.6	0.6	0.6	From Table 4.2 TP108	Calculate Value (see below)
Slope	S <sub>c</sub>	0.05	0.05	0.05	From equal area method	Measured Value
Curve Number	CN	74.00	74.00	98.00	From TP108	Self Calculating
Rainfall depth	P <sub>24</sub>	200	200	200	From TP108 Isohyets	Area (ha) => 0.308
Area (km2)	A	0.003	0.0000	0.0031	Measured	% Imperviousness => 0%
Length	km	0.03	0.03	0.05	Measured	
Initial Abstraction	I <sub>a</sub>	5.00	5.00	0.00	From Table 3.1 TP108	% Perviousness => 100%
Soil Storage	S	89.24	89.24	5.18	From CN	Weighted CN => 74.00
Time of Concentration	t <sub>c</sub>	0.17	0.17	0.17	uses C, L, CN, S	Min of 0.17 from TP108
Runoff index	c*	0.52	0.52	0.95	From P <sub>24</sub> , I <sub>a</sub> , S	
Specific peak flow rate	q'	0.13	0.13	0.17	From c', t <sub>c</sub>	
Peak flow rate	q <sub>p</sub>	0.078	0.000	0.102	From A, P <sub>24</sub> , q'	
Runoff Depth	Q <sub>24</sub>	134	134	195	From P <sub>24</sub> , I <sub>a</sub> , S	
Runoff Volume	V <sub>24</sub>	412	0	601	From Q <sub>24</sub>	
			0.102			<= Total Peak Flow
			600.8			<= Total Runoff Volume

## TP108 Calculations

100 yr post dev perv 30-40 Sandspit Rd, Cockle Bay

		Weighted CN	Pervious	Impervious	Notes	
Channelisation Factor ( Pipe)	C	0.6	0.6	0.6	From Table 4.2 TP108	Calculate Value (see below)
Slope	S <sub>c</sub>	0.05	0.05	0.05	From equal area method	Measured Value
Curve Number	CN	74.00	74.00	98.00	From TP108	Self Calculating
Rainfall depth	P <sub>24</sub>	234	234	234	From TP108 Isohyets	Area (ha) => 0.234
Area (km2)	A	0.002	0.0023	0.0000	Measured	% Imperviousness => 0%
Length	km	0.03	0.03	0.05	Measured	
Initial Abstraction	I <sub>a</sub>	5.00	5.00	0.00	From Table 3.1 TP108	% Perviousness => 100%
Soil Storage	S	89.24	89.24	5.18	From CN	Weighted CN => 74.00
Time of Concentration	t <sub>c</sub>	0.17	0.17	0.17	uses C, L, CN, S	Min of 0.17 from TP108
Runoff index	c*	0.56	0.56	0.96	From P <sub>24</sub> , I <sub>a</sub> , S	
Specific peak flow rate	q'	0.13	0.13	0.17	From c', t <sub>c</sub>	
Peak flow rate	q <sub>p</sub>	0.077	0.073	0.000	From A, P <sub>24</sub> , q'	
Runoff Depth	Q <sub>24</sub>	165	165	229	From P <sub>24</sub> , I <sub>a</sub> , S	
Runoff Volume	V <sub>24</sub>	408	385	0	From Q <sub>24</sub>	
			0.073			<= Total Peak Flow
			384.8			<= Total Runoff Volume

TP108 Calculations		100 yr post dev imp	30-40 Sandspit Rd, Cockle Bay				
		Weighted CN	Pervious	Impervious	Notes		
Channelisation Factor (Pipe)	C	0.6	0.6	0.6	From Table 4.2 TP108		Calculate Value (see below)
Slope	S <sub>0</sub>	0.05	0.05	0.05	From equal area method		Measured Value
Curve Number	CN	98.00	74.00	98.00	From TP108		Self-Calculating
Rainfall depth	P <sub>24</sub>	234	234	234	From TP108 isohyets	Area (ha) =>	0.308
Area (km <sup>2</sup> )	A	0.003	0.0000	0.0031	Measured	% Imperviousness =>	100%
Length	km	0.0	0.0	0.03	Measured		
Initial Abstraction	I <sub>a</sub>	0.00	5.00	0.00	From Table 3.1 TP108	% Perviousness =>	0%
Soil Storage	S	5.18	89.24	5.18	From CN	Weighted CN =>	98.00
Time of Concentration	t <sub>c</sub>	0.17	0.17	0.17	uses C, L, CN, S	Min of 0.17 from TP108	
Runoff index	c*	0.96	0.56	0.96	From P <sub>24</sub> , I <sub>a</sub> , S		
Specific peak flow rate	q*	0.17	0.13	0.17	From c*, t <sub>c</sub>		
Peak flow rate	q <sub>p</sub>	0.114	0.000	0.119	From A, P <sub>24</sub> , q*		
Runoff Depth	Q <sub>24</sub>	229	165	229	From P <sub>24</sub> , I <sub>a</sub> , S		
Runoff Volume	V <sub>24</sub>	673	0	706	From Q <sub>24</sub>		
			0.119		<= Total Peak Flow		
			705.6		<= Total Runoff Volume		



Figure 1 Flooded properties in the three storm events in 2018 at Cockle Bay<sup>74</sup>

<sup>74</sup> The conference paper entitled "Quantifying the contribution of rainfall and tide levels on flooding in low-lying coastal areas" by Cheryl Bai (Auckland Council) and Josh Irvine (WSP Opus); 2019 Stormwater Conference & Expo.