I hereby give notice that a hearing by commissioners will be held on:

Date:	**Thursday 31 August 2023**
Time:	**9.30am**
Meeting room:	**Leslie Comrie Board Room**
Venue:	**Second Floor, Franklin: The Centre** **12 Massey Road, Pukekohe, Auckland**

PRIVATE PLAN CHANGE 87

HEARING REPORT

301 AND 303 BUCKLAND ROAD, PUKEKOHE

PUKEKOHE LIMITED

COMMISSIONERS

Chairperson	**Dave Sergeant**
Commissioners	**Michael Parsonson**
	Nigel Mark-Brown

Sidra Khan
KAITOHUTOHU WHAKAWĀTANGA
HEARINGS ADVISOR

Telephone: 09 890 8801 or 021 591 786
Email: sidra.khan@aucklandcouncil.govt.nz
Website: www.aucklandcouncil.govt.nz

WHAT HAPPENS AT A HEARING

Te Reo Māori and Sign Language Interpretation
Any party intending to give evidence in Māori or NZ sign language should advise the hearings advisor at least ten working days before the hearing so a qualified interpreter can be arranged.

Hearing Schedule
If you would like to appear at the hearing please return the appearance form to the hearings advisor by the date requested. A schedule will be prepared approximately one week before the hearing with speaking slots for those who have returned the appearance form. If changes need to be made to the schedule the hearings advisor will advise you of the changes.
Please note: during the course of the hearing changing circumstances may mean the proposed schedule may run ahead or behind time.

Cross Examination
No cross examination by the applicant or submitters is allowed at the hearing. Only the hearing commissioners are able to ask questions of the applicant or submitters. Attendees may suggest questions to the commissioners and they will decide whether or not to ask them.

The Hearing Procedure
The usual hearing procedure is:

- **The chairperson** will introduce the commissioners and will briefly outline the hearing procedure. The Chairperson may then call upon the parties present to introduce themselves. The Chairperson is addressed as Madam Chair or Mr Chairman.
- **The applicant** will be called upon to present their case. The applicant may be represented by legal counsel or consultants and may call witnesses in support of the application. After the applicant has presented their case, members of the hearing panel may ask questions to clarify the information presented.
- **Submitters** (for and against the application) are then called upon to speak. Submitters' active participation in the hearing process is completed after the presentation of their evidence so ensure you tell the hearing panel everything you want them to know during your presentation time. Submitters may be represented by legal counsel or consultants and may call witnesses on their behalf. The hearing panel may then question each speaker.
    - Late submissions: The council officer's report will identify submissions received outside of the submission period. At the hearing, late submitters may be asked to address the panel on why their submission should be accepted. Late submitters can speak only if the hearing panel accepts the late submission.
    - Should you wish to present written evidence in support of your submission please ensure you provide the number of copies indicated in the notification letter.
- **Council Officers** will then have the opportunity to clarify their position and provide any comments based on what they have heard at the hearing.
- The applicant or their representative has the right to summarise the application and reply to matters raised by submitters. Hearing panel members may further question the applicant at this stage. The applicants reply may be provided in writing after the hearing has adjourned.
- **The chair** will outline the next steps in the process and adjourn or close the hearing.
- If adjourned the hearing panel will decide when they have enough information to make a decision and close the hearing. The hearings advisor will contact you once the hearing is closed.

Please note
- that the hearing will be audio recorded and this will be publicly available after the hearing
- catering is not provided at the hearing.

A NOTIFIED PRIVATE PLAN CHANGE TO THE AUCKLAND UNITARY PLAN BY PUKEKOHE LIMITED

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Reporting officer, Jimmy Zhang, Senior Planner

Reporting on proposed Private Plan Change 87 - 301 and 303 Buckland Road, Pukekohe. This private plan change aims to rezone 7.8 hectares of land at 301 and 303 Buckland Road, Pukekohe from the Future Urban Zone to the Business – General Business Zone.

APPLICANT: PUKEKOHE LIMITED

SUBMITTERS:	
Page 940	Buckland Road Trustees Limited C/- Ann Zhou
Page 942	Auckland Thoroughbred Racing Inc C/- Glaister Ennor
Page 944	Auckland Transport C/- Mathew Ford
Page 961	EnviroWaste Services Ltd C/- Kaaren Rosser
Page 964	Nomita Singh C/o Mark Benjamin, Mt Hobson Group
Page 968	Hira Bhana & Co. C/- Bharat Hira Bana

FURTHER SUBMITTERS:	
Page 971	Auckland Transport C/- Mathew Ford

Hearing Report for Proposed Private Plan Change 87: 301 and 303 Buckland Road, Pukekohe to the Auckland Unitary Plan (Operative in part)

Report to:	Hearing Commissioners
Hearing Date/s:	31 August 2023
File No:	Hearing Report – Proposed Private Plan Change 87
File Reference	S42A Report PC87
Report Author	Jimmy Zhang, Reporting Planner, Plans and Places
Report Approvers	Craig Cairncross, Team Leader Central and South Planning, Plans and Places
Report produced	31 July 2023

Summary of Proposed Private Plan Change 87 - 301 and 303 Buckland Road, Pukekohe

Plan subject to change	Auckland Unitary Plan (Operative in part), 2016
Number and name of change	Proposed Private Plan Change 87 – 301 and 303 Buckland Road, Pukekohe to the Auckland Unitary Plan (Operative in part)
Status of Plan	Operative in part
Type of change	Private Plan Change
Clause 25 decision outcome	Accepted under delegation by the Manager Central South on 6 September 2022
Parts of the Auckland Unitary Plan affected by the proposed plan change	AUP Maps (zoning)
Date of notification of the proposed plan change and whether it was publicly notified or limited notified	27 October 2022 (public notification)
Submissions received (excluding withdrawals)	6
Date summary of submissions notified	10 February 2023
Number of further submissions received (numbers)	1
Legal Effect at Notification	No
Main issues or topics emerging from all submissions	• Change of zoning; • Delivery of transport upgrades; • Reverse sensitivity; • Ensuring infrastructure (roading, water, stormwater and wastewater) are provided for; and • Funding of infrastructure.

CONTENTS

Abbreviations

Abbreviations in this report include:

Abbreviation	Meaning
Applicants	Pukekohe Limited
AEE	Assessment of Environmental Effects
AT	Auckland Transport
AUP	Auckland Unitary Plan (Operative in Part)
Council	Auckland Council
CVA	Cultural Values Assessment
FULSS	Future Urban Land Supply Strategy 2017
FUZ	Future Urban Zone
GBZ	Business – General Business Zone
ITA	Integrated Transport Assessment
LIZ	Business – Light Industry Zone
NDC	Network Discharge Consent
NES-CS	National Environmental Standard on assessing and managing contaminants into soil to protect human health
NPS-FM	National Policy Statement on Freshwater Management 2020
NPS-HPL	National Policy Statement for Highly Productive Land
NPS-UD	National Policy Statement for Urban Development 2020
PC87	Proposed Private Plan Change 87
PPSP	Pukekohe - Paerata Structure Plan
RMA	Resource Management Act 1991
RPS	Regional Policy Statement (AUP)
RPZ	Rural – Rural Production Zone
SMAF1	Stormwater Management Area Control – Flow 1
MRFZ	Special Purpose - Major Recreation Facility Zone

Attachments	
Appendix 1	**Proposed Private Plan Change 87 – Documents as notified**
Appendix 2	**Further information requests and response**
Appendix 3	**Submissions and Further Submissions**
Appendix 4	**Statutory Matters**
Appendix 5	**Specialist peer review reports**

1 Executive Summary

1. Proposed Private Plan Change 87 ('**PC87**' or '**Plan Change**') to the Auckland Unitary Plan (Operative in Part) ('**AUP**') seeks to rezone approximately 7.8 ha of land at 301 and 303 Buckland Road in Pukekohe (refer to Figure 1) from Future Urban Zone ('**FUZ**') to Business – General Business Zone ('**GBZ**') (refer to Figure 2 and 3).

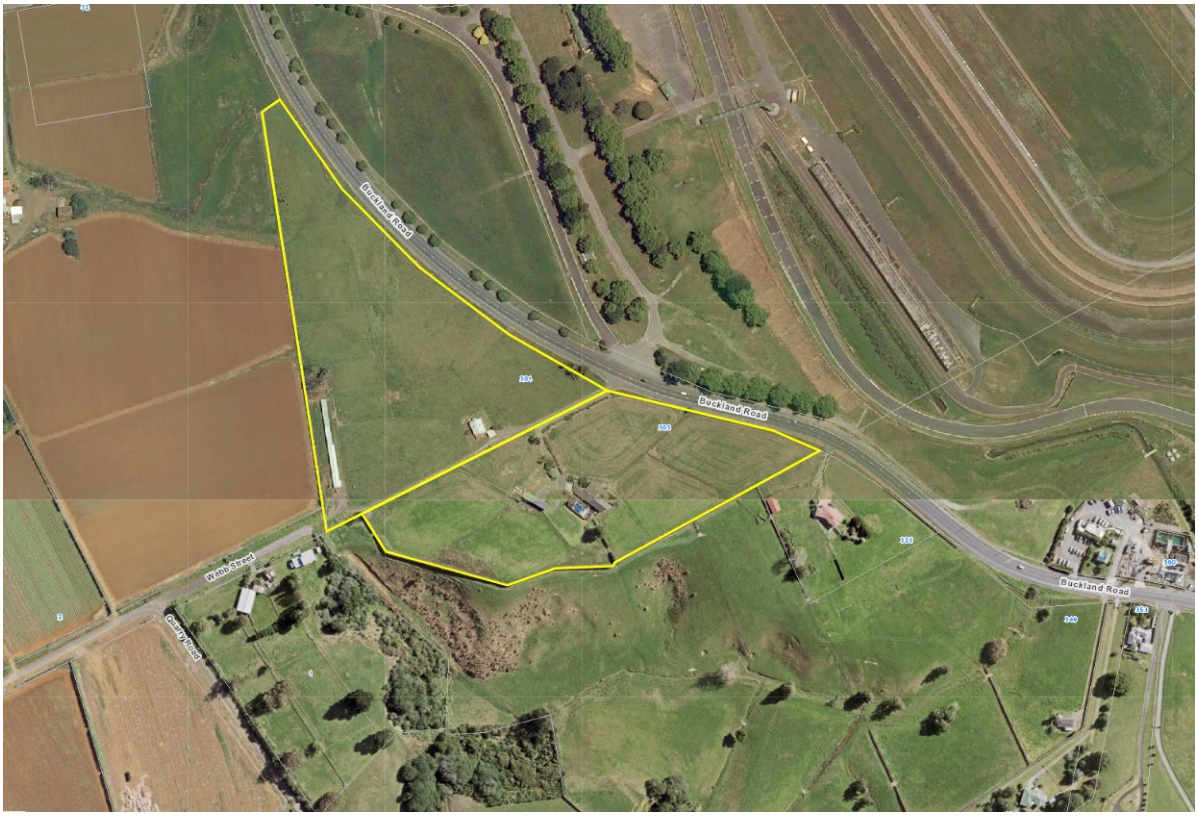

Figure 1 – 301 and 303 Buckland Road (showing the plan change area within the yellow lines)

Figure 2 – Current Future Urban Zoning

Figure 3 –Proposed Business - General Business Zoning

2. Pukekohe Limited ('**the applicant**') lodged the private plan change request on 26 January 2022.

3. Further information was sought from the applicant by the council in accordance with Clause 23 of Schedule 1 to the RMA on 18 February 2022. The applicant responded to the Clause 23 request on 22 April 2022.

4. A second request for further information in accordance with Clause 23 (2) was sent to the applicant on 11 May 2022.

5. Following receipt of the second further information request on 15 June 2022, the plan change was accepted for processing under Clause 25(2)(b) of Schedule 1 to the RMA on 6 September 2022. The notification determination to fully notify the plan change under Clauses 5 and 5A(2) of Part 1 of Schedule 1 to the RMA was made on 19 September 2022.

6. PC87 was publicly notified on 27 October 2022, with the submissions period closing on 1 December 2022.

7. A total of 6 submissions were received. This includes one late submission (Submission #6 from Hira Bhana & Co), which was accepted under delegated authority. The summary of decisions requested was notified on 10 February 2023 with the period for further submissions closing on 24 February 2023. One further submission was received. Submissions and further submissions are provided in **Appendix 3**.

8. This hearing report has been prepared in accordance with section 42A of the RMA.

9. This report considered the issues raised by submissions and further submissions on PC87. The discussion and draft recommendations in this report are intended to assist the Hearing Commissioners, and submitters on PC87.

10. The recommendations contained within this report are <u>not</u> the decisions of the Hearing Commissioners.

11. In order to confirm that the proposed rezoning (to the General Business Zone) is the most appropriate way of achieving the objectives of the AUP and the purpose of the RMA, I recommend the following modifications:

    - Introduce a precinct (including a precinct plan) over the plan change area to manage transport related effects; and

    - Introduce the Stormwater Management Area: Flow 1 control over the plan change area.

12. In accordance with the conclusions reached as part of my evaluation in this report, my draft recommendation is that PC87 be approved with modifications for the reasons set out in sections 5 and 6 of this report.

2 HEARINGS AND DECISION-MAKING CONSIDERATIONS

13. Clause 8B (read together with Clause 29) of Schedule 1 of RMA requires that a local authority shall hold hearings into submissions on its proposed private plan change. Auckland Council's Combined Chief Executives' Delegation Register delegates to hearing commissioners all powers, duties and functions under s34 of the RMA. This delegation includes the authority to determine decisions on submissions on a plan change, and the authority to approve, decline,

or approve with modifications, a private plan change request. The Panel will not be recommending a decision to the council but will be making the decision directly on PC87.

14. Private plan change requests can be made to the council under Clause 21 of Schedule 1 of the RMA. The provisions of a private plan change request must comply with the same mandatory requirements as council-initiated plan changes.

15. The RMA requires territorial authorities to consider a number of statutory and policy matters when developing proposed plan changes. PC87 mainly relates to district plan matters (stormwater is one matter that relates to regional plan provisions).

16. The statutory framework within which the Hearings Commissioners will consider the plan change is as outlined in **Appendix 4**. In brief, Section 32(1)(a) of the RMA requires an assessment of whether the objectives of a plan change are the most appropriate way for achieving the purpose of the RMA in Part 2. Section 72 also states that the purpose of the preparation, implementation, and administration of district plans is to assist territorial authorities to carry out their functions in order to achieve the purpose of the Act and Section 74 provides that a territorial authority must prepare and change its district plan in accordance with the provisions of Part 2 and requires that a plan change must have particular regard to an evaluation prepared in accordance with Section 32. Section 32 of the RMA requires an evaluation report examining the extent to which the objectives of the plan change are the most appropriate way to achieve the purpose of the Act and requires that report to examine whether the provisions are the most appropriate way of achieving the objectives. Section 32AA requires a further evaluation for any changes that are proposed to the notified plan change after the section 32 evaluation was carried out.

17. The applicant has prepared an assessment against Section 32. I consider that assessment to be generally sound and appropriate. However, I do not go as far as adopting it, as there are issues that in my opinion require further attention. These matters are discussed through this report. This report forms part of council's ongoing obligations under section 32 and, as relevant, Section 32AA, to consider the appropriateness of the proposed provisions, and the benefits and costs of any policies, rules or other methods, as well as the consideration of issues raised in submissions on PC87.

18. In accordance with s42A (1) of the RMA, this report considers the information provided by the applicant and summarises and discusses submissions received on PC87. It makes recommendations on whether to accept, in full or in part; or reject; each submission. The report also identifies what amendments to the PC87 provisions are recommended, if any, to address matters raised in submissions. Finally, the report makes a recommendation on whether to approve, decline, or approve with modifications PC87.

3 BACKGROUND

3.1 Plan change area

19. The land subject to the plan change request ('**plan change area**') comprises of two neighbouring properties at 301 and 303 Buckland Road and is approximately 7.8 hectares in total area. The ownership and legal descriptions are set out below.

Street Address	**301 Buckland Road, Pukekohe**	**303 Buckland Road, Pukekohe**
Legal Description	Pt Lot 1, DP 3363 – NA56A/559	Lot 1, DP 64805 – NA21A/288
Site Owner	Peterex Properties Limited	Pukekohe Limited
Site Area (ha)	4.3639 ha	3.5038 ha

Table 1: Legal description, ownership and site area

20. The majority of the plan change area is currently comprised of pasture. There is a single dwelling and livestock sheds at 301 Buckland Road. The neighbouring property of 303 Buckland Road has a single dwelling with residential amenities and a stable building. Topography across the plan change area is mainly flat to undulating pastoral farmland with rolling sides which dip towards Buckland Road to the east. The predominant vegetation cover is pasture, with limited hedging, amenity plantings and trees. The plan change area straddles two catchments and overland flow paths drain towards Manukau Road and Buckland Road, eventually passing through culverts towards Tutaenui Stream which flows into the Whakapipi Stream and eventually into the Waikato River.

21. The plan change area is bordered by Buckland Road to the east with Pukekohe Park being located across the road, rural land adjoining to the west, Future Urban Zone land adjoining to the south and business land to the north.

22. Generally, the wider landscape to the south and west is made up of rural land for agricultural production with scatterings of rural lifestyle blocks and farmsteads. Towards the north and east are urban land uses such as Pukekohe Park and business land which straddle both sides of Manukau and Buckland Road.

23. The land uses which surround the plan change area are:

- Pukekohe Park, a horse racing, motor racing and community events facility is located directly across Buckland Road. The zoning is Special Purpose – Major Recreation Facility ('**MRFZ**');
- Adjoining the plan change area to the west is rural land used for commercial horticultural. The zoning is Rural – Rural Production Zone ('**RPZ**');
- To the north is a mix of large format retail and industrial land uses just outside of the Pukekohe Town Centre. The zoning includes the LIZ and the GBZ; and
- Future Urban zoned land adjoins the plan change area to the south and includes uses such as livestock grazing, lifestyle blocks (typically with single dwellings) and ancillary buildings associated with rural land uses.

24. Buckland Road is a rural road running in a north-south alignment connecting to Manukau Road to the north and George Street, Tuakau to the south. It currently has an approximate carriageway width of 16 metres, accommodating one traffic lane in each direction. There are currently no pedestrian footpaths on either side of Buckland Road near the vicinity of the plan change area.

25. The plan change area has good road connectivity to the wider Auckland Region. It is approximately 1.7 kilometres south of the Pukekohe town centre, and 8.5 kilometres west of the SH1 and Mill Road interchange. The interchange then connects to the Waikato expressway extending between Waikato to the south and Auckland to the north. In respect of public transport, the plan change area is 1.2km from the Pukekohe Rail Station and the nearest bus stop is approximately 800m north of the plan change area (used by the 393 service which connects to the town centre and train station).

26. The current AUP zoning is the FUZ. The plan change area is also subject to the following controls:

- Natural Resources: High-Use Aquifer Management Areas Overlay [rp] - Pukekohe Kaawa Aquifer;
- Natural Resources: High-Use Aquifer Management Areas Overlay [rp] - Pukekohe Central Volcanic;
- Natural Resources: Quality-Sensitive Aquifer Management Areas Overlay [rp] - Franklin Volcanic Aquifer; and

- Controls: Macroinvertebrate Community Index – Rural.

3.2 Approved resource consents

27. There are two approved resource consents within the plan change area allowing for a trade supplier (warehouse and distribution centre) and industrial service storage yard.

28. A land use consent was approved on the 21 April 2021 at 303 Buckland Road, Pukekohe to authorise the use of up to 4,320m^2 of the land as an industrial service storage yard for a period of 10 years. The approved site plan is shown in Figure 4 below.

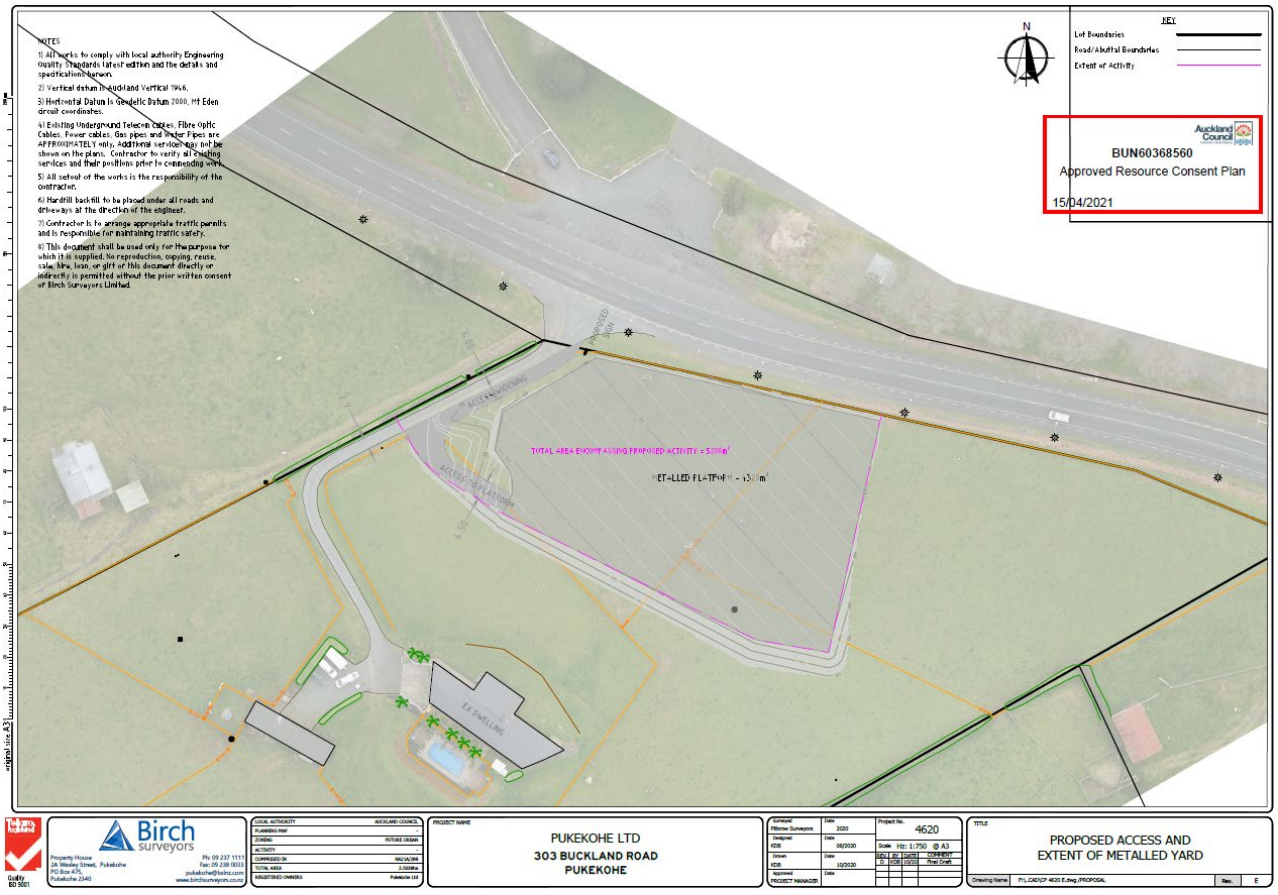

Figure 4: BUN60368560 (LUC60368561(s9 land use consent)) consent for 303 Buckland Road.

29. Several consents (land use, subdivision, stormwater discharge and consent under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) were approved on 9 September 2019 for 301 Buckland Road, Pukekohe to authorise the construction and operation of a purpose-built warehouse and distribution centre for a Trader Supplier activity. The subdivision component provided for the extension of Webb Street through to Buckland Road. The approved site plan is shown in Figure 5 below.

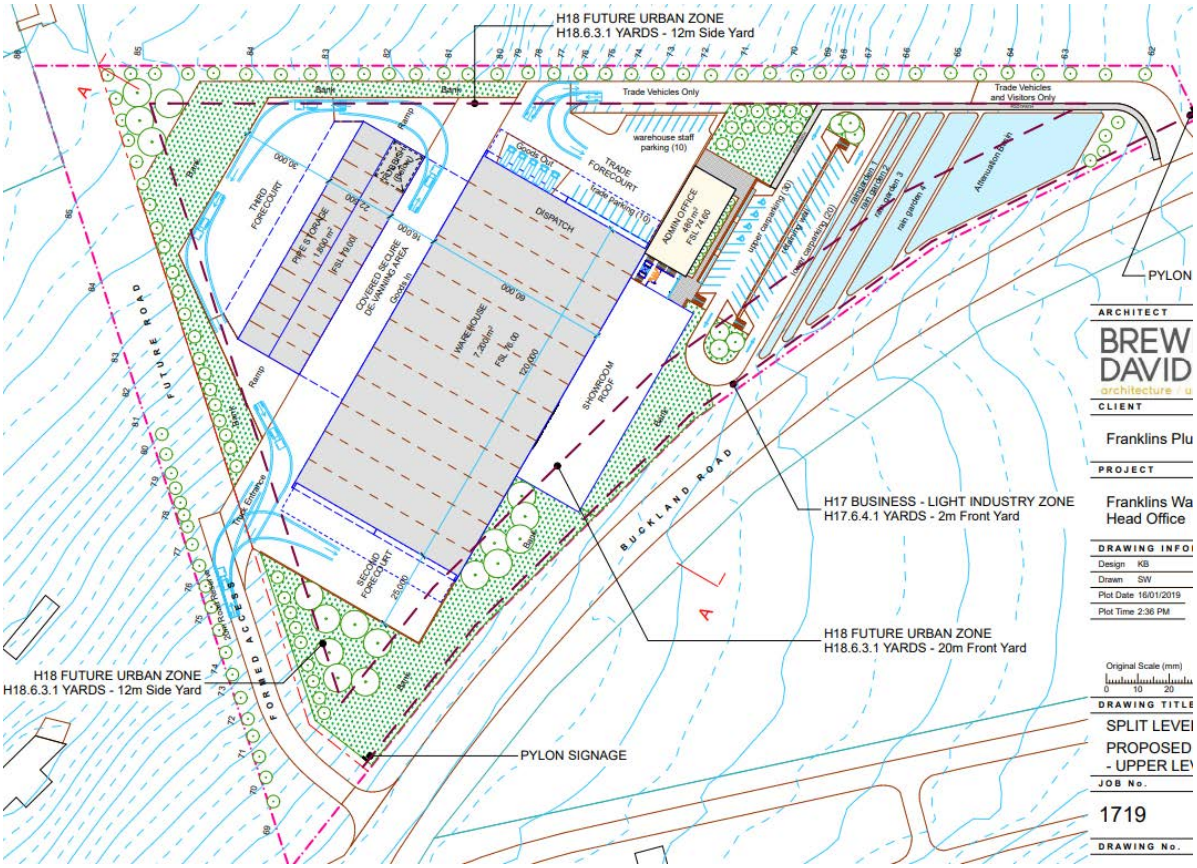

Figure 5: BUN60333645 (LUC60325312, SUB60333646, and DIS60340705) consent for 301 Buckland Road

30. It is understood that neither of the resource consents has yet been implemented.

3.3 Proposed plan change provisions

31. The current AUP zoning for the plan change area is the FUZ. The purpose of the FUZ is to indicate the suitability of land for future urban development and to facilitate future urbanisation in the most efficient and orderly manner possible. The FUZ provides for a range of interim rural activities typical of those undertaken in rural area, with some exceptions, prior to urban development of the land being enabled.

32. The proposed zoning is the GBZ. The purpose of the GBZ is to accommodate activities such as trade-based suppliers and large format retailers that may not be appropriate for, or are unable to locate in, centres.

33. Aside from the zoning change, no other changes to the AUP are proposed by the applicant. PC87 as notified seeks to rely on the zone and Auckland-wide provisions to manage the way in which the plan change area is used and developed.

34. To support the plan change, the applicant has provided a comprehensive application which includes the following documents (**Appendix 1**):

- Private Plan Change Request Assessment of Environmental Effects, prepared by Scott Wilkinson Planning, dated January 2022
- Section 32 Evaluation, prepared by Scott Wilkinson Planning, dated January 2022
- Attachment 1: Record of Title
- Attachment 2: Plan Change Rezoning Map

- Attachment 3(i): 301 Buckland Road Consent Granted
- Attachment 3(ii): 303 Buckland Road Consent Granted
- Attachment 5: H14 Business – General Business Zone
- Attachment 6: Geotechnical report, prepared by Initia Geotechnical Specialists, dated September 2021
- Attachment 6(i): Preliminary Site Investigation – 301 Buckland Road, prepared by Geosciences Limited, dated 16 November 2018
- Attachment 6(ii): Detailed Site Investigation – 301 Buckland Road, prepared by Geosciences Limited, dated 15 January 2019
- Attachment 6(iii): Preliminary Site Investigation – 303 Buckland Road, prepared by Environmental Management Solutions, dated 29 September 2020
- Attachment 6(iv): Contamination Assessment, prepared by Environmental Management Solutions, dated 4 October 2021
- Attachment 7: Water Supply and Wastewater Assessment, prepared by Birch Surveyors, dated 10 November 2021
- Attachment 8: Stormwater Report, prepared by Birch Surveyors, dated 16 December 2021
- Attachment 9: Integrated Transportation Assessment Report, prepare by Commute Transportation Consultants, dated 3 November 2021
- Attachment 10: Economic Cost Benefit Analysis, prepared by Urban Economics, dated 1 October 2021
- Attachment 11(i): Cultural Values Assessment Report – Ngati Te Ata, dated November 2021
- Attachment 11(ii): Cultural Values Assessment Report – Ngati Tamaoho Trust, dated October 2021
- Attachment 12: Regional Policy Statement – Urban Growth and Form

35. On 18 February 2022, prior to accepting PC87 for processing, the council requested that the applicant provide further information in accordance with Clause 23 of Schedule 1 to the RMA. This request is included in **Appendix 2**. The purpose of the further information request was to enable council to better understand the effects of the plan change on the environment and the ways in which adverse effects may be mitigated. The key information sought related to the following matters:

- Planning;
- Economics; and
- Transport.

36. The applicant responded to the Clause 23 request on 22 April 2022. This response is included in **Appendix 2**. In response to the Clause 23 request, the applicant provided the following material:

- Responses to the Further Information Request for planning matters;

- Response to the Further Information Request for economics matters, prepared by Urban Economics, dated 3 April 2022; and
- Response to the Further Information Request for transport matters, prepared by Commute, dated 11 April 2022.

37. On 11 May 2022, the council requested that the applicant provide additional further information in accordance with Clause 23(2) of Schedule 1 to the RMA. The purpose of the further information request was solely related to transport matters. The request and response are both included in **Appendix 2**.

38. Having reviewed the applicant's Clause 23 responses, I considered that the further information requests have been satisfied. The plan change request was accepted for processing under Clause 25(2)(b) of Part 2 of Schedule 1 to the RMA on 6 September 2022. The notification determination to fully notify the plan change under Clauses 5 and 5A(2) of Part 1 of Schedule 1 to the RMA was made on 19 September 2022.

3.4 Consultation

39. A summary of the consultation undertaken in preparing PC87 is provided in Section 7 of the AEE which outlines specific parties who were consulted with.

3.4.1 Mana Whenua

40. The Mana Whenua groups identified on Auckland Council's mapping whose rohe covers the plan change area include:
    - Ngāti Tamaoho
    - Ngāti Te Ata
    - Te Ākitai Waiohua
    - Ngāi Tai ki Tāmaki
    - Waikato – Tainui
    - Ngāti Maru
    - Te Ahiwaru - Waiohua

41. The engagement process with mana whenua prior to lodgement has been set out in section 7.1 of the AEE. The AEE notes that a consultation pack was sent to each of the iwi authorities which included a summary of the proposed plan change and preliminary findings from all specialists. Responses were received from Ngāti Te Ata and Ngāti Tamaoho who sought further engagement in the plan change process.

42. Ngāti Te Ata and Ngāti Tamaoho have prepared Cultural Value Assessments ('**CVA**') which are attached with the application. Section 7.1.1 and Section 7.1.2 of the AEE has summarised the matters of concern and interest set out in the CVA's.

43. On 27 October 2022, Auckland Council sent letters (via e-mail) to the seven iwi identified above to inform them that PC87 is to be publicly notified. The letter included a description of PP87, a copy of the public notice and a link to the plan change documentation and submission page on council's website. No submissions from Mana Whenua on the notified plan change were received.

3.4.2 Franklin Local Board

44. Following the close of submissions, Auckland Council Plans and Places staff sought the Franklin Local Board's feedback at the Board's business meeting on 27 July 2023. The Board resolved to provide the following views[1] :

That the Franklin Local Board:

a) whakarite / provide local board views on Plan Change 87 by Pukekohe Ltd for 301 and 303 Buckland Road, Pukekohe as follows:

i) support the proposed plan change, and note the board's preference that the site be developed to accommodate light industrial versus general business as this would deliver better employment opportunity outcomes for locals, and would align better with activity on adjacent land that business that is retail-based.

ii) consider that a reasonable buffer zone is appropriate if planted suitably, however note that there are likely to be some issues between urban business and food production (rural business) activities. It will be important that developers design and develop the site in a way that considers adjacent activity i.e. mitigating through building positioning, planting etc and that future tenants understand and accept the implications of adjacent activities i.e. the need for extra cleaning, seasonal noise issues etc.

iii) recommend reference to the National Policy Statement for Highly Productive Land (NPS-HPL) 2022 (mitigation of reverse sensitivity to protect rural production)

b) decline the opportunity to appoint a local board member to speak to the local board views at a hearing on Plan Change 87.

4 Statutory and Policy Framework

45. The following sections summarise the statutory and policy framework as relevant to PC87.

4.1 Resource Management Act

4.1.1 Plan change matters – regional and district plans

46. Private plan change requests can be made to the Council under clause 21 of Schedule 1 of the RMA. The provisions of a private plan change request must comply with the same mandatory requirements as Council initiated plan changes, and the private plan change request must contain an evaluation report in accordance with section 32 and clause 22(1) in Schedule 1 of the RMA.

47. Clause 29(1) of Schedule 1 of the RMA provides "except as provided in subclauses (1A) to (9), Part 1, with all necessary modifications, shall apply to any plan or change requested under this Part and accepted under clause 25(2)(b)".

48. The RMA requires territorial authorities to consider a number of statutory and policy matters when developing proposed plan changes. There are slightly different statutory considerations if the plan change affects a regional plan or district plan matter.

49. The key directions of the RMA with regard to consideration of private plan changes are set out in Table 2 below.

[1] Franklin Local Board Meeting 27 July 2023, Resolution FR/2023/111.

Table 2: Sections of the RMA relevant to private plan change decision making

RMA Section	Matters
Part 2	Purpose and principles of the RMA
Section 31	Sets out the functions that territorial authorities shall have for the purpose of giving effect to the RMA in the territorial authority district
Section 32	Sets out the requirements for preparing and publishing evaluation reports
Section 72	Sets out that the purpose of the preparation, implementation and administration of district plans is to assist territorial authorities to carry out their functions in order to achieve the purpose of the RMA
Section 73	Provides that there must at all times be a district plan for the district prepared in the manner set out in the relevant Part of Schedule 1. Sets out the manner in which the district plan can be changed, and when it must be changed.
Section 74	Sets out the matters that must be considered by a territorial authority when preparing and changing its district plan. This includes its functions under section 31, the provisions of Part 2 of the RMA, a direction given under s25A(2), its obligation (if any) to prepare an evaluation report in accordance with s32, its obligation to have particularly regard to an evaluation report prepared in accordance with s32, a national policy statement, a New Zealand coastal policy statement, a national planning standard, and any regulations. It also sets out the documents that a territorial authority shall have regard to (which are in addition to the requirements of s75(3) and (4)).
Section 75	Outlines the mandatory and optional requirements for the contents of a district plan, specifies which documents a district plan must give effect to, and specifies which documents a district plan must not be inconsistent with.
Section 76	Provides that a territorial authority may include rules in a district plan for the purpose of – (a) carrying out its functions under the RMA; and (b) achieving the objectives and policies set out in the district plan.
Schedule 1	Sets out the process for preparation and change of policy statements and plans by local authorities and private plan change applications

50. **Appendix 4** provides a full list of relevant RMA matters that need to be taken into account in decision making. I specifically refer to these where relevant within my analysis in sections 5 and 6 below.

4.2 National Policy Statement on Urban Development 2021 and Resource Management (Enabling Housing Supply and Other Matters) Amendment Act

51. The National Policy Statement on Urban Development ('**NPS-UD**') came into force on the 20 August 2020. Auckland Council is a tier 1 local authority and is required to provide sufficient development capacity to meet expected demand for housing and business land over the short to long term.

52. Plan Change 78 ('**PC78**') is the council intensification planning instrument required to incorporate the medium density residential standards ('**MDRS**') into relevant residential zones, and to give effect to the NPS-UD. PC78 was notified in August 2022 and is part way through the statutory intensification streamlined planning process.

53. The NPS-UD is assessed in section 8.2.1 of the applicant's AEE. The assessment concludes that the plan change request seeks to give effect to the objectives and policies of the NPS-UD through:

- *Rezoning the land from the FUZ to the BGBZ;*
- *Enabling the growth of Pukekohe and catering for current demand and the anticipated future growth of the business sector in Pukekohe;*
- *Locating close to current business and future business areas that are well connected through proposed footpaths and roads;*

- *Providing for development which can be serviced by current or funded infrastructure which has been planned to enable growth in Pukekohe;*

- *Adopting the existing BGBZ provisions for consistency with other Auckland areas and to facilitate a employment focussed zone with quality urban design outcomes; and*

- *The ability to facilitate efficient development of key infrastructure to service the sites principally through the resource consent, engineering approval and building consent processes.*

54. I generally agree with the assessment, subject to the opinions I express later in this report.

4.3 National Policy Statement for Freshwater Management 2020

55. The National Policy for Freshwater Management ('**NPS-FM**') sets out the statutory framework for the management of freshwater. It requires that natural and physical resources are managed in a way that prioritises the health and well-being of water bodies and freshwater ecosystems, the health needs of people, and the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

56. The NPS-FM is assessed in section 8.2.2 of the applicant's AEE. The assessment concludes that the PPC will give effect to the NPS-FM given the lack of freshwater ecosystems within the plan change area, while the proposed approach to stormwater management will appropriately address any discharge of contaminants from the plan change area. I generally agree with this assessment.

4.4 National Policy Statement for Highly Productive Land 2022

57. PC87 was lodged in January 2022 when the National Policy Statement for Highly Productive Land ('**NPS-HPL**') was proposed. The NPS-HPL came into force on 17 October 2022.

58. The NPS-HPL requires a regional council to map highly productive land, but only in a general rural zone or rural production zone (NPS-HPL 3.4). Under Clause 3.4(2), land that is identified for future urban development must not be mapped as highly productive land. The plan change area is identified, through its FUZ zoning, for future urban development. Accordingly, this plan change is not inconsistent with the NPS-HPL on the basis that it is in an area identified for future urban development.

59. The rezoning proposed in PC87 is not considered to result in reserve sensitivity issues with the adjacent land being zoned for rural production. This is discussed in more detail in section 6.4 of this report in response to a submission on the matter.

4.5 National environmental standards or regulations

60. Under section 44A of the RMA, local authorities must observe national environmental standards ('**NES**') in their district / region. No rule or provision may be duplicated or in conflict with a national environmental standard or regulation.

61. Relevant NESs are:

- NES for Freshwater ('**NES-F**')
- NES for assessment and managing contaminants into soil to protect human health ('**NES-CS**')

62. The NES-F applies to development regardless of other plan provisions. If required, these standards will be applied at the development stage. There is nothing in PC87 as proposed to suggest that there will be a conflict, particularly noting the absence of any natural inland wetlands being identified in the area.

63. The NES-CS is mentioned in section 8.2.4 of the applicant's AEE. The AEE notes that both 301 and 303 Buckland Road have been subject to a Preliminary Site Investigation ('**PSI**'). It has been confirmed that the plan change area has been used for pastoral farming though it is unlikely that any Hazardous Activities and Industries List ('**HAIL**') activities have taken place in the area. This is discussed in more detail in section 5.5 of this report.

64. The requirements under the NES-CS and potentially Chapter E30 of the AUP (regarding Contaminated Land) would be triggered by any future development undertaken on those affected areas. The methods required to be followed to remediate the land can be addressed as part of any future resource consent applications to develop the plan change area.

4.6 Regional Policy Statement

65. Section 75(3)(c) of the RMA requires that a district plan must *give effect to* any regional policy statement (RPS).

66. The AUP-RPS is assessed generally in section 8.3.1 of the applicant's AEE. The assessment covers B2 Urban Growth and Form, B2.3 A Quality Built Environment, B2.4 Residential Growth and B2.5 Commercial and Industrial Growth. I generally agree with the assessments made against these provisions in the application documents. Where I have considered there is a potential issue, or provisions that should be emphasised in relation to potential effects that arise, I do that later in this report.

4.7 Regional and District Plan

67. Section 8.3.2 of the AEE considers that the regional plan and district provisions of the AUP of particular relevance to the plan change and for future development of the plan change area are:

- E1 Water Quality and integrated management;
- E8 Stormwater – Discharge and diversion;
- E11 Land disturbance – Regional;
- E12 Land disturbance – District;
- E25 Noise and Vibration;
- E27 Transport; and
- E30 Contaminated Land.

68. With respect to the above provisions, the AEE states:

> *The development of land and the establishment of activities within a BGBZ will likely trigger some, if not all of these chapters and the provisions within them. The assessment of these matters can be undertaken as part of that development process and the assessment of effects has demonstrated that the land is suitable for a BGBZ.*

4.8 Management Plans or Strategies approved under any other Act

4.8.1 Auckland Plan 2050

69. The Auckland Plan 2050 is covered in section 4.1 of the AEE.

70. The Auckland Plan 2050 is the council's spatial plan, as required under the Local Government (Auckland Council) Act 2009. The Plan contains a 30-year high level development strategy for the region based on a quality compact approach to accommodating growth. This approach anticipates most growth through intensification within existing urban areas, with managed expansion into the region's future urban areas and limited growth in rural areas.

71. The Development Strategy identifies a number of urban expansion areas in the southern sub-region, including, in Pukekohe, the location of this plan change request (see Figure 6). Significant growth is anticipated in the Pukekohe area with approximately 1700 hectares of land for future urban development having been identified with the potential to accommodate approximately 14,000 dwellings by 2050 (of a total 320,000 dwellings for the region as a whole). It will be noted that the figure's legend cross-references the Future Urban Land Supply Strategy ('**FULSS**') in respect of the sequencing and timing of future urban areas.

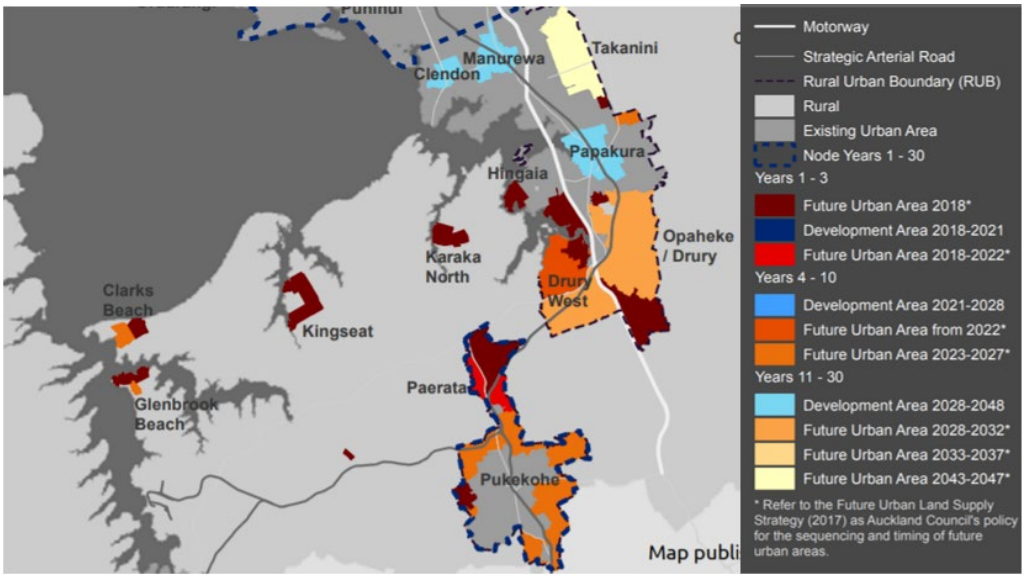

Figure 6: Auckland Plan - Development Strategy

4.8.2 Future Urban Land Supply Strategy 2017 and Future Development Strategy 2023 – 2053

72. The FULSS is addressed in section 4.4 of the AEE.

73. The FULSS sequences the release of future urban land with the supply of infrastructure over 30 years for the entire Auckland region. In the southern sub-region, the FULSS identifies growth in large future urban areas, as well as rural settlements, providing for an anticipated dwelling capacity of 50,600 and an anticipated employment capacity of 30,300 (Figure 7).

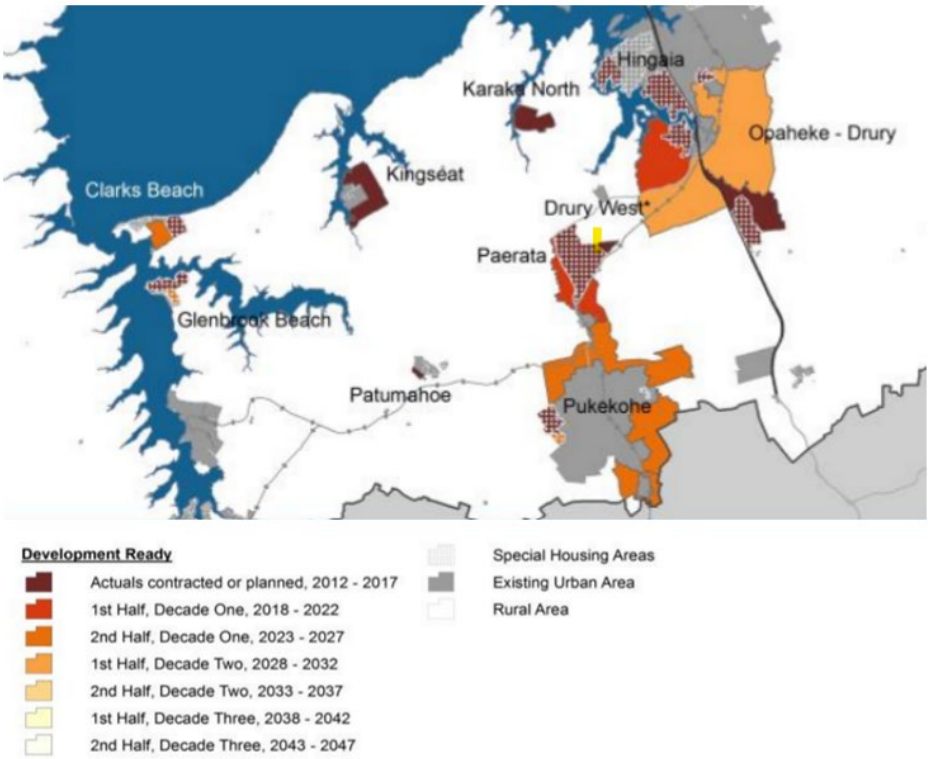

Figure 7: Future Urban Land Supply Strategy

74. The FULSS identifies the Future Urban zoned land in the plan change area to be development ready in the second half of Decade One (2023-2027). The plan change request, if made operative, would enable development within the projected "Development Ready" period of 2023-2027. The term "development ready" is defined as land rezoned and bulk infrastructure provided.

75. The plan change request, if made operative, would result in development occurring in line with the timing set out in the FULSS. With respect to development readiness, there are several local transport upgrades and other local infrastructure upgrades that are required to support the urban development of the plan change area. These matters are discussed further in this report.

76. A new Future Development Strategy ('**FDS**') is being developed by council and a draft FDS was released for public consultation between 4 June – 31 July 2023. The consultation draft FDS proposes extending out the time periods for when different Future Urban zoned areas will be development ready. For the plan change area, the draft FDS proposes the area will be development ready 2030+. From August to September 2023, feedback from the public and local boards will be considered with changes to the FDS being considered. It is anticipated that the final FDS will go to Auckland Council's Planning, Environment and Parks Committee for adoption in late 2023.

4.8.3 Pukekohe-Paerata Structure Plan

77. The Pukekohe-Paerata Structure Plan ('**PPSP**') has been prepared under the relevant provisions of the Local Government Act 2002, including those relating to consultation, and in accordance with the structure plan guidelines as set out in Appendix 1 of the AUP. It is intended to guide future development of this area over a 30-year period, consistent with the FULSS. Development in accordance with the plan is estimated to provide about 12,500 houses/dwellings with a population of almost 34,000 people, and over 5,000 jobs. It is noted that the population estimates were calculated prior to the introduction of the MDRS and are likely to be higher. The population increase would be approximately double the population of the existing population of Pukekohe.

78. Development of the PPSP commenced in August 2017 and concluded in August 2019 when the final version of the plan was approved by the Council's Planning Committee. The PPSP was supported by a number of background studies and reports, including on Business land demand and location (2018); Stormwater, flooding and freshwater management (updated 2019); Transport (2019); Water and wastewater supply (2019); Open space and recreation (updated 2019); Community facilities (updated 2019); Landscape values (2017); Heritage and archaeology (2017); Ecology (updated 2019); Geotechnical hazards (updated 2018); Contaminated land (2018) and Urban design (2018)[2]. There is also a Neighbourhood Design Statement which is intended as an implementation tool to guide future development.

79. By itself, the PPSP has no statutory weight. However, when introduced it was intended to form the basis for the development and assessment of plan change/s under the RMA. As a specifically prepared plan for this area, it clearly has relevance, and it is recognised as a major basis for planning in the application documents.

80. The plan change area is located in the area identified as 'Area H east' in the PPSP.

81. The PPSP contains the following explanation of 'Area H east':

> *The Pukekohe Area Plan shows the northern part of Area H east as Business – Light Industrial, with the southern part residentially zoned as Single House. The 2017 consultation material shows these areas as business and residential low density. The 2018 consultation occurred prior to the finalisation of the business land demand analysis. In the absence of that analysis, council took a big picture position in its 2018 consultation material that adequate business land and opportunities for local employment should be provided in the Pukekohe-Paerata structure plan area and that such land should be distributed between both northern and southern Pukekohe. Additional business land was therefore shown in the northern part of Area H east in the 2018 consultation material.*
>
> *In 2018 the residential land component of Area H east was shown as medium density Mixed Housing Suburban. Following:*
>
> - *the receipt of business land demand analysis which showed that not all the land zoned for business in the 2018 consultation material was required*
> - *feedback opposing business land in this location*
>
> *the amount of business land in the northern part of Area H east has been reduced and is now slightly less than shown in the Pukekohe Area Plan. This remaining area of business land is now proposed to be zoned Light Industry.*

[2] Full copies of these reports are available on the council's website at: https://www.aucklandcouncil.govt.nz/plansprojects-policies-reports-bylaws/our-plans-strategies/place-basedplans/Pages/default.aspx

82. The structure plan map, as it applies to the immediate area of PC87, is shown in Figure 8 below.

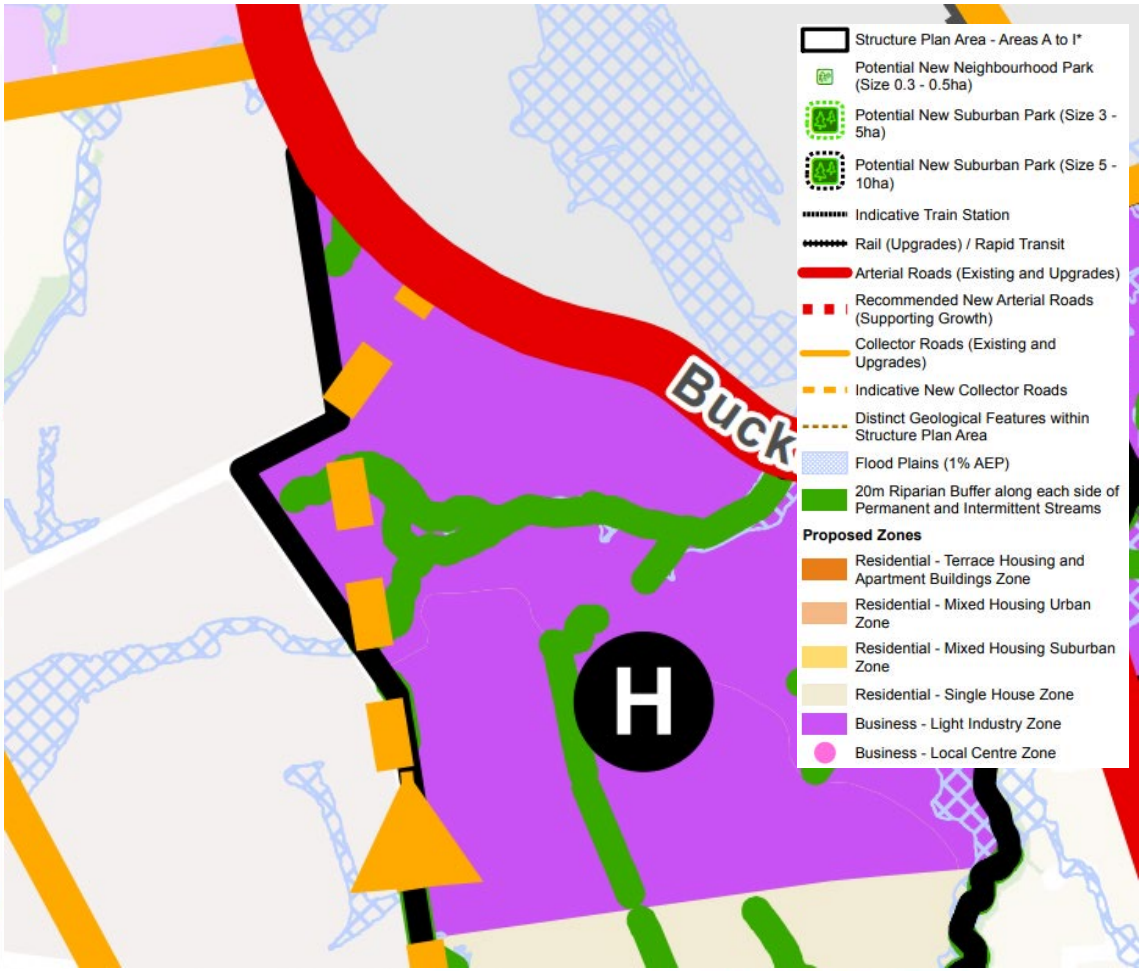

Figure 8 – Pukekohe-Paerata Structure Plan

83. Figure 9 shows the indicative walking and cycling network and provisions for public transport as set out in the PPSP.

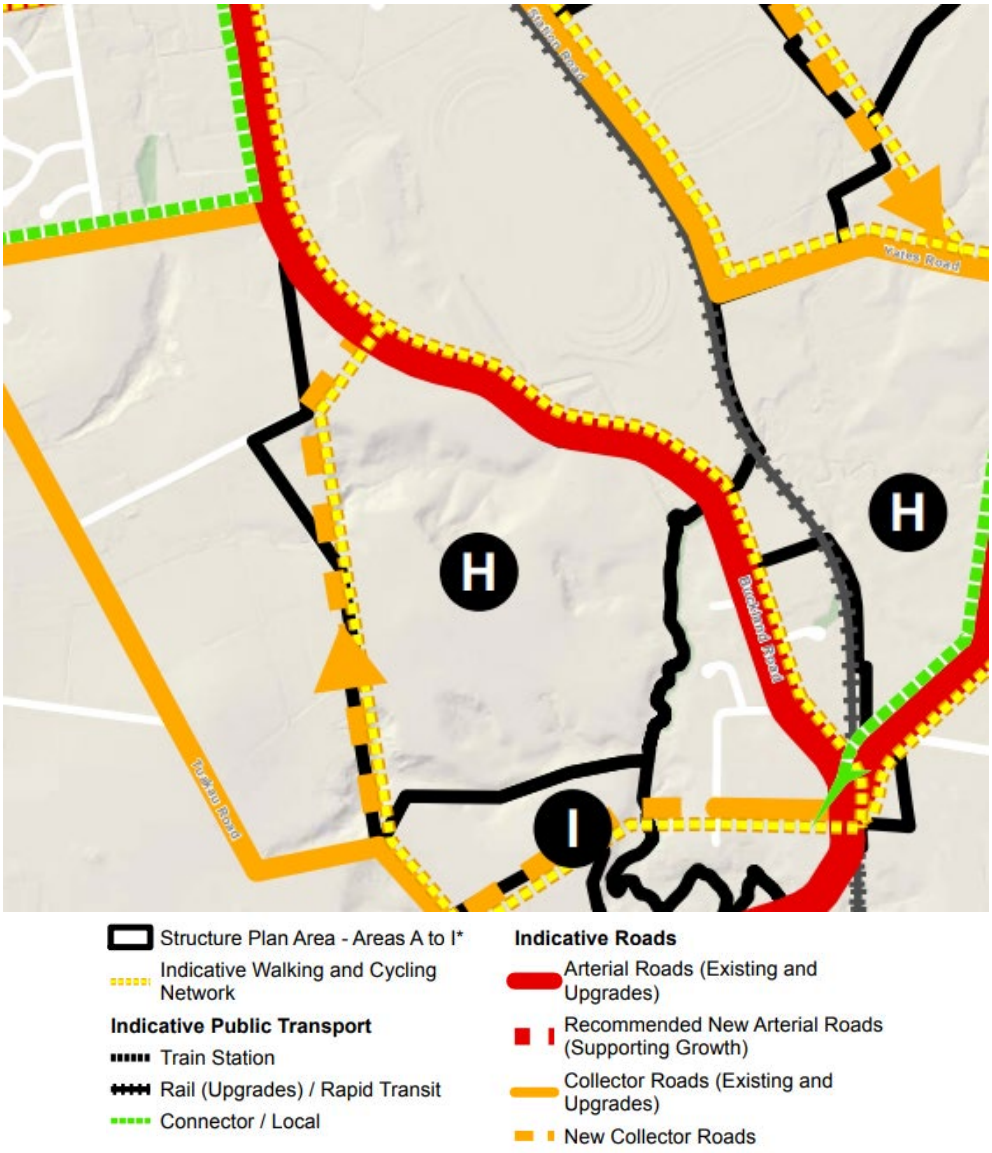

Figure 9 – PPSP Transport Map

84. The proposed rezoning and the proposed transport infrastructure for PC87 is shown in Figure 10 below.

Figure 10 – Proposed zoning on left. Extract from applicant's ITA on right.

85. There are two variances between the plan change proposal and the PPSP, summarised as follows:

- The structure plan shows the LIZ for this land, while the private plan change proposes the GBZ; and

- The alignment of PU-NS-2 Collector Road and the location of its connection with Buckland Road is slightly varied from the location shown on the PPSP.

86. The significance of difference in zoning between the PPSP and the applicant's proposal is discussed throughout this report, including with the assistance of specialist inputs.

87. In general, I have concluded that the proposed variations from the PPSP are appropriate, subject to some matters that require particular consideration, as discussed in this report.

4.8.4 Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan

88. The Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan was adopted by council in 2020. It is a roadmap to a zero-emissions, resilient and healthier region. The core goals are:
- To reduce greenhouse gas emissions by 50 per cent by 2030 and achieve net zero emissions by 2050
- To adapt to the impacts of climate change by ensuring we plan for the changes we face under our current emissions pathway

89. Carbon Dioxide emitted by road transport modes is identified as the primary greenhouse gas impacting the Auckland Region. Carbon dioxide is a long-lived greenhouse gas, meaning it accumulates and has long-lasting implications for climate. The plan points out that integrating land use and transport planning is vital to reduce the need for private vehicle travel and to ensure housing and employment growth areas are connected to efficient, low carbon transport systems. The plan seeks a 12 per cent reduction in total private vehicle kilometres travelled by 2030 against a 'business-as-usual' scenario through actions such as remote working and reduced trip lengths.

90. In my view PC87 is consistent with Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan. The plan change area has been identified for urban development and is relatively close to the Pukekohe town centre, as well as current and future employment nodes. Development of the plan change area as proposed may have an impact on greenhouse gas emissions given the anticipated increases in the use of private vehicles and limited public transport. However, this is offset by the provision of local employment opportunities (reducing the need to travel further afield for employment) and improved access to business services, both of which help to sustain Pukekohe as a self-sufficient rural community.

4.8.5 Franklin Local Board Plan 2020 and Pukekohe Area Plan 2014

91. The Franklin Local Board Plan 2020 is focused on six key outcomes:

- Our strengths general local opportunity and prosperity
- Improved transport options and fit for purpose roads
- Fit for purpose places and facilities
- Kaitiakitanga and protection of our environment
- Cultural heritage and Māori identify is expressed in our communities
- A sense of belonging and strong community participation

92. The Franklin Local Board Plan recognises that significant growth is anticipated in the Franklin Local Board area and identifies initiatives to support both the existing population as well as the new population. In the Pukekohe area the plan supports opening up new light industrial areas that will generate local economic activity and jobs. It raises concerns that the road network across the Franklin Local Board area is vast and of inadequate design for heavy vehicles and future traffic volumes, and that Greenfields development areas are not serviced by public

transport. The plan supports better connections by train to the city centre and for increased renewal funding to be made available to Auckland Transport for a number of projects, including the Pukekohe ring road.

93. The plan change area is identified in the Pukekohe Area Plan 2014 as a 'potential location for new light industrial land'. The provision of light industry and commercial land to provide for additional local jobs is a significant theme in the plan. PC87 is generally consistent that intention, noting, as with the PPSP, that efforts to provide a self-sustaining employment base is important for supporting the anticipated growth of Pukekohe.

5 EFFECTS

94. This section of the report addresses effects. It is structured under the following headings:

- Urban design, visual and landscape
- Transport
- Water and wastewater infrastructure
- Economics
- Contaminated land
- Mana Whenua
- Stormwater
- Ecology
- Geotech

95. Under each of these headings there are sub-headings containing a brief summary of what the application documents discuss on each topic, followed by matters that have been raised through the Clause 23 process, the submissions and Council specialists, and then this report's analysis and conclusions.

5.1 Urban design, visual and Landscape effects

Application

96. With respect to visual and landscape effects, the key points from the application are summarised below:

- The plan change area is elevated and is visually prominent, allowing it to be seen from several vantage points within the urban areas of Manukau Road, from Pukekohe Park and from the rural areas to the south.
- Currently the plan change area is almost entirely in pasture, with the exception of dwellings, ancillary buildings and some sparse exotic trees and hedgerows.
- The plan change area and surrounding locality are not subject to any overlay in the AUP which seek to protect natural heritage.
- Pukekohe Hill is an outstanding natural feature approximately 3.7km to the north east of the plan change area and is not in direct line of sight.
- Both sites subject to the plan change have resource consent for activities enabled in the LIZ including a large trade retail and warehouse activity on 301 Buckland Road.
- All new buildings in the GBZ require consent as a restricted discretionary activity. The matters of discretion for such an activity include the 'design and appearance' of new buildings.

97. The assessment concludes that any effects which may arise from the rezoning and establishment of the proposed GBZ can be avoided, remedied or mitigated.

Analysis

98. Preparation of the plan change area for urban development and the future establishment of activities enabled in the GBZ will result in significant visual changes from the current pastural coverage and residential uses on the plan change area. However, this visual change is anticipated by the FUZ and the structure plan and will ultimately fit comfortably within the evolving urban form in the surrounding structure planned FUZ land.

99. The proposed GBZ contains several provisions related to the quality of urban design which will be triggered at the resource consenting stage (as any new buildings require consent). The zone establishes urban design principles as part of its policy direction, in particular through Objectives H14.2(3) and H14.2(8):

> *(3) Development positively contributes towards planned future form and quality, creating a sense of place.*
>
> *(8) The adverse effects on amenity values and the quality of the environment at the interface with other zones are managed.*

And through policies H11.3(3), H11.3(4), H11.3(5), and H11.3(7):

> *(3) Require development to be of a quality and design that positively contributes to:*
>
> *(a) planning and design outcomes identified in this Plan for the relevant zone;*
>
> *(b) the visual quality and interest of streets and other public open spaces;*
>
> *(c) and pedestrian amenity, movement, safety and convenience for people of all ages and abilities.*
>
> *(4) Encourage universal access for all development, particularly medium to large scale development.*
>
> *(5) Require large-scale development to be of a design quality that is commensurate with the prominence and visual effects of the development.*
>
> *(7) Require at grade parking to be located and designed in such a manner as to avoid and mitigate adverse effects on pedestrian amenity and the streetscape.*

100. As noted above, any new building in the GBZ requires consent as a restricted discretionary activity in order to ensure a reasonable level of design and public amenity. All restricted discretionary activities must comply with a number of development standards. These include H14.6.1 Building Height, H14.6.2 Height, H14.6.3 Yards and H14.6.4 Landscaping. The provisions will ensure consideration is given to creating a positive urban design outcome for any new development, particularly should any development front the road.

101. In my view, the GBZ provisions and where relevant, the Auckland-wide chapters of the AUP(OP) are sufficiently robust to manage the effects of urban development on the plan change area.

5.2 Transport effects

Application

102. The applicant's Integrated Transportation Assessment ('**ITA**') has been prepared by Commute Transportation Consultants (Attachment 9 to the application documents).

103. With respect to the wider transport network, the ITA relies on the ITA prepared by the Supporting Growth Alliance ('**SGA-ITA**') to support Auckland Councils structure plan for the southern area and acknowledges the assessments and transport networks proposed in the SGA-ITA and PPSP.

104. The ITA has assessed the local transport network and has noted the rural nature and standard of roads in the vicinity of the plan change area, including the absence of footpaths and relatively low traffic volumes. With respect to walking and cycling, the ITA refers to Figure 0-5 and Figure 0-6 (page 18 and 19 of the ITA) which show key destinations (such as the town centre and train station) close to the plan change area and the walking and cycling catchments. The town centre and train station are both within cycling distance of the plan change area but not within walking distance.

105. The ITA states that the bus services which pass the plan change area include:

> *'…bus routes 398 and 399 pass the site and link to Pukekohe Station (providing access to additional bus and passenger rail services). Route 398 is a peak period service operating Monday to Friday only to/from Tuakau while Route 399 is a Thursday only service to/from Port Waikato. Route 393, while not passing the site, operates daily on nearby Manukau Road and Wrightson Way from 5:30 am to 9:00 pm'*

106. The nearest bus stop is located 800m north of the plan change area and is utilised by bus service 393.

107. The ITA notes that that the key transportation considerations of PC87 are considered to be:

- *The ability of Manukau Road and Buckland Road to accommodate additional traffic generated by the activities enabled in the proposed re-zoned land; and*
- *Integration of any proposed development on the re-zoned land with wider transport network plans, and land use plans (Structure Plans), in Pukekohe.*

108. The proposed zoning for the plan change area is the GBZ though the future activities in the area has not yet been finalised. The ITA notes that these are expected to cater for a mixture of employment-based activities enabled in the zone such as large format retail, other retail/commercial and light industrial activities.

109. In terms of how this affects trip generation, the ITA notes that this mix of activities is expected to generate in the order of 671 trips during the peak hour (AM and PM assumed to be the same) and 6389 trips daily:

Activity	RTA Rate	Number / GFA	Peak Hour Vehicle Trips	Daily Vehicle Trips
Motor showroom	*Evening peak hour rate of 0.7 per 100 m² GFA.*	3250 m² GFA	23	230[4]
Retail	*'12.5/ 100m² GFA for peak hour & 121 / 100m² GFA for daily trips'*	4900 m² GFA	612	5,929
Warehouse activity	*'0.5 / 100m² GFA for peak hour & 4 / 100m² GFA for daily trips'*	3250 m² GFA	16	130
Commercial and office activity	*'2 / 100m² GFA for peak hour & 10 / 100m² GFA for daily trips'*	1000 m² GFA	20	100
Total			**671 trips**	**6,389 trips**

Table 3 – Estimated Trip Generation PM

110. The ITA has modelled the performance of the Manukau Road/Buckland Road/Kitchener Road intersection (assuming an upgraded roundabout) as well as the PU-NS-2 Road/Buckland Road intersection (proposed to be upgraded to a roundabout).

111. With respect to the Manukau Road/Buckland Road/Kitchener Road intersection, the ITA states:

> *'…the upgraded roundabout (from PC30) intersection is expected to perform at a good level of service LOS A or B. The maximum delay is 18.8 seconds and occurs during the evening peak at the right turn approach at the racecourse access. As such, the proposed upgrade of the intersection to a roundabout control is considered adequate to cater for the additional vehicle movements generated by the development.'*

112. With respect to proposed PU-NS-2 Road/Buckland Road intersection, the ITA states:

> *'The result of the modelling shows while the AM period the intersection performs to a satisfactory level, in the PM peak hour the intersection is essentially at capacity. Of note this assumes minimal traffic on the Racecourse Gate opposite this intersection.*
>
> *As such an additional assessment of the PM peak has been undertaken assuming the intersection is upgraded to a roundabout.*
>
> *The results show the roundabout intersection performs well below capacity.'*

113. In terms of any upgrades required, the ITA states:

> *'… an upgrade of the Buckland Road / Manukau Road / Kitchener Road roundabout as proposed by PC30 is still appropriate.'*
>
> and
>
> *'The assessment also shows the priority intersection of PU-NS-2 Road / Buckland Road is appropriate to cater for the traffic in the short term but nears capacity in the medium / long term. It is considered appropriate to allow for this intersection to be roundabout controlled in the future as a result of other development in the area including from the collector PU-NS-2 Road. The need for this roundabout should be continually assessed in each Recourse Consent application.'*

114. In terms of the Integration of PC87 with the structure plan, the ITA states:

> *'A new road is proposed (PU-NS-2) to be extended through the site to Buckland Road with an intersection constructed at Buckland Road. This is in accordance with the Structure Plan and allows roading access to both sites (it essentially splits the overall site in two). Figure 4- 1 shows this road (PU-NS-2) as per the Structure Plan ITA.'*

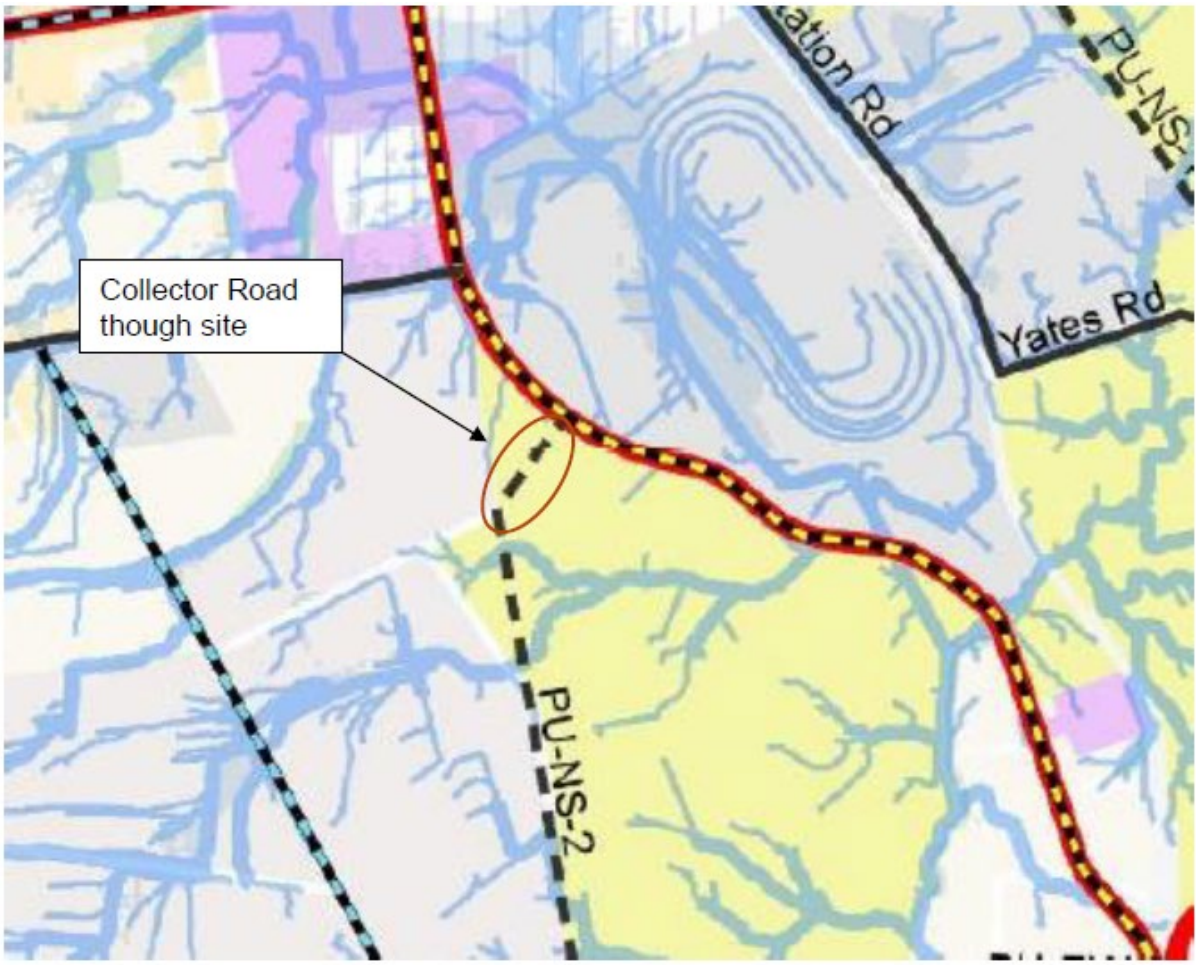

Figure 11 – extract of Figure 4-1 from PPSP ITA

115. In terms of the Integration of PC87 with the wider transport network, the ITA notes that with the improvements to the network to deal with the local impacts of the plan change, there are unlikely to be any wider impacts on the surrounding transport network. The ITA further states:

> *'The proposal also is an employment zone and thus will create jobs in the Pukekohe area and thus keep residents in the Pukekohe area (and thus not need to travel on the wider network).'*

116. The ITA identifies the following road upgrades as being required, as set out in the implementation plan (Table 4), with the key upgrades identified in Figure 12:

Trigger	Upgrade	Comments	Funder
Any new access on Buckland Road	Buckland Road upgraded to accommodate a painted flush median / right turn bay.	Will be required as part of initial development.	Developer
Commencement of development	Footpaths to link site(s) to existing footpath on Manukau Road (1.8 m wide)	Will be required as part of initial development and as required	Developer
Initial development	Reduce speeds past the site to 50km/hr	Speed reduction can only be instigated by Road Controlling Authority (Auckland Transport)	Auckland Transport
To be assessed at Recourse Consent (likely needed early in development)	Provide roundabout on Buckland Road	Highly dependent on exact land-use. Also provides an appropriate threshold to 50km/hr area.	Developer
To be assessed at Recourse Consent (unlikely to be directly needed by development but needs to be accounted for)	Provide PU-NS-2 Collector Road to Buckland Road	Highly dependent on exact land-use.	Developer
Considered as part of subsequent developments near the development site	Provision of bus stops (fronting the site)	To encourage the use of public transport when travelling to and from the area surrounding the site	Auckland Transport

Table 4 - Implementation Plan

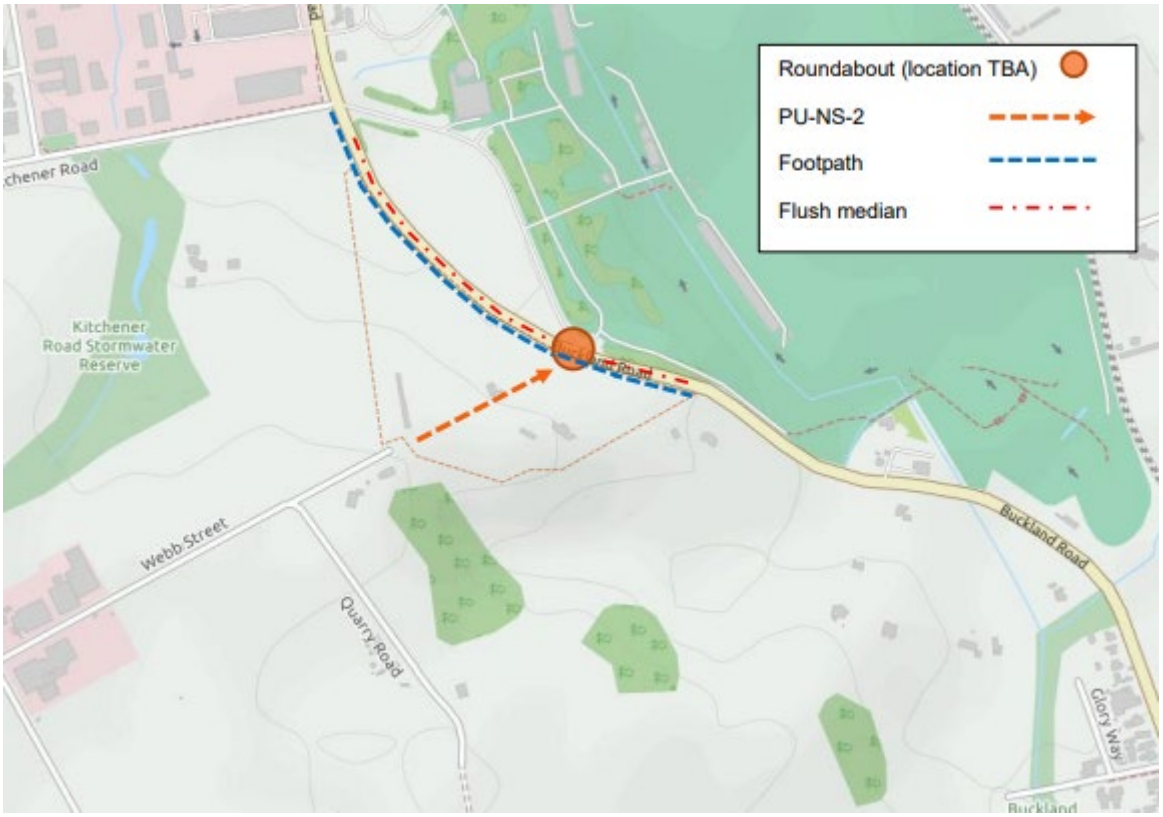

Figure 12 – Key transport upgrades identified from implementation plan

Peer Review

117. Wes Edwards from Arrive has undertaken a review of the application on behalf of council. Mr Edwards has prepared a technical report which is attached in **Appendix 5**.

118. Council has made two separate requests for further information with respect to transport effects. Discussions were held with the applicant's transport expert to clarify the information sought (particularly around the specific details of SIDRA modelling). The request and responses are included in **Appendix 2**. The gaps in the transport assessment requiring additional information and more detailed assessment are summarised below:

i. Additional assessment of how the Manukau Road/Buckland Road/Kitchener Road intersection (proposed to be upgraded to roundabout) and the PU-NS-2 Road/Buckland Road intersection (proposed to be upgraded to roundabout) might operate under traffic signal control;

ii. Concept designs for both the intersections (taking in account options such as an additional lane, alternative designs such as traffic signals, roundabout design, pedestrian crossings etc.);

iii. Additional assessment of the weekend Saturday peak period in terms of traffic generation and the performance of the Manukau Road/Buckland Road/Kitchener Road and PU-NS-2 Road/Buckland Road intersections;

iv. Sidra modelling to determine the performance of the Manukau Road/Buckland Road/Kitchener Road intersection on a Saturday race day at Pukekohe Park;

v. Sidra modelling to determine the performance of the PU-NS-2 Road/Buckland Road intersection, on a Saturday race day and non-race day at Pukekohe Park;

vi. Additional analysis to determine if the future transport environment could accommodate the highest intensity development scenario (i.e. 100% LFR or 'worst case scenario') enabled by the GBZ without generating significant adverse effects on the local network;

vii. Additional SIDRA modelling for the 100% LFR scenario at the Manukau Road/Buckland Road/Kitchener Road and the PU-NS-2 Road/Buckland Road intersections (for roundabout and signals);

viii. Traffic growth in modelling scenarios appears to be under-represented. Only the August additional information received included allowance for growth and even this was not considered to be sufficient representative of growth in the area;

ix. Additional analysis of traffic growth, traffic generation rates (for LFR), development scenarios and traffic surveys; and

x. Consideration of the uncertainty in the timing of the upgrade of the Manukau Road/Buckland Road/Kitchener Road intersection. The ITA assumes that a single lane roundabout would be operational at this location prior to any development in the plan change area.

119. The key responses received from the applicant to council's requests are summarised below:

i. With respect to events at Pukekohe Park, the applicant notes that motor-racing has ceased at the facility. The facility will now be primarily used as a training facility with

horse racing events being a rare occurrence and being primarily on weekdays. Weekend events are even less frequent (i.e. yearly Counties Cup race meet). A Saturday race-day event is not considered relevant by the applicant as it may only occur once per year;

ii. Alternative intersection designs (i.e. traffic signals at Manukau Road/Buckland Road/Kitchener Road intersection or additional lanes at the PU-NS-2 Road/Buckland Road roundabout) have been shown in concept designs and assessed to be viable options which provide additional capacity if required. Pedestrian crossings have been considered and it is considered that options are available for the provision of such facilities;

iii. A 100% LFR scenario for the development of the plan change area has been provided by the applicant, though the applicant considers that such a scenario is unrealistic;

iv. Revised traffic growth, traffic generation rates, development scenarios and traffic surveys have been provided;

v. Revised SIDRA modelling (to take into account the 'worst-case scenario' and the revised inputs noted in iv above) has indicated that a roundabout option at the Manukau Road/Buckland Road/Kitchener Road Road intersection is 'at/nearing capacity on a PM/Saturday peak period (but operating acceptably) with all the worst-case assumptions occurring at the same time'. The worst-case assumptions are 100% LFR, no reductions made for multi-purpose trips or pass-by traffic, 30% traffic growth and LFR trip generation is taken as the 85th Percentile rather than the average;

vi. Traffic signals at the Manukau Road/Buckland Road/Kitchener Road intersection will operate below capacity for the worst-case scenario;

vii. A priority controlled intersection at the PU-NS-2 Road/Buckland Road intersection is appropriate in the short term but an upgrade to a roundabout is required in the medium/long term; and

viii. A roundabout or traffic signals at the PU-NS-2 Road/Buckland Road intersection will operate below capacity for the worst-case scenario.

120. In light of the application, responses to further information and the submissions, Mr Edwards considers that the key transport matters for this plan change are as follows:

i. Consistency with transport planning policy and structure planning.

ii. Effects from additional traffic movements enabled by the zoning on the transport environment including events at Pukekohe Park.

iii. The methods for ensuring adequate provision of transport infrastructure to address effects.

121. Having reviewed the ITA and further information provided by the applicant, Mr Edwards considers that the following transport matters are considered to be satisfactorily addressed:

i. Mr Edwards is satisfied that there is at least one safe and efficient means of access to the plan change area. This may come in the form of direct access to Buckland Road via individual driveways or through the PU-NS-2/Buckland Road intersection.

ii. The applicant has provided a revised high intensity scenario which assumes a 100% large format retail ('**LFR**') development scenario for the plan change area, in order to estimate traffic volumes. Mr Edwards considers that the traffic volume estimates presented by the applicant for a 100% LFR scenario to be reasonable.

iii. Mr Edwards considers the trip generation rates and trip distribution to be reasonable estimates of the vehicle movements generated by future development within the plan change area and are more reflective of a higher-generation development scenarios that could establish within the GBZ.

iv. Mr Edwards considers that the forecasted growth in traffic volume used by the applicant in modelling makes appropriate allowance for traffic growth over time (i.e. 10 years of growth at 3% per year).

v. Traffic modelling for the impacts of the plan change on the Manukau Road/Buckland Road/Kitchener Road (the PC30 intersection) included analysis of both a roundabout and traffic signals operating at the intersection. Generally, the model (using the 30% traffic growth assumption and 100% LFR) outputs of more intensive development scenarios (i.e. 100% LFR) utilising traffic signals showed the intersection would operate at a satisfactory level for all periods except when a large event is held at Pukekohe Park. Mr Edwards considers that an upgrade to this intersection would almost certainly need to be traffic signals given that the modelling outcomes for a roundabout showed the upgraded intersection being at/slightly over capacity on a Saturday Peak hour.

vi. Traffic modelling for the impacts of the plan change on the Buckland Road/PU-NS-2 and Gate 3 (Pukekohe Park) intersection included analysis of both a roundabout and traffic signals operating at the intersection. A single lane roundabout with additional turning lanes on each Buckland Road approach would appear to operate reasonably well (though moderate queues back towards Kitchener Road is expected on the Saturday peak hour). However, Mr Edwards noted that if pedestrian crossing on raised tables were installed, it would likely lead to a significant reduction in the capacity of the approach. The modelling output for traffic signals indicated that this type of intersection (including pedestrian crossing facilities) would operate satisfactorily for all periods expect when a large event is held at Pukekohe Park.

vii. Mr Edwards agrees with the implementation plan proposed by the applicant in the ITA (replicated in Table 4 above).

122. The outstanding issues are considered, by Mr Edwards, to be:

- The zoning of the plan change area. Mr Edwards is of the view that from a transport perspective, the LIZ could be accommodated with fewer potential effects on the local network;

- Mr Edwards supports the transport infrastructure upgrades noted in the applicant's implementation plan. There is however the need to ensure a method (preferably a precinct) is implemented to ensure delivery of transport infrastructure at the right time and is appropriate for the level of development;

- The performance of the intersections during 'Race days' (large events with 5,000 plus attendees) at Pukekohe Park. Mr Edwards is of the view that large events at Pukekohe Park (especially on weekends) are likely to affect the performance of both intersections, but particularly the Manukau Road/Buckland Road/Kitchener Road intersection which is expected to operate poorly; and

- The performance of a roundabout at the Manukau Road/Buckland Road/Kitchener Road intersection during the Saturday peak hour. Assuming a non-race day, 100% LFR and 30% traffic growth, a single lane roundabout at the Manukau Road/Buckland Road/Kitchener Road intersection is at/over capacity during the Saturday peak.

123. The outstanding issues are discussed in more detail below.

Analysis

Zoning

124. With respect to the impact of zoning on traffic, Mr Edwards states:

> *…the trip generation potential of B-LI land is significantly lower than the potential of B-GB land, particularly on weekends.*

125. I agree with Mr Edwards that the LIZ would likely result in less potential effects on the local transport network given that the GBZ provides for high trip-generating activities (such as LFR) compared to relatively low trip-generating light industrial activities such as manufacturing, warehousing or motor-vehicle sales.

126. It is my opinion that the GBZ would be highly valued for its provision of LFR (as a permitted activity) so while light industrial activities are permitted, there are certainly incentives for LFR to establish on the plan change area.

127. As discussed in section 5.4 of this report, there is market demand for the activities enabled by the GBZ. The key issue here is whether the local transport network, subject to infrastructure upgrades, is able to support the activities that could establish in the zone.

128. In my view, there are solutions to ensure that the plan change area can be zoned GBZ and not result in adverse traffic impacts on the local network. Depending on the composition of activities realised at the development stage, the plan change area may require transport upgrades that are commensurate with the higher trip generation potential of the zoning. A precinct is considered to be a suitable tool for managing the uncertainty of future development scenarios and is discussed in more detail below.

Transport upgrades

129. The upgrades proposed by the applicant in the ITA implementation plan is set out in Table 4 above.

130. Mr Edwards is supportive of the transport upgrades but is concerned that the AUP (in the absence of a precinct) cannot provide sufficient certainty that the upgrades will be delivered. Mr Edwards states that reliance on the Auckland-wide provisions of the AUP presents several potential issues:

- An inability to manage the cumulative effects arising from development of the plan change area;

- A lack of certainty in the delivery of transport upgrades listed in the implementation plan (some of which are pre-requisites for any development and some required as development is progressed); and

- Infrastructure upgrades may not be delivered in a timely manner as required to support development.

131. Mr Edwards recommends that a precinct, if included, should provide objectives, policies, activity statuses, standards, matters of discretion and assessment criteria to address the following:

- *requiring the Collector Road between Webb and Buckland to be provided;*

- *requiring the upgrading of the Buckland Road frontage to current Auckland Transport standards for an urban arterial including the provision of stormwater conveyance and treatment, kerb and channel, paths, and street lighting;*

- *requiring the provision of a footpath to the intersection of Buckland Road/ Kitchener Road;*

- *requiring the provision of a zebra or signal-controlled pedestrian crossing facility across Buckland Road;*

- *requiring that no sites access Buckland Road directly (all access via new Collector road); and*

- *a standard that requires the performance of the Buckland/ Kitchener intersection to be assessed, and an upgrade provided if necessary.*

132. AT through its submission has requested the use of a precinct over the plan change area to secure the delivery of the required transport upgrades. AT is of the view that the AUP (Auckland-wide and zone provisions) will not provide this certainty and carries significant risks with respect to ensuring mitigation of the transport effects of the plan change at the development stage. Mr Edwards shares a similar view and prefers a precinct over other methods (i.e. private agreements or reliance on existing AUP provisions).

133. I have been informed by the applicant that they have come to an agreement with AT to introduce a new precinct over the plan change area. The wording of the precinct has also been agreed to by both parties.

134. Mr Edwards and I are of the view that if a precinct is to be adopted, it should include provisions to address the matters set out in paragraph 131 above. In particular, precinct provisions should be provided to address the performance of the Manukau Road/Buckland Road/Kitchener Road intersection. This is a matter that was not specifically raised in AT's submission.

Performance of the intersections during race days, particularly the performance of the Manukau Road/Buckland Road/Kitchener Road intersection

135. Following review of the SIDRA modelling outcomes, Mr Edwards is concerned about the performance of the Buckland Road/Manukau Road/Kitchener Road Intersection during 'race days' (large events with 5,000 plus attendees) at Pukekohe Park as such events are likely to occur on Saturdays which coincides with expected peak traffic flows to future commercial activities within the plan change area.

136. As set out in the response to the further information request, the applicant is of the view that such events would occur rarely and would take place primarily on weekdays. Large weekend events (such as the Counties Cup) would be rarer. The applicant also highlights that motor-racing will no longer occur at Pukekohe Park and the use of the track as a horse training facility will not be attended by the public.

137. In the Pukekohe Park Precinct, the primary activities (horse racing and motorsports) at the facility are permitted activities provided that any relevant standards are complied with. Such a standard is I434.6.5 Traffic management which requires either that:

- Activities be undertaken in accordance with a Transport and Traffic Management Plan ('**TTMP**') authorised by Auckland Transport; or

- the activity does not involve a crowd attendance of more than 5,000 people and does not require the closure of a public road.

138. The above standard is applied to all precincts with the underlying MRFZ. This generic approach was taken because during the preparation of the PAUP, Council lacked the necessary traffic information for each facility to support precinct-specific trip generation controls. All activities at a Major Recreation Facility are subject to a TTMP (as authorised by AT) if it does not meet either of the two conditions (less than 5,000 people and does not require the closure of a public road) prescribed by the standard.

139. As the Auckland-wide trip generation provisions (i.e. E27 Transport – Rule E27.6.1) do not apply to Major Recreation Facility precincts, the AUP approach for ensuring that the traffic effects of permitted primary activities (at various Major Recreation Facilities) do not go unmanaged is through the use of the aforementioned generic trip generation control (the 'Traffic management' standard).

140. In my view, there are several mitigating factors for the effects of event-based activities at Pukekohe Park on the surrounding road network, which include:

- Events are irregular and temporary in nature. Weekend race days at Pukekohe Park are expected to be relatively rare occurrences;

- Traffic generation effects can sometimes be 'internalised' within the precinct though larger events may require a combination of on-site and external methods of mitigation; and

- The threshold-based Traffic management' standard in the precinct which applies to larger events.

Performance of the proposed roundabout at the Manukau Road/Buckland Road/Kitchener Road intersection at the Saturday peak

141. As noted in Mr Edward's report, the results of the SIDRA modelling indicates that the capacity of a single lane (with additional turning lanes) roundabout at this intersection is expected to be exceeded during the Saturday peak hour on race and non-race days at Pukekohe Park. Due

to space constraints, it is not possible to accommodate additional lanes at the roundabout to increase capacity.

142. I note that the transport experts do not necessarily agree on the key assumptions that affect the capacity of the intersection and there is a difference of opinion in the level of conservativeness in arriving at such assumptions. It is my understanding that Mr Hill has reservations on the revised assumptions used in the modelling (done as part of the further information request), including:

- Annual rate of traffic growth;
- Likely composition of activities within the plan change area; and
- Mitigating factors (i.e., multi-purpose trips, peak-spreading and pass-by traffic).

143. Mr Edwards has provided detailed reasons for requiring the additional modelling (including with revised assumptions) and seeking more appropriate representations of the above assumptions in his report. I support his views.

144. I note that Mr Edwards is of the view that the 'additional traffic mitigation measures' proposed by the applicant such as 'peak-spreading' and 'multi-purpose trips' would not notably change the outcomes of his assessment.

145. I share Mr Edward's concern regarding the performance of the Buckland Road/Manukau Road/Kitchener Road Intersection. I acknowledge that the ultimate composition of activities within the PC87 area may be the most significant determinant of the potential impacts on the intersection, however due to the uncertainty around what future activities may establish within the plan change area, it is my view that consideration of development impacts upon this intersection should be required as part of any precinct over the plan change area. This ensures that the scale of activities within the plan change area is commensurate with the capacity of the intersection (priority controlled, roundabout or traffic signals).

146. As a result of the above assessment, I recommend that any precinct which is adopted should include provisions to address the performance of the Manukau Road/ Buckland Road/Kitchener Road intersection. Depending on the final form of the provisions, this may include an objective, policy, standard, matters of discretion, assessment criteria and special information requirements.

147. In summary, it is my view that there are viable solutions to ensure that the plan change area once rezoned will be supported by the local transport network. I recommend the following:

- A precinct with an appropriate set of 'transport triggers' to provide certainty that the transport infrastructure required to support development of the plan change area will be delivered;
- A precinct plan showing the locations of transport infrastructure (such as the new collector road) to ensure consistency with long term planning documents, and
- Precinct provisions (objectives, policies, standards, assessment criteria, matters of discretion and special information requirements) which provides the necessary integration between land use and infrastructure.

5.3 Water and wastewater infrastructure

Application

148. A Wastewater and Water Supply Report from Birch Surveyors has been prepared to support the plan change application (Attachment 7 to the application documents).

149. With respect to wastewater, the report refers to the wastewater network capacity assessment of Pukekohe's existing infrastructure undertaken by Watercare. That assessment shows that the recently constructed Pukekohe Pump station can accommodate the ultimate future wet weather flows from the Pukekohe/Paerata structure plan, which includes the area associated with this plan change.

150. Birch Surveyors have undertaken a network capacity assessment for the proposed development, noting that the design of anticipated infrastructure will be in accordance with the Watercare Code of Practice for Land Development. The assessment concludes that the existing Pukekohe Transmission Pump Station can accommodate the additional flows likely to result from the plan change.

151. The report states that a new gravity network can service the plan change area and will connected into the existing public system via a gravity line approaching the Pukekohe Pump Station (refer to Figure 13 below).

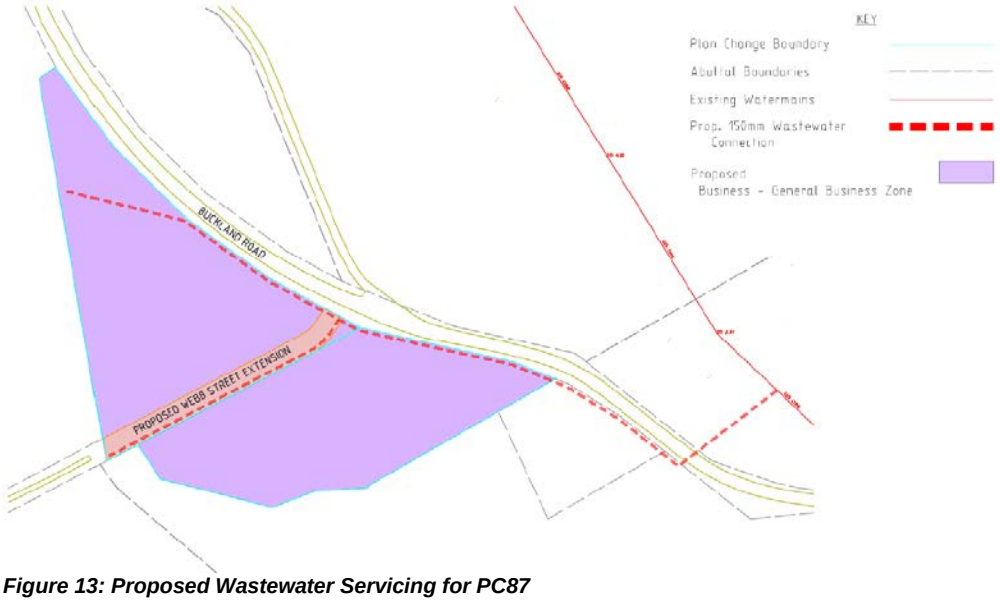

Figure 13: Proposed Wastewater Servicing for PC87

152. In respect of water supply, it is proposed that the plan change area will connect to the existing Public Water Supply along the Buckland Road frontage (refer to Figure 14). The report states that there is an existing 150mm Water Main along Buckland Road and a secondary main of 80mm/100mm across the road at the southern end of the plan change area. The report acknowledges that any proposed water supply network must be able to service both peak demand and firefighting requirements.

Figure 14: Proposed Water Supply Servicing for PC87

153. The report notes that there are wider water supply network issues in the local area that include varying pressures, high head losses, high velocities, high water age estimates and general supply concerns. The issues in the wider local water supply network are being addressed by Watercare through several completed and upcoming projects. A preliminary calculation indicates that there is likely to be sufficient water supply capacity though more detailed work may be required at the development stage to address the following matters:

> *'…further water pressure test will be required and that localised network upgrades are anticipated, and are likely to consist of completing the secondary main across the site frontage to ensure adequate water supply for the peak demand as well as completing any internal reticulation along future roads.'*

Analysis

154. Based on the assessment provided to support this plan change, it is concluded that:

• Water supply and wastewater services can be developed within the plan change area and integrated with the broader Watercare Services Limited network; and

• No issues arise in terms of the installation of other services (e.g: power and communications).

5.4 Economics

Application

155. Economic effects are addressed by Urban Economics in their report (Attachment 10 to the application).

156. The report notes that the plan change area is located close to the existing business node south of Pukekohe Town Centre, with a mix of LIZ and GBZ sites catering for light industry type activities, large format retail, trader suppliers, motor vehicle sales and other types of retail. The plan change area is shown on Figure 15 below amongst the surrounding business and centre zones.

Figure 15: Map of centre and business zones extracted from Economics report

157. The economics report finds that the GBZ is appropriate in the proposed location for the following reasons:

- The GBZ would be a logical extension of the existing pattern of activity in the Manukau Road business node which includes Light Industry uses and several clusters of General Business uses. There are agglomeration benefits that result from being located close to the existing critical mass of LFR;
- There is an emerging scarcity of business land in Pukekohe. There is very little unutilised or vacant General Business and Light Industry remaining in Pukekohe to meet market demand;
- Medium and Large Format Retail are key growth areas regionally and within Pukekohe, and market demand for this type of retail space will be ongoing given the forecasted population growth in Pukekohe;
- There is market demand for both GBZ and LIZ land, estimated to be 25 hectares per decade (of which 8 hectares is estimated to be demand for General Business land). The GBZ allows for most of the Light Industry uses (apart from Waste Management for example) provided for in the LIZ. This allows for additional flexibility to support the optimal development of the plan change area;
- The PPSP has indicated a preference for only Light Industry zoned land. Given the forecasted population growth in Pukekohe, there will be a need for General Business zoned land in proportion to this growth;
- The GBZ would provide employment and services to allow people to 'live and work' within the town; and
- The proposed zone meets the zoning principles established by council for the PAUP, particularly that the zone would enable a range of commercial activities that may not be appropriate for, or are unable to locate in, centres.

158. The economics report concludes that the establishment of the zone is unlikely to adversely affect the role and function of the Pukekohe Town Centre for the following reasons:

- Pukekohe and its rural catchments are forecast to experience rapid population growth, from 68,000 in 2018 to 100,000 by 2038. This rapid growth will generate demand for additional business land;

- There is practically no unutilised GBZ land suitable for redevelopment remaining in Pukekohe and there were none for sale or lease at the time of the report. It is therefore evident that there is a shortage of this land and many firms are not able to find suitable land or premises;

- The purpose of the GBZ is in broad terms to enable a range of commercial activities that are unable or unsuited to locate in centres. Such activities should not adversely affect the role and function of centres;

- An analysis of the commercial and practical feasibility for redevelopment of the Pukekohe Town Centre indicates there is very little or no potential for new large format retail development within the centre;

- The Pukekohe Town Centre is in a strong commercial condition, with very low vacancies and strong rental rates; and

- The provisions of the GBZ will require activities typically considered to be core centre activities to assess their impacts on the town centre through a resource consent. The range of retail, commercial and industrial activities enabled by the GBZ is not envisaged to have any potential adverse effects on the town centre.

159. As part of the response to further information, the applicant was asked whether the GBZ would pose any risk to the future implementation of the PPSP which showed a preference for the LIZ. In response, Mr Scott noted that the GBZ would be supportive of the structure plan, particularly in terms of meeting the plan's objective of providing for local employment to support growth in the area. Mr Scott noted that the GBZ provided for the 'broadest range of employment activities' and would provide much need employment growth to support the residential growth already underway in Pukekohe. Opportunities for local employment was considered to be vital to the functioning of Pukekohe as a satellite town, in that it needed to be self-sustaining while also providing services to the surrounding rural areas.

Peer Review

160. Derek Foy of Formative Limited has reviewed the application on behalf of Auckland Council. Mr Foy's report is set out in **Appendix 5**.

161. Mr Foy sets out the key economic issues associated with the proposal as:

- Demand for and supply of GBZ land in Auckland generally, and Pukekohe in particular;

- The appropriateness of the plan change area as a location for GBZ development; and

- Potential retail distribution effects arising from the plan change.

159. Mr Foy generally agrees with the assessment undertaken by Urban Economics. The matters in the application that Mr Foy either does not agree with or raises points of clarification are:

Catchment population growth relative to current levels

Mr Foy questions whether the forecasted doubling of the Pukekohe population over the next few decades as stated in the economics report is supported by the figures contained within the same report. Nevertheless, Mr Foy accepts the point made in the report that there will be ongoing demand for LFR due to the significant population growth in and around Pukekohe for the foreseeable future, and that growth will require and sustain a significant in LFR space in Pukekohe.

Additional large format retail floorspace required to support catchment demand

Mr Foy notes the contradictory figures of current LFR supply provided in the economics report at 52,500m^2, as well as 80,000 – 85,000m^2 of LFR in Pukekohe. Mr Foy is of the view that the 80,000 – 85,000m^2 figure is closer to what his estimate would be. Taking into account this point of clarification, and the forecasted demand of approximately 42,000m^2 of retail floorspace (for LFR) as set out in the further information response, Mr Foy draws the following conclusions:

> *"… the site would have capacity (of about 24,000m^2) to accommodate just over half of additional LFR supply supported by the (primary and secondary) catchments for the next two decades"*

Mr Foy states that the aforementioned level of provision would be an appropriate share of catchment demand to accommodate on the plan change area for the following reasons:

- *The site would be (if approved) the next major LFR destination to be able to be developed in Pukekohe, and therefore should be a primary focus of future LFR in the town; and*

- *Pukekohe is and is anticipated to remain the primary and largest LFR destination within the primary and secondary catchments.*

Infrastructure

Mr Foy does not completely agree with the stated economic benefits of the rezoning with respect to utilizing infrastructure. This however does not present a material difference to the conclusions reached in the economics report nor Mr Foy's review.

160. In his assessment of the proposed GBZ, Mr Foy notes that the core issue relating to the suitability of the zone has to do with the potential effects on centres arising through the retail distribution effects of new activities which may establish in the plan change area. This has been addressed in the economics report and Mr Foy agrees with the assessment, noting that:

- *The BGBZ rules include provisions that seek to limit the type and magnitude of retail distribution effects on other centres of BGBZ activities.*

- *In the BGBZ retail tenancies that are smaller than 450m2 require some assessment of effects, because tenancies of less than 200m2 are non-complying, and those that are 200-450m2 are discretionary activities. Further, department stores and supermarkets larger than 1,000m2 are restricted discretionary activities, and the effect of those activities on other centre zones would be required under their Restricted Discretionary status (rule H14.8.1(5).*

- *Offices are permitted up to 500m2 per site, beyond which they are a discretionary activity.*

- *These maximum size limits will limit the scale of distribution effects able to establish as permitted activities, and the requirement to assess effects on centres provides the opportunity to understand, I the resource consenting phase, the effects of activities that are not permitted.*

161. Mr Foy agrees with the AEE that the benefits resulting from the proposed zoning includes the provision of a wide range of employment opportunities and employment choices in Pukekohe. Mr Foy further notes the GBZ will provide for greater employment density in comparison with the LIZ:

"… the BGBZ accommodates on average (across Auckland) a greater average employment density to the BLIZ, at around 50 workers/ha in the BGBZ compared to 37 in the BLIZ"

162. In summary, Mr Foy is satisfied with the assessment undertaken of the potential economic effects of the PPC and is supportive of the proposal:

"Overall I do support the PPCR because it would provide additional business land in a local that is central to an area of significant projected future growth, and would help to provide for the future needs of Pukekohe and surrounding areas' population"

Analysis

163. Having considered Mr Foy's review of the application and the further information provided, I'm of the view that the proposed zoning is generally consistent with the PPSP and the type of activity anticipated to establish in the FUZ south of Pukekohe Town Centre.

164. I note that both Mr Foy and Mr Adam Thompson (Urban Economics) agree on the following matters, which indicates a good degree of alignment between the experts:

- There is market demand for Large Format Retail and the proposed rezoning will help to meet this demand;
- Pukekohe is the appropriate location to provide for LFR and the GBZ to meet the needs of the primary and secondary catchments (refer to Figure 2 on page 8 of the economics report) now and into the future;
- There should be no adverse impacts on the role and function of the Pukekohe Town Centre as a result of the rezoning; and
- The GBZ will provide for local employment which is needed to support growth in Pukekohe and ensure people can work close to where they live.

165. I discuss below my view on whether the proposed zone meets the zoning principles and the zone description in the AUP.

166. The GBZ provides for a mixture of activities that may not be appropriate for, or are unable to locate in, centres. This includes activities ranging from light industrial to limited office, large format retail and trade suppliers.

167. Small retail activities are not generally anticipated within the zone because these activities are more easily available to locate in-centre. Residential and other sensitive activities are not anticipated due to reverse sensitivity effects and the generally lower standard of amenity in this zone.

168. The GBZ is predominantly located in areas close to major centres or within identified growth corridors. The zone provides an alternative, and additional capacity to the centres network to accommodate large format retailing. The zone provisions accommodate retail within the zone in a different manner to that primarily undertaken through the centre network (which tend to have a predominance of smaller scale speciality retail). The aim is to promote compatibility between these two major types of retail offer. The provision of LFR in the GBZ aims to be generally compatible with, rather than in competition with centres. This is reflected in the wording of Objective 6, Policy 16 and importantly Policy 17 which are discussed below.

169. Objective 6 of the GBZ provisions provides for a range of business activities to establish outside of the centres, however only if they do not impact the function, role and amenity of centres.

170. Policy 16 of the GBZ provisions recognises that there are certain activities such as large format retail, trade suppliers and light industry which due to their scale and functional requirements, are difficult to accommodate within centres. Also, they may not be appropriately located within centres due to issues such as the large floor requirements, traffic effects and integration issues. The application of this policy is noted in the report:

> *"…commercial activities should occur in centres, however if there is no capacity in centres, they should be able to occur elsewhere. This ensures the land and premise needs of businesses are met in full"*

171. Policy 17 of the GBZ provisions specifically states that commercial and retail activities of a scale and type which will compromise the function, role and amenity of centres should be avoided in this zone. The activity table of the GBZ reflects the intent of this policy by requiring resource consent for activities which are more appropriately located in centres.

172. To support the above objectives and policies, the GBZ sets out the following consenting requirements:

- A restricted discretionary resource consent for any department stores and supermarkets greater than 450m² gross floor area. One of the matters of discretion concerns the effects on the role, function and amenity of centres;

- A discretionary resource consent is required for offices greater than 500m² gross floor area per site, supermarkets up to 450m² gross floor area and retail between 200m² and 450² gloss floor area per tenancy; and

- Any retail up to 200m² gloss floor area per tenancy is a non-complying activity.

173. In summary, I support the rezoning of the plan change area to the GBZ for the following reasons:

- There is an emerging scarcity of business land in Pukekohe and there are relatively few business zoned sites in Pukekohe that are available for development as noted in the application;

- The rezoning is likely to function as a natural extension of existing business zoning along Manukau Road, which includes a mix of activities appropriate for General Business or Light Industry zoning, such as car yards and large format retail;

- The GBZ generally aligns with council's Pukekohe-Paerata structure plan, which indicates that the future urban land surrounding Pukekohe Park is appropriate for business/industrial land use;

- The application of the GBZ should not adversely affect the role and function of the Pukekohe Town centre, with resource consent being required for activities which might have an adverse effect; and

- The rezoning would generally align with the zoning principles established during the PAUP process and which are reflected in the RPS and zone provisions.

5.5 Contaminated land

Application

174. Environmental Management Solutions has undertaken contaminated land investigations across the plan change area and have provided a Preliminary Site Investigation ('**PSI**') Report for 301 and 303 Buckland Road (Attachment 6 to the application).

175. Historical uses across the plan change area include pastural farming and possibly some localised horticultural activities on 301 Buckland Road.

176. For 303 Buckland Road, the PSI report concludes that:

> *'The Preliminary Site Investigation did not verify any HAIL activities on the land at 303 Buckland Road, Pukekohe and concluded that soils on the site are highly unlikely to have been adversely affected by past land use activities. In the absence of a HAIL activity, it was considered that the NES does not apply to any future proposal on this site.'*

177. For 301 Buckland Road, the PSI report states that a PSI was undertaken in 2018 which identified the potential for several activities that can be found on the Ministry of the Environment's Hazardous Activities and Industries List ('HAIL') to have occurred on the site. A Detailed Site Investigation was subsequently undertaken to determine if these activities had adversely affected soils on the site. The report states:

> *'… Geosciences Ltd undertook a Detailed Site Investigation in January 2019 to determine if these activities had adversely affected soils on the site. Of the sixteen soil samples collected on the site in relation to these identified land uses, only one sample breached the NES Soil Contaminant Standards for a commercial land use scenario and this sample was collected from imported soil (~10m3) stockpiled on the site. This soil will be removed to landfill in accordance with an approved Remedial Action Plan.*
>
> *In addition, a composite sample collected from the area directly adjoining the villa on site exceeded permitted activity (PA) soil acceptance criteria for Lead as set out in Table E30.6.1.4.1 of the Auckland Unitary Plan (AUP) but did not exceed NES Soil Contaminant Standards for a commercial land use. Levels detected were not significantly above the AUP permitted activity criteria. Contamination of this nature is generally shallow, being limited to surface soils, and localized to within a 3m halo surrounding the building footprint. On this basis, it is considered that dilution through mixing of surface soils in this location to reduce levels below AUP thresholds is a viable option for contaminant reduction, noting that soils already meet NES Soil Contaminant Standards for the intended land use.'*

Peer Review

178. The contamination investigations have been peer reviewed by Ruben Naidoo, Specialist Environment Health, Auckland Council. Mr Naidoo concludes that there appear to be no significant issues of concern with regards to contamination within the plan change area that would impede the proposed zoning. Mr Naidoo states:

> *'I concur with the report that both properties are suitable for the intended plan change and change of use to a BGBZ, and are highly unlikely to have been adversely affected by past land use activities.*
>
> *However, as an area of exceedance of arsenic was identified and the applicant has offered a remediation action plan to remediate and manage contaminated soils; and any future development or removal of existing structures containing ACM will require an Asbestos Demolition Survey, prepared by, and to be removed by a suitably licensed asbestos contractor.*
>
> *These issues shall be addressed at the resource consent stage.'*

179. Given that Mr Naidoo concurs with the conclusions of the AEE and contamination reports, it is considered that any potential risk to human health can be appropriately managed, and the plan change area can be appropriately validated to demonstrate compliance at the consenting stage.

5.6 Effects on Mana Whenua values

Application and analysis

180. Cultural values of the plan change area have been assessed in the two CVA's prepared by the following iwi groups:

- Ngāti Te Ata Cultural Values Assessment
- Ngāti Tamaoho Cultural Values Assessment

181. Sections 7.1.1 and 7.1.2 of the AEE provide summaries of each respective CVA. Generally, the CVAs have indicated that there are not any significant cultural constraints with respect to the rezoning of the plan change area. The CVAs support the proposal in principle at this stage of the planning process, subject to ongoing meaningful engagement with the applicant at the resource consenting stage.

182. Ngāti Te Ata and Ngāti Tamaoho have raised similar 'matters of interest' in their respective CVAs. The matters which are particularly relevant at the plan change stage of the development process are broadly summarised below:

- Provide for the protection, rehabilitation and enhancement of waterways and Stormwater impacts on the Tutaenui catchment as the receiving catchment;
- Ensuring development minimises effects on water quality to the greatest extent possible;
- Ensure the preservation of natural hydrologic functions and processes of the site;
- Ensuring stormwater flows are treated, preferably through a treatment train approach and water sensitive designs that mimic natural processes;
- Encourage the use of stormwater management devices such as raingardens/swales, green roofs and the 'stormwater 360 litter trap' are recommended;
- Wherever possible, re-use rain water through the use rain water tanks;
- Ensure management and protection of natural resources is set above minimum requirements;
- Manage the effects of ongoing degradation of waterways through further development, loss of habitat and increased stormwater runoff;
- Prevent the loss of mature vegetation and natural habitats for native species;
- Ensure protection of streams including provision for stream management plans and special policy requirements (greenspace, infrastructure, wider riparian margins); and
- The management of contaminated soils.

183. The Table below summarises the key matters from the CVA which are addressed under a number of topic headings in this report.

Key matters raised by Mana Whenua	Where the identified matters are addressed in this report
Streams, riparian margins and plantings	Section 5.7 and Section 5.8
Stormwater and flooding	Section 5.7
Contaminated land	Section 5.5

Table 5: Sections of report addressing matters of interest to Mana Whenua

184. There are several matters raised in the CVAs which should be addressed at the resource consenting stage when more detailed work is undertaken. They include but are not limited to the following:

- Ongoing engagement which should extend beyond the plan change stage, particularly as detailed designs of the buildings and site are not available at this time;
- Design of buildings (i.e. Te Aranga Maori Design Principles are incorporated in the design of the site and in future built form);
- Planting and landscaping;
- Vegetation clearance;
- Detailed design and sizing of stormwater devices;
- Earthworks, erosion and sediment control, soil management and contaminated land effects;
- Construction related effects (i.e. dust, odour, contaminants);
- Extent of earthworks and potential to disturb kōiwi, Maori artefacts or archaeological features; and
- Meaningful cultural interpretation occurs through incorporation of place names (e.g. streets and parks) and if and as appropriate cultural art and design elements to offset the impacts to the cultural and natural landscape.

185. There are no known identified Sites of Significance or Value to Mana Whenua within the plan change area. The Heritage New Zealand Pouhere Taonga Act and the AUP Accidental Discovery Rule can be relied upon to manage unidentified archaeological or heritage effects arising from future works across the plan change area.

186. No submissions were received from any mana whenua groups on this plan change.

187. In summary, I agree with the applicant's assessment at sections 3.4 and 7.1 of the AEE regarding effects on mana whenua values and noting the consultation they have undertaken and the feedback received. It is my view the issues raised in the CVA are addressed either in the PC87 as proposed or by other provisions of the AUP or by future resource consent processes.

5.7 Stormwater effects

Application

188. Stormwater and flooding management effects are addressed by the Stormwater Report prepared by Birch Surveyors (Attachment 7 to the application).

189. The plan change area straddles two catchments and due to its location within the catchments, there are virtually no upstream catchments. The stormwater Assessment provides the following description of the catchments:

> *'#301 Buckland is at the top end of a small catchment of 16.1Ha that drains north to Manukau Road, through a culvert under Manukau Road to a short length of open drain, and then is piped some 200m to empty into the Tutaenui Stream. #303 Buckland is at the upper end of a 7.0Ha catchment draining south via open road drains/channels to join the adjacent 132Ha catchment at a common drainage point, being the head of a culvert under Buckland Road, which drains to the Tutaenui via a modified natural Channel.'*

190. The plan change area is not currently connected to any public stormwater infrastructure. Stormwater dissipation is through soakage and surface runoff. The Birch report describes how the surface water moves off the plan change area:

> *'…generally via sheet flow to the road drains and is conveyed either north or south via existing drains to discharge into the Tutaenui Stream which flows into the Wahkapipi Stream, into the Waikato River and eventually to the Tasman Sea.'*

191. Without servicing by public infrastructure, the plan change area and surrounding areas are instead serviced by:

> *'…open drains, natural channels (mostly highly modified), culverts and some historic private pipes that directs surface water to the stream'*

Overland Flow Paths, flood prone areas and flood plains

192. The existing hydrological features of the plan change area are shown on Figure 16 below. Aside from the overland flow paths identified, there are no flood prone areas or flood plains.

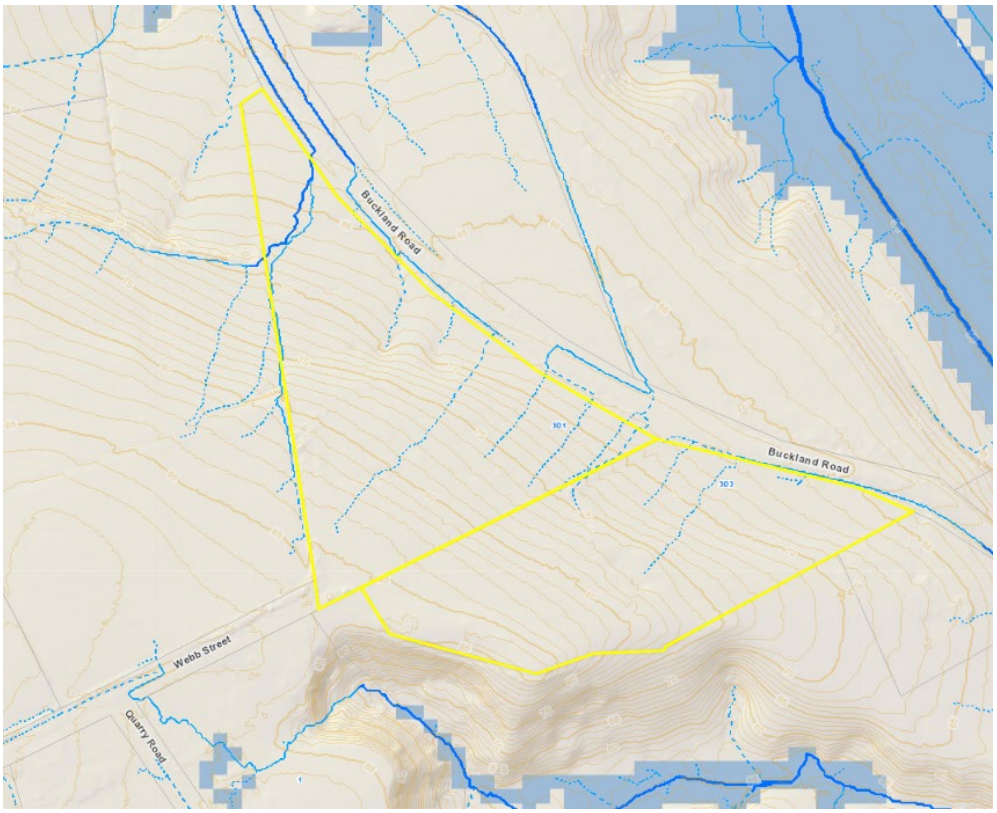

Figure 16: Hydrological features within the plan change area

193. Council GIS has identified several minor overland flow paths across the plan change area and a larger flow path entering the plan change area from the neighbouring field to the west. The Stormwater Report has provided the following assessment in respect of this GIS data:

> *'The contours indicate that the surface runoff will predominantly be sheet flows, not being concentrated into overland flowpaths. The Auckland Council GIS identified overland flowpaths are minor and do not follow natural depressions, indicating these are minor to insignificant in nature.'*

194. The future development of the plan change area will need to consider the existing Overland Flow Paths and conveyance post development. A summary of the proposed management approach is provided below:

> *It is anticipated that the future development of the site will be undertaken holistically and will manage the surface flows in compliance with the NDC in regards to the surface water discharge flow and location and to actual site development.*

Stormwater management approach

195. The stormwater report states that the stormwater management approach for any future development aims to align with the requirements of the AUP and be consistent with the requirements of the Auckland Council Network Discharge Consent ('**NDC**').

196. This means if future development intends to rely on the Auckland Council Stormwater NDC, a Stormwater Management Plan ('**SMP**') will need to be prepared which is intended to be adopted with Auckland Council's NDC and will inform the stormwater management approach for future resource consent and Engineering Plan Approvals. If the SMP is certified under the NDC, the discharges from the plan change area will be authorised in accordance with the SMP.

197. It is noted that the requirement of the NDC to provide water quality and hydrological mitigation to all impervious surfaces is more stringent than the regulations outlined in AUP, which only require water quality treatment for high contaminant generating car parks and high use roads.

198. The stormwater management approach outlined in the stormwater report proposes to meet the SMAF1 hydrological mitigation requirements in the AUP. To manage the increased impervious area, the following range of options have been provided in the report:

> *The proposed stormwater treatment will include retention & detention devices, soakage and bioretention (raingardens or bioswales). These devices are sized to soak away the SMAF 1 retention volume of 5mm, to provide detention of the 95% storm and release ensure over 24hours, and to provide detention of the 10yr ARI Storm event to pre-development flows or less and to attenuate the 100yr ARI Storm Event*
>
> *It proposed that retention & detention tanks and soak holes are used to manage the roof runoff, and bioretention is used to manage the surface water runoff from future carparks, access and outdoor storage areas.*

199. With respect to stormwater devices that require soakage, it is noted the local soil drainage is likely able to support soakage though further investigation is required. Rainfall harvesting and re-use are available options to compensate for reduced infiltration capacity if such an issue arises.

200. The stormwater management approach aims to ensure Best Practice Options for stormwater treatment, promote Water Sensitive Design, minimise the discharge of contaminants into the receiving environment and not worsen downstream flooding. The proposed measures and devices to achieve these outcomes include:

- *Provide for SMAF-1 equivalent hydrology treatment for all impervious areas.*
    - *following methods in order of preference*
        - Ground Soakage if conditions permit
        - Reuse if practical and feasible
        - Added to Detention Volume
    - *For Roads and other access ways, should the ground soakage prove unsuitable, the detention volume will be increased by the retention component within the on-site or communal Raingarden or Wetland*
    - *Attenuated and treated stormwater discharge points shall be to Stabilised and/or*
    - *Green Outlets as best suits the discharge point and immediate receiving environment*
- *Provide stormwater treatment at source or within centralised Raingardens or Wetlands.*
- *Inert Roofing Materials to be installed to all covered structures.*
- *Additional treatment may be required by future businesses to treat specific contaminants (eg Gross Pollutant Traps, Oil Grit Separators etc - depending upon actual site use).*
- *Provide attenuation to ensure peak runoff is not increased up to and including the 100yr ARI* Rainfall event.

201. The report concludes that the measures above will provide hydrological mitigation and stormwater treatment and ensure flood levels and peak flowrates are not increased onto downstream properties.

Peer review and analysis

202. Hillary Johnston of Tektus Consultants has reviewed the application on behalf of Auckland Council. Ms Johnston's memo is included in Appendix 5.

203. Healthy Waters provided the initial review of the application. Following their review, they queried through the further information request as to whether the applicant had given any consideration to the application of the SMAF1 overlay over the plan change area.

204. Ms Johnston's review raises the same issue regarding the application of the SMAF1 overlay. Ms Johnston considers that the overlay should be applied over the plan change area.

205. The reasons for seeking the SMAF1 is detailed in Ms Johnston's memo and summarised as follows.

206. The increase in impervious area due to the proposed plan change have potential implications on the downstream receiving environment due to hydrological changes. The SMAF1 overlay will require hydrological mitigation measures to manage the effects of stormwater runoff generated by increased impervious areas. If the SMAF1 overlay is applied, the provisions of Chapter E10 of the AUP will be relevant for development of the plan change area.

207. The SMAF1 overlay is applied in areas where there are rivers and streams that are particularly susceptible to the effects of development or have relatively high values. As part of the analysis to inform the PAUP, the Tutaenui Stream was assessed as meeting the above criteria.

208. The PPSP Stormwater Management Plan has identified ongoing erosion as an issue for nearly all streams surveyed in the Pukekohe-Tutaenui watercourse assessment. The Tutaenui stream was identified as being subject to prevalent 'active erosion'. To address this, the PPSP Stormwater Management Plan requires the following:

Application of hydrological mitigation is required for the Paerata Pukekohe Structure Plan area to minimise hydrological impacts on streams within and downstream of the Future Urban Zone.

209. During the PAUP process, SMAF controls were limited to existing developed areas with the expectation that undeveloped greenfield areas would consider the need for hydrologic mitigation as part of the assessment at the time of a plan change for the area.

210. I consider it appropriate to apply the SMAF1 overlay as part of this plan change given the proposed urban zoning and for the reasons provided above. This is supported by Ms Johnston's recommendation at the end of her memo:

> *'As the site is largely pervious consideration of SMAF 1 hydrology mitigation is necessary. Given the PPC is for a change in zoning only and does not included an associated precinct plan, hydrology mitigation for the PPC area can only be required through the application of a SMAF 1 overlay.*
>
> *This omission of the application of a SMAF overlay is considered inconsistent to the application of SMAF overlays for other remaining urban zoned areas within the Region and hinders the implementation of the related cascade of hydrology mitigation provisions within E10 – objectives, policies, rules, and standards.'*

211. In summary, it is my view that stormwater and flooding matters can be satisfactorily addressed through the application of the SMAF1 overlay at the plan change stage. More detailed assessments will be undertaken at the consenting stage to ensure compliance with Chapter E10 (Stormwater management area – Flow 1 and Flow 2).

5.8 Ecology

Application

212. Ecological effects of PC87 are assessed in section 6.2 of the AEE. The AEE states:

> *'The site is almost entirely formed in pasture associated with previous use for grazing activities. There is no indigenous vegetation on the land and there are no freshwater streams or wetlands present.'*

213. The AEE concludes that the plan change has very low ecological values given the site characteristics and use of the land for productive livestock farming.

Analysis

214. Council GIS (Figure 17 below) indicates that there are no streams, Significant Ecological Areas or notable trees within the plan change area. The plan change area is devoid of any freshwater ecology or terrestrial ecology values which are protected under the AUP.

Figure 17: GIS viewer with relevant environmental layers turned on

5.9 Geotechnical effects

Application

215. A geotechnical report has been prepared by Initia Geotechnical Specialists for the plan change area (Attachment 5 to the application).

216. The report provides a preliminary assessment of the ground conditions and the key geotechnical considerations in relation to land use change within the plan change area. Generally, there are no notable issues with groundwater, instability, liquefaction, consolidation settlement or any other hazards which cannot be addressed by engineering solutions.

217. Having assessed the local ground conditions and the anticipated development types (lightly and moderately loaded industrial and commercial buildings), the report concludes:

> *'Based on our understanding of the local ground conditions and our experience with typical retail and commercial developments, i.e. lightly to moderately loaded buildings, we do not expect any significant geotechnical constraints to BGBZ development at the site. Provided that geotechnical considerations are addressed, along with specific investigations and assessment for any future development at the site, we expect the competent nature of the ground at the site to support a variety of development types and options.'*

218. It was acknowledged that further investigation and assessment will be needed at the development stage. A preliminary assessment is sufficient at this stage and confirms that geotechnical issues can be resolved through appropriate design methodologies, commensurate with development and earthworks plans as part of the resource consent process.

6 MATTERS RAISED IN SUBMISSIONS

6.1 Submitter details

Submitters

Submission No.	Name
1	Buckland Road Trustees Limited
2	Auckland Thoroughbred Racing Incorporated
3	Auckland Transport
4	EnviroWaste Services Limited
5	Nomita Singh
6	Hira Bhana

Further Submitters

Further Submission No.	Name
1	Auckland Transport

219. The tables below are based on the following submission themes:

- Support for the Plan Change
- Zoning
- Reverse sensitivity
- Infrastructure and infrastructure funding
- Transport

220. It will be noted that most (although not all) of these themes relate to previous analyses undertaken in this report. In order to avoid repetition, this part of the report therefore contains cross-referencing to the previous assessments.

221. The tables contain a column with a recommendation on the submission, with a discussion following each table. The discussion cross-references the relevant analysis conducted in Section 5 of this report and adds further discussion where appropriate.

222. Further submissions have generally not been directly addressed unless containing pertinent new information – recommendations are made in accordance with the recommendation on the primary submission.

6.2 Support for the Plan Change

Sub. No.	Submitter	Summary of the Relief Sought	Further Submissions	Recommendation
1.1	Buckland Road Trustees Limited	Approve the plan change as notified.		Accept in Part

223. The above submission supports the plan change. I note that it seeks no amendments to the plan change. Given that amendments are proposed, the “accept in part” recommendation has been made.

6.3 Zoning

Sub. No.	Submitter	Summary of the Relief Sought	Further Submissions	Recommendation
4.1	EnviroWaste Services Limited	Amend the proposed Business: General Business zone to the Business: Light Industry zone		Reject
5.1	Nomita Singh	Approve the proposed Business: General Business zone.		Accept

Discussion

224. Matters relating to zoning are addressed in Section 4.8.3 and Section 5.4. It is on that basis I make the recommendations in the table above.

6.4 Reverse sensitivity

Sub. No.	Submitter	Summary of the Relief Sought	Further Submissions	Recommendation
6.1	Hira Bhana & Co	Implement buffer zones in the plan change area adjoining the submitter's land to protect against potential reverse sensitivity effects.	AT FS1.2 – Neutral	Reject
6.2	Hira Bhana & Co	Implement measures to ensure that future development in the plan change area cannot complain about existing activities on the submitter's land.		Reject

Discussion

225. Hira Bhana & Co have sought the implementation of a buffer zone at the interface between their land and the plan change area, to ensure that development of the plan change area will not impact the ability of their site to be used for activities related to rural production (i.e. the ability to commercially grow vegetables). Hira Bhana & Co also seeks the implementation of measures/conditions to safeguard their ability to operate without constraints arising from complaints which may come from the plan change area once developed.

226. Hira Bhana & Co is concerned with reverse sensitivity effects associated with urban development of the plan change area if rezoned noting that their operation cannot fully internalise its effects and urban use of the land will likely expose more people to such effects. In particular, Hira Bhana & Co has noted that the potential for complaints to arise from the new urban uses may unduly restrict their current operations or impose economic burdens which may reduce operational viability.

227. Hira Bhana & Co has not defined what the mechanisms would take effect inside the 'buffer zone' to give effect to the relief sought, or the extent of such a buffer zone.

Reverse sensitivity

228. Reverse sensitivity is a well-documented resource management issue. It has has been defined through case law. Judge Thompson in Affco NZ Ltd v Napier City Council (W082/04) refers to it as:

> *Reverse sensitivity is the legal vulnerability of an established activity to complaint from a new land use. It arises when an established use is causing adverse environmental impact to nearby land, and a new, benign activity is proposed for that land. The "sensitivity" is*

this: if the new use is permitted, the established use may be required to restrict its operations or mitigate its effects so as to not adversely affect the new activity.

229. Reverse sensitivity is a relevant consideration in this case as it is not possible to fully internalise the effects of rural production activities (potentially including noise and dust). Therefore, consideration needs to be given to the potential for incompatibility between the rural activities and the new uses enabled by the urban zone, especially if the establishment of those new uses may lead to curtailing of existing land uses.

Rezoning of the Future Urban Zone

230. The purpose of the FUZ is to facilitate the future urban development of the land and allow for long term planning and investment for infrastructure to support these new growth areas. The zone provides greater certainty to landowners and infrastructure providers as to the direction of urban growth over the long term, and provides clearer signals about future use, timing and processes for urbanisation.

231. While the FUZ allows for a broad range of rural activities to occur, it is not a rural zone and these activities are only an interim use of the land to ensure that property owners can continue to use the land until urban development is able to be provided via the structure plan and plan change process.

232. I note that the PPSP has indicated a preference for the plan change area to be used for business purposes, specifically through the LIZ to provide for growth of industrial activities and associated employment. The structure plan noted that the preferred locations for business land was chosen, among other reasons, due to the:

> *'Proximity to existing 'less sensitive' activities to limit potential reverse sensitivity issues, such as the Rural Production Zone and Special Purpose – major Recreation Facility Zone'*

233. In my view, the rezoning of the plan change area for business purposes will ensure that reverse sensitivity conflicts are minimised for the following reasons:

- Both the LIZ and GBZ are working environments, expected to be relatively low amenity zones where residential activities are not provided for. The anticipated environment is quite different to that within centres, mixed use zones and residential zones;
- The GBZ is highly valued for its provision of LFR. LFR are predominately indoor activities making them less susceptible to reverse sensitivity (such as from the effects dust, noise and odour);
- The GBZ would discourage sensitive activities from establishing in the area. Sensitive activities such as dwellings, integrated residential developments and care centres are either discretionary or non-complying activities in the zone; and
- The plan change area has been zoned Future Urban since the decisions version of the PAUP was notified in August 2016. As such, urban use of the land has been signalled for a significant period of time. The development of the land is not a sporadic development or unplanned settlement representing an outward expansion of urban uses.

Potential effects of reverse sensitivity on adjacent rural production land

234. It is my view that the potential for reverse sensitivity should be considered, rather than simply establishing that there are automatically reverse sensitivity effects anytime a new use is introduced next to an established use.

235. In this instance, it is my view that the establishment of the GBZ will not hinder the continued operation of the existing rural activities for the following reasons:

- With respect to the local context, new businesses establishing within the plan change area (if rezoned) would be aware of the existing surrounding rural uses given their location at the edge of Rural Urban Boundary. The planning maps and the provisions in the AUP sets out the purpose of the adjacent RPZ land and notifies the future occupiers of what activities (such as farming) are permitted in the zone. Context is important for managing expectations in that one would have to accept that effects associated with rural production such as noise, dust and odour within the area are expected when the existing use has been legally established;

- The submitter has raised concerns about the potential for future occupiers of the business land to complain about existing rural activities. In my view, the complainants would need to establish that they have been exposed to nuisances that are unlawful and/or unreasonable in order have reasonable grounds for curtailing such activities. The policy direction of the RPZ seeks to ensure that the adverse environmental effects of the activities are kept on-site to the 'fullest extent possible'. This acknowledges that it is not possible to always contain such effects within a site though every effort should be made to do so. As such, it would be unreasonable for new occupiers to expect restrictions if rural production activities are operating within the confines set by the AUP; and

- Requiring business zones to adopt on-site methods to avoid reverse sensitivity effects on rural production activities is appropriate where there are 'sensitive' activities enabled within the plan change area. As noted above, in the GBZ activity table, sensitive activities such as dwellings require a discretionary resource consent to establish. This ensures that reverse sensitivity effects can be considered at the resource consenting stage. Importantly, these activities are contrary to the objectives and policies of the GBZ and any application for dwellings or integrated residential developments must be publicly notified.

236. In summary, the zoning of the land for business purposes will ensure that the potential for reverse sensitivity conflicts is minimised as sensitive uses such as residential activities are not provided for.

6.5 Infrastructure

Sub. No.	Submitter	Summary of the Relief Sought	Further Submissions	Recommendation
2.1	Auckland Thoroughbred Racing Incorporated	If the plan change is approved, Auckland Council shall require as a condition of that approval that: (a) if the submitter completes the upgrade to the intersection of Buckland Road, Manukau Road, and Kitchener Road, the registered owners of 301 and 303 Buckland Road be required to share the costs of the intersection upgrade		Reject
2.2	Auckland Thoroughbred Racing Incorporated	If the plan change is approved, Auckland Council shall require as a condition of that approval that: (a) if the implementation of the proposal or the use of the land rezoned under the proposal triggers an upgrade of the intersection of Buckland Road, Manukau Road, and Kitchener Road earlier than would be required under PC 30, that the registered owners of 301 and 303 Buckland Road carry out that intersection upgrade where the submitter with share the costs of the intersection upgrade.	AT FS1.1 – Neutral	Reject
5.2	Nomita Singh	If the plan change is approved, relevant infrastructure upgrades and extensions (public road, water, wastewater, stormwater) to support the development of the plan change area should be the provided by the developer, and shall enable the future development of future surrounding land.		Accept in part

Discussion

237. With respect to the submission by Nomita Singh, infrastructure is addressed in Sections 5.2, 5.3 and 5.7 above. It is on the basis of that assessment that I make the recommendations in the table above.

238. Auckland Thoroughbred Racing Incorporated has requested that the costs for any upgrades to the intersection at Manukau Road/Buckland Road/Kitchener Road be shared between themselves and the applicant as a requirement for approval of PC87.

239. As set out in their submission, cost sharing is required if either the submitter completes the upgrades or, if either the rezoning or use of the rezoned land triggers an upgrade of the intersection earlier than would be required under Plan Change 30 ('**PC30**').

240. As part of PC30, a private agreement was reached between the applicant and AT to secure the delivery of transport infrastructure as required to provide mitigation of any adverse transportation effects of future land use, to be dealt with at resource consent stage.

241. The private agreement relates to the registration of a land covenant over the plan change area, which identifies several transport related upgrades required as the plan change area is developed and the triggers for implementation of those upgrades.

242. Of particular relevance to this plan change is the requirement to upgrade the intersection of Manukau Road/Buckland Road/Kitchener Road to a single-lane roundabout, and also to vest or transfer land required to accommodate the roundabout to Auckland Council. The triggers for the upgrade (as set out in the covenant) are as follows:

(a) in respect of the first application for resource consent (land use or subdivision) for the Burdened Land following the re-zoning of the Burdened Land to Business - General Business Zone:

…

(c) complete the road upgrades listed in schedule B at the Covenantor's cost when:

(i) the use or development of any part of the Burdened Land cumulatively results in more than 75 vehicle movements per hour turning right out of a single existing or proposed vehicle crossing onto Manukau Road or Buckland Road; or

(ii) any individual site or allotment within the Burdened Land proposes a vehicle crossing opposite Kitchener Road or within 30 metres of Kitchener Road not existing as at 21 July 2020; or

(iii) a traffic or transport assessment included in any application for resource consent for the use and development of the Burdened Land prepared by a suitably qualified and experienced traffic engineer or transportation planner identifies that the cumulative effects of the existing and proposed vehicle crossings along the frontage of the Burdened Land will result in unacceptable operational performance or safety risks for the adjacent transport network;

243. Schedule B as referenced above concerns the aforementioned roundabout:

Schedule B -road upgrades to be completed in accordance with clause 4(c)

1 The construction of a single-lane roundabout at the intersection of Kitchener Road with Manukau Road and Buckland Road;

2 The necessary street lighting and any necessary planting as part of the urban transition on the southern approach to the roundabout; and

3 Any relocation of services and utilities required within the construction footprint of the road upgrade works in 1 and 2 above.

162. The key issue in my view is whether development within the plan change area would 'trigger' an upgrade of the PC30 intersection.

163. It is my view that the rezoning of the plan change area will not in itself trigger any immediate requirement for mitigation (with respect to the Manukau Road/Buckland Road/Kitchener Road intersection). However, as set out in section 5.2 above, future land use of the rezoned land (at PC87) may require mitigation. The type, scale and mix of activities that is ultimately developed within the plan change area, as well as the timing of the development and the state of the local network will determine the need to upgrade the Manukau Road/Buckland Road/Kitchener Road intersection.

164. There are several uncertainties with respect to the development scenarios that could arise from the development of the land associated with PC30 and PC87, as summarised below:

- The sequence of development of PC30 and PC87, and whether transport upgrades as required to support development are built and operational;
- The type of upgrade (i.e. roundabout or traffic signals) that is installed at the Manukau Road/Buckland Road/Kitchener Road intersection; and
- The composition of activities within the PC87 area.

165. In order to address the uncertainties outlined above, I have recommended, in agreement with Mr Edwards, that specific precinct provisions be drafted which require consideration be given to any potential effects on the Manukau Road/Buckland Road/Kitchener Road intersection at the time of development of the PC87 area.

166. I believe such provisions (to be confirmed) would have been required irrespective of the content of the submission from the Auckland Thoroughbred Racing Incorporated, given the modelling and analysis discussed in Section 5.2.

167. The private agreement reached as part of PC30, and the precinct provisions (to be confirmed) recommended as part of PC87 appropriately sets out the responsibilities and expectations for future developers of the respective lands. As such, I am of the view that the relief sought to share the costs of the intersection upgrade is unnecessary.

6.6 Transport

Sub. No.	Submitter	Summary of the Relief Sought	Further Submissions	Recommendation
3.1	Auckland Transport	Decline the plan change unless the matters raised within its submission (as set out in Attachment 1 of the submission) can be adequately addressed.		Accept in Part (to be confirmed)
3.2	Auckland Transport	Decline the Plan Change or alternatively amend the plan change to include a precinct plan and precinct provisions for the plan change area. The precinct provisions should include specific transport mitigation mechanisms to ensure that the matters identified in the Applicant's ITA, further information responses and within this submission can be appropriately addressed.		Accept (to be confirmed)
3.3	Auckland Transport	Decline the Plan Change or alternatively amend the plan change		Accept (to be confirmed)

		to include a precinct plan and precinct provisions which provides for a collector road (PU-NS-2 Collector Road) with separate cycle and walking facilities linking to Buckland Road. The connection should be designed so that it does not preclude future development nor links to the south.		
3.4	Auckland Transport	Decline the Plan Change or alternatively amend the plan change to provide certainty that the upgrade to the Buckland Road / Kitchener Road intersection will be delivered.		Accept (to be confirmed)
3.5	Auckland Transport	Decline the Plan Change or alternatively amend the plan change to ensure that the controlled access intersection on Buckland Road (roundabout or traffic signals) should be identified on a precinct plan and provisions specific to the plan change area.		Accept (to be confirmed)
3.6	Auckland Transport	Decline the Plan Change or alternatively amend the plan change to require subdivision and development to provide connections (for all modes) to adjacent sites, and connections through to Buckland Road		Accept (to be confirmed)
3.7	Auckland Transport	Decline the Plan Change or alternatively amend the plan change to require the Buckland Road frontage to be upgraded to an urban standard with separated walking and cycling facilities in conjunction with subdivision and development of the site.		Accept (to be confirmed)
3.8	Auckland Transport	Amend the plan change to include specific planning provisions (including objectives, policies and rules) to require subdivision and development to provide active mode connections along the frontage of 32 Kitchener Road and provide for pedestrian crossings on Buckland and Kitchener Roads. Furthermore, provision for bus stops should also be provided for along the west and east sides of Buckland Road. It is considered that these transport infrastructure mitigation requirements would require precinct plan and provisions to ensure they are provided for.		Accept (to be confirmed)
3.9	Auckland Transport	Amend the plan change to include specific planning provisions		Reject

		(including objectives, policies and rules) to include precinct provisions to include whole of life costs and effectiveness of treatment over time associated with publicly vested stormwater assets as a matter for discretion and policy.		
3.10	Auckland Transport	Supports the Reduced speed limits on Buckland Road (past the site) to 50km/h		Reject
3.11	Auckland Transport	Amend the plan change to include specific planning provisions (including objectives, policies and rules) to require subdivision and development to limit or prevent direct vehicle access onto Buckland Road.		Accept (to be confirmed)

Discussion

244. Transport Effects are addressed in Section 5.2 above and cover all the matters raised in the above submissions, except for Submission 3.9 from AT.

245. AT [3.9] requests the drafting of precinct provisions that require consideration of the operational costs and consolidation of stormwater treatment assets. I understand that it is the preference of AT and Council's Healthy Waters to provide fewer larger treatment devices rather than numerous smaller devices adjacent to the roads. It may be appropriate for reference to locating and designing stormwater treatment assets in a manner which reduces their operating costs to be incorporated into a future SMP.

246. I have been advised by AT that the precinct to be introduced by the applicant will address all the transport related matters in its submission and submission 3.9 is no longer being pursued.

247. I note that Mr Edwards supports the relief sought in Submission 3.10 and the reasons for seeking a lower speed limit. It is however a matter that I'm unable to address as part of the plan change given that only AT can set speed limits.

248. Both Mr Edwards and I recommend the provision of a precinct to provide greater certainty that the transport infrastructure required to support the plan change will be provided, and the transport effects associated with development of the plan change area will be appropriately managed.

249. I understand AT has agreed to the precinct provisions which are to be introduced by the applicant via a new precinct over the plan change area. I note however that further assessment of the precinct (once introduced) is required before the recommendations can be confirmed.

7 ALTERNATIVES AND METHODS

250. The objective of the plan change is set out in section 2.1 of the applicant's Section 32 evaluation. Briefly, the objective is to enable opportunities for local employment and to provide new business land to support residential growth in Pukekohe.

251. I have reviewed the alternatives and methods analysis in the Section 32 document (sections 2.2 and 2.3) and consider it to be sound. I generally agree that the rezoning is a natural extension of existing business land south of the Pukekohe Town Centre. It will

complement the existing pattern of land use while being compatible with the intentions of the PPSP.

252. Apart from where issues have been raised in this report, I consider that the evaluation undertaken does set out the most appropriate method to achieve the objective.

8 RISK OF NOT ACTING

253. The risk of not acting is that development will not be enabled in an area (Pukekohe) that has been structure planned and has been sequenced for development in the very near future. As no timeframe has been given for the rezoning of FUZ land around Pukekohe, this private plan change will provide for GBZ land which will help to meet immediate demand for this type of business land and support local employment choices needed to sustain growth in Pukekohe.

254. While there are some matters to address as set out in this report and through submissions, it is my view that they are capable of resolution.

9 RECOMMENDATIONS

255. My draft recommendation is that PC87 be approved. This draft recommendation is subject to the amendments proposed in Sections 5.2 and 5.7 which include the introduction of precinct provisions to manage transport related effects and the application of the SMAF1 overlay. In relation to submissions, the decisions I have recommended on these matters are laid out in Section 6 above.

10 SIGNATORIES

	Name and title of signatories
Author	 Jimmy Zhang, Senior Planner, Plans and Places
Reviewer / Approver	 Craig Cairncross, Team Leader, Plans and Places

APPENDIX 1

APPLICATION MATERIAL

PUKEKOHE LIMITED

PROPOSED PRIVATE PLAN CHANGE FROM FUTURE URBAN ZONE TO BUSINESS – GENERAL BUSINESS ZONE

301 and 303 Buckland Road, Pukekohe

Assessment of Environmental Effects

Project No. 4314.00

Date January 2022

SCOTT WILKINSON PLANNING

TABLE OF CONTENTS

ATTACHMENTS

FIGURES

ISSUE AND REVISION RECORD

Status	Draft
Revision No.	Rev 2
Project No.	4314.00
Date of Issue	January 2022
File Name	PPC - Buckland Rd - Oct 2021.docx

Prepared by

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LIMITATIONS

This report has been prepared for Pukekohe Limited. No responsibility is accepted by Scott Wilkinson Planning Limited or its directors or employees for the use of any part of this report in any other context or for any other purpose.

This report is for use by Pukekohe Limited and Auckland Council and should not be used or relied upon by any other person or for any other project.

1 INTRODUCTION

This is a request for a private plan change (**PPC**) to the Auckland Unitary Plan – Operative in Part (**Unitary Plan**) under Part 2 of the First Schedule to the Resource Management Act 1991 (**RMA**). The PPC seeks to rezone two parcels of land at 301 and 303 Buckland Road, Pukekohe from Future Urban Zone (**FUZ**) to Business – General Business Zone (**BGBZ**). No other changes to the provisions of the Unitary Plan are proposed. For the purposes of this report the land subject to the PPC is referred to as the Plan Change Area (**PCA**).

1.1 THE REQUESTER

The properties subject to this plan change request are owned by two separate entities (301 Buckland Road – Peterex Properties Limited and 303 Buckland Road – Pukekohe Limited). However, for administrative simplicity, a single entity (Pukekohe Limited) is the requester for this plan change. Some of the expert reports supporting this request refer to Peterex Properties and Pukekohe Limited but should be viewed as being for the single entity requesting the plan change.

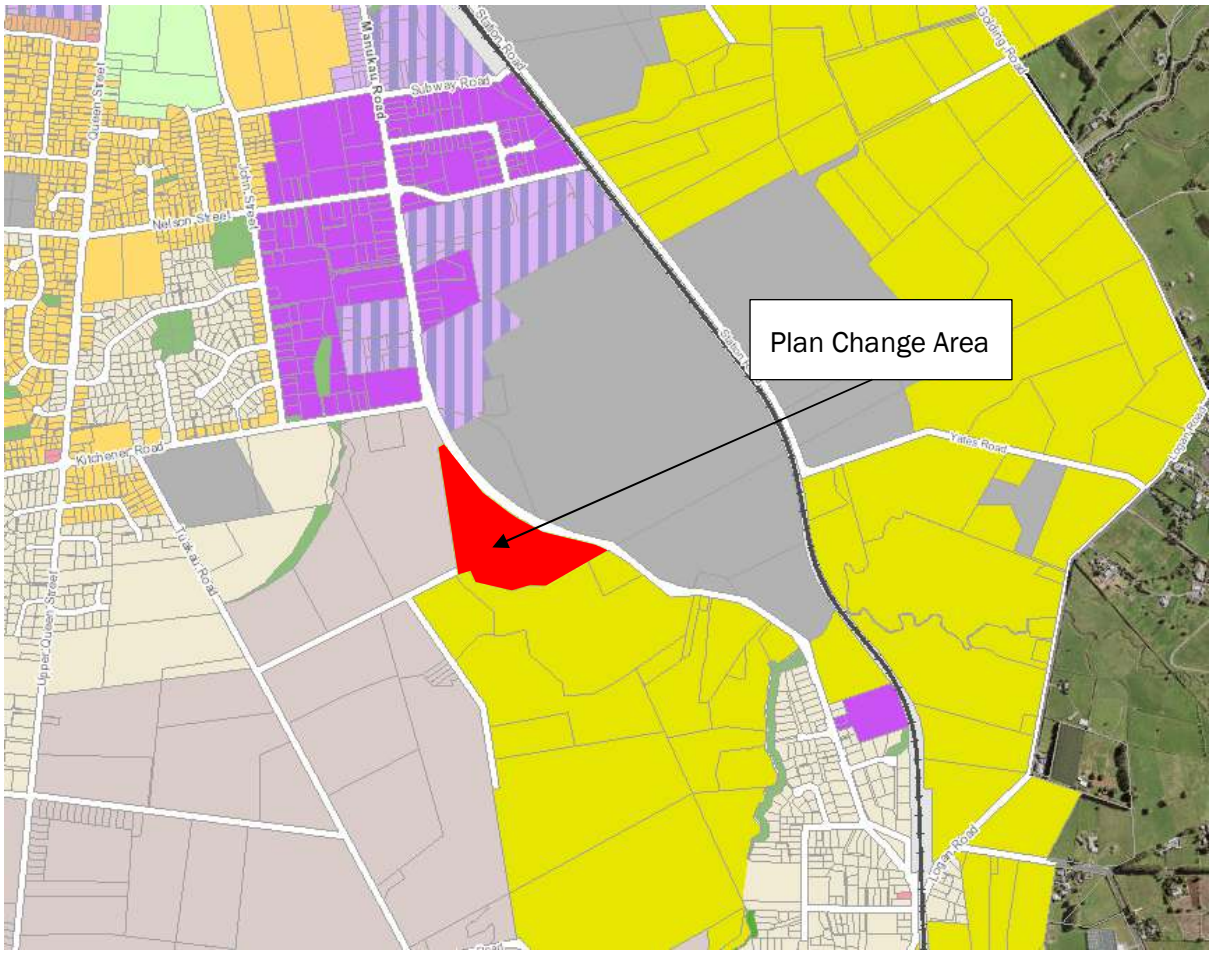


Figure 2 - Land subject to the Private Plan Change Request (Source: Auckland Council Geo Maps)

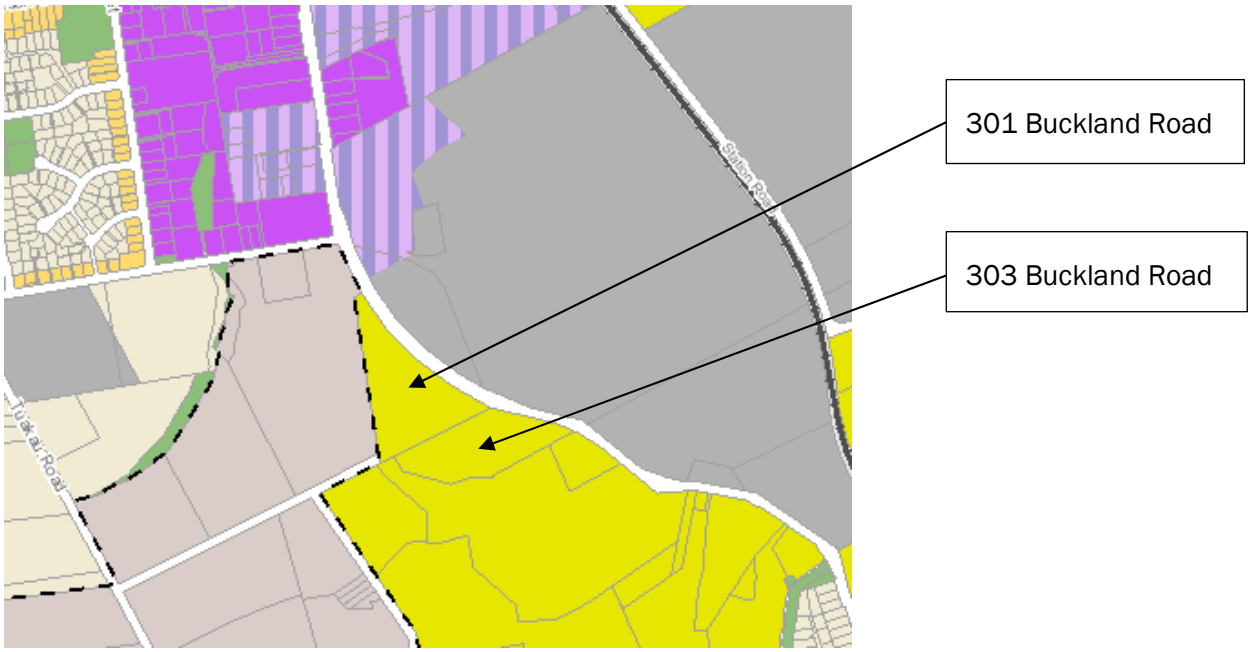


Figure 3 - 301 and 303 Buckland Road (Source: Auckland Council Geo Maps)

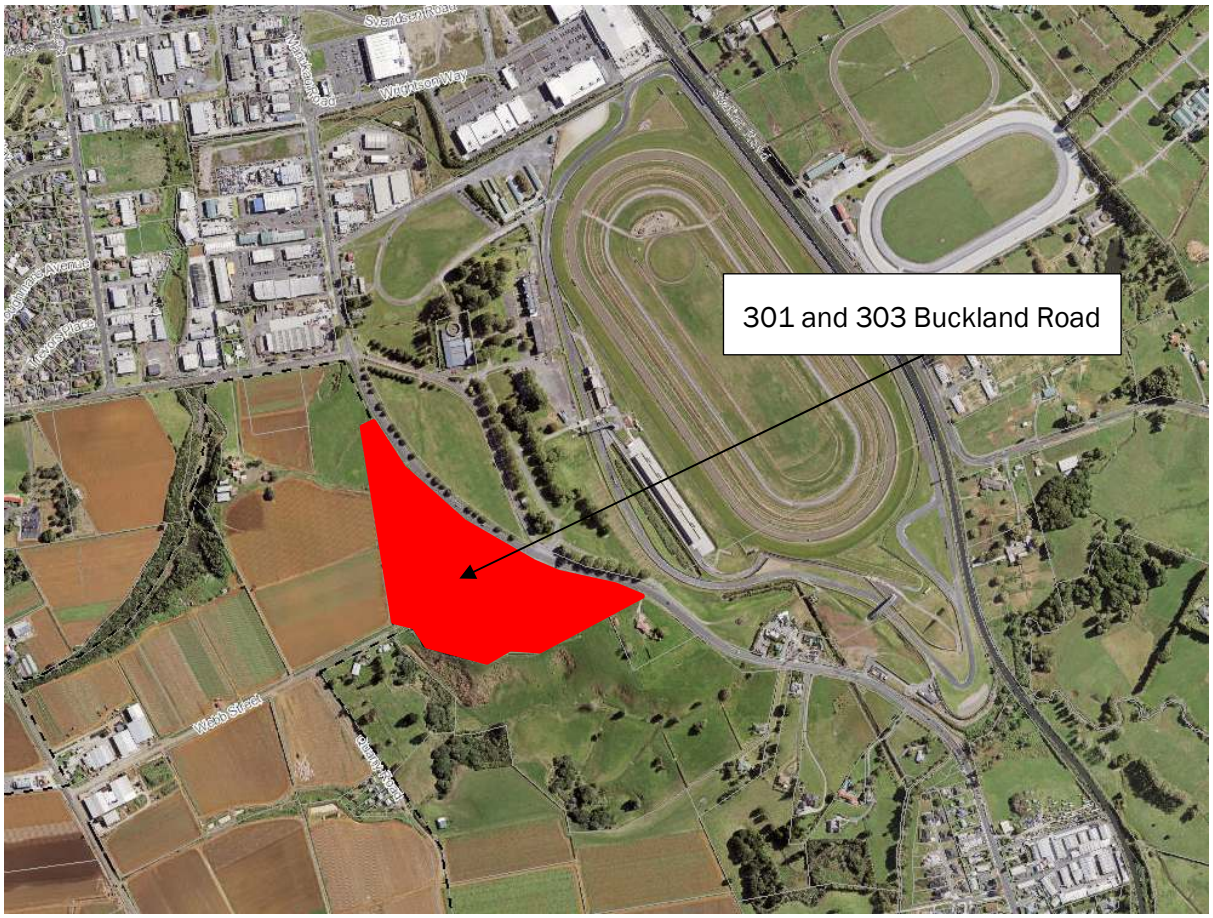


Figure 4 - Locality Plan – Aerial (Source: Auckland Council Geo Maps)

2 PLAN CHANGE LOCALITY

Site Address	301 and 303 Buckland Road, Pukekohe
Name of Requester	Pukekohe Limited
Legal Description	301 Buckland Road - Pt Lot 1 DP 3363 303 Buckland Road - Lot 1 DP 64805 refer (**Attachment 1**)
Site Area	301 Buckland Road – 4.3602 ha 303 Buckland Road - 3.5038 ha

PLANNING INSTRUMENTS

Auckland Unitary Plan- Operative in Part:

Zoning	Future Urban Zone (**FUZ**)
Precinct	NA
Overlays	Natural Heritage NA Natural Resources Natural Resources: High-Use Aquifer Management Areas Overlay [rp] - Pukekohe Kaawa Aquifer Natural Resources: High-Use Aquifer Management Areas Overlay [rp] - Pukekohe Central Volcanic Natural Resources: Quality-Sensitive Aquifer Management Areas Overlay [rp] - Franklin Volcanic Aquifer Height Sensitive Areas NA
Controls	Controls: Macroinvertebrate Community Index - Rural
Designations	NA
Other features	NA

3 EXISTING ENVIRONMENT

3.1 LOCATION

The PPC comprises two parcels of land:

301 Buckland Road

The site is triangular shaped and located on Buckland Road approximately 120m south of Kitchener Road on the southern outskirts of Pukekohe. It is comprised almost completely of grazed pasture with only a few exotic trees scattered near the rear boundary of the site. The site contains a single level timber farmhouse near the southern boundary and farm sheds near the southern end of the western boundary. Otherwise the site is devoid of structures.

The topography of the site slopes steadily up from Buckland Road to the west from RL 61m at the northern corner, to RL 85.5m at the southern western corner.

The site has frontage to Buckland Road which has an Arterial Road classification under the Unitary Plan. The frontage is some 372m long. An existing vehicle crossing to Buckland Road serving the dwelling on site is located at the southern boundary. At the south western edge of the site is the eastern extent of Webb Street, which is a local rural road running from Tuakau Road.

303 Buckland Road

This site adjoins 301 Buckland Road to the south and has an irregular polygonal shape. It has no stream, wetland or other fresh water features and is primarily in grass pasture. Limited hedging exists along internal and external fence lines. Otherwise the site is devoid of vegetation.

The site contains a single dwelling with nearby garaging and a swimming pool. A formed driveway located at the northern corner of the site provides access to the dwelling.

The site slopes steadily up from Buckland Road in an east to west direction ranging from RL 65m at the south eastern Buckland Road frontage to RL 85m at the western boundary.

Adjoining to the west is productive rural land used primarily for horticulture with some highly modified wetland and stream area adjoining near the south western boundary.

Locality

Adjoining to the south of both properties are several rural land holdings formed in pasture and with single dwellings. These sites are zoned Future Urban Zone (**FUZ**). Adjoining to west is rural land used for commercial horticulture and there are two large horticultural processing facilities associated with these activities on the intersection of Webb Street and Tuakau Road.

Opposite the site is Pukekohe Park which is a multi-purpose recreation facility incorporating the Pukekohe Racing Club (horse racing), the Pukekohe Raceway (motor racing) and a conference and function centre.

To the north of Kitchener Road is the urban extent of the Pukekohe township with Manukau Road being dominated by a range of industrial, warehousing and distribution activities. Land to the north east of Pukekohe Park has recently been rezoned BGBZ while the remainder of the Park has a Special Purpose – Major Recreation Facility zoning.

Further to the north along Manukau Road is land zoned predominantly Business – Light Industry Zone (**BLIZ**) with some land also zoned BGBZ. This constitutes the largest area of business zoned land in Pukekohe with a smaller area of BLIZ land located east of Paerata Road to the north.

There is no residential zoned land in the immediate locality with the nearest land located to the west some 500m away containing a mix of Residential – Single House Zone and Residential – Mixed Housing Suburban Zone land fully developed.

On the corner of Tuakau Road and Kitchener Road (some 530m from the western boundary of 301 Buckland Road) is Pukekohe Hospital.

Pukekohe

Pukekohe is an established community located approximately 50 kilometres south of Auckland's city centre. It is located on the rail line and is connected to State Highway 1 and the rest of Auckland via State Highway 22.

The wider catchment includes Paerata, located on State Highway 22, and immediately to the north of Pukekohe. The nearby towns of Tūākau and Pokeno, located in the Waikato District, are also well connected to Pukekohe.

Pukekohe serves a wide rural catchment, centred on rural production with some of New Zealand's most elite soils and prime agricultural land. Dairy farms and horticultural production activities have long been established on the surrounding fertile soils.

Pukekohe's economy is based on farming-related activities which is centred on its highly productive soils for a range of horticultural products. It also continues to attract those seeking a rural lifestyle.

3.2 SITE ECOLOGY AND VEGETATION

The site has very low ecological values. There is no indigenous vegetation on the site or stands of established trees. Both sites do not have any watercourses or wetlands and no associated habitat values of indigenous flora or fauna.

As set out in the description of each site, both properties are formed in pasture and have been used for productive livestock farming.

3.3 TOPOGRAPHY

The PCA slopes up from Buckland Road with the lowest point being at the northern edge of the PCA adjoining Buckland Road (RL 62m) rising to the highest point near the western most part of the PCA at RL 85m. The PCA has an even slope to the north east to the south west and offers elevated views across Pukekohe Park to the east as well as views north to Pukekohe township.

The site is also very legible and visible from a number of vantage points within the urban limits of Pukekohe along Manukau Road.

3.4 CULTURAL AND HERITAGE

There are no known cultural or heritage sites identified or associated with the PCA. The Pukekohe locality is recognised as being within the rohe of Ngati Tamaoho and Ngati Te Ata who are recognised mana whenua in this area.

Cultural Values Assessments (**CVA**) have been undertaken by both mana whenua groups and this is discussed in the cultural effects section of this report.

3.5 CONTAMINATION

Both properties that comprise the PCA have been subject to preliminary site investigations (**PSI**)

and it has been confirmed that the PCA has been used for pastoral farming (cattle, sheep and horses) and it is unlikely that any activity on the Hazardous Activities and Industries List (**HAIL**) has been undertaken.

3.6 INFRASTRUCTURE

The PCA is serviced by existing water supply infrastructure in the Buckland Road reserve and Watercare has indicated that it is upgrading its wastewater infrastructure and has established a new wastewater pump station at 1749 Buckland Road (to the south west). There is no reticulated stormwater services on the site or within the road reserve.

3.7 PREVIOUS CONSENTS

3.7.1 301 BUCKLAND ROAD

An integrated consent comprising: land use, subdivision, stormwater discharge and consent under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health, was granted on the site on 9 September 2019.

The Council reference is BUN60333645 (LUC60325312, SUB60333646, and DIS60340705).

This consent was granted to Franklin Plumbing and was to be the headquarters for this large Pukekohe based firm. The consent involved a large warehouse and trade supply depot with associated earthworks and on site stormwater collection, treatment and discharge. The subdivision component provided for the extension of Webb Street through to Buckland Road.

A copy of this decision is annexed as **Attachment 3**, and the approved layout is shown in **Figure 5** below.

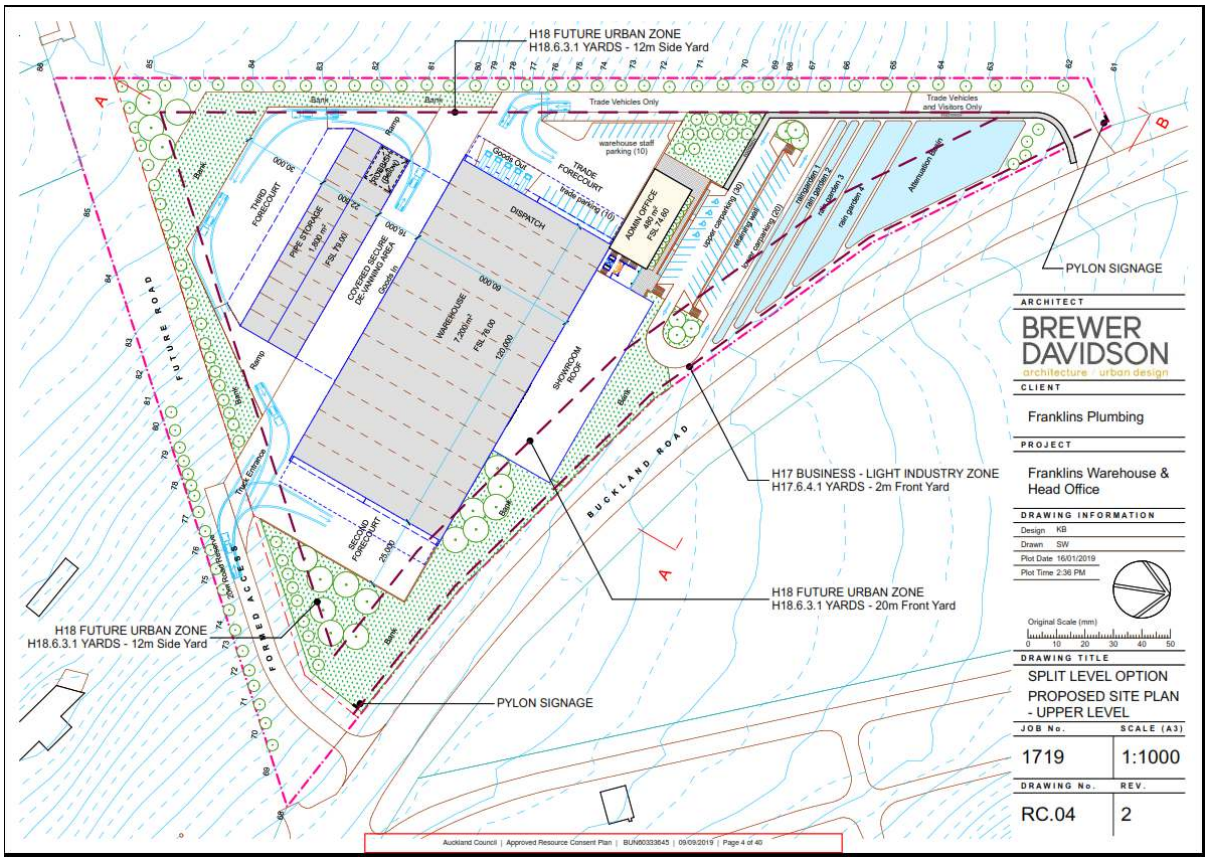


Figure 5: BUN60333645 (LUC60325312, SUB60333646, and DIS60340705) consent for 301 Buckland Road

3.7.2 303 BUCKLAND ROAD

A land use consent to authorise the use of up to 4,320m² of the land at 303 Buckland Road, Pukekohe (including construction and upgrade of access) as an industrial service storage yard for a period of 10 years was approved on 21 April 2021.

The Council reference is BUN60368560 (LUC60368561 (s9 land use consent)).

A copy of this decision is annexed as **Attachment 3**, with the layout shown in **Figure 6** below.

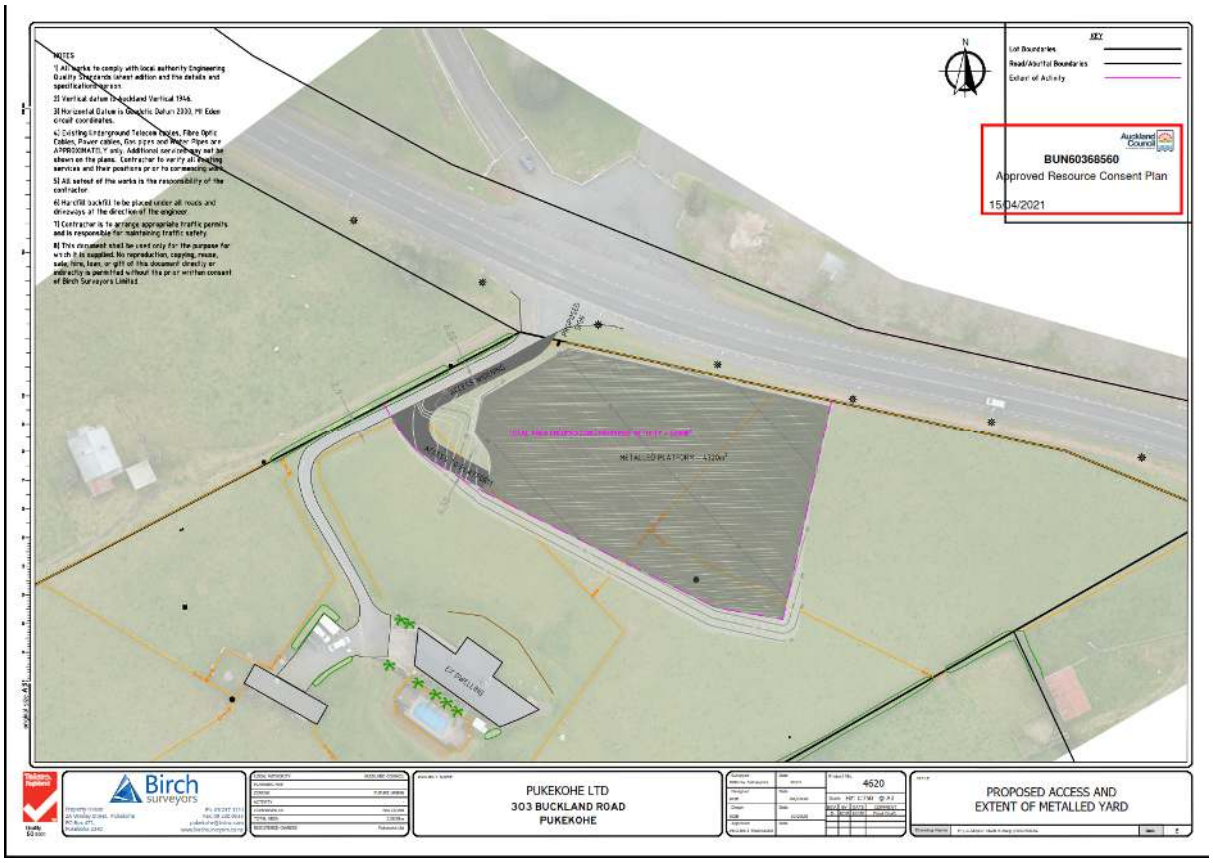


Figure 6: BUN60368560 (LUC60368561(s9 land use consent)) consent for 303 Buckland Road.

4 EMERGING AND PLANNED ENVIRONMENT

4.1 AUCKLAND PLAN 2020

The Auckland Plan 2050 (**Auckland Plan**) is a 30-year spatial plan for Auckland adopted in June 2018. It provides broad direction for Auckland's growth and development through the six outcomes and the Development Strategy contained within the Plan.

The Auckland Plan signals that Auckland's population could grow by another 720,000 people to reach 2.4 million people over the next 30 years. While it promotes this growth as an opportunity for Auckland as a catalyst for cultural and economic success it also acknowledges that growth puts pressure on its communities, environment, housing and infrastructure.

The Auckland Plan signals that around 32 per cent of growth will be accommodated in future urban areas. This means that approximately 99,000 dwellings and around 1400ha of business land is needed in future urban areas.

With regard to business activity, the Auckland Plan strategy envisages a multi-nodal model within

the urban footprint with the city centre continuing to be the focus of Auckland's business, tourism, educational, cultural and civic activities. Significant growth is also planned in Albany, Westgate and Manukau, including their catchments. In addition, the satellite towns of Warkworth and Pukekohe act as rural nodes. They are intended to service their surrounding rural communities while also being connected to urban Auckland through state highways and, in the case of Pukekohe, by rail and will support significant business and residential growth.

4.1.1 FUTURE DEVELOPMENT OF PUKEKOHE

The Auckland Plan identifies Pukekohe as a "rural node" and a "satellite town" with the potential to accommodate up to 14,000 additional dwellings. As a satellite town the Auckland Plan expects that Pukekohe will:

> *function semi independently from the main urban area of Auckland. This can reduce the need for travel out of Pukekohe to access services, facilities and employment. An increase in business land will help achieve this aim.*[1]

To achieve this the Auckland Plan provides for significant growth in this area over the next 30 years. Approximately 1,700 hectares of land for future urban development has been identified around Pukekohe, including around 790 hectares in Paerata. This has the potential to accommodate the estimated 14,000 dwellings.

To support this growth the Auckland Plan anticipates upgrades to water, wastewater, stormwater and transport will be required.

This includes:

- an extension of electric passenger trains from Papakura to Pukekohe;
- a new train station at Paerata, and
- improvements to the road network to increase safety, capacity and resilience.

Development has been staged over the next 10 years, reflecting demand and the provision of the necessary infrastructure upgrades.

The Auckland Plan vision for Pukekohe will be implemented through the structure plan for Pukekohe and Paerata which will refine the staging and timing of development and will identify the mix and location of housing, employment, retail, commercial and community facilities required.

[1] Auckland Plan 2050 – Page 205

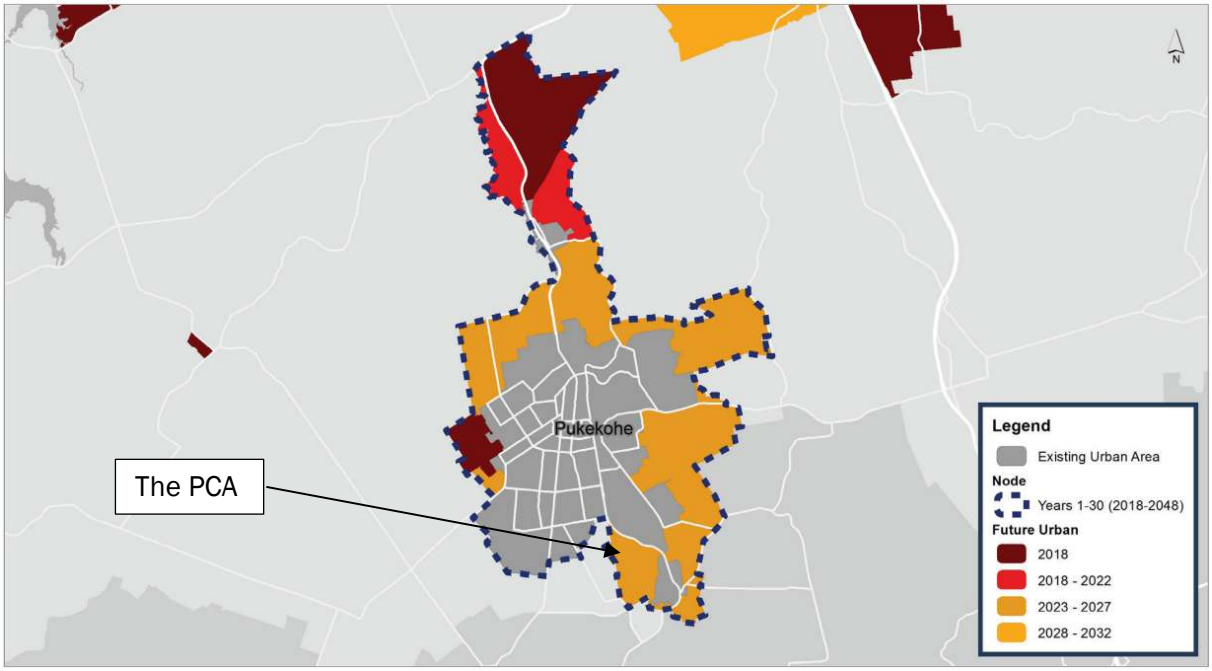


Figure 7 - Development Strategy: Pukekohe (Source: Auckland Plan 2050)

As can be seen form the Development Strategy for Pukekohe in the Auckland Plan, the PCA is identified for urban zoning from 2023 onwards.

With regard to business activity, the Auckland Plan strategy envisages a multi-nodal model within the urban footprint with the city centre continuing to be the focus of Auckland's business, tourism, educational, cultural and civic activities. Significant growth is also planned in Albany, Westgate and Manukau, including their catchments. In addition, the satellite towns of Warkworth and Pukekohe act as rural nodes. They are intended to service their surrounding rural communities while also being connected to urban Auckland through state highways and, in the case of Pukekohe, by rail and will support significant business and residential growth.

4.2 AUCKLAND UNITARY PLAN

The site is zoned FUZ in the Unitary Plan and is within the Rural Urban Boundary (**RUB**). This zoning is applied to greenfield land that has been identified as being suitable for urbanisation. To rezone land from Future Urban, structure planning is required as well as a plan change to the Unitary Plan.

The FUZ is applied to land that has been identified as being suitable for urbanisation through a range of methods including structure planning, spatial plan growth assessments and future infrastructure planning assessments. In the AUP the FUZ is a form of hybrid zoning containing elements of urban and rural techniques and methods. The zone statement for the FUZ is as follows:

> *The Future Urban Zone is applied to greenfield land that has been identified as suitable for urbanisation. The Future Urban Zone is a transitional zone. Land may be used for a range of general rural activities but cannot be used for urban activities until the site is rezoned for urban purposes.*

In that regard the FUZ is an urban zone in that it relates to land that has been included in the RUB for urban development but is also like a rural zone because its provisions are intentionally restrictive so that urbanisation can be planned for and progressed in a cohesive and co-ordinated manner. Objective H18.2(1) for the FUZ is focussed on land being used to:

> *achieve the objectives of the Rural – Rural Production Zone until it is rezoned*

and Objective H18.2(3) directs that:

> *future urban development is not compromised by premature subdivision, use or development.*

Auckland Council has prepared a structure plan for the Pukekohe and Paerata area which is discussed in sections below, and in summary the PPC proposes zoning consistent with the structure plan.

4.3 PUKEKOHE-PAERATA STRUCTURE PLAN 2019

The Pukekohe-Paerata Structure Plan 2019 (**Structure Plan**) is intended to implement the strategic vision for the Pukekohe and Paerata area in the Auckland Plan 2050. It is prepared under the provisions of the Local Government Act 2002 and has been prepared in accordance with the structure plan guidelines as set out in Appendix 1 of the Unitary Plan.

While this is a non-statutory document under the RMA, it will form the basis of future Auckland Council or privately initiated plan changes under it.

The Structure Plan has the broad goal of:

> *New growth areas will enhance Pukekohe as a focal point and place to further support the surrounding rural economy. These areas will offer a range of housing choice and employment opportunities for people at all stages of life. It will be well connected to the wider Auckland and Waikato regions, while protecting and enhancing the natural, physical and cultural values that contribute to Pukekohe's unique character and identity.*

The proposed Structure Plan Map shows the location of new zoning areas with the site shown in purple (indicating proposed business land) as Area H.

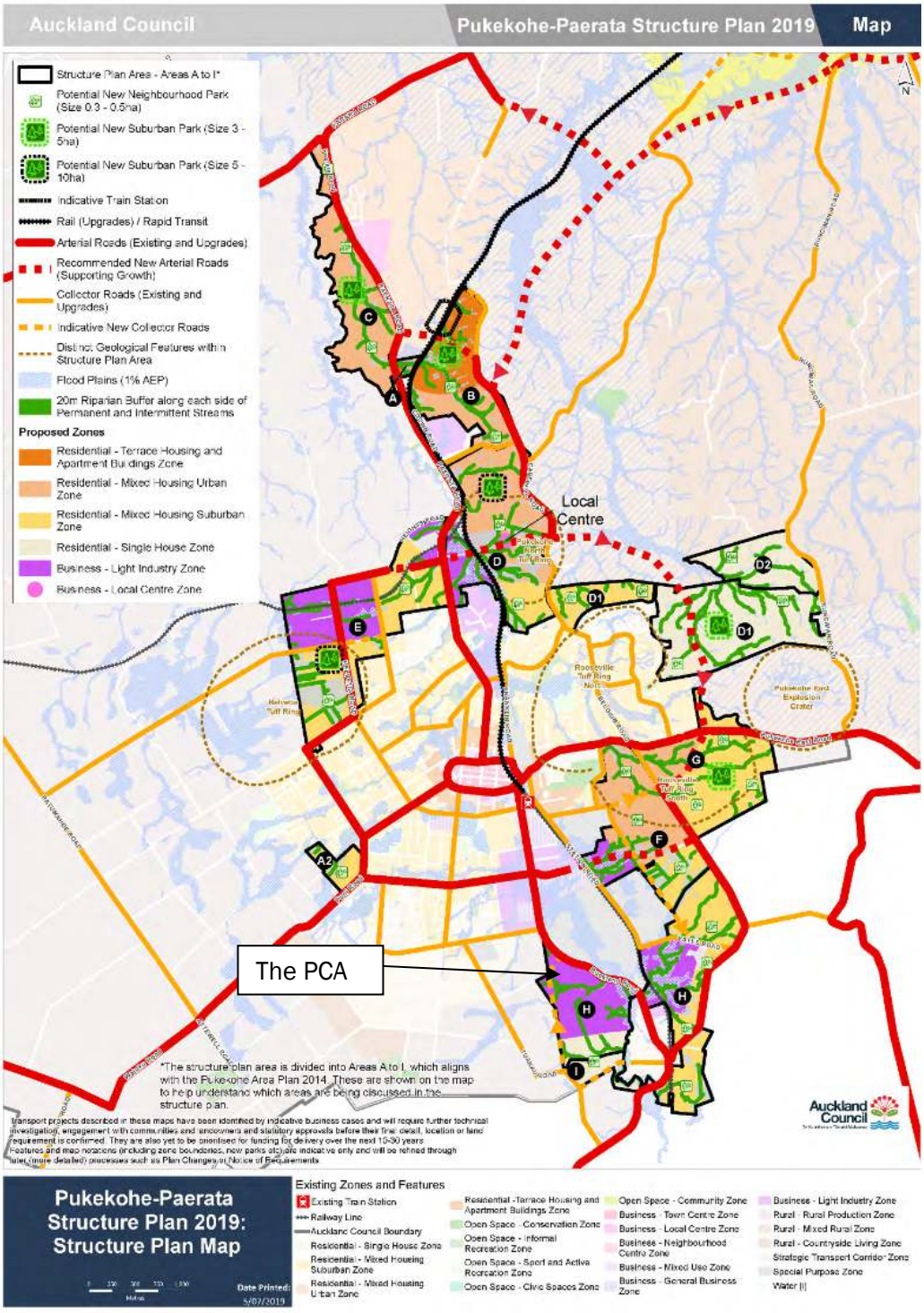


Figure 8 - Pukekohe-Paerata Structure Plan 2019: Structure Plan Map

With regard to the provision of business land section 3.3.2 of the Structure Plan provides for more land to be rezoned for business activity to support the planned urban growth. This is seen as vital to the functioning of Pukekohe as a satellite town which is intended to be self – sustaining in terms of providing employment for its new residents and reducing the need to commute to work outside the area was very important.

The Structure Plan broadly provides for employment to be provided for through the implementation of the BLIZ to provide for 80-100ha of new industrial land. The strategy in the Structure Plan is that the provision of new business land could enable around 2,370 new jobs within the new industrial

areas within the Structure Plan area which in turn is expected to reduce the need for community and freight movement northwards, which affects congestion across Auckland as a whole.

The Structure Plan has indicated that Area H (which includes the PCA) be rezoned BLIZ on the grounds that it has a favourable location including:

- good access to the existing and proposed road network, especially freight routes and routes that will limit the need for traffic to travel through the Pukekohe town centre;
- relatively flat land to reduce the need for future earthworks and to enable larger floor areas and outdoor storage areas often needed by industrial activities;
- proximity to existing areas zoned Light Industry, e.g. Manukau Road. Adjoining new industrial areas to established industrial areas limits potential reverse sensitivity issues and allows the opportunity for the co-location of similar activities and businesses;
- proximity to existing "less sensitive" activities to limit potential reverse sensitivity issues, such as the Rural Production Zone and Special Purpose – Major Recreation Facility Zone (e.g. the Pukekohe Park Raceway), and
- reflection of existing land uses that are more suited to the Light Industry Zone, e.g. vegetable processing and packing sheds in Heights Road, and rural machinery sales and maintenance in Heights Road.

With regard to Area H specifically, this is set out in section 4.4.11 of the Structure Plan. The PCA is located in Area H West and states:

> *Area H west is shown as Light Industry in the Pukekohe Area Plan, and as business land in the 2017 consultation material. In the 2018 consultation material the extent of business land in this area was reduced in the very south to reflect the location of the stream and the three Significant Ecological Areas west of Buckland. The extent of this business land is the same as 2018 and it is now proposed to be zoned Light Industry. This zoning reflects access to transport routes and the proximity to the Pukekohe Park Raceway.*

4.4 FUTURE URBAN LAND SUPPLY STUDY

The Future Urban Land Supply Strategy (**FULSS**) identifies a programme to sequence future urban land over 30 years. The study was updated in 2017 to reflect changes to the Unitary Plan, new demand for development, and further technical work to understand requirements for development (e.g. the Supporting Growth Programme and the Whenuapai Structure Plan).

The Site is identified in the FULSS to be 'development ready' between 2023-2027. Land is considered development ready once the following four steps are complete:

- Future urban zoned land in the Unitary Plan Planning phase;
- Structure planning completed;
- Land rezoned for urban uses; and
- Bulk infrastructure provided.

The FULSS anticipates upgrades to water, wastewater and stormwater are required to enable large scale development to proceed. Construction of additional water reservoir capacity is planned as well as upgrades to the Pukekohe wastewater treatment plant and expanded wastewater networks to service growth in the area. Pukekohe and Paerata require less stormwater investment compared to Takanini, Opaheke and Drury. The FULSS states:

Pukekohe is sequenced in the second half of decade one (2023 – 2027), excluding most of Belmont (Pukekohe) which is already live zoned. The early sequencing of Pukekohe will allow for the development of a comprehensive structure plan for the entire future urban area. A structure plan for the whole of Pukekohe will enable efficient and integrated land use and infrastructure solutions to be found.

4.5 TE TUPU NGĀTAHI | SUPPORTING GROWTH PROGRAMME

Te Tupu Ngātahi | Supporting Growth (**Supporting Growth Alliance**) is a collaboration between Auckland Transport and Waka Kotahi NZ Transport Agency. Its role is the investigation and planning for more than 70 transport projects to support urban growth in Auckland over the next 30 years.

With regard to planned growth in Pukekohe the Supporting Growth Alliance is planning for the following transportation projects:

- rail upgrades and new train stations at Drury Central, Drury West and Paerata;
- a new connection to improve safety and support the future movement of people and goods between the proposed Mill Road Corridor, State Highway 1 and Pukekohe town centre by providing an alternative route to State Highway 22; and
- new urban arterials around Pukekohe, including the north-east section, to unlock development within the planned new growth areas and existing urban land around Pukekohe. The project will upgrade the roads around the town centre, allow for improved freight access to the surrounding area and provide increased access and travel choices in and around Pukekohe.

5 DETAILS OF THE PROPOSED PLAN CHANGE

5.1 BUSINESS – GENERAL BUSINESS ZONE

It is proposed to rezone the PCA from FUZ to BGBZ. The BGBZ zone is set out in Chapter H14 of the Unitary Plan and a full copy of these provisions is annexed as **Attachment 4.**

The BGBZ is a business zone that provides almost exclusively for business and employment activities. The range of business activities is from light industry through to retail and office and food and beverage activities. A feature of the zone is that it also provides for Large Format Retail where they cannot be established in centres. The zone description states:

The Business – General Business Zone provides for business activities from light industrial to limited office, large format retail and trade suppliers. Large format retail is preferred in centres but it is recognised that this is not always possible, or practical. These activities are appropriate in the Business – General Business Zone only when they do not adversely affect the function, role and amenity of the Business – City Centre Zone, Business – Metropolitan Centre Zone and Business – Town Centre Zone.

Although the application of the zone within Auckland is limited, it is an important part of this Plan's strategy to provide for growth in commercial activity and manage the effects of large format retail.

The establishment of small retail activities in the zone should be limited as the presence of these activities, in combination with large format retail, can effectively create an unplanned centre. Residential activity is also not envisaged due to the potential presence of light industrial activities and the need to preserve land for appropriate commercial activities.

The zone is located primarily in areas close to the Business – City Centre Zone, Business – Metropolitan Centre Zone and Business – Town Centre Zone or within identified growth corridors, where there is good transport access and exposure to customers.

New development within the zone requires assessment in order to ensure that it is designed to a good standard.

In terms of locational criteria Objective H14.3(7) states:

(7) The zone is located primarily in areas close to the Business – City Centre Zone, Business – Metropolitan Centre Zone and Business – Town Centre Zone, or in other areas where appropriate.

In addition, Policy H14.3(15) states:

(15) Locate the zone adjacent or close to the Business – City Centre Zone, Business – Metropolitan Centre Zone and Business – Town Centre Zone and within the Identified Growth Corridor Overlay and in other areas where appropriate.

Other objectives for the BGBZ focus on the amenity values of surrounding areas and the management of the zones interface with other zones. The Policies recognise that the BGBZ should enable business activities that either have difficulty accommodating within established business or town centres (due to scale or functional requirements) or are more appropriately accommodated outside on business centre zones.

The Policies also guard against the establishment of small scale retail activities within the zone as that could undermine that function as part of the town centre activities. The BGBZ specifically enables light industrial activity but also includes a range of other employment activities including office activity, large format retail, trade suppliers and commercial services. The zone however, does not provide for any residential or visitor accommodation activity as that is considered inconsistent with the expected amenity effects associated with the range of business activities enabled, especially light industry. In that regard, the BGBZ is considered to be a broad based employment zone.

The range of activities provided for in the BGBZ is set out in H14.4 Activity Table which reinforces the wide range of business activities as a permitted activity including:

- Commercial services
- Drive through restaurants
- Entertainment facilities
- Food and beverage
- Garden centres
- Marine retail
- Motor vehicle sales
- Offices up to 500m² gross floor area per site
- Retail greater than 450m² gross floor area per tenancy (i.e. Large Format Retail)
- Trade suppliers
- Industrial activities
- Marae complex
- Recreational facilities

Activities that require resource consent for a restricted discretionary activity are as follows:

- Department stores
- Service stations
- Supermarkets greater than 450m² gross floor area per tenancy
- Emergency services
- All New Buildings

Activities that require resource consent for a discretionary activity are as follows:

- Commercial sexual services
- Conference facilities
- Funeral directors' premises
- Offices greater than 500m² gross floor area per site
- Retail exceeding 200m² per tenancy and up to 450m² gross floor area per tenancy
- Care centres, Community facilities, Education facilities and Tertiary education facilities
- Healthcare facilities and Hospitals
- Justice facilities

The zone Standards are set out in H14.6 with the following standards noted:

- The following activities within 30m of a residential zone require resource consent for a restricted discretionary activity:

  (a) bars and taverns;
  (b) drive-through restaurants;
  (c) outdoor eating areas accessory to restaurants;
  (d) entertainment facilities;
  (e) child care centres; and
  (f) animal breeding and boarding.

- Maximum Height: 16.5m
- Height in relation to boundary – adjoining a Residential zone, Special Purpose zone, Open Space zone
- Yards: Where the zone adjoins a Residential, Special Purpose – Māori Purpose zone, a stream, lake or the coastal marine area
- Landscaping: 2m in depth must be provided along the street frontage
- Wind: Specific assessment for buildings exceeding 25m in height

H14.8.1 sets out the matters for discretion for restricted discretionary activities and they encompass matters relating to design, appearance and amenity, landscaping, transportation (roads, parking, traffic generation, access and manoeuvring), intensity, effects on retail in other centres.

The assessment criteria for restricted discretionary activities are set out in H14.8.1 and these direct the assessment back to specific policies in H14.3.

6 ASSESSMENT OF ENVIROMENTAL EFFECTS

Sections 68(3) and 76(3) of the RMA state that in making a regional or district rule, the council must have regard to the actual or potential effect on the environment of activities including, in particular, any adverse effect. Furthermore, Schedule 1 of the RMA states that where environmental effects are anticipated, the request shall describe those effects, taking into account

clauses 6 and 7 of Schedule 4, in such detail as corresponds with the scale and significance of the actual or potential environmental effects anticipated from the implementation of the change, policy statement, or plan.

This section sets out the potential effects on the environment associated with the PPC and covers both positive and adverse effects. This section is based on expert technical reports which are submitted as part of the Request.

6.1 POSITIVE EFFECTS

The PPC will enable a broad range of business and employment activities to support planned residential growth ranging from light industrial activities to office, large format retail and a range of food and beverage and commercial services. The Structure Plan envisages up to 14,000 new dwellings in Pukekohe to be provided through new greenfield development on FUZ land. The proposed zoning of the site to BGBZ will enable a wide range of employment based activities to be established to provide local-based employment as new growth occurs. This in turn reinforces the role of Pukekohe as a satellite town and reduces the need for residents to travel to other urban areas for work and employment.

It enables the early development of employment land with the ability for infrastructure to be established that will provide local employment as Pukekohe grows. The plan change provides for an effective and efficient approach that enables a streamlined consideration of the effects associated with essential infrastructure.

The PPC provides efficient use of the land resource, positive socio-economic benefits and avoids any adverse effects on streams and wetlands.

6.2 ECOLOGY EFFECTS

The site is almost entirely formed in pasture associated with previous use for grazing activities. There is no indigenous vegetation on the land and there are no freshwater streams or wetlands present.

A stormwater management plan has been prepared by Birch Surveying Limited (refer **Attachment 8**) and that plan assessed the land for its ability to provide on-site collection, treatment and discharge of stormwater to local waterways under the proposed BGBZ development scenario. That assessment has determined that stormwater treatment and hydrological neutrality can be achieved on site subject to a number of ecological enhancements that can be imposed at the development stage. These include:

- Identify Best Practice Options for Stormwater treatment for the development area;
- Promote Water Sensitive Design to mitigate adverse effects of development on the receiving environment;
- Minimise discharge of contaminants into the receiving environment; and
- Not worsen downstream flooding.

A number of stormwater options has been investigated and these are all available for use at the development stage under a BGBZ on the site. These options are described in greater detail in the stormwater plan assessment.

Any adverse effects on ecological values can be avoided, remedied or mitigated under the proposed BGBZ.

6.3 GEOTECHNICAL EFFECTS

A Geotechnical assessment of the site has been undertaken by Initia Geotechnical Specialists. A copy of their full assessment is annexed as **Attachment 5**.

The principal findings of the geotechnical assessment are set out below.

- A review of the published geological maps for the area and historical geotechnical investigation data available for the PCA and is underlain by fine grained and course grained basalt and rock associated with the KeriKeri Volcanic Group of the South Auckland Volcanic Field (**AVF**). The rock is overlain by a thick mantle of weathered ash/tuff and gravelly soils also from the AVF. The weathered ash/tuff layer at the site is a competent material with only minor geotechnical constraints required to enable typical retail and commercial development.
- Standing groundwater levels of between 2.5m and 4.2m were recorded in the hand auger boreholes during the investigations carried out by previous investigations at 301 Buckland Road and no groundwater observed/recorded above 5.0m below existing ground level at 303 Buckland Road during the Initia ground investigations. Shallow cuts and/or foundations at the site are unlikely to interfere with standing ground water levels.
- The site seismic subsoil class should be taken as "Class D". Due to the cohesive nature of the soils at the site, the risk of liquefaction at the site is considered negligible for business development.
- A terracing of the land will provide global slope stability factors of safety to fall within the Unitary Plan requirements for any future development at the PCA, provided the slopes are subject to specific engineering design and review.
- The natural soils at the PCA are generally suitable for earthworks and will support a range of building foundation types i.e. shallow strip or pad foundations, subject to specific engineering design.

Based on the above assessment Initia conclude that:

> *Based on our understanding of the local ground conditions and our experience with typical retail and commercial developments, i.e. lightly to moderately loaded buildings, we do not expect any significant geotechnical constraints to BGBZ zoning at the site. We expect the competent nature of the ground at the site to support a variety of development types and options.*

The site is therefore suitable to be zoned BGBZ from a geotechnical perspective and any adverse effects from development can be avoided, remedied or mitigated through a consent process.

6.4 CONTAMINATION EFFECTS

Both the properties that make up the PCA have been subject to landuse consent applications under their current FUZ zoning and contamination assessments were undertaken in association with each of those consent processes. Environmental Management Solutions (**EMS**) has been engaged to provide a review and update of those assessments and apply them to the proposed plan change request. A copy of this assessment is annexed as **Attachment 6**.

The assessment has considered the future development of this land in the context of the Unitary Plan and under Regulations 5(4) and 5(6) of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (**NES**), being soil disturbance and change in land use, respectively. These are activities to

which the NES applies where an activity that can be found on the Ministry for the Environment Hazardous Activities and Industries List (**HAIL**) has occurred, is occurring, or is likely to have occurred. These activities relate to land uses that store, use or dispose of contaminants and because of this, can, but do not necessarily, lead to site contamination.

6.4.1 301 BUCKLAND ROAD

The land at 301 Buckland Road, Pukekohe was subject to a Preliminary Site Investigation (**PSI**) prepared by Geosciences Ltd in November 2018. This PSI identified that the site was predominantly pastoral historically but also identified the potential for several activities that can be found on the Ministry for the Environment Hazardous Activities and Industries List to have occurred. HAIL activities identified included HAIL A10 due to the potential for horticultural activities to have occurred on the south eastern portion of the property between 1942 and 1960, although historical aerial photography was inconclusive; HAIL H in relation to the potential migration of contaminants from neighbouring market gardens and HAIL I in relation to uncertified fill stockpiled on the site and in the vicinity of a former building footprint, and due to the potential for lead based paint to have leached into the soil immediately surrounding an existing villa on the site. Subsequently, Geosciences undertook a Detailed Site Investigation (**DSI**) in January 2019 to determine if these activities had adversely affected soils on the site.

Of the sixteen soil samples collected on the site in relation to these identified land uses, only one sample breached the NES Soil Contaminant Standards for a commercial land use scenario and this sample was collected from imported soil (~10m^3) stockpiled on the site. This soil would be removed to landfill in accordance with an approved Remedial Action Plan (**RAP**) associated with any development approved. In addition, a composite sample collected from the area directly adjoining the dwelling on site exceeded permitted activity soil acceptance criteria for Lead as set out in Table E30.6.1.4.1 of the Unitary Plan but did not exceed NES Soil Contaminant Standards for a commercial land use. Levels detected were not significantly above the permitted standards in the Unitary Plan. Contamination of this nature is generally shallow, being limited to surface soils, and localized to within a 3m halo surrounding the building footprint. On this basis, the contamination assessment has concluded that dilution through mixing of surface soils in this location to reduce levels below Unitary Plan thresholds is a viable option for contaminant reduction, noting that soils already meet NES Soil Contaminant Standards for the intended land use. Alternatively, a low volume of surface soils surrounding the villa could also be removed off-site to landfill. Validation will occur post-remediation on the site.

6.4.2 303 BUCKLAND ROAD

EMS was engaged to undertake a PSI of the land at 303 Buckland Road, Pukekohe in September 2020 to determine whether the land has been, is likely to have been, or is being, adversely affected by land use HAIL activities and accordingly, whether undertaking any proposed future development is likely to pose a risk to human health. A review of historic aerial photography and property records, coupled with a site history interview confirmed that the site has historically always been used for low intensity pastoral grazing for sheep, cattle and horses.

The property remains in pastoral grazing with a concrete block and iron constructed stable building and a brick and concrete residential dwelling located in the centre of the site. An accessway connects these to Buckland Road in the north. No superphosphate fertiliser has been applied to the land in conjunction with this land use, no chemicals have been used or stored on the property, nor were any burn piles, farm dumps or fuel storage areas located on the site. The PSI did not verify any HAIL activities on the land at 303 Buckland Road, Pukekohe and concluded that soils on

the site are highly unlikely to have been adversely affected by past land use activities. In the absence of a HAIL activity, it was considered that the NES does not apply to any future proposal on this site.

6.4.3 CONTAMINATION CONCLUSION

Having considered both contamination assessments recently undertaken on both the properties that make up the site the EMS assessment has concluded that both properties are suitable for the intended plan change and change of use. There are no contamination issues identified within any report prepared, that would pose any major constraints on, or inhibit, this proposal.

6.5 INFRASTRUCTURE EFFECTS

The provision of water supply, wastewater and stormwater infrastructure to support a BGBZ has been assessed by Birch Surveyors and a copy of these assessment annexed as **Attachment 7** (wastewater and water supply) and **Attachment 8** (stormwater).

6.5.1 WASTEWATER

The assessment describes the existing wastewater reticulation network servicing the Pukekohe area as predominantly a series of gravity flow piped systems which carry wastewater to three pump stations within the area. Sewage collected via the Wesley Pump Station and Franklin stations are transferred to the Pukekohe Transmission Pump station, which is then conveyed via a 7km trunk main to the Pukekohe Wastewater Treatment Plant located on Parker Lane where it is treated and ultimately discharges into the Waikato River.

As part of the Structure Plan, Watercare has undertaken a network capacity assessment of Pukekohe's existing infrastructure and state that the recently constructed Pukekohe Pump Station can accommodate the ultimate future wet weather flows from Structure Plan area, which includes the area associated with this PPC, with the site being just west of the Pukekohe Pump Station and within the FUZ.

The wastewater assessment proposes a new gravity network to service the PCA. This can be accomplished by designing and constructing a traditional underground piped network from an appropriate point on the existing infrastructure. This option would be the most preferable as it provides a network connection and will not incur additional maintenance costs associated with Pump Stations etc. The assessment states that development can connect to Pukekohe's existing wastewater infrastructure via a gravity line to the existing 525mm Wastewater Line approaching the Pukekohe Pump Station.

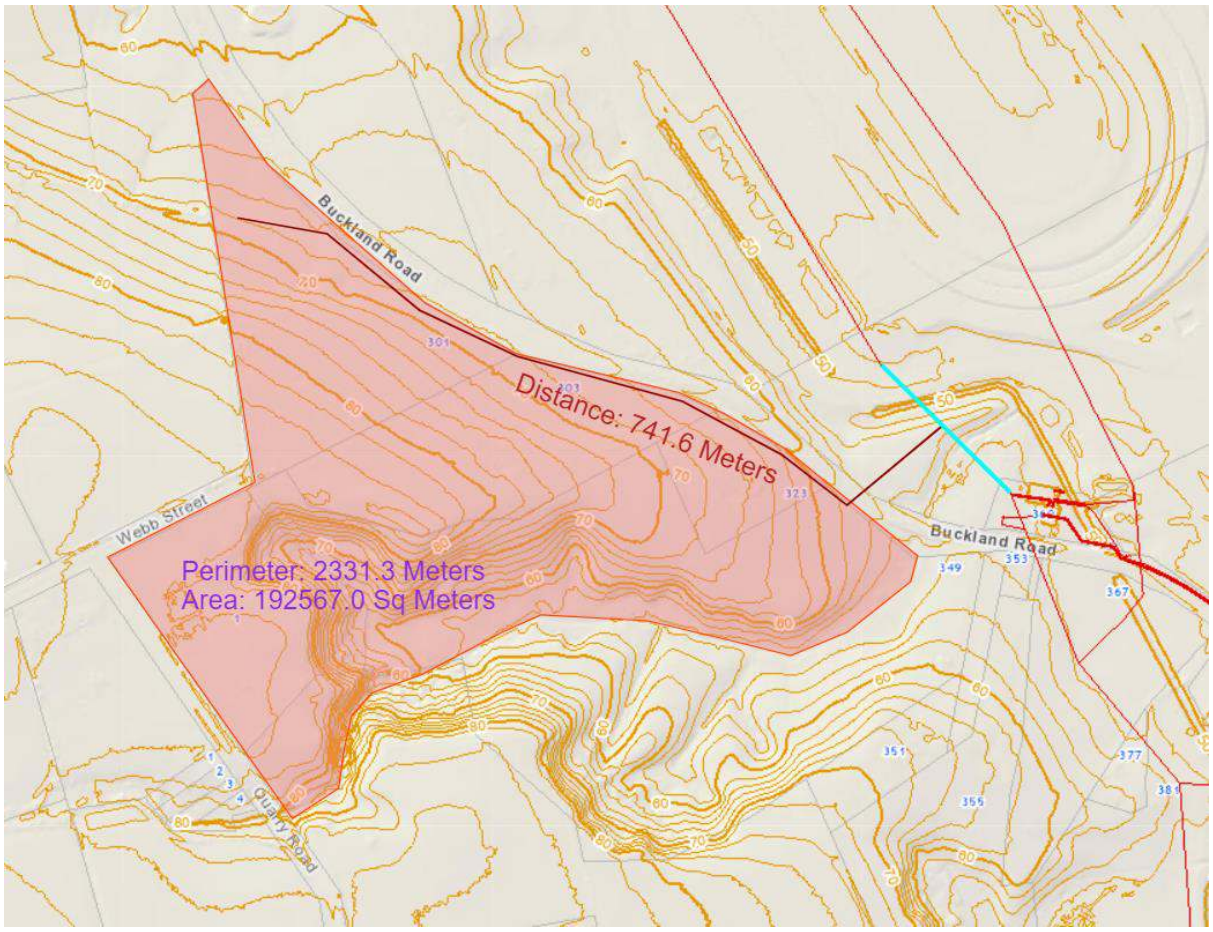


Figure 9: Possible Connection to wastewater reticulation (Source: Infrastructure Assessment)

The Pukekohe Transmission Pump station is located at 360 Buckland Road, which is located approximately 400m to the east of the PCA. This has been designed and built to accommodate the ultimate future wet weather flows from the FUZ, including the Structure Plan area within which the PPC is located.

Overall, the wastewater assessment concludes that the PCA can be serviced by a gravity wastewater system that can be designed to meet the standards required by Watercare's Code of Practice for Land Development. Furthermore, the assessment concludes that the existing Pukekohe Transmission Pump Station can accommodate the additional flows created by development that would be enabled under this PPC.

6.5.2 WATER SUPPLY

The current Water Supply system involves pumping Treated Water from the Waikato 1 Watermain to a number of Water Reservoirs in Pukekohe, these include Kitchener Road, Anzac Ave and Rooseville Park, the former being the closest reservoir or bulk supply. Kitchener Road has a supply elevation of RL 106m (Watercare), and with the other reservoirs, delivers water to Pukekohe Area.

The PCA contains two existing dwellings and both are connected to the public water supply via water meters. The existing Water Supply along Buckland Road is a 150mm fire main on one side of the road linking Pukekohe with Buckland, and a 100mm/80mm main on the other side, extending from Buckland to the southern boundary of the proposed plan change area.

There is also a low-pressure trickle feed along Webb Street west servicing the existing rural zoned land.

To support development in a BGBZ the proposed water supply networks must be able to service both peak demand and firefighting scenarios. According to Watercare Water Code of Practice and SNZ PAS 4509, the minimum flow is 25L/s for residential area and the minimum residual pressures during fire flow is 100kPa. Watercare guidelines require a minimum level of service to every property, supply at least 25l/s flow at a minimum pressure of 250 kPa or 25m head.

The water supply assessment states that the PPC has direct road frontage onto Buckland Road, and can connect to the existing Public Water Supply along the frontage of the site. There is an existing 150mm Water Main along Buckland Road between Buckland and Pukekohe, with a secondary main of 80mm/100mm installed on the other side from Buckland to the southern end of the site.

6.5.3 STORMWATER

As noted in section 6.2 above, Birch Surveyors have prepared a separate stormwater management plan to support proposed plan change to BGBZ as there is no reticulated stormwater system to service the land, as yet.

The assessment identifies that the PCA straddles two catchments:

- 301 Buckland is at the top end of a small catchment of 16.1ha that drains north to Manukau Road, through a culvert under Manukau Road to a short length of open drain, and then is piped some 200m to discharge into the Tutaenui Stream.
- 303 Buckland is at the upper end of a 7.0ha catchment draining south via open road drains/channels to join the adjacent 132ha catchment at a common drainage point, being the head of a culvert under Buckland Road, which drains to the Tutaenui Stream via a modified natural Channel.

The stormwater assessment observes that there are no upstream catchments, nor does the area contain any public stormwater infrastructure. The site and the surrounding area are serviced by open drains, natural channels (mostly highly modified) culverts and some historic private pipes that directs surface water to the Stream.

The catchments downstream from the PCA have been identified as having existing flood and drainage issues and any development must take this into account.

The proposal and its immediate catchment area fall within the Auckland wide Stormwater Network Discharge Consent (NDC) and within the area formerly contained in the Pukekohe South Stormwater Network Discharge Consent. The NDC regulates Stormwater Treatment and Disposal for the areas it covers.

Stormwater Disposal

In determining the appropriate Stormwater Treatment and Disposal for the proposed Activity, the stormwater assessment recommends a design that achieves consistency with the objectives and policies of the Unitary Plan as well as Auckland Council's Guideline Documents, the current Stormwater Network Discharge Consent and industry best practice options.

As noted in section 6.2, this approach would establish a cohesive methodology to the management of stormwater runoff by specifying controls on the quality and quantity of the runoff and requiring ecological enhancements including:

- Identify Best Practice Options for Stormwater treatment for the development area;
- Promote Water Sensitive Design to mitigate adverse effects of development on the receiving

environment;

- Minimise discharge of contaminants into the receiving environment; and
- Not worsen downstream flooding.

Proposed methodologies to achieve the above outcomes include:

- Provide for SMAF-1 equivalent hydrology treatment for all impervious areas;
    - Retention will be achieved using the following methods in order of preference;
        - Ground Soakage if conditions permit;
        - Reuse if practical and feasible;
        - Added to Detention Volume;
    - For Roads and other access ways, should the ground soakage prove unsuitable, the detention volume will be increased by the retention component within the on-site or communal Raingarden or Wetland;
    - Attenuated and treated stormwater discharge points shall be stabilised and/or green outlets as best suits the discharge point and immediate receiving environment;
- Provide stormwater treatment at source or within centralised Raingardens or Wetlands;
- Inert Roofing Materials to be installed to all covered structures;
- Additional treatment may be required by future businesses to treat specific contaminants (e.g. Gross Pollutant Traps, Oil Grit Separators etc - depending upon actual site use); and
- Provide attenuation to ensure peak runoff is not increased up to and including the 100yr ARI Rainfall event.

The stormwater assessment recommends the treatment of carparking areas in bioretention swales to suitably treat the runoff, designed with sufficient retention and detention capacity to provide both SMAF-1 treatment and attenuate runoff up to the 100yr ARI Storm event. If the latter is not possible in the same device, a separate device can be utilised to provide attenuation up to the 100yr ARI Storm event.

Further, it is recommended that the roofs of all buildings will be constructed from inert materials; consequently, the roof runoff can be considered clean. The runoff can be attenuated via sub-surface stormwater devices, either under the buildings or adjacent access to provide SMAF-1 treatment and to attenuate runoff up to the 100yr ARI Storm event. As all buildings in the BGBZ require resource consent for a restricted discretionary activity, this can be imposed as a condition of consent at the time of development.

Detention of stormwater is recommended in the form of sub-surface Stormwater Cells for future buildings either under the floor Slab or under adjacent hardstand areas (parking/access), with strategically located outlets to achieve the desired stormwater controls. The Cells will be designed for the contributing catchment and it is expected that they will have a treatment area of 70m^2 for every 1,000m^2 roof area. The future building sizes are unknown, and the size of the Stormwater Management Device can be determined at the time of Building Consent on a pro-rata basis. The example proposed allows for the SMAF-1 retention and detention as well as the 10yr ARI storm attenuation released via orifice at flowrates not exceeding the pre-development flowrates.

A similar type of system can be utilised to manage the stormwater runoff from sealed or unsealed carpark and access, except the surface water will be directed to vegetated swales to treat the water

before flowing into the stormwater cells. Raingardens or wetlands can be used as an alternative treatment for both treatment and attenuation.

The assessment also recommends that any new stormwater infrastructure will need to convey the anticipated flows from the contributing catchment. There is no upstream catchment, so any proposed infrastructure need only provide for the full developed site works. The NDC identifies that developments must maintain flows to pre-development rates. Therefore, the design criteria for any new Public Stormwater Network will be to convey the existing 10% AEP runoff from all directly contributing catchments.

Overland Flow

In terms of overland flow, the assessment has concluded that the surface runoff will predominantly be sheet flows, not being concentrated into overland flowpaths. The Auckland Council GIS identified overland flowpaths are minor and do not follow natural depressions, indicating these are minor to insignificant in nature. It is anticipated that the future development of the site will be undertaken holistically and will manage the surface flows in compliance with the NDC in regard to the surface water discharge flow and location and to actual site development.

Low Impact Design

The stormwater assessment recommends that adoption of Low Impact Design (**LID**) with the primary objectives being:

- to limit impervious surfaces; and
- to both treat the surface runoff before entering the stormwater network; and
- to reduce the impact of impervious surfaces by retaining and/or detaining runoff from the increased impervious surfaces that development invariably creates.

The Soil Maps indicate that soakage is possible, and further investigation will be required. Based on the Hydrological Soil Class, the site soakage will achieve the minimum soakage rates for SMAF-1 retention within raingardens and thus contributing to ground water recharge. The presence of soakage also makes raingardens (bioretention) a more viable and successful stormwater treatment option. However, the stormwater assessment also recognises that on-site reuse of rainwater is an option that is available.

Other LID options including living walls and roofs have been investigated but deemed impractical as the environmental benefits required can be achieved using raingardens, which are more cost effective and simpler and more economic to construct and maintain for future owners. Porous pavements were also investigated. Future carparking will be classified as high-contaminant yielding, and it is likely that a porous pavement would require more frequent maintenance using specialised equipment to ensure the environmental benefit is maintained. The maintenance regime for swales and raingardens are considered to be easier to understood and simpler for future owners and developers and this would ensure better functioning of the device and therefore greater environmental efficiency. Limiting impervious areas in a business zone will depend on the future use and development design. Increasing the proposed impervious areas will also increase raingarden sizing, and by extension, the pervious area.

The proposed stormwater treatment will include retention and detention devices, soakage and bioretention (raingardens or bioswales). These devices are sized to soak away the SMAF 1 retention volume of 5mm, to provide detention of the 95% storm and release ensure over 24hours, and to provide detention of the 10yr ARI Storm event to pre-development flows or less and to attenuate the 100yr ARI Storm Event.

Conclusion

The conclusion of the stormwater assessment is that the future development of the site under a BGBZ will can be managed effectively (principally through the resource consent process under the BGBZ) to the extent that any adverse effects of stormwater discharge can be avoided, remedied or mitigated.

6.6 TRANSPORTATION EFFECTS

An Integrated Transportation Assessment (**ITA**) has been undertaken by Commute Transportation Consultants (**Commute**) and a copy of this assessment is annexed as **Attachment 9.**

Commute has stated that the key transportation considerations of the PPC are:

- The ability of Manukau Road and Buckland Road to accommodate additional traffic generated by the activities enabled in the proposed re-zoned land; and
- Integration of any proposed development on the re-zoned land with wider transport network plans, and land use plans (Structure Plans), in Pukekohe.

The key findings of the ITA can be summarised as follows:

6.6.1 ROAD NETWORK

Buckland Road typically runs in a north-south alignment connecting to Manukau Road to the north and George Street to the south.

The posted speed limit along Buckland Road is 80 km/hr. With reference to the Unitary Plan, Buckland Road is classified as an 'Arterial Road'. Based on these volumes, the major access locations to the PPC area will likely require higher level intersection treatments such as roundabouts which the roading environment would be able accommodate in the future.

The subject properties have road frontage onto Buckland Road which is already a wide and well-formed corridor. This is beneficial for business/industry operations as it allows for high exposure and visibility whilst also being easily accessible.

6.6.2 TRAFFIC GENERATION

Rule E.27.6.1 "Trip Generation" of the Unitary Plan sets out the trip generation limits as to when resource consent for a restricted discretionary activity is required. For retail (non-drive through), this limit is 1,667m² GFA therefore the likely development that would follow rezoning is likely to meet the threshold and trigger assessment under this rule.

A detailed analysis of the expected traffic generation is currently being undertaken. However, based on the analysis and size of the Pukekohe Racecourse Plan Change to General Business Zone (recently approved) opposite the site, the PPC is likely to generate up to 700 vehicles per hour. However, this assumes a high proportion of large format retail and the final make-up of the site may be significantly less should other permitted activities such as light industry and office activity be established.

6.6.3 ACCESS

The bulk of the retail, warehouse or commercial activities within the PCA are recommended to be served either directly off Buckland Road or by new roundabout at the extension of PU-NS-2 Road extension to Buckland Road. The establishment of a roundabout will enable safer access to and

from the site as well as Pukekohe Park opposite.

Roundabouts are considered to integrate well with the existing road network and in this case provide a threshold into the south of Pukekohe. In general, it is considered that there is sufficient land area within the road reserve, or within the PCA, to accommodate a single lane roundabout.

6.6.4 SPEED LIMIT

As a result of the PPC, it is suggested in the ITA that the posted speed limit of 50 km/hr would be extended south along the entire frontage of the PPC.

6.6.5 INTERNAL ROAD NETWORK

Internal public roads within the site (if required) are recommended to be 16-21m wide in accordance with the Auckland Transport Roads and Streets Framework standard for greenfield sites.

PU-NS-2 Road extension should be extended through the site to Buckland Road with a future roundabout constructed at Buckland Road. This is in accordance with the Structure Plan and allows roading access to both sites (it essentially splits the overall site in two). Figure 10 shows this road as per the Structure Plan ITA. As this road is anticipated to be a collector road it should be 21m in width as per Structure Plan ITA.

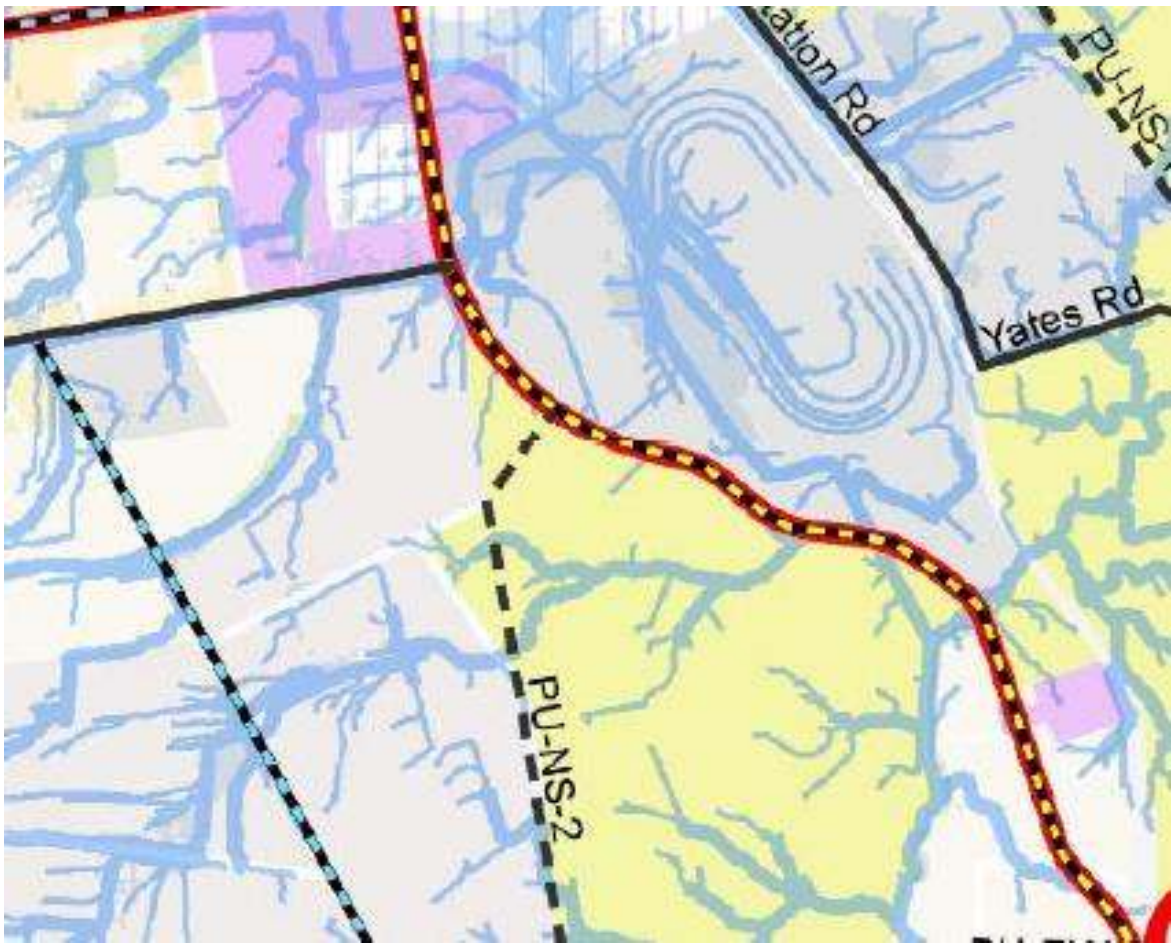


Figure 10: Pukekohe Structure Plan - Proposed Collector Road

6.6.6 PEDESTRIAN ACCESS

Due to the site being immediately outside the current Rural Urban Boundary there is currently no pedestrian access along Buckland Road (adjacent to the site). It is therefore recommended to extend the existing footpath along the western side of Buckland Road along the entire site frontage and linking to Kitchener Road (where and existing footpath exists on Manukau Road). The extended footpath should be 1.8 m wide (similar to that existing on Manukau Road).

From a pedestrian perspective (provided the above is incorporated), the site is well- connected and provides for a safe environment. It is expected that this would be required/implemented when the land is first developed or subdivided.

6.6.7 PUBLIC TRANSPORT

There are two existing bus routes that pass by the site with the nearest bus stop located some 1km north of the most northern portion of the site on Manukau Road. With further development likely to occur near the proposed site (at Pukekohe Park), it is recommended that consideration be given to providing bus stops fronting the site to encourage the use of public transport when travelling to and from the site. It is therefore recommended that, as the road frontage is upgraded to include a flush median (subject to any new access being established at the on Buckland Road) a bus stop should be incorporated into the design to encourage the use of public transport to and from the site. This could be implemented when the land is developed.

6.6.8 WIDER EFFECTS

In terms of the wider impacts (including the northern section of Manukau Road) the Drury- Opāheke and Pukekohe-Paerata Structure Plan including the "Draft Integrated Transport Assessment and Addendum" dated 2nd April 2019 contains information on the site. Of particular note are a number of projects in the wider area including:

- Electrification of the rail line to Pukekohe (already funded)
- Pukekohe Expressway linking Pukekohe with a new interchange on SH1 (medium to long term)
- Pukekohe ring road (providing a new alternative to travel around the Pukekohe Town Centre)*;
- General safety improvements on Buckland Road and
- Upgrade of Mill road (linking to Bombay)*

* At the time of writing it is uncertain if these two projects will proceed.

These upgrades are considered appropriate to cater for the growth in Pukekohe in the long term.

The proposal also is an employment zone and thus will create jobs in the Pukekohe area and thus keep residents in the Pukekohe area (and thus not need to travel on the wider network).

6.6.9 IMPLEMENTATION PLAN

Commute have developed an implementation plan of the works that will need to be undertaken as part of the development of the land under the proposed zoning.

Trigger	Upgrade	Comments	Funder
Any new access on Buckland Road	Buckland Road upgraded to accommodate a painted flush median / right turn bay.	Will be required as part of initial development.	Developer
Commencement of development	Footpaths to link site(s) to existing footpath on Manukau Road (1.8m wide)	Will be required as part of initial development and as required	Developer
Initial development	Reduce speeds past the site to 50km/hr	Speed reduction can only be instigated by Road Controlling Authority (Auckland Transport)	Auckland Transport
To be assessed at Resource Consent (likely needed early in development)	Provide roundabout on Buckland Road	Highly dependent on exact land-use. Also provides an appropriate threshold to 50km/hr area.	Developer
To be assessed at Resource Consent (unlikely to be directly needed by development but needs to be accounted for	Provide PU-NS-2 Collector Road to Buckland Road	Highly dependent on exact land-use.	Developer
To be assessed at Resource Consent	Upgrade Webb Street	Upgraded to local road standard, site frontage.	Developer / Other Developers on Webb Street
Considered as part of subsequent developments near the development site	Provision of bus stops (fronting the site)	To encourage the use of public transport when travelling to and from the area surrounding the site	Auckland Transport

Overall, Commute conclude that:

- The existing road network will partly provide for accessibility of the site by various transport modes: walking, cycling, bus and private vehicle;
- The extent of development proposed can be accommodated by the surrounding road network while maintaining acceptable levels of safety and performance (with mitigation); and
- The proposed development is consistent with and encourages key regional and district transport policies.

It is therefore concluded that any adverse transportation effects resulting from the BGBZ zoning and resulting development can be managed such that any adverse effects are avoided, remedied or mitigated

6.7 ECONOMIC EFFECTS

An economics assessment has been undertaken by Urban Economics and a copy of this assessment is annexed as **Attachment 10.**

The economic effect of the proposed plan change can be measured in terms of economic costs

(adverse economic effects) and economic benefits (positive economic effects). While the proposed rezoning would enable a wide range of employment related economic opportunities on the PCA this needs to be weighed against its potential adverse impact on the viability of existing and established commercial centres that are engaged in similar activities.

6.7.1 LAND SUPPLY

The Urban Economics assessment has considered land supply in Pukekohe and as noted that there is no BGBZ land available in Pukekohe (other than the area recently rezoned adjoining Pukekohe Park) and only one site zoned BLIZ. Since the writing of the Urban Economics assessment it is understood that this land has sold and is no longer available. Accordingly, there is currently no BLIZ land for sale in Pukekohe.

The assessment has analysed the redevelopment value of the land in Pukekohe zoned either BGBZ or BLIZ and found there is high demand for land that can be used and redeveloped for the range of activities provided for in the BGBZ. The assessment has also considered land prices in existing commercial and industrial areas in Pukekohe and have increased significantly since 2000 from $100-$200/m^2 to $500-$1,000/m^2. The Urban Economics assessment has concluded that this represents a short supply for both BGBZ and BLIZ in Pukekohe.

6.7.2 REDEVELOPMENT CAPACITY IN THE CITY CENTRE

The Urban Economics assessment has considered the opportunity for the establishment of the commercial activities provided for in the BGBZ (including large format retail – i.e. retail over 450m^2 in area). The conclusion is that there is little opportunity to establish large format retail activity in the existing town centre due to the historic land tenure pattern of small sites or the use of larger sites for established activities that are unlikely to change (i.e. public car parking area or existing supermarket).

6.7.3 BUSINESS DEVELOPMENT AT THE PCA

The PCA is located at the southern edge of the Pukekohe township. Immediately north along Manukau Road and adjoining side streets is the largest area of industrial zoned land in Pukekohe. Existing activities in this area provide a wide range of business employment activities ranging from industrial processing and manufacturing to large format retail, trade based retail, car yards, office activity, yard based activities and other commercial services and supporting food and beverage activity. In that regard, this established industrial and business area supports a wide range of business activities that are enabled in both the BLIZ and the BGBZ.

The Urban Economics assessment acknowledges the wide range of activities enabled in the BGBZ (from light industry to large format retail and commercial services) and concludes that:

> *The General Business zone therefore provides a greater flexibility to respond to market demand (i.e. it can respond to demand for light industry and large format retail). This additional flexibility would support the optimal development of the site and elevates General Business over the Light Industry as the optimal zone for the site.*[2]

The Urban Economics assessment also concludes that there is presently an acute shortage of both

[2] Urban Economics Assessment Pg 19

Light Industry and General Business zone land in Pukekohe, and the provision of additional land, albeit a relatively small quantity, would help meet this demand in the interim period before the Pukekohe-Paerata Structure Plan (and subsequent Plan Change) enables additional land to be released to the market. In that regard, the Urban Economics assessment supports the rezoning of the land to BGBZ now.

The BGBZ is seen as the best business zoning for the site based on the wide range of business and employment activities enabled in it. For example both zones provide for the following:

- Industrial Activity;
- Trade suppliers, and
- Motor vehicle sales.

The GBGZ also enables several other employment based activities including:

- Commercial services;
- Drive through restaurants and food beverage;
- Offices (permitted to 500m^2 and there after a discretionary activity);
- Retail greater the 450m^2 (with retail between 200m^2 and 450m^2 a discretionary activity);
- A wide range of education and community facilities; and
- Healthcare activities.

In that regard, the practical implication is that if the BGBZ is applied to the site, it could provide for a range of employment activities, including a large proportion of those activities otherwise enabled by the Light Industry zone.

6.7.4 ECONOMIC COSTS AND BENEFITS

The Urban Economics assessment has assessed the key costs (adverse effects) and benefits (positive effects) of the proposed zoning change and these are assessed as follows:

Economic Benefits

- The proposal would increase the supply of general business land by approximately 22% of existing supply, and 50% of future general business zone demand. This contributes significantly to the capacity for the town to accommodate the expected population growth.
- The proposal would utilise existing bulk infrastructure with a value of $10.3 million, which is a substantial economic benefit.
- The proposal will provide access to services and employment and allow people to 'live and work' within Pukekohe (a key strategic outcome for Pukekohe as a ‘satellite town’ in the Auckland Plan and Structure Plan), contributing towards the self-sufficiency identified by the Council for rural towns.
- The site is optimally located for the town's planned southern commercial expansion, which will encourage the establishment of new local businesses while reducing the pressure on existing business land in Pukekohe. Both BLIZ and BGBZ zoned land are suitably located as a southward expansion of the existing Buckland Road business cluster.

Economic Costs

- The potential trade competition and related economic effects on the town centre are addressed when the rapid rate of demand growth is considered. There is approximately 80,000m^2 -85,000m^2 of large format retail in Pukekohe, and in this sector, there would be

demand for approximately 64,000m² of additional floorspace over the next 2 decades. This rate of growth; however, offsets any competitive effect on the town centre.

6.7.5 IMPACT ON THE EXISTING COMMERCIAL CENTRE IN PUKEKOHE

The zone description for the BGBZ refers to the provision of large format retail and its relationship to the viability of existing centres. The zone statement includes the following statement:

> *Large format retail is preferred in centres but it is recognised that this is not always possible, or practical. These activities are appropriate in the Business – General Business Zone only when they do not adversely affect the function, role and amenity of the Business – City Centre Zone, Business – Metropolitan Centre Zone and Business – Town Centre Zone.*

This is a key economic outcome for the placement of the BGBZ within an existing urban area. This same outcome is mirrored in Objective H14.2(6):

> *(6) A range of business activities outside centres are provided for, while ensuring activities within the zone do not compromise the function, role and amenity of centres.*

And Policy H14.3(17)

> *(17) Avoid commercial and retail activities of a scale and type locating within the zone that will compromise the function, role and amenity of the Business – City Centre Zone, Business – Metropolitan Centre Zone and Business – Town Centre Zone beyond those effects ordinarily associated with trade effects on trade competitors.*

An important function of the BGBZ is to enable activities that are unable to locate in centres, most notably large format retail and trade suppliers. However there is an important qualification that these activities are primarily intended to locate in centres, to support their role. While BGBZ is consistent with a "centres first" principle it enables the provision of large format retail and other commercial activities that could not otherwise locate within an established centre.

As outlined in the Urban Economics assessment the Pukekohe population is forecast to have rapid growth, of an approximate 50% increase over the next two decades. This will have at least a 50% increase in the demand for large format retail and trade suppliers. The assessment has calculated that there is approximately 52,500m² of large format retail in Pukekohe, and in this sector there would be demand for 25,000 - 30,000m² of additional floorspace over the period to 2038. Accordingly, the rapid rate of demand growth would offset any competitive impact on the town centre within a short time period. In terms of resilience, the Urban Economics assessment has concluded that the Pukekohe Town Centre is in very strong commercial condition, with very low vacancies and strong rental rates.

The assessment therefore concludes that the proposed BGBZ would enable additional large format retail in the Manukau Road area. It adds that this would add to the existing critical mass of large format retail in the Manukau Road area and would offer co-location of agglomeration economies. In practical terms, consumers would be able to easily visit 2-3 stores in one trip and compare goods before making a purchase. Under this scenario, retailers are more likely to compete for customers in terms of product range, price and service. Critically, the BGBZ would enable a range of commercial activities to support the planned residential growth in Pukekohe that may not be possible or practical to be located in centres.

6.7.6 ECONOMICS EFFECTS CONCLUSION

The conclusion of the Urban Economics assessment is that the proposed BGBZ is supported for the following reasons:

- The site is relatively small (7.9 hectares) and represents a modest expansion to Pukekohe's business land supply. This economic assessment has been prepared with a level of detail that reflects the scale of the proposed land use.
- There is also a requirement for specific activities that require resource consent to establish on the site to be assessed in terms of their impacts (if any) on the town centre at the Resource Consent stage. This means that a detailed assessment of the effects of a wide range of activities on the size is not required for this report.
- The proposed BGBZ would have significant economic benefits and no economic costs.

6.8 LANDSCAPE AND VISUAL EFFECTS

The site is elevated and rises steadily some 20m Buckland Road to the south west. The site, and in particular 301 Buckland Road, is visually prominent and can be readily seen from a number vantage points within the urban areas of Manukau Road, from Pukekohe Park and from the rural areas to the south.

With the exception of two dwellings and some sparse exotic trees and hedge rows, the site is entirely in pasture.

The site and its surrounding locality is not recognised as being any identified outstanding or high natural landscapes or character areas and there are no identified outstanding natural features near the site (the outstanding natural feature of Pukekohe Hill being approximately 3.7km to the north east of the site and not in direct line of sight).

The lack of any significant or remarkable landscape features is reinforced by its FUZ zoning and the basis that and landscape sensitivity assessment formed part of the zoning review of the land as part of the Unitary Plan review.

It is noted that each property that forms the PCA each have a land use consent for activities enabled in the BLIZ already approved and both of those assessments concluded that any adverse landscape effects were less than minor. This includes a large trade retail and warehousing activity approved on 301 Buckland Road.

The proposed zoning would enable the range of activities envisaged in the Structure Plan and expected within this locality. The BGBZ zoning while enabling industrial activity also enables a range of other commercial activities such as large format retail, offices and trade retail that would result in development that is more aesthetically pleasing. It is also noted that all buildings in the BGBZ require resource consent for a restricted discretionary activity with “design and appearance” being a matter of discretion for the assessment of any new buildings.

It is therefore concluded that any adverse landscape and visual effects associated with the proposed BGBZ of the site will be avoided, remedied or mitigated.

6.9 REVERSE SENSITIVITY AND INTERFACE EFFECTS

The site is located directly opposite Pukekohe Park. This is a recognised multi-purpose recreation facility zoned Special Purpose - Major Recreational Facility. Pukekohe Park provides for horse racing and training associated with the Counties Racing Club, motor racing associated with the

Pukekohe Raceway, and also operates as a events centre (including wedding, conferences and other business events).

As a result, when events are occurring there are effects from traffic volumes and noise (including late night noise) that go beyond the boundaries of Pukekohe Park and these can be experienced within the PCA. In that regard the potential for activities that are sensitive to these existing (and lawfully established) effects to restrict the activities at Pukekohe Park is relevant and is known as a "reverse sensitivity" effect.

In this regard the BGBZ is a good fit with regard to avoiding reverse sensitivity effects as it does not permit sensitive activities such as residential development, supported residential care, integrated residential development (i.e. retirement village) or visitor accommodation. The activities that are enabled can function safely within the existing environment that includes Pukekohe Park and in many ways the BGBZ could be complementary to the activities already operating at Pukekohe Park.

It is noted that some community activities enabled in the BGBZ may be of some limited sensitivity to the effects form the operation of Pukekohe Park such as healthcare, education and care centres but it is also recognised that these activities all require restricted discretionary or full discretionary activity resource consent to establish and reverse sensitivity (and the ability for these activities to internalise existing effects) would form part of the assessment for any development proposal.

Accordingly, it is concluded that any adverse reverse sensitivity effects from a BGBZ on the site can be avoided , remedied or mitigated.

7 CONSULTATION

7.1 MANA WHENUA CONSULTED

The Requester has engaged with the following iwi authorities that have mana whenua status in this area:

- Ngāi Tai ki Tāmaki - Ngāi Tai ki Tāmaki Tribal Trust
- Ngāti Maru - Ngāti Maru Rūnanga Trust
- Ngāti Tamaoho - Ngāti Tamaoho Trust
- Ngāti Te Ata - Te Ara Rangatu o Te Iwi o Ngāti Te Ata Waiohua
- Te Ākitai Waiohua - Te Ākitai Waiohua Iwi Authority
- Waikato Tainui - Te Whakakitenga o Waikato Incorporated

A consultation pack was sent to each of these iwi authorities which included a summary of the proposed plan change and executive summaries of the preliminary findings from all specialists.

The Requester was contacted by Ngāti Tamaoho and Ngāti Te Ata who requested further engagement.

CULTURAL VALUES ASSESSMENTS

Ngati Te Ata and Ngati Tamaoho indicated that would like to prepare a Cultural Values Assessment (**CVA**). No other responses were received from the other mana whenua groups.

7.1.1 NGĀTI TE ATA

Ngāti Te Ata are a mana whenua iwi of Pukekohe. Ngati Te Ata prepared a comprehensive CVA covering their history and whakapapa with the land and the range of resource management issues that matter to them. These include the adoption of a kaitiaki approach whereby Ngati Te Ata have a responsibility to speak for and protect those who cannot speak for themselves the earth, the trees, water, fish, birds, the crabs, every single element on this earth which man has not created, is alive. For Ngati Te Ata every element has wairua and mauri.

Matters of concern and interest in the CVA are:

- Heritage protection and recognition (physical landscapes, cultural heritage)
- The effects of urbanisation
- Soil and earthworks
- Erosion and sediment control
- Wai (Water) including waterways, water quality, groundwater, recharge and water allocation, stormwater, wastewater
- Biodiversity
- Indigenous vegetation
- Wetlands (Repo)
- Open Space and greenways
- Sustainability
- Natural hazards
- Infrastructure
- Urban Design
- Air

Having considered this wide range of matters Ngati Te Ata conclude:

> *Based on our understanding of cultural matters and our experience, we do not expect any significant cultural constraints to the rezoning of this site.*
>
> *In principle we are supportive (at this stage) providing that further discussion takes place as more technical detail becomes known and the recommendations as outlined in Section 5: Te Kaitiakitanga o te Taiao are provided for in design, best practice and decision making moving forward.*
>
> *However, this cultural values assessment represents only a starting point for initial engagement and will require further consultation and dialogue between Ngāti Te Ata and Peterex Properties and Pukekohe Limited and Auckland Council. An Addendum to this CVA report may also be required as the plan change progresses.*

The Requester is grateful to Ngati Te Ata for their thoroughness and co-operation with this Requester and is committed to further engagement as required throughout the process.

7.1.2 NGATI TAMAOHO

Ngāti Tamaoho are a mana whenua iwi of Pukekohe.

The CVA prepared by this iwi addresses the cultural, historical, and traditional importance of this area to Ngāti Tamaoho. The stated aim of their CVA is to:

- document Ngāti Tamaoho's cultural values, interests, and associations with the PCA;
- identify specific cultural sites and resources;
- assess the values of these sites and resources;
- identify the potential impacts that arise from project activities and assess the significance of effect; and
- provide recommendations as to how to avoid, remedy or mitigate the potential effects to Ngāti Tamaoho.

Their assessment:

- Provides a baseline of known environmental or natural features and resources that may hold cultural values.
- Provides a statement of cultural association Ngāti Tamaoho has with the study area.
- Identifies any known cultural sites and resources within the study area.
- Describes the value or significance of such sites and resources.
- Identifies the cultural constraints and risks associated with the study area and the potential significance of effects.
- Identifies the aspirations of Ngāti Tamaoho for key values and features of this site so as to give the Client a basis for working with Ngāti Tamaoho to avoid adverse effects and protect cultural values.

The conclusions of the CVA are:

1. The area of the proposed plan change is part of the traditional food-bowl of Ngāti Tamaoho. It includes maara-kai, pataka-mai, mahingakai and is part of the waahi tupuna that is Pukekohe. While the nature of the development works into the future are not yet fully known, the cumulative effects of development will risk effecting the freshwater, former wetlands, soil and land, biodiversity flora and fauna, and air. It is important for the client and their contractors and employees to recognise that these are the traditional lands of Ngāti Tamaoho as recognised by the Crown.
2. Ngāti Tamaoho understands the importance of development to provide for a growing region and country. These upgrades and works provide for that growth and were done in conjunction with Ngāti Tamaoho can retain and enhance our place as mana whenua of the area. As kaitiaki it is our duty to protect the lands, waters, flora and fauna of our rohe.
3. Ngāti Tamaoho seeks to reconnect with ourtraditional lands and taonga as guaranteed by both Te Tiriti O Waitangi and the Ngāti Tamaoho Settlement Act 2018. By working with Ngāti Tamaoho to protect and uphold the cultural values discussed here, the Client have the opportunity to uphold these agreements and support our self-determination as a people.
4. Ngati Tamaoho does not object to this Plan Change even though we reserve the right to do an addendum when future consents come up to recognise this overview cannot drill down

into design and concept detail.

5. Ngati Tamaoho agrees in principle subject to: ongoing meaningful engagement into the future with the developers on any future design.

The Requester is grateful to Ngati Tamaoho for their thoroughness and co-operation with this Request and is committed to further engagement as throughout the process.

7.2 PUKEKOHE PARK

Counties Racing Club owns and operates Pukekohe Park. We understand that the Counties Racing Club is currently pursuing a private plan change to rezone land opposite the site to BGBZ also.

Both parties have been in contact and are aware of each proposal and are mutually supportive of the proposed zoning change.

7.3 AUCKLAND COUNCIL

The Requester approached Auckland Council in June 2021 to discuss the prospect for a private plan change on the site. This resulted in a meeting with the Plan and Places personnel Craig Cairncross - Team Leader, Central South and Celia Davidson - Manager, Unitary Plan.

8 STATUTORY ASSESSMENT

8.1 INTRODUCTION

Sections 67(3) and 75(3) of the RMA states that a Regional Plan and District Plan must give effect to any National Policy Statement; any New Zealand Coastal Policy Statement; and any Regional Policy Statement. In addition to these documents above, Section 75(3) of the RMA states that a District Plan must not be inconsistent with a Water Conservation Order or a Regional Plan. The following assessment sets out how the PPC gives effect to the documents set out below:

- National Policy Statement for Freshwater Management 2020
- National Policy Statement on Urban Development Capacity 2020
- New Zealand Coastal Policy Statement 2010;
- National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health;
- Chapter B of the Auckland Unitary Plan The following assessment also sets out how the PPC is not inconsistent with the regional plan provisions of the Unitary Plan.

8.2 NATIONAL POLICY STATEMENTS

8.2.1 NATIONAL POLICY ON URBAN DEVELOPMENT 2020

National policy statements are issued by the government to provide direction to local government about matters of national significance which contribute to meeting the purpose of the RMA.

The National Policy Statement on Urban Development (**NPS:UD**) came into effect on 20 August 2020. The NPS:UD requires local authorities to ensure that sufficient land is identified and zoned to meet expected demand for integrated urban development. It sets out a range of objectives and policies that apply to local authorities, and provides a tiered approach outlining additional policies which apply to Tier 1 and 2 local authorities, being districts with medium or high growth within their

district boundaries. The policies seek to have well-functioning urban environments that have good accessibility between housing, jobs, open spaces and community services; suit different business sectors; support competitive operation of land; are resilient to climate change; and take into account the principles of the Treaty of Waitangi. Of note, Policy 8 requires local authorities to be responsive to plan changes that would add significantly to development capacity and contribute to well-functioning urban environments.

The NPS:UD contains a number of provisions that refer to business and employment. Section 2.1 sets out the Objectives for the NPS:UD which focusses on housing affordability acknowledging that urban environments change over time, Treaty of Waitangi matters and integration of development with infrastructure. Objective 3 states:

> ***Objective 3:*** *Regional policy statements and district plans enable more people to live in, and more businesses and community services to be located in, areas of an urban environment in which one or more of the following apply:*
>
> *(a) the area is in or near a centre zone or other area with many employment opportunities*
>
> *(b) the area is well-serviced by existing or planned public transport*
>
> *(c) there is high demand for housing or for business land in the area, relative to other areas within the urban environment.*
>
> ***Policy 1:*** *Planning decisions contribute to well-functioning urban environments, which are urban environments that, as a minimum: …*
>
> *(b) have or enable a variety of sites that are suitable for different business sectors in terms of location and site size; …*
>
> ***Policy 2:*** *Tier 1, 2, and 3 local authorities, at all times, provide at least sufficient development capacity to meet expected demand for housing and for business land over the short term, medium term, and long term.*
>
> *3.3 Sufficient development capacity for business land*
>
> *(1) Every tier 1, 2, and 3 local authority must provide at least sufficient development capacity in its region or district to meet the expected demand for business land:*
>
> *(a) from different business sectors; and*
>
> *(b) in the short term, medium term, and long term.*
>
> *(2) In order to be sufficient to meet expected demand for business land, the development capacity provided must be:*
>
> *(a) plan-enabled (see clause 3.4(1)); and*
>
> *(b) infrastructure-ready (see clause 3.4(3)); and*
>
> *(c) suitable (as described in clause 3.29(2)) to meet the demands of different business sectors (as described in clause 3.28(3)); and*
>
> *(d) for tier 1 and 2 local authorities only, meet the expected demand plus the appropriate competitiveness margin (see clause 3.22)*

The NPS:UD focusses primarily on housing supply, heights and intensity to provide for sufficient development capacity for housing (Subpart 1 – 3.2). To support these outcomes it also requires sufficient development capacity for business land (Subpart 1 – 3.3) with an emphasis on providing

land to meet the expected demand for business from different business sectors in the short term, medium term, and long term.

The PPC recognises the policy directive set out by the NPS:UD and seeks to give effect to the objectives and policies through:

- Rezoning the land from the FUZ to the BGBZ;
- Enabling the growth of Pukekohe and catering for current demand and the anticipated future growth of the business sector in Pukekohe;
- Locating close to current business and future business areas that are well connected through proposed footpaths and roads;
- Providing for development which can be serviced by current or funded infrastructure which has been planned to enable growth in Pukekohe;
- Adopting the existing BGBZ provisions for consistency with other Auckland areas and to facilitate a employment focussed zone with quality urban design outcomes, and
- The ability to facilitate efficient development of key infrastructure to service the sites principally through the resource consent, engineering approval and building consent processes.

8.2.2 NATIONAL POLICY STATEMENT FOR FRESHWATER MANAGEMENT 2020

The National Policy Statement for Freshwater Management (**NPS:FM**) came into effect on 3 September 2020. The NPS:FM sets out the objectives and policies for freshwater management under the RMA. The NPS:FM has been developed with the fundamental concept that protecting the health of freshwater protects the health and wellbeing of the wider environment. This concept is guided by six principles for management, being mana whakahaere, kaitiakitanga, manaakitanga, governance, stewardship and care and respect.

The objective of the NPS:FM is:

> *(1) The objective of this National Policy Statement is to ensure that natural and physical resources are managed in a way that prioritises:*
>
> *(a) first, the health and well-being of water bodies and freshwater ecosystems*
>
> *(b) second, the health needs of people (such as drinking water)*
>
> *(c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.*

The PPC gives effect to the NPS:FM as there are no freshwater ecosystems on the PCA. The development of the PCA for business activity, including any discharges of contaminants will be managed so that there is no negative effect to the health of people or communities that come into contact with freshwater. Furthermore the PPC recognises the policy directive set out by the NPS:FM and seeks to give effect to the objectives and policies by:

- Not including any stream or wetland areas within the PPC site.
- The provision for on-site stormwater collection treatment and disposal within each property based on the assumption that reticulated stormwater services would be provided, in the short to medium term.
- Assessment that the principles of hydrologic neutrality can be achieved via a stormwater

management plan.

- The ability to provide for stormwater management as part of any development based on land use (noting that all buildings require resource consent), discharge (s14 stormwater discharge consents, or earthworks consent requirements that would be triggered by the provisions in the BGBZ zone or Auckland Wide rules.

8.2.3 NEW ZEALAND COASTAL POLICY STATEMENT 2010

The purpose of the New Zealand Coastal Policy Statement (**NZCPS**) is to state policies in order to achieve the purpose of the Resource Management Act in relation to the coastal environment of New Zealand.

The land is not within the coastal environment and the NZCPS is not considered to be relevant.

8.2.4 NATIONAL ENVIRONMENTAL STANDARD FOR ASSESSING AND MANAGING CONTAMINANTS IN SOIL TO PROTECT HUMAN HEALTH

The National Environmental Standard (**NES**) for Assessing and Managing Contaminants in Soil to Protect Human Health 2011 came into effect in January 2012. The NES provides statutory guidelines to address potential soil contaminants to minimise the risk to human health. The NES specifically applies to applications which seek to change the use of the land and an activity listed on the Hazardous Activities and Industries List (HAIL) has or is more than likely to have occurred on that land.

As set out in section 6.4 above, both the properties subject in the PCA have been subject to assessments under this NES and have been assessed as suitable for the activities enabled within a BGBZ.

8.3 UNITARY PLAN

8.3.1 REGIONAL POLICY STATEMENT

Chapter B of the Unitary Plan forms the Regional Policy Statement for Auckland. It provides a framework for promoting the sustainable management of the Auckland regions natural and physical resources by identifying issues and outlining objectives and policies for managing these issues.

Chapter B1 of the RPS sets out the issues of regional significance and this includes urban growth and form.

Chapter B2 - Urban growth and form sets out the objectives and policies that relate to:

- Urban growth and form (B2.2)
- A quality built environment (B2.3)
- Residential growth (B2.4)
- Commercial and industrial growth (B2.5)

The relevant provisions of Chapter B2 are set out in detail in **Attachment 12.**

With regard to B2.2 it is my view that both the BGBZ will achieve a quality compact urban form and it will enable employment growth that would promote greater productivity and economic growth, better use of existing infrastructure and efficient provision of new infrastructure, and greater social and cultural vitality. A BGBZ on the site would enable sufficient development capacity and land

supply to accommodate commercial and industrial growth to support the growing community.

With regard to B2.3 a BGBZ which requires resource consent for all new buildings (as a restricted discretionary activity) is sufficient to ensure that these objective and policies are given effect to, especially given the context of the land in close proximity to BLIZ and BGBZ land to the north (Manukau Road and likely to be rezoned from FUZ to the south).

Policy B2.5 which relates to commercial and industrial growth is met by a BGBZ as this zone meets the current and future demands for employment growth in Pukekohe and gives effect to the RPS. While this zone provides a wider range of employment activities (including industrial activities) the provisions in the zone will ensure that Council will have sufficient control over design and appearance and other matters of discretion, to ensure that the scale and nature of development is compatible with adjoining residential and other business zoned activities in the locality. As set out in the Urban Economics assessment, a BGBZ with its limits on the scale of retail development, will be able to support and reinforce the viability and function of the Pukekohe Town Centre.

The BGBZ zone will be placed within an identified growth corridor that will eventually link Pukekohe with the smaller community of Buckland with this corridor focussed on employment zoning being a mix of BGBZ and BLIZ.

8.3.2 REGIONAL/DISTRICT PLAN

The Auckland Wide chapter of the Unitary Plan is relevant, and the following sections of that chapter have been considered:

- E1 Water quality and integrated management
- E8 Stormwater - Discharge and diversion
- E11 Land disturbance – Regional
- E12 Land disturbance – District
- E25 Noise and vibration
- E30 Contaminated land
- E27 Transport

The development of land and the establishment of activities within a BGBZ will likely trigger some, if not all of these chapters and the provisions within them. The assessment of these matters can be undertaken as part of that development process and the assessment of effects has demonstrated that the land is suitable for a BGBZ.

8.3.3 RESOURCE MANAGEMENT (ENABLING HOUSING SUPPLY AND OTHER MATTERS) AMENDMENT ACT 2021.

As of 21 December 2021 the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021 came into legal effect, and this includes transitional provisions that affect the provisions of the RMA and the processing of private plan changes. These changes require the implementation of the Medium Density Residential Standards (**MDRS**) across Tier 1, 2 and 3 cities into district plans.

In particular, clauses 34-37 of Schedule 3 of the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021 relates to plan changes that have not been approved that seek to change or modify or establish a residential zone and requires the MDRS to be incorporated into them.

In this case, the PPC is not seeking a residential zone and the zoning sought (being the BGBZ) does not enable residential activity. On this basis no changes to the PPC are required to give effect to

this act.

8.4 OTHER MATTERS – S104(1)(C)

8.4.1 FUTURE URBAN LAND SUPPLY STRATEGY

The PPC has already been assessed against FULSS in section 4.4 of this assessment. The land has been identified as ready for rezoning from 2022 and identified a suitable for BLIZ. In this case a BGBZ is consistent with the FULSS as it enables the additional activities in BLIZ such as large format retail, office and commercial services. In this sense the BGBZ should be seen as being a broader employment zone than the BLIZ.

8.4.2 PUKEKOHE STRUCUTRE PLAN

The PCA has been identified in the Structure Plan as being suitable for business and employment zoning to support the planned residential growth in the Pukekohe and to support its function as a self-sustaining town which provides employment for its residents. While the Structure Plan identifies all the FUZ land to the south of the Manukau Road business area as being broadly BLIZ, the opportunity to provide a bespoke area of BGBZ land, in addition to areas recently rezoned to BGBZ adjoining Pukekohe Park, is seen as being entirely consistent with the Structure Plan.

9 RESOURCE MANAGEMENT ACT 1991

9.1 PART 2 OF THE RMA

The purpose of the PPC is consistent with the purpose of the RMA (section 5) as it will enable the social and economic wellbeing of the growing population in the Pukekohe area through the rezoning of land for a range of employment activities.

As result of the Supreme Court's decision in Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd [2014] NZSC 38, a plan change request does not have to refer to Part 2 unless there is a conflict, and only then should a decision-maker refer back to Part 2.

The Unitary Plan is a fully integrated regional policy, regional and district, planning instrument which has been through a rigorous planning process and has only been recently made operative in part. In this case, there is no issue of "conflict" in the relevant planning instruments or other inconsistency or incoherence which would justify a recourse to Part 2 to resolve. However, for the sake of completeness, Part 2 has been considered and the PPC will:

- Enable the use of the land resource to achieve its potential to support the projected employment growth in Pukekohe (as outlined in the Structure Plan), therefore providing for the need of future generations in the local area;
- Enable the efficient use of the land resource by developing in an area that is identified for business employment and urbanisation, thereby minimising the further urbanisation of surrounding rural zoned land. This assists to safeguard the rural land resource to meet the reasonably foreseeable needs of future generations;
- The PPC seeks avoids any adverse effects on waterways and terrestrial ecology, and
- The existing provisions of the Unitary Plan are considered to adequately enable such development, including the provision for necessary roading and infrastructure while avoiding, remedying or mitigating any adverse effects as assessed in this assessment.

In terms of the specific matters in section 6 and section 7 of Part 2 the following assessment is provided:

Section 6 - Matters of National Importance

Section 6(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development

Comment

The sites are not in the coastal environment and there are no natural wetlands, streams or lakes within the PCA.

Section 6(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development

Comment

There are no outstanding natural features or landscapes identified on the sites

Section 6(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna

Comment

There is no significant vegetation located on the sites.

Section 6(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers

Comment

The sites are not within the coastal environment

Section (e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga

Comment

Following engagement with mana whenua, two CVA's have been prepared in support of the PPC that assesses the cultural value of the sites and considers the relationship Maori have to the land.

Section (f) the protection of historic heritage from inappropriate subdivision, use, and development

Comment

There are no heritage sites located on the sites

Section (g) the protection of protected customary rights

Comment

There are no protected customary rights identified on the sites.

Section 7 – Other Matters

Section 7(a) kaitiakitanga

Section 7(aa) the ethic of stewardship

Comment

The Request considers kaitiakitanga and the importance of Maori relationships with the

land through the ongoing engagement with mana whenua.

Section 7(b) the efficient use and development of natural and physical resources

Comment

The Request supports the efficient use and development of natural and physical resources through providing transport upgrades in line with the intended zoning outlined in the Structure Plan.

Section 7(c) the maintenance and enhancement of amenity values

Comment

The Request maintains amenity values by creating an environment that was envisaged to be urbanised by the Unitary Plan in the form of a business employment area that will contribute to the future character of the area as it develops.

Section 7(d) intrinsic values of ecosystems

Comment

There are no significant ecological values present on the sites

Section 7(f) maintenance and enhancement of the quality of the environment

Comment

The Request maintains and enhances the quality of the environment through adopting best practice stormwater management techniques including low impact design which can be implemented at the consent stage under the proposed zoning.

Section 7(g) any finite characteristics of natural and physical resources

Comment

Not applicable to the scope of the PPC.

Section 7(h) the protection of the habitat of trout and salmon

Comment

There is no habitat of trout or salmon are identified on the sites.

Section 7(i) the effects of climate change

Comment

The location of the sites adjoining the existing industrial business zoning of Pukekohe will assist in reducing travel from Pukekohe to other areas in Auckland for employment.

Section (j) the benefits to be derived from the use and development of renewable energy.

Comment

Not applicable to the scope of the Request. However it is noted industrial/business buildings can be used to generate solar power.

Section 8 – Principles of the Treaty of Waitangi

In respect to section 8, Te Tiriti of Waitangi has been taken into account in the preparation of this Request through consultation with the identified iwi and a commitment to continue engaging during subsequent phases of the Project.

10 CONCLUSION

The Requester proposes to rezone the land at 301 and 303 Buckland Road from FUZ to BGBZ. The land has been identified in in the Pukekohe – Paerata Structure Plan as being suitable for a business zoning. While the structure plan indicated that the BLIZ may be suitable for land, this assessment has demonstrated that a BGBZ can provide for the establishment of industrial activity as well as limited office development and the provision for Large Format Retail, for which there is a demonstrated demand in Pukekohe and in this location.

The proposed BGBZ can also be established safely and effectively within the existing roading environment and the Council has already indicated the upgrade of Buckland Road to an arterial road in anticipation of business development in this location. Associated with this is the complementary proximity to Pukekohe Park with its blend of corporate, entertainment and business zoning and facilities.

The proposed plan change request will also be able to provide three waters infrastructure to service a BGBZ including the ability to provide low impact on stormwater solutions.

The Requester has engaged with all affected iwi and mana whenua in the rohe and two CVA's have been prepared and included with this request.

The Request has been assessed against all relevant statutory and non-statutory instruments and it has been determined that it is consistent with these instruments including the regional policy statement and the relevant regional and district provisions of the Auckland Unitary Plan.

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Guaranteed Search Copy issued under Section 60 of the Land Transfer Act 2017

R.W. Muir
Registrar-General of Land

Identifier	**NA56A/559**
Land Registration District	**North Auckland**
Date Issued	22 August 1984

Prior References
NA127/194

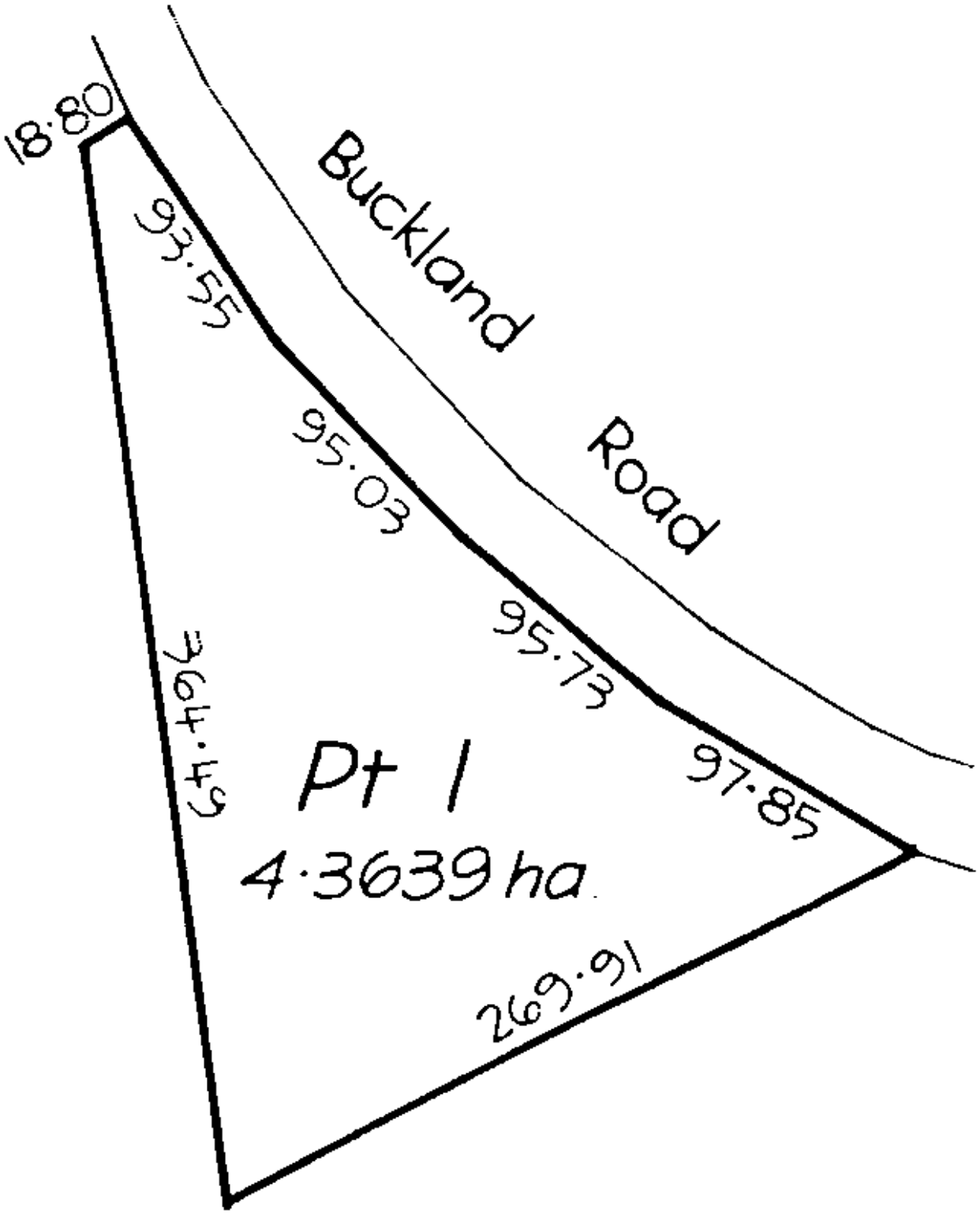
Estate	Fee Simple
Area	4.3639 hectares more or less
Legal Description	Part Lot 1 Deposited Plan 3363
Registered Owners	

Peterex Properties Limited

Interests

762464.1 Compensation Certificate by The Ministry of Works and Development - 10.3.1980 at 10.36 am

12285471.1 Mortgage to Vulcan Mortgage (No.2) Limited Partnership - 4.11.2021 at 5:02 pm


18.80
93.55
95.03
95.73
97.85
364.49
269.91
Buckland
Road
Pt 1
4.3639 ha

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Guaranteed Search Copy issued under Section 60 of the Land Transfer Act 2017

R.W. Muir
Registrar-General of Land

Identifier	**NA21A/288**
Land Registration District	**North Auckland**
Date Issued	14 June 1971

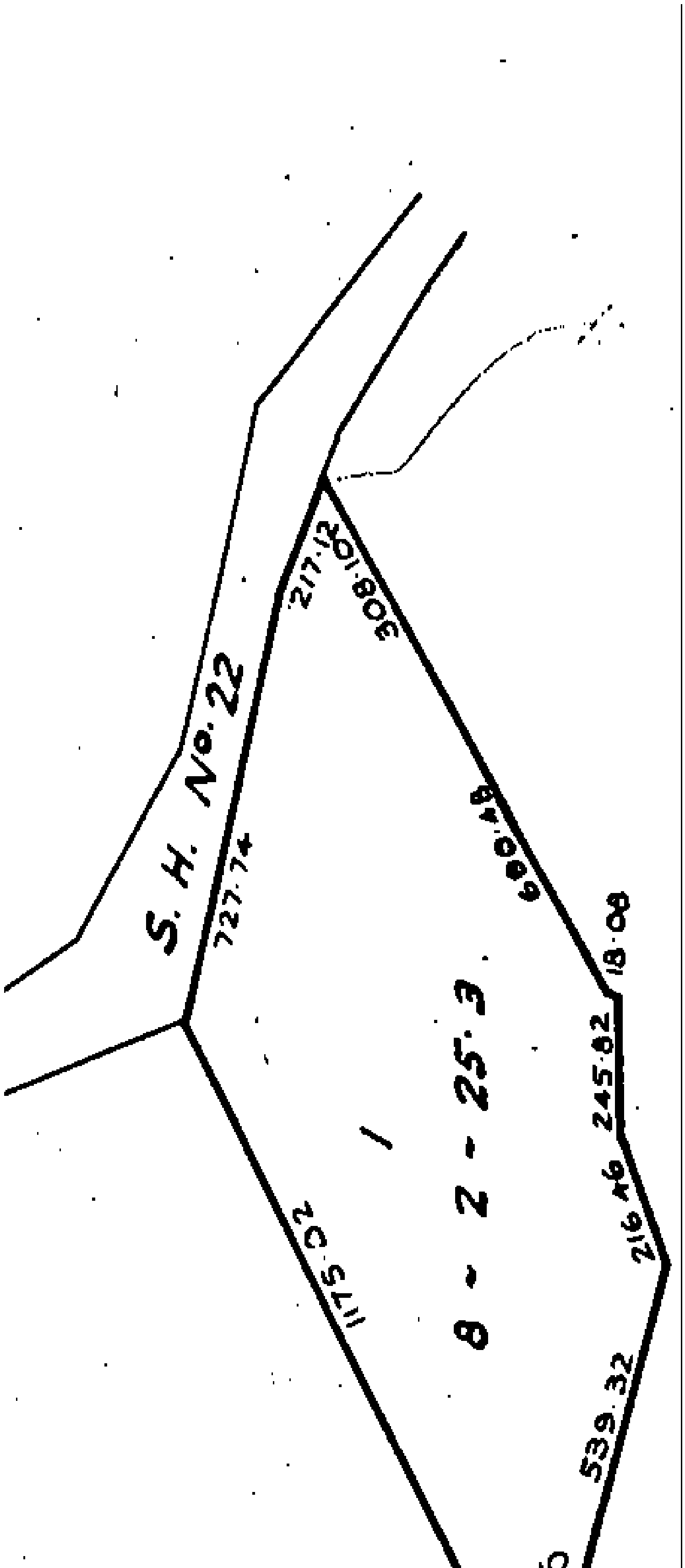
Prior References
NA197/252

Estate	Fee Simple
Area	3.5038 hectares more or less
Legal Description	Lot 1 Deposited Plan 64805
Registered Owners	

Pukekohe Limited

Interests

11393567.3 Mortgage to ASB Bank Limited - 2.4.2019 at 3:41 pm


S. H. No. 22
727.74
217.12
308.10
600.48
18.08
245.82
216.46
539.32
192.10
1175.02
1
8 - 2 - 25.3

301 and 303 Buckland Road

0 40 80 120
Meters

Scale @ A4
= 1:8,000

Date Printed:
23/12/2021

Auckland Council
Te Kaunihera o Tāmaki Makaurau

Indicative Coastline (i)

Indicative Coastline (i)

Rural Urban Boundary (RUB)

Rural Urban Boundary (RUB)

Place Names

Place Name Search

Place Name Search

Railway Lines

Railway (25,000)

Railway (25,000)

Roads

Roads (8,000)

Roads (8,000)

Parcels

Parcels

Property Boundaries

Property Boundaries

Zones

Residential - Large Lot Zone

Residential - Rural and Coastal Settlement Zone

Residential - Single House Zone

Residential - Mixed Housing Suburban Zone

Residential - Mixed Housing Urban Zone

Residential -Terrace Housing and Apartment Buildings Zone

Open Space - Conservation Zone

Open Space - Informal Recreation Zone

Open Space - Sport and Active Recreation Zone

Open Space - Civic Spaces Zone

Open Space - Community Zone

Business - City Centre Zone

Business - Metropolitan Centre Zone

Business - Town Centre Zone

Business - Local Centre Zone

Business - Neighbourhood Centre Zone

Business - Mixed Use Zone

Business - General Business Zone

Business - Business Park Zone

Business - Heavy Industry Zone

Business - Light Industry Zone

Future Urban Zone

Green Infrastructure Corridor (Operative in some Special Housing Areas)

Rural - Rural Production Zone

Rural - Mixed Rural Zone

Rural - Rural Coastal Zone

Rural - Rural Conservation Zone

Rural - Countryside Living Zone

Rural - Waitakere Foothills Zone

Rural - Waitakere Ranges Zone

Strategic Transport Corridor Zone

Special Purpose Zone

Coastal - General Coastal Marine Zone [rcp]

Coastal - Marina Zone [rcp/dp]

Coastal - Mooring Zone [rcp]

Coastal - Minor Port Zone [rcp/dp]

Coastal - Ferry Terminal Zone [rcp/dp]

Coastal - Defence Zone [rcp]

Coastal - Coastal Transition Zone

Water [i]

Hauraki Gulf Islands

Road [i]

Aerial 2017 Urban Image

Red: Band_1

Green: Band_2

Blue: Band_3

Aerial 2010 2011 Rural Image

Red: Band_1

Green: Band_2

Blue: Band_3

Legend

Date Printed:
23/12/2021

Auckland Council
Te Kaunihera o Tāmaki Makaurau

Decision on an application for resource consents under the Resource Management Act 1991

Discretionary activity

Application numbers:	BUN60333645 (LUC60325312, SUB60333646, and DIS60340705)
Applicant:	Franklin Plumbing and Bathroomware
Site address:	301 Buckland Road, Pukekohe
Legal description:	Pt Lot 1 DP 3363
Site area:	4.3602 ha
Auckland Unitary Plan (Operative in part)	
Zoning and precinct:	Future Urban Zone
Overlays, controls, special features, designations, etc:	Natural Resources: High-Use Aquifer Management Areas Overlay [rp] - Pukekohe Kaawa Aquifer Natural Resources: High-Use Aquifer Management Areas Overlay [rp] - Pukekohe Central Volcanic Natural Resources: Quality-Sensitive Aquifer Management Areas Overlay [rp] - Franklin Volcanic Aquifer

Proposal:

To construct and operate a purpose-built warehouse and distribution centre for a Trade Supplier at 301 Buckland Road, Pukekohe.

The resource consents required are:

Land use consents (s9) – LUC60325312

Auckland Unitary Plan (Operative in part)

Regional Land Use

Chapter E11 – Land Disturbance (Regional)

- Earthworks over an area greater than 2,500m^2 are proposed, where the land has a slope equal to or great than 10 degrees, and the subject site is outside the Sediment Control Area. Consent is therefore required as a **restricted discretionary activity** in accordance with E11.4.1 (A8).

District land use

Chapter E12 – Land Disturbance (District)

- Earthworks of a volume of approximately 31,785m^3 of cut and approximately 42,086m^3 of fill across approximately 4.36ha are proposed and consent is therefore

required in accordance with E12.4.1 as **restricted discretionary activities** for earthworks greater than 2,500m^2 (A6) and 2,500m^3 (A10).

Chapter E23 – Signs

- Comprehensive development signage is proposed in association with the development. Consent is therefore required as a **restricted discretionary activity** in accordance in E23.4.1. (A53)

Chapter E27 – Infrastructure

- The proposal involves accessory parking and access that does not meet the following parking and access standards and is a **restricted discretionary activity** under rule E27.4.1(A2).
    - The southern vehicle crossing is 12m, infringing the 7m maximum pursuant to E27.6.4.3.2 (T156); and
    - As the proposal involves a new vehicle crossing for a change of activity, in accordance with E27.6.4.1 (2) and (3), Vehicle Access Restrictions apply and vehicle crossings must not be constructed or used to provide vehicle access across that part of a site boundary which access an arterial road.

Chapter E36 – Natural hazards and flooding

- The proposal involves the diversion of overland flow paths, as such consent is required for a **restricted discretionary activity** in accordance with E36.4.1 (A41);
- The proposed building is located within an overland flow, as such consent is required for a **restricted discretionary activity** in accordance with E36.4.1 (A42);

Chapter H18 – Future Urban Zone

- The proposed activity meets the AUP:OP definition for a Trade Supplier. As Trade Suppliers are not specifically provided for within the Future Urban Zone, in accordance with C1.7, consent is required as a **discretionary activity**.
- New buildings in the Future Urban Zone require consent for the same activity status as the land use activity that the new building is designed to accommodate. As such, consent is required as a **discretionary activity** in accordance with H18.4.1 (A2);
- The new building infringes the following standards of H18.6 and is a **restricted discretionary activity** under rule C.1.9(2):
    - The maximum building height standard (H18.6.2) of 15m is infringed by a maximum of 2.6m; and
    - The yard standard (H18.6.3) is infringed with respect to the 20m front yard, but a maximum of 16m.

<u>National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health ("NES CS")</u>

- A detailed site investigation has been provided, and the soil contamination exceeds the applicable standard in the regulations for arsenic concentrations. Consent is required as a **restricted discretionary activity** in accordance with regulation 10 of the NES:CS.

Subdivision Consent (s11) – SUB60333646

Auckland Unitary Plan – Operative in Part (AUP OP)

- The proposal includes the subdivision of the site to provide for the vesting of land to form an extension to Webb Street. Within the Future Urban Zone, subdivision for road realignment requires consent as a **discretionary activity** in accordance with E39.4.3 (A28).

Discharge permits (s15) – DIS60340705

Auckland Unitary Plan – Operative in Part (AUP OP)

Regional Land Use

Chapter E8 – Stormwater Discharge and Diversion

- Impervious surfaces of approximately 2.1ha are proposed. Impervious surfaces of greater than 5,000m^2 require consent as a **discretionary activity** in accordance with E8.4.1 (A10).

Chapter E9 – Stormwater quality - High contaminant generating car parks and high use roads

- The proposal includes the construction of a carpark and accessways of approximately 9,600m2, which are defined as a "high contaminant generating car park". As the high contaminant generating car park will be greater than 5,000m^2 consent is required as a **controlled activity** in accordance with E9.4.1 (A6).

Decision

I have read the application, supporting documents, and the report and recommendations on the application for resource consents. I am satisfied that I have adequate information to consider the matters required by the Resource Management Act 1991 (RMA) and make a decision under delegated authority on the application.

Acting under delegated authority, under sections 104, 104B, 105, 106 and 107 and Part 2 of the RMA, the resource consents is **GRANTED**.

Reasons

The reasons for this decision are:

1. In accordance with an assessment under ss104(1)(a) and (ab) of the RMA the actual and potential effects from the proposal will be acceptable as:

    a. In the context of the site and surrounding environment, and in particular with regards to the proximity of the site to the Pukekohe township and the identification of the subject site for future industrial zoned land in the Pukekohe Area Plan, the operation of a trade supplier activity on the site is considered to be acceptable, and any adverse amenity effects on the surrounding future urban zoned rural environment are considered to be less than minor;

    b. The proposed buildings associated with the activity are of a scale and nature that is considered to be in keeping with the proposed activity, and have been designed to

respond appropriately to the existing site and surrounding environment and future transitional environment;

c. The comprehensive building and site signage (including wayfinding pylon signs) are considered to have less than minor adverse effects on the streetscape and amenity of the surrounding environment;

d. The proposed subdivision provides the necessary mechanism to enable Webb Street to be vested, and the subdivision is considered appropriate and logical;

e. Traffic effects associated with the activity and development of the land can be appropriately managed by conditions of consent relating to detailed design;

f. The land disturbance works can be managed in accordance with best practice land management to ensure that any effects associated with silt and sediment are less that minor;

g. In terms of infrastructure provision, adverse effects on water quality, water quantity, and as a result of the management of stormwater on the site, can be managed to ensure that they are less than minor, whilst adequate infrastructure for water and wastewater is available;

h. Adverse effects associated with the diversion of the flow path can been managed to ensure that any effects are less than minor;

i. Site contamination can be remediated and managed to ensure that any adverse effects on the environment and human health are less than minor;

j. In terms of positive effects, the proposal enables the development of the site for industrial activities in a manner consistent with the anticipated use of the Future Urban land and in-line with the Pukekohe Area Plan and Draft Pukekohe-Paerata Structure Plan. In addition, the proposed buildings have been designed to provide a high quality industrial environment that is purpose built, and provides for the long term future of a local company within the Pukekohe area. The subdivision of the site to provide for the future extension of Webb Street also provides key infrastructure connections for the future urbanisation of the Future Urban zoned land.

k. With reference to s104(1)(ab), there are no specific offsetting or environmental compensation measures proposed or agreed to by the applicant to ensure positive effects on the environment

Overall, and having considered that the adverse effects of the proposal can be appropriately controlled and managed, and that the proposal will have notable positive effects, the proposal is considered to be acceptable from an effects perspective.

2. In accordance with an assessment under s104(1)(b) of the RMA the proposal is consistent with the relevant statutory documents. In particular:

   a. The proposal is considered to be consistent with the anticipated outcomes of the NES CS with the adverse effects of contamination able to be managed appropriately.

   b. The land disturbance activities and stormwater management can be undertaken and managed to ensure that the outcomes of the proposal are consistent with the anticipated outcomes of the New Zealand Coastal Policy Statement and National Policy Statement

for Freshwater Management and the management of effects on water bodies is appropriate;

c. The proposed Trade Supplier activity and associated warehouse and distribution centre buildings and integrated signage, land disturbance and contaminated land remediation works, and stormwater management, are considered to be generally consistent with the direction of the AUP OP and are acceptable in the context of the anticipated outcomes of the Plan for the Future Urban Zone (FUZ). In particular, the necessary works to establish the activity can be managed in accordance with best practice land and contamination management, whilst the scale and nature of the activity and built environment proposed have been designed to ensure that any adverse effects are acceptable and appropriate in the context of the site, existing surrounding rural environment, and transitional nature of the FUZ.

d. The subdivision of the site provides for a logical and efficient layout for the site and future extension of Webb Street. In addition, the applicant has made appropriate provision for services and the management of natural hazards on site in a manner that is consistent with the direction of the AUP OP.

3. In accordance with an assessment under s104(1)(c) of the RMA no other matters are considered relevant.

4. Having considered the nature and scale of the effects associated with the proposed discharges of contaminants from stormwater to water and/or land, the discharges are considered appropriate with respect to s105, and there is no reason with respect to the provisions of s107 that restrict the granting of consent.

5. In terms of s106 of the RMA the proposal is not considered to give rise to a significant risk from natural hazards, and sufficient provision has been made for legal and physical access to the proposed allotments. Accordingly council is able to grant this subdivision consent subject to the conditions below.

6. With respect to s123 of the RMA:

   a. It is considered appropriate that the stormwater discharge and diversion component of DIS60340705 have a term of 35 years as the nature of the activity is unlikely to change during this period and suitable conditions of consent in-line with the ongoing maintenance and operation of the approved stormwater management system can be imposed; and

   b. Given the nature and scale of the regional land disturbance works component of LUC60325312, it is considered appropriate that a term of 5 years is suitable to allow for the completion of works and any unexpected delays in the commencement of work.

7. In the context of these controlled, restricted discretionary, and discretionary activity applications to establish and operate the trade supplier activity on the subject site, where the objectives and policies of the relevant statutory documents were prepared having regard to Part 2 of the RMA, they capture all relevant planning considerations and contain a coherent set of policies designed to achieve clear environmental outcomes. They also provide a clear framework for assessing all relevant potential effects and there is no need to go beyond these provisions and look to Part 2 in making this decision as an assessment against Part 2 would not add anything new to the evaluative exercise.

8. Overall the proposal is considered to be consistent with the relevant matters of the NES CS and AUP OP, and the outcomes anticipated for the FUZ. Any actual or potential adverse effects are assessed to be acceptable in the context of the receiving environment and management techniques that form part of the application, and the proposal is considered to have notable positive effects.

   Furthermore the application is considered to meet the relevant tests of the RMA, and can be considered to provide an efficient use of an existing land resource. For these reasons, the proposal is considered to be acceptable from a resource management perspective.

Conditions

Under section 108 of the RMA, these consents are subject to the following conditions:

General conditions

These conditions apply to all resource consents.

1. The construction and operation of the warehouse and distribution centre for a Trade Supplier activity shall be carried out in accordance with the documents and drawings and all supporting additional information submitted with the application, detailed below, and all referenced by the council as resource consent numbers BUN60333645 (LUC60325312, SUB60333646, and DIS60340705)

   - Application Form, and Assessment of Effects prepared by Rosie Daly of Scott Wilkinson Planning, titled "Franklin Plumbing and Bathroomware, Proposed Warehousing and Distribution Centre (Trade Supplier), 301 Buckland Road, Pukekohe", dated January 2019.

Report title and reference	Author	Rev	Dated
Infrastructure Report: W3150- 301 Buckland Road, Pukekohe,	CKL	3	30/10/2018
Detailed Site Investigation (DSI) 301 Buckland Road, Pukekohe	Geosciences		15 January 2019
REP-1258A/DSI/Jan19			
Remediation Action Plan (RAP) 301 Buckland Road, Pukekohe	Geosciences		15 January 2019
REP-1258A/RAP/Jan19			
Geotechnical Investigation Report: 301 Buckland Road, Pukekoke	Lander Geotechnical	-	23 July 2018
Transportation Assessment Report: 301 Buckland Road, Pukekohe Trade Supply Facility	Commute		16 August 2018
Urban Design and Architectural Statement	Brewer Davidson		30 July 2018

Drawing title and reference	Author	Rev	Dated
Architectural Plans			
RC.01 Split Level Option Existing Aerial Plan	Brewer Davidson	1	2/11/2018

Drawing title and reference	Author	Rev	Dated
RC.02 Split Level Option Existing Site Plan	Brewer Davidson	1	2/11/2018
RC.03 Split Level Option Proposed Site Plan – Lower Level	Brewer Davidson	2	16/01/2019
RC.04 Split Level Option Proposed Site Plan – Upper Level	Brewer Davidson	2	16/01/2019
RC.04A Split Level Option Proposed Coverage Plan	Brewer Davidson	1	2/11/2018
RC.05 Split Level Option Section A-A	Brewer Davidson	1	2/11/2018
RC.06 Split Level Option North Elevation	Brewer Davidson	1	2/11/2018
RC.07 Split Level Option Proposed Floor Plans	Brewer Davidson	1	2/11/2018
Landscape Plan			
Landscape Plan RS_0001	ResilioStudio	D	17.01.2019
Engineering Plans			
TOPOGRAPHICAL SURVEY OF PART LOT 1 DP 3363 CFR NA56A/559 W3150-100	CKL	00	30.07.19
PROPOSED EARTHWORKS PLAN DESIGN CONTOUR W3150-200	CKL	04	30.07.19
PROPOSED EARTHWORKS PLAN CUT AND FILL PLAN W3150-210	CKL	02	30.07.19
PROPOSED EARTHWORKS SECTIONS LINES PLAN W3150-220	CKL	01	30.07.19
PROPOSED EARTHWORKS PLAN - SECTIONS W3150-221	CKL	01	30.07.19
EROSION AND SEDIMENT CONTROL PLAN W3150-250	CKL	01	30.07.19
EROSION AND SEDIMENT CONTROL STANDARD DETAILS - SHEET 1 W3150-251	CKL	01	30.07.19
EROSION AND SEDIMENT CONTROL STANDARD DETAILS - SHEET 2 W3150-252	CKL	01	30.07.19
EROSION AND SEDIMENT CONTROL STANDARD DETAILS - SHEET 3 W3150-253	CKL	01	30.07.18

Drawing title and reference	Author	Rev	Dated
PROPOSED RETAINING WALLS LAYOUT PLAN W3150-280	CKL	01	30.07.18
PROPOSED RETAINING WALL LONGSECTIONS - SHEET 1 W3150-281	CKL	01	30.07.18
PROPOSED RETAINING WALL LONGSECTIONS - SHEET 2 W3150-282	CKL	01	30.07.18
PROPOSED ROADING PLAN - LAYOUT PLAN W3150-300	CKL	01	30.07.18
PROPOSED ROAD LONGSECTION AND TYPICAL CROSS SECTION W3150-310	CKL	01	30.07.18
PROPOSED STORMWATER MANAGEMENT LAYOUT - SHEET 1 OF 3 W3150-440	CKL	00	26.07.19
PROPOSED STORMWATER MANAGEMENT LAYOUT - SHEET 2 OF 3 W3150-441	CKL	00	26.07.19
PROPOSED STORMWATER MANAGEMENT LAYOUT - SHEET 3 OF 3 W3150-442	CKL	00	26.07.19
PROPOSED PUBLIC WASTEWATER EXTENSION W3150-500	CKL	01	26.07.19
DRAINAGE LONGSECTIONS W3150-510	CKL	01	26.07.19
PUBLIC WASTEWATER CATCHMENTS PLAN W3150-520	CKL	00	26.07.19

Other additional information	Author	Rev	Dated
Split Level Option Proposed 3d Views Camera 1-8 RC08-RC.15	Brewer Davidson	1	2/11/2018
Further information response and attachments	Rosie Daly, Scott Wilkinson Planning		17 January 2019

2. The consent holder shall pay the council an initial consent compliance monitoring charge of $640 inclusive of GST, plus any further monitoring charge or charges to recover the actual and reasonable costs incurred to ensure compliance with the conditions attached to this consent.

Advice note:

The initial monitoring deposit is to cover the cost of inspecting the site, carrying out tests, reviewing conditions, updating files, etc., all being work to ensure compliance with the resource consent. In order to recover actual and reasonable costs, monitoring of conditions, in excess of those covered by the deposit, shall be charged at the relevant hourly rate applicable at the time. The consent holder will be advised of the further monitoring charge. Only after all conditions of the resource consent have been met, will the council issue a letter confirming compliance on request of the consent holder.

Pre commencement meeting

3. Prior to the commencement of the land disturbance activities, the consent holder shall hold a pre-start meeting that:

a) is located on the subject site;

b) is scheduled not less than 5 days before the anticipated commencement of construction and/or earthworks;

c) includes Council's Monitoring officer; and

d) includes representation from the contractors (including stormwater engineer) who will undertake the works and any suitably qualified professionals if required by other conditions.

The following information shall be made available at the pre-start meeting:

- Timeframes for key stages of the works authorised under this consent;
- Resource consent conditions;
- Construction traffic management plan;
- Approved Corridor Access Request (CAR), complete with Traffic Management Plan (TMP), from Auckland Transport;
- Finalised Erosion and Sediment Control Plan (as required by the conditions of consent);
- Chemical Treatment Management Plan (as required by the conditions of the consent); and
- Remedial Action Plan.

Advice Note:

To arrange the pre-start meeting please contact the Team Leader Southern Monitoring to arrange this meeting or email monitoring@aucklandcouncil.govt.nz . The conditions of consent should be discussed at this meeting. All information required by the council and listed in that condition should be provided two days prior to the meeting.

Construction management plan

4. Prior to the works commencing on site, a Construction Management Plan (CMP) (including construction traffic management) shall be submitted to the Team Leader South Monitoring for certification. All activities associated with construction activity on the site shall be in accordance with the certified CMP. No construction activity shall commence until confirmation is provided from the council that the CMP satisfactorily meets all measures identified in that plan as needing to be put in place prior to commencement of works have been.

Advice Note:

The Construction Management Plan should contain sufficient detail to address the following matters:

- *Details of the Site Manager, including 24 hour contact details (telephone, email and postal address);*
- *Measures to maintain the site in a tidy condition in terms of the storage and disposal of rubbish, unloading and storage of building materials and similar construction activities;*
- *Ingress and egress to and from the site for vehicles and construction machinery during the Works period;*
- *Location of wheel-wash facilities;*
- *Numbers and timing of truck movements throughout the day and their proposed route/s;*
- *Proposed hours of work on the site (noting the working hours authorised by this consent);*
- *Procedures for ensuring that the owners and/ or occupants in the immediate vicinity of the construction area are given prior notice of the commencement of construction activities and are informed about the expected duration of works and potential effects of the works (e.g. noise associated with construction activities);*
- *Temporary protection measures that will be installed to ensure that there shall be no damage to public roads, berms, kerbs, drains, reserves or other public assets as a result of the earthworks and construction activities; and*
- *Any other details of the intended Works programme.*

Corridor access request

5. Prior to carrying out works within the legal road corridor, (boundary to boundary) the Consent Holder shall provide a copy of their 'Corridor Access Request' (CAR), from Auckland Transport, complete with TMP to the Council Development Engineer at least ten (10) days prior to starting works within the road.

Advice Note:

A CAR is required for open cut trenching and trenchless techniques for utility installations. The application for a CAR is to be made online to www.beforeudig.co.nz. The application form requires relevant background information including resource consent details, traffic management plans, and the locations and nature of the works. Please note that a CAR may take up to 15 days to process and construction hours may be restricted on Level 2 or 3 roads, as defined in the Code of Practice for Temporary Traffic Management

(COPTTM) of NZTA. Application for a CAR is made online to www.beforeudig.co.nz. A charge may apply.

Specific conditions – land use consent LUC60325312

Lapse of consent

6. Under section 125 of the RMA, this land use consent (LUC60325312) and discharge permit (DIS60340705) lapses five years after the date it is granted unless:

   a. The consent is given effect to; or

   b. The council extends the period after which the consent lapses.

Architectural detail drawings and materials specifications

7. Prior to commencement of any works a finalised set of architectural detail drawings and materials specifications shall be submitted to Council for written certification by Council's Team Leader Monitoring (South). The information shall include the following:

   a) Details of retaining walls / types adjoining the dispatch area and these walls shall be no more than what is shown on the RC drawings or smaller, ideally less than 1.5m.

   b) Details of retaining walls / types within the visitor car parking and these walls shall be no more than what is shown on the RC drawings or smaller.

   c) Details of the building's façade treatment to include material specification, surface finishes, and colour schemes (including colour swatches and material sample palette).

   d) Details of the panelled / faceted façade of the showroom and shall be taken around the corner to reduce the extent of blade wall visible from the south.

   The finalised set of drawings shall ensure that the building's proposed architectural treatment and finished appearance is consistent with the information submitted at the resource consenting stage. The intent of the information submitted is for high quality materials to achieve attractive streetscape. All works shall then be carried out with the details certified by council, and thereafter retained and maintained, to the satisfaction of Council.

Landscaping

8. The landscaping as detailed on the Landscape Plan RS_001 rev D prepared by ResilioStudio shall be implemented within the first planting season (May to September) following the completion of the works on the site.

9. The landscaping shall be maintained thereafter in accordance with the maintenance programme submitted with the approved landscape plan for the duration of trade supplier activity on site to the satisfaction of the Council.

Land Disturbance conditions – land use consent LUC60325312

Consent Duration

10. The regional earthworks component of LUC60325312 shall expire 5 years following the granting of consent unless it has lapsed, been surrendered or been cancelled at an earlier date pursuant to the RMA

General Conditions

11. The bulk earthworks/land disturbance works activity shall be carried out in accordance with the plans and all information submitted with the application, detailed below and all referenced by Council as LUC60325312, except where a higher standard is referred to in the conditions below, in which case this higher standard shall apply.

    Reports:

    - *Franklin Plumbing and Bathroomware, Proposed Warehousing and Distribution Centre (Trade Supplier), 301 Buckland Road, Pukekohe, Assessment of Environmental Effects, January 2019, 4161.01, prepared by Scott Wilkinson Planning.*

    - *W3150 – 301 Buckland Road, Pukekohe, Infrastructure Report, Franklin Plumbing, 301 Buckland Road, October 30th, 2019, Revision 3, prepared by CKL Limited.*

    Plans:

    - *Topographical Survey of Part Lot 1 DP 3363, CFR NA56A/559, Drawing No 100, Rev 00, dated 30 July 2018, prepared by CKL Limited.*

    - *Proposed Earthworks Plan, Design Contour, Drawing No 200, Rev 04, dated 30 July 2018, prepared by CKL Limited.*

    - *Proposed Earthworks Plan, Cut Fill, Drawing No 210, Rev 02, dated 30 July 2018, prepared by CKL Limited.*

    - *Sediment and Erosion Control Plan, Drawing No 250, Rev 01, dated 30 July 2018, prepared by CKL Limited.*

    Advice Note:

    In the event that minor amendments to the erosion and / or sediment controls are required, any such amendments should be limited to the scope of this consent. Any amendments which affect the performance of the controls may require an application to be made in accordance with section 127 of the RMA. Any minor amendments should be provided to the Team Leader – Compliance Monitoring South, Auckland Council prior to implementation to confirm that they are within the scope of this consent.

Pre-commencement Conditions

12. Prior to the commencement of the bulk earthworks/land disturbance works activity on the subject site, a finalised Erosion and Sediment Control Plan including the construction methodology (ESCP) shall be prepared in accordance with GD05 and submitted to the

Team Leader Compliance Monitoring South, Auckland Council. No earthworks activity on the subject site shall commence until confirmation from council is provided that the final management plan is approved.

The Erosion and Sediment Control Plan shall contain sufficient detail to address the following matters:

(a) Specific erosion and sediment control works for all earthworks activities in accordance with Auckland Council's Guideline Document 2016/005 Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05), including clarifying design of the Sediment Retention Pond;

(b) supporting calculations including design drawings

(c) catchment boundaries and contour information

(d) details of construction methods

(e) timing and duration of construction and operation of control works (in relation to the staging and sequencing of earthworks)

(f) details relating to the management of exposed areas (e.g. grassing, mulching)

(g) monitoring and maintenance requirements.

Advice Note:

In the event that minor amendments to the erosion and / or sediment controls are required, any such amendments should be limited to the scope of this consent. Any amendments which affect the performance of the controls may require an application to be made in accordance with section 127 of the RMA. Any minor amendments should be provided to the Team Leader Compliance Monitoring South, Auckland Council prior to implementation to confirm that they are within the scope of this consent.

13. Prior to implementation of bulk earthworks/land disturbance works, a Chemical Treatment Management Plan (CTMP) shall be submitted for the written approval of the Team Leader – Compliance Monitoring South, Auckland Council. The plan shall include as a minimum:

(a) Specific design details of the chemical treatment system based on a rainfall activated methodology (Floc Shed or Box) for the site's Sediment Retention Pond;

(b) Monitoring, maintenance (including post storm) and contingency programme (including a record sheet);

(c) Details of optimum dosage (including assumptions);

(d) Results of initial chemical treatment trial and bench testing;

(e) A spill contingency plan; and

(f) Details of the person or bodies that will hold responsibility for long term operation and maintenance of the chemical treatment system and the organisational structure which will support this system.

Advice Note:

In the event that minor amendments to the CTMP are required, any such amendments should be limited to the scope of this consent. Any amendments which affect the performance of the CTMP may require an application to be made in accordance with section 127 of the RMA. Any minor amendments should be provided to the Team Leader – Compliance Monitoring South, Auckland Council prior to implementation to confirm that they are within the scope of this consent.

14. Prior to bulk earthworks/land disturbance works commencing, a certificate signed by an appropriately qualified and experienced person shall be submitted to the Team Leader – Compliance Monitoring South, Auckland Council, to certify that the erosion and sediment controls have been constructed in accordance with the erosion and sediment control plans as specified in the conditions of this consent

    Certified controls shall include the Sediment Retention Pond, Runoff Diversion Bunds, Clean Water Diversions, Contour Drains, Super Silt Fences and Silt Fences. The certification for these subsequent measures shall be supplied immediately upon completion of construction of those measures. Information supplied if applicable, shall include:

    (a) Contributing catchment area;

    (b) Shape and volume of the structure (dimensions of structure);

    (c) Position of inlets/outlets; and

    (d) Stabilisation of the structure.

Specific earthworks conditions

15. All earthworks shall be managed to ensure that no debris, soil, silt, sediment or sediment-laden water is discharged in an uncontrolled manner beyond the subject site to either land, stormwater drainage systems, watercourses or receiving waters. In the event that an uncontrolled discharge occurs, works shall cease immediately, and the discharge shall be mitigated and/or rectified to the satisfaction of the Council.

16. There shall be no deposition of earth, mud, dirt or other debris on any road or footpath resulting from earthworks activity on the subject site. In the event that such deposition does occur, it shall immediately be removed. In no instance shall roads or footpaths be washed down with water without appropriate erosion and sediment control measures in place to prevent contamination of the stormwater drainage system, watercourses or receiving waters.

    Advice Note:

    In order to prevent sediment laden water entering waterways from the road, the following methods may be adopted to prevent or address discharges should they occur:

    - *provision of a stabilised entry and exit(s) point for vehicles*
    - *provision of wheel wash facilities*
    - *ceasing of vehicle movement until materials are removed*
    - *cleaning of road surfaces using street-sweepers*
    - *silt and sediment traps*
    - *cesspit protection*

In no circumstances should the washing of deposited materials into drains be advised or otherwise condoned.

It is recommended that you discuss any potential measures with the Council's monitoring officer who may be able to provide further guidance on the most appropriate approach to take. Please contact the Team Leader – Compliance Monitoring South for more details. Alternatively, please refer to Auckland Council's Guideline Document 2016/005 Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05).

17. The operational effectiveness and efficiency of all erosion and sediment control measures shall be maintained in accordance with Auckland Council's Guideline Document 2016/005 Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05) throughout the duration of earthworks activity, or until the site is permanently stabilised against erosion.

18. All Sediment Retention Ponds and Decanting Earth Bunds shall be chemically treated in accordance with the approved Chemical Treatment Management Plan until the earthworked areas are stabilised in accordance with Auckland Council's Guideline Document 2016/005 Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05).

19. Upon abandonment or completion of earthworks on the subject site all areas of bare earth shall be permanently stabilised against erosion to the satisfaction of the Council.

Advice Note:

Should the earthworks be completed or abandoned, bare areas of earth shall be permanently stabilised against erosion. Measures may include:

- *the use of mulching*
- *top-soiling, grassing and mulching of otherwise bare areas of earth*
- *aggregate or vegetative cover that has obtained a density of more than 80% of a normal pasture sward*

The on-going monitoring of these measures is the responsibility of the consent holder. It is recommended that you discuss any potential measures with the Council's monitoring officer who will guide you on the most appropriate approach to take. Please contact the Team Leader – Compliance Monitoring South on monitoring@aucklandcouncil.govt.nz or 09 301 0101 for more details. Alternatively, please refer to Auckland Council's Guideline Document 2016/005 Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05).

Ensure stability of the site/neighbouring sites.

20. All earthworks shall be managed to ensure that they do not lead to any uncontrolled instability or collapse either affecting the site or adversely affecting any neighbouring properties. In the event that such collapse or instability does occur, it shall immediately be rectified.

Seasonal Restriction

21. No earthworks on the site shall be undertaken between 30 April and 1 October in any year, without the prior written approval of the Council at least two weeks prior to 30 April of any year. Revegetation/stabilisation is to be completed by 30 April in accordance with measures detailed in Auckland Council's Guideline Document 2016/005 Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05).

Monitoring

22. The sediment and erosion controls at the site of the works shall be inspected on a regular basis and within 24 hours of each rainstorm event that is likely to impair the function or performance of the control measure. A record shall be maintained of the date, time and any maintenance undertaken in association with this condition which shall be forward to the Council on request.

Contamination conditions – land use consent LUC60325312

23. The Team Leader, Southern Compliance Monitoring, Licensing & Regulatory Compliance, Auckland Council (the Team Leader), shall be informed, in writing, at least ten working days prior to the start date of the works authorised by this consent.

24. The works shall be undertaken in accordance with the Remediation Action Plan: 301 Buckland Road, Pukekohe, dated 15 January 2019 and prepared by Geoscience Limited ('the RAP'). Any variations to the RAP shall be submitted to the Team Leader for certification that it appropriately manages actual and potential soil contamination effects and is within the scope of this consent.

    Advice Note:

    The Council acknowledges that the RAP is intended to provide flexibility of the management of the works. Accordingly, the plan may need to be updated. Any updates should be limited to the scope of this consent and be consistent with the conditions of this consent. If you would like to confirm that any proposed updates are within scope, please contact the Team Leader.

25. During earthworks all necessary action shall be taken to prevent dust generation and sufficient water shall be available to dampen exposed soil, and/or other dust suppressing measures shall be available to avoid dust formation. The consent holder shall ensure that dust management during the excavation works generally complies with the Good Practice Guide for Assessing and Managing Dust (Ministry for the Environment 2016).

26. In the event of the accidental discovery of contamination during earthworks which has not been previously identified, the consent holder shall immediately cease the works in the vicinity of the contamination and notify the Team Leader and engage a Suitably Qualified and Experienced Professional (SQEP) to assess the situation (including possible sampling and testing) and decide in conjunction with a council compliance officer on the best option for managing the material.

27. Excavated material that is not re-used on site shall be disposed of at an appropriate facility licensed to accept the levels of contamination identified.

28. The consent holder shall ensure that the contamination level of any soil imported to the site complies with the definition of 'Cleanfill material', as outlined in the Auckland Unitary Plan (Operative in Part) (AUP(OP)).

29. All sampling and testing of contamination on the site shall be overseen by a SQEP. All sampling shall be undertaken in accordance with the RAP and Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils (Ministry for the Environment, 2011).

30. Within three months of the completion of earthworks on the site, a Site Validation Report (SVR) shall be provided to the Team Leader. The SVR shall be prepared by a SQEP in accordance with the Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand (Ministry for the Environment, 2011) and contain sufficient detail to address the following matters:

    (a) A summary of the works undertaken, including the location and dimensions of the excavations carried out and the volume of soil excavated;

    (b) Details and results of any testing, including validation testing, undertaken and interpretation of the results in the context of the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health and the AUP(OP);

    (c) Copies of the disposal dockets for any material removed from the site;

    (d) Records of any unexpected contamination encountered during the works and response actions, if applicable;

    (e) Conditions of the final site ground surface and details of any validation sampling undertaken on materials re-used on site or imported to site; and

    (f) A statement certifying that all works have been carried out in accordance with the requirements of the consent.

Advice Note: Site Validation Report

The SVR shall enable the Team Leader to update the property file information relating to soil contamination. Until an SVR is submitted and certified by the Team Leader, the Land Information Memorandum for the property shall not be updated to reflect any soil contamination remediation work undertaken.

Advice Note: Asbestos Containing Materials

If you are demolishing any structure that may have asbestos containing materials (ACM) in it: You have obligations under the relevant regulations for the management and removal of asbestos, including the need to engage a Competent Asbestos Surveyor to confirm the presence or absence of any ACM. Work may have to be carried out under the control of person holding a WorkSafe NZ Certificate of Competence (CoC) for restricted works. If any ACM is found, removal or demolition will have to meet the Health and Safety at Work (Asbestos) Regulations 2016.

Information on asbestos containing materials and your obligations can be found at www.worksafe.govt.nz .

Traffic conditions – land use consent LUC60325312

Buckland Road Upgrades

31. The consent holder shall submit full detail engineering design drawings of the proposed trade facility at 301 Buckland Road fronting the site and any necessary tie in works for the approval of the Team Leader – Development Engineering South (and Auckland Transport peer review) prior to any road works commencing on site. The design shall be in general accordance with the Proposed Site Plan included in the application (Drawing RC-03), and in accordance with the Auckland Transport Code of Practice (ATCOP), or updated equivalent Auckland Transport standards which apply at the time of applying for Engineering Plan Approval.

    The design shall include, but not be limited to, the following details:

    a) Provision of vehicle tracking for the inbound/outbound movements at the proposed vehicle access points off Buckland Road, should be provided for the largest design vehicle to be used on site.

    b) Provision of a footpath on the western side of Buckland Road (north of the northern access) and up to the intersection with Kitchener Street. Pram crossings are to be installed in accordance with Drawing FP009 of ATCOP. This footpath shall have adequate street lighting and kerb and channel fronting the street.

    c) Provision of a temporary turning head at the end of Road 1 in the event the entrance will be closed after hours. Please confirm if a turning head is required, and if necessary, provide updated plans for the largest design vehicle tracking.

    d) Ensure all vehicle accesses are designed in accordance with GD019A-1C of the TDM Standards (Commercial Vehicle Crossing).

    e) Signage and line marking plans are to be developed and designed in accordance with the relevant design standard, including MOTSAM Parts 1 and 2, NZTA Traffic Control Devices Manual, Part 3, Advertising Signs (text within the potential public consultation board for Buckland Road).

    f) To avoid damage to the road shoulder and minimise increased maintenance cost in the future, please provide a basic left turn treatment in accordance to Figure 8.2 in Austroads Guide to Road Design – Part 4A: Unsignalised and Signalised Intersections for the left turn movement (supported with heavy vehicle tracking) onto Road 1 off Buckland Road.

    g) Works associated with Buckland Road, site access and any reinstatement shall be constructed in accordance with the approved plans, at the consent holder's expense, and shall be completed prior to any activity commencing on the site:

    h) Relocation of existing power poles, edge marker post locations and road signs if any shall be clearly identified on the engineering plans.

    i) Detail Signage and Markings Plan shall be submitted as part of the Engineering Plan application.

j) Detail street lighting plans & utility structures existing and relocated shall comply with ATCOP Standards and be submitted together with the engineering plans for approval by Council (and Auckland Transport peer review).

Approval of Traffic Control Committee

32. The consent holder is required to submit a resolution report for approval by the Auckland Transport Traffic Control Committee to legalise all new and proposed changes to road markings, signage and traffic control devices. A copy of the resolution by the Traffic Control Committee must be submitted with the application for the certificate pursuant to section 224(c) of the Resource Management Act. The consent holder is to engage an Auckland Transport nominated contractor to carry out consultation with the affected landowners (if any) and to prepare the resolution report for the Traffic Control Committee (TCC) approval in order to legalise the proposed changes at the cost of the consent holder.

Advice Notes:

Auckland Transport approval for changes to the road reserve or for new road reserve is made through its Traffic Control Committee ("TCC") resolutions.

The consent holder needs to contact Auckland Transport to initiate the resolution process at least 6 weeks prior to any works in the road reserve. No installation or any road markings will be permitted before the resolution has been approved by the Auckland Transport Traffic Control Committee.

Parking, Access, and Manoeuvring

33. That the new driveways, 70 parking spaces, traffic islands and manoeuvring areas shall be formed, sealed, marked and drained in general accordance with Council's current Engineering Standards and the approved plan.

34. That the two new vehicle crossings of width 9.0m & 12.0m at the boundary for northern and southern access respectively shall be constructed in accordance with GD019A-1C of the TDM Standards (Commercial Vehicle Crossing).

35. That the vehicle crossing for the truck entrance from proposed Lot 2 shall be constructed in accordance with GD019A-1C of the TDM Standards (Commercial Vehicle Crossing).

Advice note

A vehicle crossing permit is required to be obtained from Auckland Transport prior to the construction of the vehicle crossing on existing public roads. See Auckland Transport's website https://at.govt.nz/about-us/working-on-the-road/vehicle-crossing-application/ for more information.

36. The driveways and manoeuvring areas shall be constructed, with stormwater control, in compliance with Council's current Auckland Council Engineering Standards, prior to the commencement of the activity to the Team Leader Compliance Monitoring South.

37. That all four accessible parking spaces shall be identified and marked in accordance with New Zealand Standards NZS4121-2001. Ramp access shall be provided as required.

38. That the following shall be constructed/installed in accordance with of the ATCOP Standards and the approved plan.

(a) Internal footpaths to be constructed for pedestrian access route and for accessible parking route. This footpath to be linked to the footpath on Buckland Road.

(b) Directional arrows on the driveway surface and within the site to indicate the direction of flow of traffic for entry and exit points within the parking lots.

(c) ENTRY and NO ENTRY signs for parking lot with one-way circulation.

(d) Right turn bay and flush median markings on Buckland Road to be installed.

39. That not less than three (3) bike stands for short stay visitor parking and 3 for secure bike parking for staff shall be provided within the site. Design shall be in accordance with Australian Standards AS/NZS 2890.3-1993, Parking Facilities Part 3 – Bicycle Parking Facilities. These shall be provided on a continuing basis as and when the need arises.

Engineering conditions – land use consent LUC60325312

Geotechnical

40. The construction of all earthworks including the placement and compaction of fill materials shall be supervised by a suitably qualified engineering professional. In supervising the works, the suitably qualified engineering professional shall ensure that they are constructed and otherwise completed in accordance with the approved plans forming part of the application.

41. Certification from a suitably qualified engineering professional responsible for supervising the works shall be provided to the Council's Team Leader Regulatory Engineering South confirming that the works have been completed in accordance with approved plans within ten (10) working days following completion. Written certification shall be in the form of a Geotechnical Completion Report, producer statement or any other form acceptable to Council.

42. All earthworks and excavation must be monitored and supervised on-site by a Supervising Engineer. When the earthworks are completed an Engineer's Certificate and Geotechnical Completion Report must be provided to the satisfaction of the Council's Team Leader Regulatory Engineering South prior to the release of the Section 224(c) Certificate on the site, certifying:

a) That the works were undertaken in accordance with NZS4431:1989, the Code of Practice for Earth Fill for Residential Subdivisions; AND

b) The suitability of the filled ground and the original unfilled ground for the erection of buildings not requiring specific design under NZS3604:1999; AND

c) The extent to which settlement of the site is expected and its impact on future building(s) construction; AND

d) Include a statement of professional opinion as to the suitability of the site for the development.

e) Any related matters that are identified in other conditions of this consent.

43. All construction works (including bulk earthworks, subsoil drainage, shear keys, retaining walls and any other stability measures including monitoring) shall be subject to detailed design by a suitably qualified and experienced Chartered Professional Engineer. The

Consent Holder shall submit the detailed design (engineering plans) to the Council for approval prior to the commencement of any works onsite or on the Buckland Road road frontage. The Council may appoint an independent geotechnical engineer to peer review the detailed design for the purposes of determining if it can give its approval. This shall be done at the Consent Holder's expense.

Retaining Wall

44. All retaining walls shall be constructed in accordance with the engineering plan approval. Any ancillary and supporting structures (e.g. post, rail and subsoil drain) of a retaining wall shall be clear of the proposed lot boundary immediately parallel to the wall. A certificate from a licensed cadastral surveyor shall be provided to the Council certifying the compliance with this requirement at the time of lodgement of the survey plan for approval.

Engineering Plan Requirements and Approvals

45. Prior to commencement of any works on site the consent holder shall submit two hard copies and one PDF/CD version of complete engineering plans (including engineering calculations and specifications) to the Council's Team Leader Regulatory Engineering South for approval. The plans shall be approved for construction prior to works commencing on site. Details of the registered engineer who will act as the consent holder's representative for the duration of the development shall also be provided with the application for Engineering Plan Approval.

    The engineering plans shall include but not be limited to the information regarding the following engineering works:

    a) Design and details of any retaining walls in the road reserve.

    b) Design detail including pipe sizing, cross sections and long sections for stormwater infrastructure. Public stormwater reticulation, including manholes and pipes, should be located within the berm. However, the final location shall be confirmed in consultation with other service providers, Auckland Transport and Auckland Council's Development Engineer.

    c) Design and location of any counterfort and/or subsoil land drainage required and the proposed ownership and maintenance of the counterfort and/or subsoil land drainage.

    d) Detailed design of all works to be carried out on existing road reserves including intersections, parking, vehicle crossings, pedestrian crossings and footpaths. In particular, compound corners shall be adopted throughout the development. All roads shall be designed in accordance with Auckland Transport's Code of Practice (ATCOP).

    e) Detailed design of all street lighting, street furniture and other structures/facilities on the road reserves (including traffic calming devices, tree pits, raingardens and safety measurements, marking and street signs etc.) shall be designed in accordance with Auckland Transport's Code of Practice (ATCOP).

    f) Pavement and surfacing for all parking areas, footpaths and pedestrian crossing points must be designed in accordance with Auckland Transport's Code of Practice (ATCOP).

g) Visitor parking on Roads, and any associated changes to carriageway width, to be confirmed in consultation with Auckland Transport.

h) Detailed Landscape Planting Plans for all street planting and landscaping on the proposed roads and stormwater treatment devices, including a maintenance programme until the planting is confirmed as established.

i) Detailed design of the stormwater system and devices for the management of both quantity and quality of the stormwater runoff from the contributing development upstream catchment (including treatment devices and all ancillary equipment/structure etc.). The stormwater system and devices shall be designed in accordance with the Council's Code of Practice for Land Development and Subdivision: Chapter 4 - Stormwater; in particular:

- Pipes appropriately sized to accommodate 10% AEP flows – relevant calculations to be provided.
- The proposed stormwater system shall be designed to identify health and safety risks for the public, operating personnel, contractor and Council employees.
- The proposed stormwater system shall have an asset life of a minimum of 100 years.
- Principles of Water-Sensitive Design and "Best Management Practices" to minimise stormwater run-off volumes and peak flow rates and to improve the quality of stormwater run-off entering the receiving environment shall be utilised for the design of the proposed stormwater system.
- The system shall cater for stormwater run-off from the site being developed together with any run-off from upstream catchments in accordance with TP108 (Guidelines for Stormwater Runoff Modelling in the Auckland Region 1999) and allowances for climate changes. The upstream catchment shall be considered for the Maximum Probable Development scenario (full development to the extent defined in the Proposed Auckland Unitary Plan).
- Mitigation measures (e.g. peak flow attenuations and/or velocity control) to mitigate the downstream effects shall be taken into account during the design of the stormwater system

j) Details design of all raingardens including:

- Treatment catchment plans and associated calculations showing catchment area, raingarden sizing and raingarden spacing to demonstrate individual raingardens will not be overloaded.
- Plan and long sections of connected underdrains at the kerb, in reference to the road profile and other services within the berm.
- Where a raingarden adjoins a road or footpath, the raingarden wall must be set behind a standard kerb.

k) Details of the stormwater discharge outlets including engineered erosion protection measures designed in accordance with Council's GD01, December 2017.

l) Details of the hydrology mitigation measures in accordance with the following standards:

- Council's Code of Practice for Land Development and Subdivision: Chapter 4 – Stormwater

m) Details of fire hydrants to be installed. Any fire hydrants shall be designed in accordance with the Council's Water and Wastewater Code of Practice for Land Development and Subdivision.

n) Details confirming that the maximum depth velocity relationship should be no more than $0.6m^2/s$, as per AUSTroads Part 5A – Table 5.2.

o) Information relating to gas, electrical and/or telecommunication reticulation including ancillary equipment.

As part of the application for Engineering Plan Approval, a registered engineer shall:

- Certify that all public roads and associated structures/facilities or access ways have been designed in accordance with the Auckland Transport's Code of Practice (ATCOP).
- Certify that the proposed stormwater system or devices proposed have been designed in accordance with the Council's Code of Practice for Land Development and Subdivision: Chapter 4 - Stormwater.
- Provide a statement that the proposed infrastructure has been designed for the long term operation and maintenance of the asset.
- Confirm that all practical measures are included in the design to facilitate safe working conditions in and around the asset.

Wastewater Connections

46. The sewer system, as required by this consent, shall be designed and adequately sized to service future development of upstream lots and lots in that area as defined in the Catchment Management Plan.

47. The consent holder shall provide and install a complete public wastewater system to serve all lots in accordance with the Water and Wastewater Code of Practice for Land Development and Subdivision to the satisfaction of Auckland Council.

Water Supply

48. The consent holder shall provide and install a complete water supply reticulation system to serve all lots in accordance with the Water and Wastewater Code of Practice for Land Development and Subdivision to the satisfaction of the Council Team Leader Regulatory Engineering South.

Specific consent conditions for DIS60340705 & LUC60325312– stormwater diversion and discharge and stormwater quality

Stormwater management works

49. The following stormwater management works shall be constructed for the following catchment areas and design requirements, and shall be completed prior to discharges commencing from the site:

Works to be undertaken	Catchment area: impervious and pervious areas	Design requirement(s)
Rain tanks	2.467Ha	• Pre-treatment to be provided for all flows to the tank • 10-yr ARI event: Attenuation of post-development peak flow to not exceed pre-development peak flow
Swale – *Tank to raingardens*	2.467Ha Encompasses all flows to the underground tank.	• Conveyance of stormwater runoff from the rain tank to the raingardens • Conveyance of 100-yr ARI event flows to the Attenuation Basin, via bypass of raingardens • 100-yr ARI capacity is provided for the full length of the swale.
Swale – *OLF from neighbouring site*	2.81Ha Overland flows from 42 Kitchener Rd	• Conveyance of overland flows up to the 100-yr ARI design event entering 301 Buckland Rd from 42 Kitchener Rd to the Buckland Rd roadside swale • 100-yr ARI capacity is provided for the full length of the swale, with flows contained within 301 Buckland Rd.
Raingardens	All impervious areas within the site.	• Water quality treatment (WQ: 9,600m²) in accordance with Auckland Council's GD01 (superseding TP10) • Sized to meet the following hydrology mitigation: (a) Provide retention of a minimum of 5mm runoff depth for all impervious areas; and (b) Provide detention with a draindown period of 24 hours for the difference between the pre-development and post development runoff volumes from the 95th percentile, 24-hour rainfall event minus the retention volume for all impervious areas.
Attenuation Basin *– Dry Basin*	3.352Ha	• 100-yr ARI event: Attenuation of post-development peak flow to not exceed pre-development peak flow.
Outfall & associated erosion protection *– Level Spreader*	3.352Ha Discharge from attenuation basin	• Flow dispersal to be accomplished within the site prior to discharge across the boundary to the reconstructed roadside swale. • Erosion protection required to minimise bed scour and bank erosion • Design in accordance with Auckland Council Technical Report 2013/018 for inlet and outlet design. • Specimen trees are not to be in the zone of the level spreader pathway, to prevent

		preferential pathways & scour.
All roof areas	Roofing material	No exposed unpainted metal surfaces

Advice Note:

The final design details and calculations for the stormwater works will be confirmed at the building consent stage.

Swale – the landowner is to maintain the swale(s) on site to be weed free with grass height not in excess of 100mm.

Level spreader – the landowner is to maintain unimpeded flows from the level spreader to the swale and prevent and/or mitigate any scour or erosion from the level spreader to the swale.

Design sizing assumes a raingarden media with 300mm/hr percolation rate to enable reduced device sizes. The consent holder shall undertake required testing of media prior to installation to demonstrate the 300mm/hr infiltration capacity is achieved, as per the design, or modify the design accordingly.

Modifications approval

50. In the event that any within scope modifications to the stormwater management system are required, the following information shall be provided:

    (a) Plans and drawings outlining the details of the modifications; and

    (b) Supporting information that details how the proposal does not affect the capacity or performance of the stormwater management system.

    All information shall be submitted to, and approved by the Team Leader Compliance Monitoring South, prior to implementation.

    Advice Note:

    All proposed changes must be discussed with the Team Leader Compliance Monitoring South, prior to implementation. Any changes to the proposal which will affect the capacity or performance of the stormwater management system will require an application to Council pursuant to Section 127 of the RMA. An example of a minor modification can be a change to the location of a pipe or slight changes to the site layout. If there is a change of device type (even proprietary), the consent will have to be varied (s127 under the RMA).

Post Construction meeting

51. A post-construction meeting shall be held by the consent holder, within 20 working days of completion of the stormwater management works, that:

    (a) is located on the subject area;

    (b) includes representation from the Team Leader Compliance Monitoring South; and

    (c) includes representation from the site stormwater engineer or contractors who have undertaken the works and any other relevant parties.

The following information shall be made available 5 days prior to the post construction meeting:

- As-Built certification and plans of the stormwater management works, which are certified (signed) by a suitably qualified registered surveyor as a true record of the stormwater management system;
- Operation and Maintenance Plan (as required by the conditions of this consent);

Advice Note:

To arrange the construction meetings required by this consent, please contact the Team Leader Compliance Monitoring South via monitoring@aucklandcouncil.govt.nz.

Contents of As-Built Plans

52. The As-Built plans shall display the entirety of the stormwater management system, and shall include:

    (a) the surveyed location (to the nearest 0.1m) and level (to the nearest 0.01m) of the discharge structure, with co-ordinates expressed in terms of NZTM and LINZ datum;

    (b) location, dimensions and levels of any overland flowpaths including cross sections and long sections;

    (c) plans and cross sections of all stormwater management devices;

    (d) documentation of any discrepancies between the design plans and the As-Built plans approved by the Modifications Approval condition.

Overland Flowpaths

53. For stormwater flows in excess of the capacity of the primary drainage systems, overland flow paths shall be provided and maintained to allow surplus stormwater from critical storms (up to the 100-year ARI event), to discharge with the minimum of nuisance and damage.

54. Major secondary flow paths shall be kept free from significant obstructions such as buildings and solid fences.

Operation and Maintenance

55. The Operation and Maintenance Plan shall set out how the stormwater management system is to be operated and maintained to ensure that adverse environmental effects are minimised. The plan shall include:

    (a) details of who will hold responsibility for long-term maintenance of the stormwater management system and the organisational structure which will support this process;

    (b) a programme for regular maintenance and inspection of the stormwater management system;

    (c) a programme for the collection and disposal of debris and sediment collected by the stormwater management devices or practices;

    (d) a programme for post storm inspection and maintenance;

(e) a programme for inspection and maintenance of the outfall; and

(f) general inspection checklists for all aspects of the stormwater management system, including visual checks.

56. The stormwater management system shall be managed in accordance with the approved Operation and Maintenance Plan for the duration of the activity on site.

57. The Operation and Maintenance Plan shall be maintained and updates submitted to the Team Leader Compliance Monitoring South for approval.

Maintenance Report

58. A maintenance report shall be provided to the Team Leader Compliance Monitoring South on request.

59. The maintenance report shall include the following information:

(a) details of who is responsible for maintenance of the stormwater management system and the organisational structure supporting this process;

(b) details of any maintenance undertaken; and

(c) details of any inspections completed.

60. Details of all inspections and maintenance for the stormwater management system, for the preceding three years, shall be retained.

Specific conditions – subdivision consent SUB60333646

61. This subdivision consent shall be carried out in accordance with the documents and drawings and all supporting additional information submitted with the application, detailed below, and all referenced by the council as resource consent number SUB60333646.

- Application Form, and Assessment of Effects prepared by Rosie Daly of Scott Wilkinson Planning, titled "Franklin Plumbing and Bathroomware, Proposed Warehousing and Distribution Centre (Trade Supplier), 301 Buckland Road, Pukekohe", dated January 2019

Drawing title and reference	Author	Rev	Dated
Proposed Subdivision of Part Lot 1 DP 3363 Existing Site Plan DwG 150	CKL	0	24/10/18
Proposed Subdivision of Part Lot 1 DP 3363 Proposed Site Layout DwG 151	CKL	0	24/10/18

62. Under section 125 of the RMA, this subdivision consent lapses five years after the date it is granted unless:

a. A survey plan is submitted to council for approval under section 223 of the RMA before the consent lapses, and that plan is deposited within three years of the approval date in accordance with section 244 of the RMA; or

b. An application under section 125 of the RMA is made to the council before the consent lapses (five years) to extend the period after which the consent lapses and the council grants an extension.

Survey plan approval (s223) conditions

63. The consent holder shall submit to council for approval to Section 223 of the Resource Management Act 1991 a Land Transfer Plan in accordance with the approved scheme plan of subdivision including:

    a. Any easements required by this consent shall be shown in the Memorandum of Easements with the Section 223 documentation; and

    b. That lot 2 shall vest in Council as public road. The consent holder shall meet all costs associated with the vesting of the road (subject to any agreement with Auckland Transport).

Section 224(c) compliance conditions

Section 224 (c) certificate

64. The application for a certificate under section 224(c) of the RMA shall be accompanied by certification from a professionally qualified surveyor or engineer that all the conditions of subdivision consent have been complied with, and that in respect of those conditions that have not been complied with:

    a. a completion certificate has been issued in relation to any conditions to which section 222 applies;

    b. a consent notice has been issued in relation to any conditions to which section 221 applies; and

    c. a bond has been entered into by the subdividing owner in compliance with any condition of subdivision consent imposed under section 108(2)(b).

Wastewater Connections

65. A certificate from Watercare confirming that separate wastewater connections have been provided for Lot 1 shall be provided in support of the 224(c) application. No buildings in the development are to be occupied until confirmation form Watercare has been provided to the Council.

Water Supply

66. A certificate from Watercare confirming a separate water supply connection for Lot 1 shall be provided in support of the section 224(c) application.

Fire Hydrants

67. Fire hydrants shall be designed, provided and installed within 135m of the furthest point on any property in accordance with Water and Wastewater Code of Practice for Land Development and Subdivision to the satisfaction of Auckland Council.

Advice Note;

Should this hydrant need to be on private property the hydrant will be a private hydrant owned by the property owner

68. A certificate from Watercare confirming that evidence of undertaking the hydrant flow test and compliance with the relevant standards has been undertaken shall be provided in support of the section 224 application.

Advice notes

1. *Any reference to number of days within this decision refers to working days as defined in s2 of the RMA.*

2. *For the purpose of compliance with the conditions of consent, "the council" refers to the council's monitoring inspector unless otherwise specified. Please contact monitoring@aucklandcouncil.govt.nz] to identify your allocated officer.*

3. *For more information on the resource consent process with Auckland Council see the council's website: www.aucklandcouncil.govt.nz. General information on resource consents, including making an application to vary or cancel consent conditions can be found on the Ministry for the Environment's website: www.mfe.govt.nz.*

4. *If you as the applicant disagree with any of the above conditions, or disagree with the additional charges relating to the processing of the application, you have a right of objection pursuant to sections 357A or 357B of the Resource Management Act 1991. Any objection must be made in writing to the council within 15 working days of your receipt of this decision (for s357A) or receipt of the council invoice (for s357B).*

5. *The consent holder is responsible for obtaining all other necessary consents, permits, and licences, including those under the Building Act 2004, and the Heritage New Zealand Pouhere Taonga Act 2014. This consent does not remove the need to comply with all other applicable Acts (including the Property Law Act 2007 and the Health and Safety at Work Act 2015), regulations, relevant Bylaws, and rules of law. This consent does not constitute building consent approval. Please check whether a building consent is required under the Building Act 2004.*

Delegated decision maker:

Name: Jane Masters

Title: Team Leader, Resource Consents

Signed: 

Date: 9 September 2019

ARCHITECT

BREWER DAVIDSON
architecture / urban design

CLIENT

Franklins Plumbing

PROJECT

Franklins Warehouse & Head Office

DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	2/11/2018
Plot Time	12:08 PM

Original Scale (mm)

0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
EXISTING AERIAL PLAN

JOB No.	SCALE (A3)
1719	1:1000

DRAWING No.	REV.
RC.01	1

PT LOT 1 DP 3363
43644

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DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	2/11/2018
Plot Time	12:08 PM

Original Scale (mm)
0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
EXISTING SITE PLAN

JOB No.	SCALE (A3)
1719	1:1000

DRAWING No.	REV.
RC.02	1

H18 FUTURE URBAN ZONE
H18.6.3.1 YARDS - 12m Side Yard

Trade Vehicles Only

Trade Vehicles
and Visotor Entry Only

FOOTPATH

FOOTPATH

A

B

TRAINING/CAFETERIA
415 m²
FSL 71.00

upper carparking (30)

retaining wall

lower carparking (20)

raingarden 1

rain garden 2

rain garden 3

rain garden 4

Attenuation Basin

PYLON SIGNAGE

WAREHOUSE PLATFORM

SHOWROOM
1,500 m²
FSL 71.00

Bank

F U T U R E R O A D

B U C K L A N D R O A D

H17 BUSINESS - LIGHT INDUSTRY ZONE
H17.6.4.1 YARDS - 2m Front Yard

A

H18 FUTURE URBAN ZONE
H18.6.3.1 YARDS - 20m Front Yard

20m Road Reserve

F O R M E D A C C E S S

Bank

Bank

H18 FUTURE URBAN ZONE
H18.6.3.1 YARDS - 12m Side Yard

PYLON SIGNAGE

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PROJECT

Franklins Warehouse & Head Office

DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	16/01/2019
Plot Time	2:36 PM

Original Scale (mm)

0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
PROPOSED SITE PLAN
- LOWER LEVEL

JOB No.	SCALE (A3)
1719	1:1000

DRAWING No.	REV.
RC.03	2

H18 FUTURE URBAN ZONE
H18.6.3.1 YARDS - 12m Side Yard

H17 BUSINESS - LIGHT INDUSTRY ZONE
H17.6.4.1 YARDS - 2m Front Yard

H18 FUTURE URBAN ZONE
H18.6.3.1 YARDS - 20m Front Yard

PYLON SIGNAGE

H18 FUTURE URBAN ZONE
H18.6.3.1 YARDS - 12m Side Yard

PYLON SIGNAGE

Bank
Ramp
THIRD FORECOURT
30.000
PIPE STORAGE
1,800 m²
FSL 79.00
22.500
RUBBISH (Below)
COVERED SECURE DE-VANNING AREA
Goods In
16.000
DISPATCH
Goods Out
TRADE FORECOURT
trade parking (10)
warehouse staff parking (10)
Trade Vehicles Only
Trade Vehicles and Visitors Only
FOOTPATH
ADMIN OFFICE
480 m²
FSL 74.60
upper carparking (30)
retaining wall
lower carparking (20)
raingarden 1
rain garden 2
rain garden 3
rain garden 4
Attenuation Basin
WAREHOUSE
7,200 m²
FSL 76.00
120.000
60.000
SHOWROOM ROOF
SECOND FORECOURT
25.000
Truck Entrance
20m Road Reserve
FORMED ACCESS
FUTURE ROAD
BUCKLAND ROAD
A
B

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PROJECT
Franklins Warehouse & Head Office

DRAWING INFORMATION

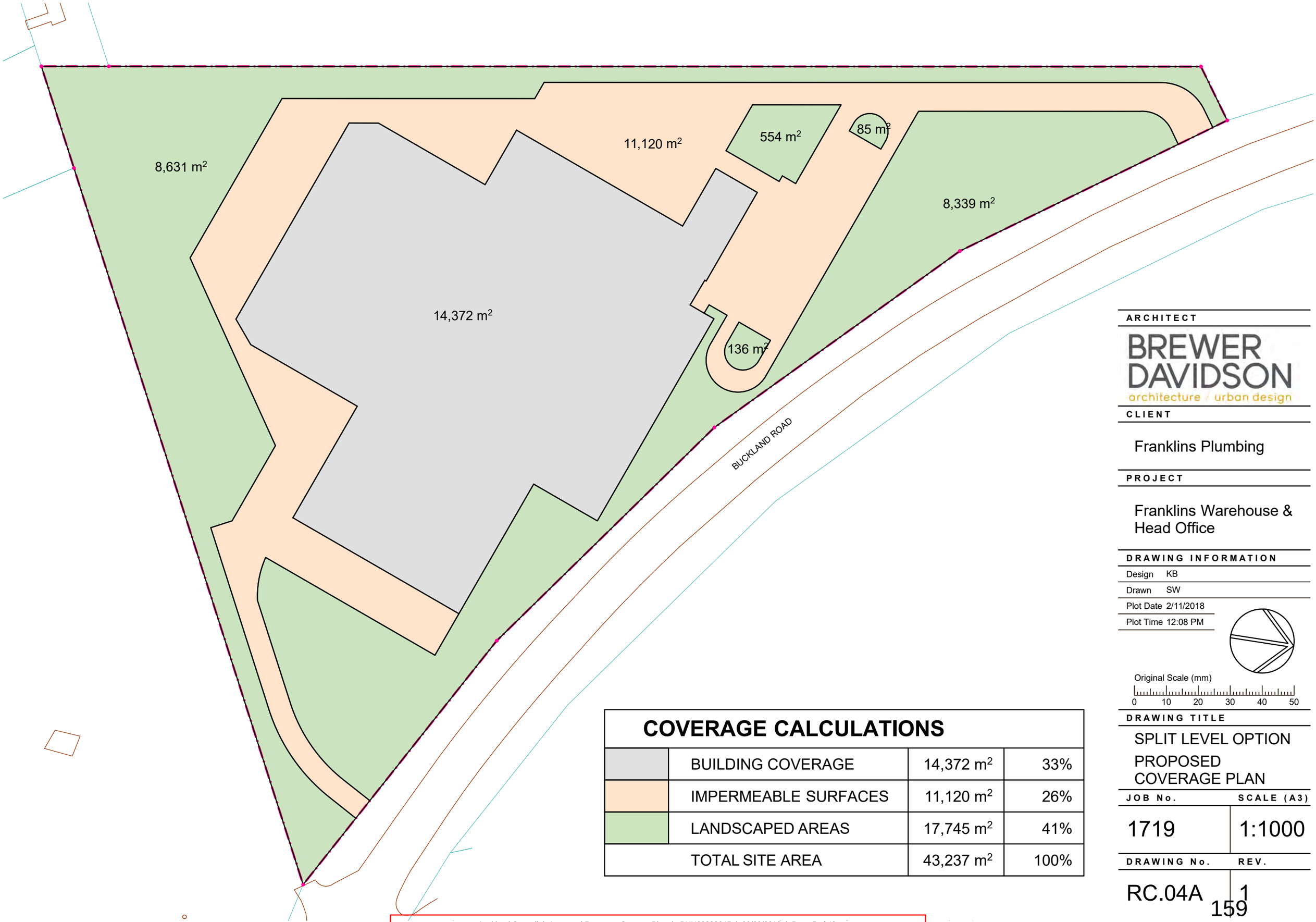
Design	KB
Drawn	SW
Plot Date	16/01/2019
Plot Time	2:36 PM

Original Scale (mm)
0 10 20 30 40 50

DRAWING TITLE
SPLIT LEVEL OPTION
PROPOSED SITE PLAN - UPPER LEVEL

JOB No.	SCALE (A3)
1719	1:1000

DRAWING No.	REV.
RC.04	2



COVERAGE CALCULATIONS

	BUILDING COVERAGE	14,372 m^2	33%
	IMPERMEABLE SURFACES	11,120 m^2	26%
	LANDSCAPED AREAS	17,745 m^2	41%
	TOTAL SITE AREA	43,237 m^2	100%

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PROJECT

Franklins Warehouse & Head Office

DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	2/11/2018
Plot Time	12:08 PM

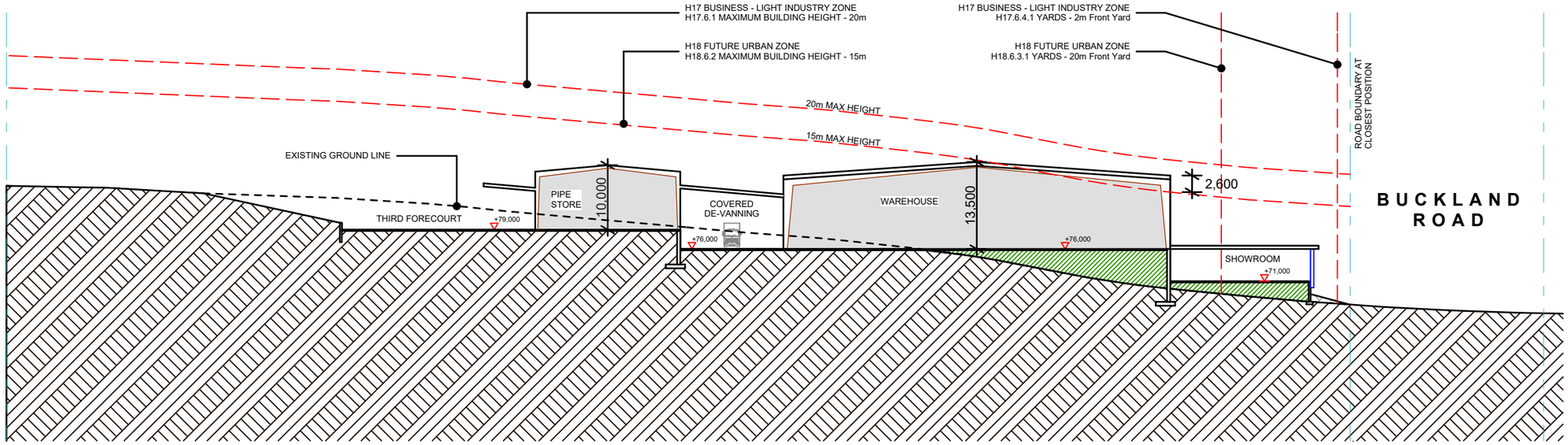
Original Scale (mm)
0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
PROPOSED COVERAGE PLAN

JOB No.	SCALE (A3)
1719	1:1000

DRAWING No.	REV.
RC.04A	1



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DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	2/11/2018
Plot Time	12:08 PM

Original Scale (mm)

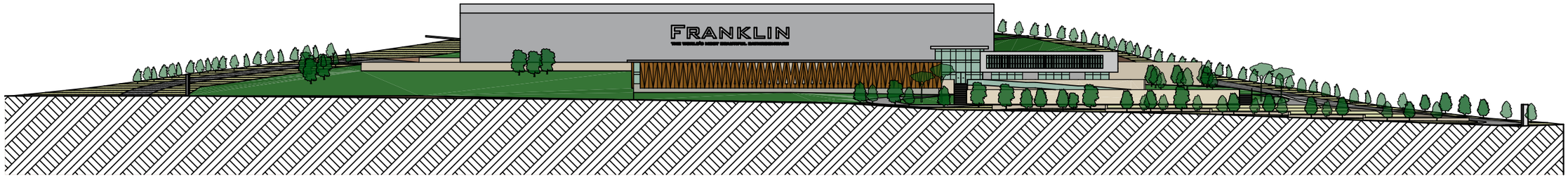
0 10 20 30 40 50

DRAWING TITLE

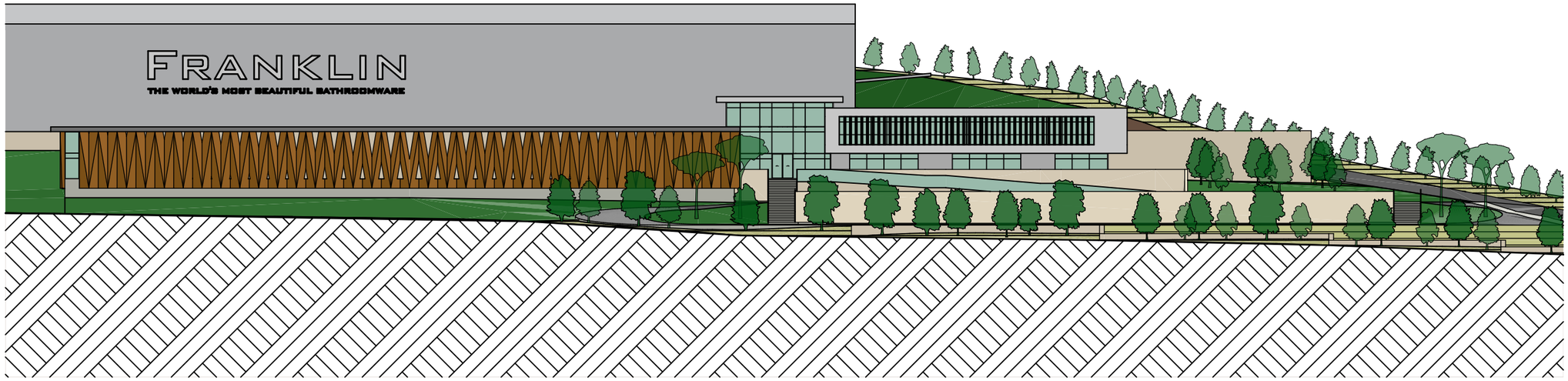
SPLIT LEVEL OPTION
SECTION A-A

JOB No.	SCALE (A3)
1719	1:750

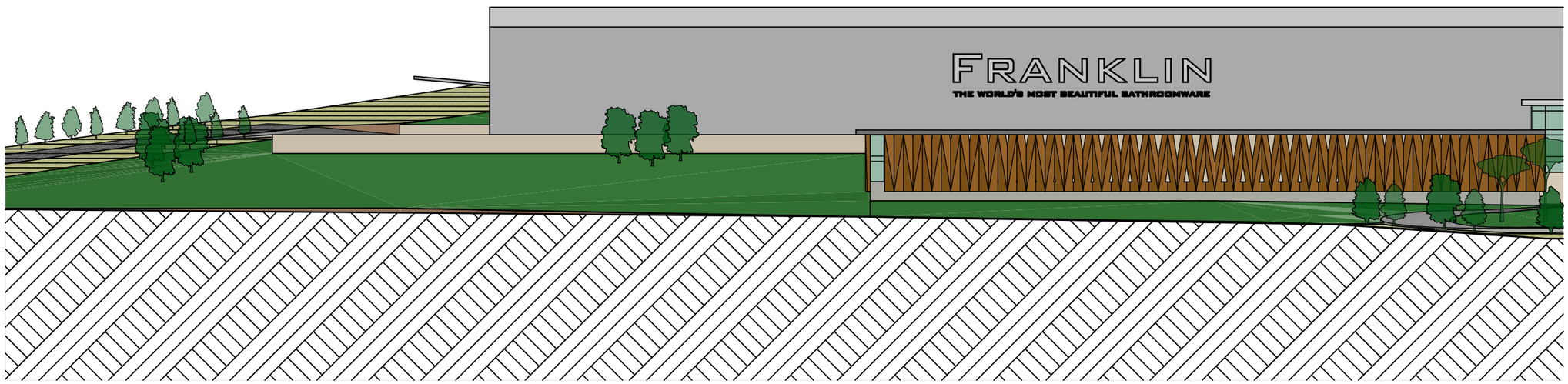
DRAWING No.	REV.
RC.05	1



1 OVERALL NORTH ELEVATION 1:1000



2 PART NORTH ELEVATION - 1 1:500



3 PART NORTH ELEVATION - 2 1:500

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DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	2/11/2018
Plot Time	12:08 PM

Original Scale (mm)

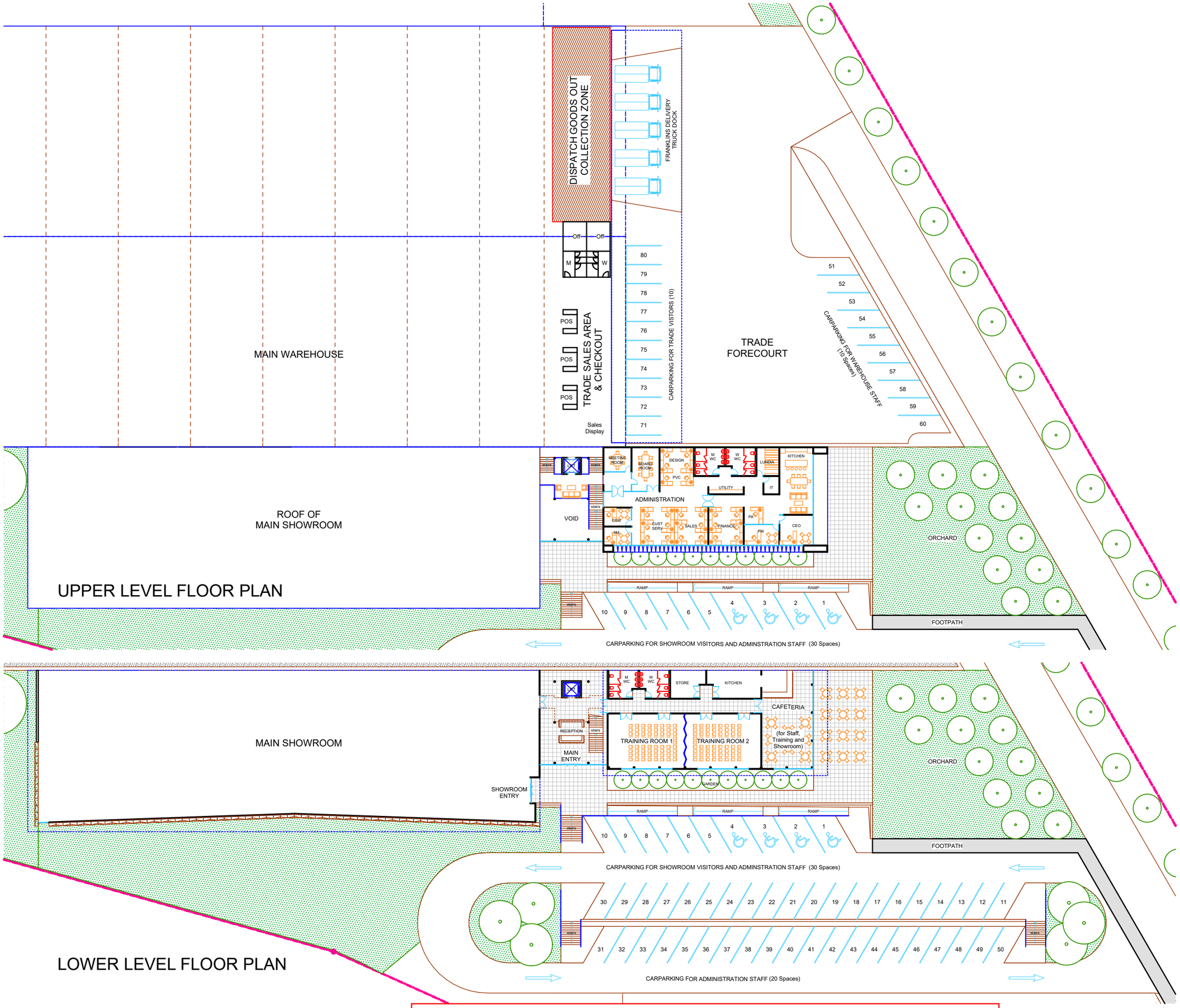
0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
NORTH ELEVATION

JOB No.	SCALE (A3)
1719	1:500

DRAWING No.	REV.
RC.06	1



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Franklins Warehouse & Head Office

DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	2/11/2018
Plot Time	12:08 PM

Original Scale (mm)

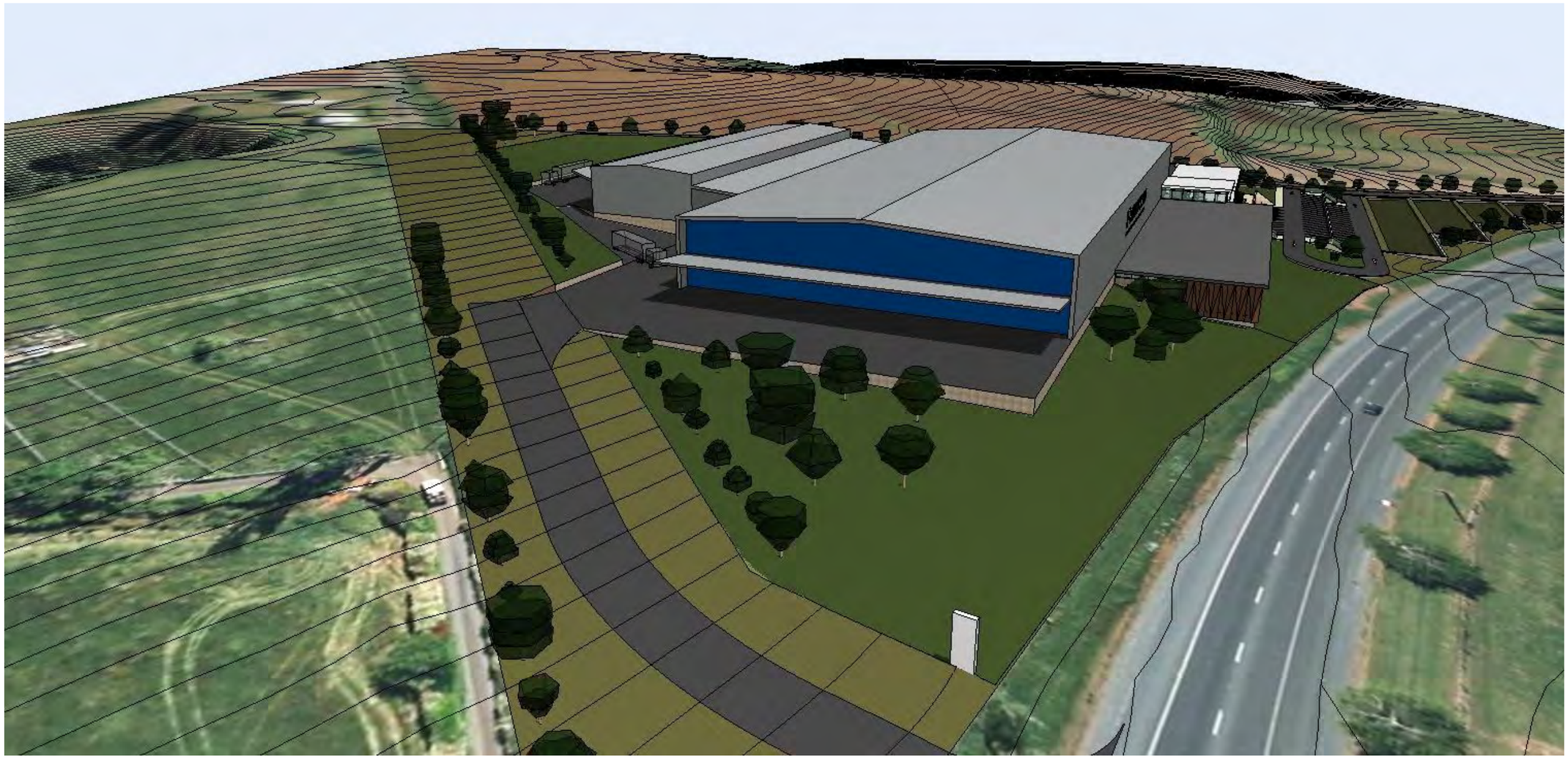
0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
PROPOSED FLOOR PLANS

JOB No.	SCALE (A3)
1719	1:500

DRAWING No.	REV.
RC.07	1



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Franklins Warehouse & Head Office

DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	2/11/2018
Plot Time	12:08 PM

Original Scale (mm)

0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
PROPOSED 3D VIEWS - CAMERA 1

JOB No.	SCALE (A3)
1719	NTS

DRAWING No.	REV.
RC.08	1

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DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	2/11/2018
Plot Time	12:08 PM

Original Scale (mm)

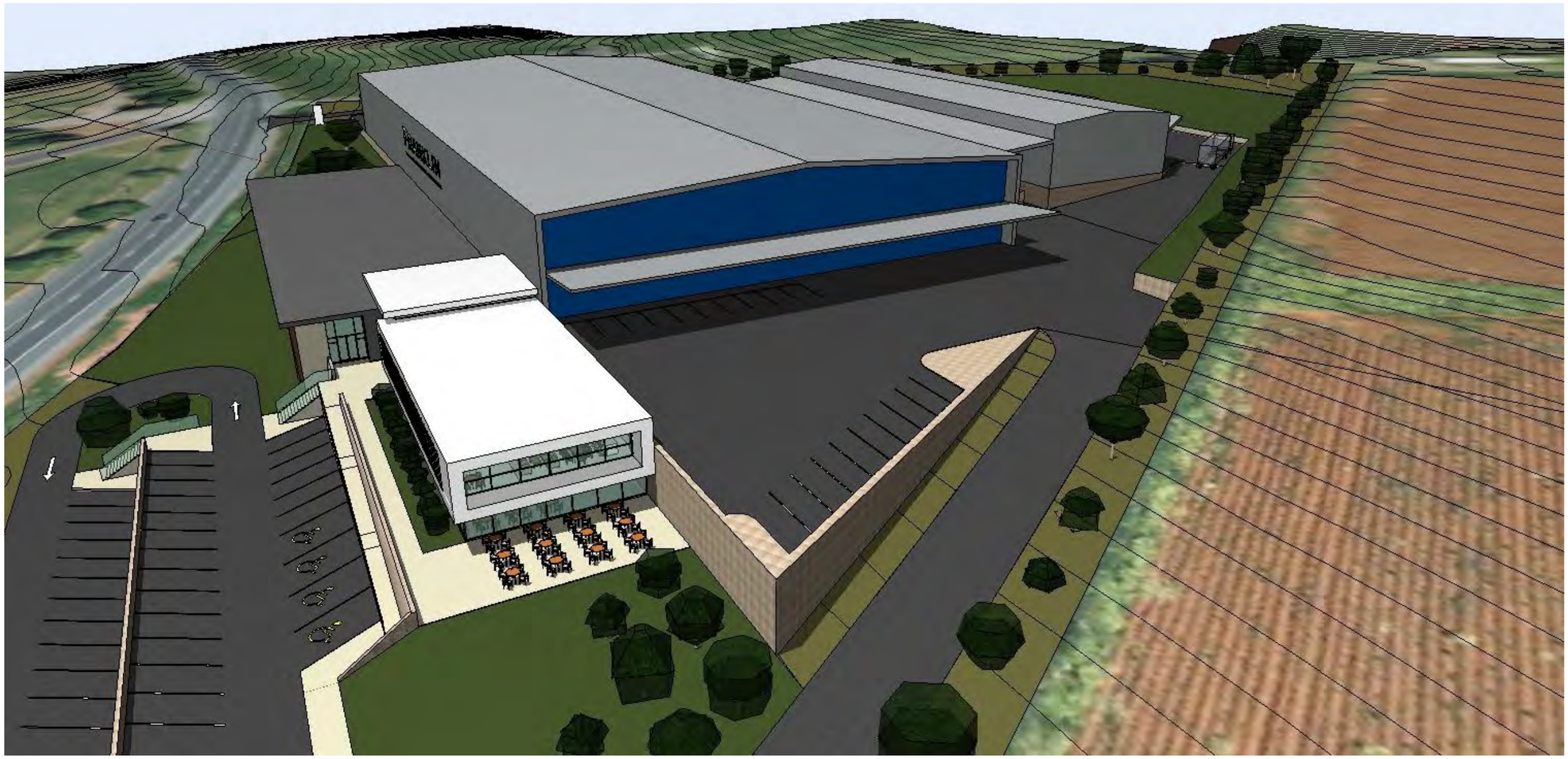
0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
PROPOSED 3D VIEWS - CAMERA 2

JOB No.	SCALE (A3)
1719	NTS

DRAWING No.	REV.
RC.09	1



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DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	2/11/2018
Plot Time	12:08 PM

Original Scale (mm)

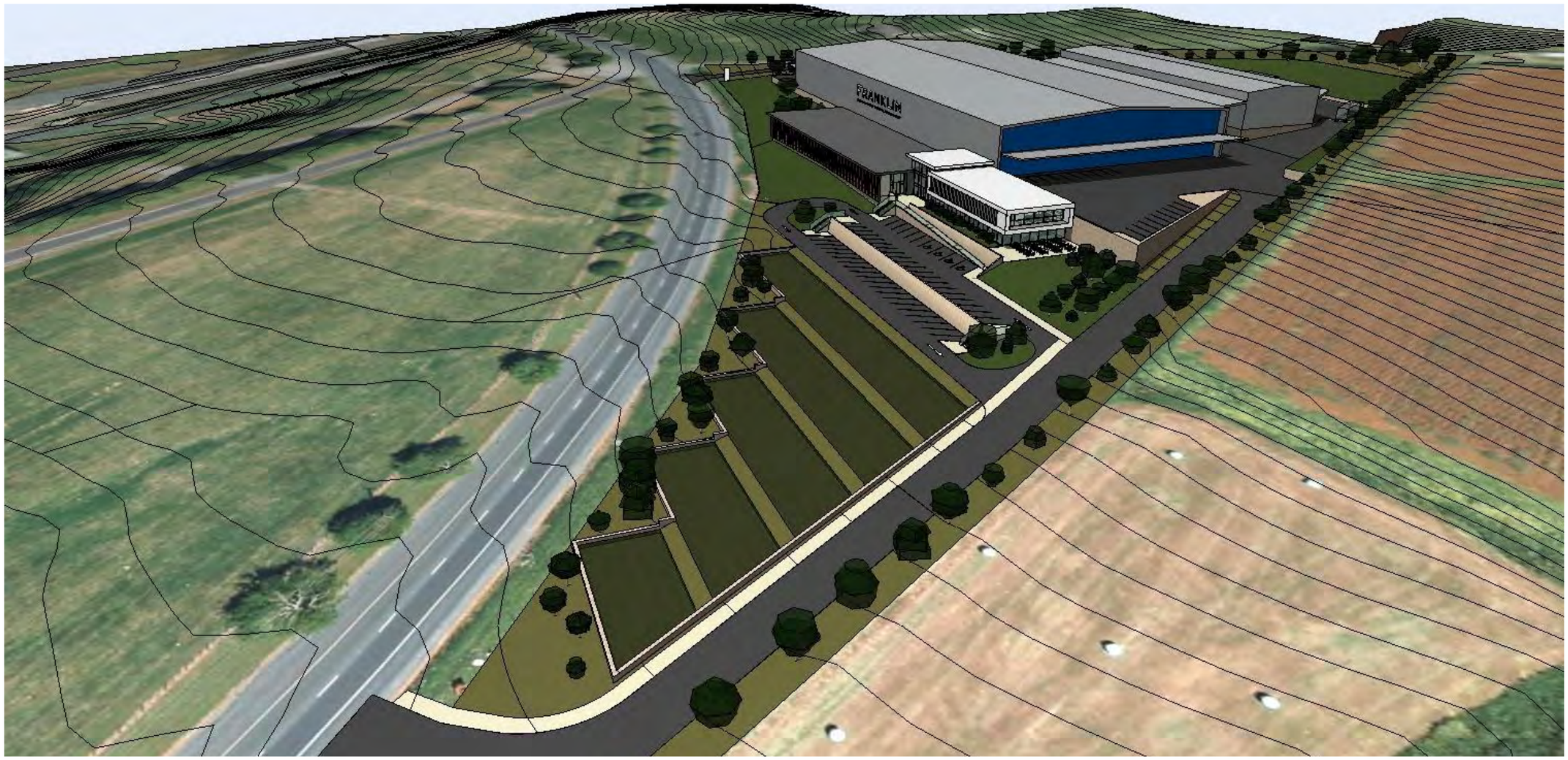
0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
PROPOSED 3D VIEWS - CAMERA 3

JOB No.	SCALE (A3)
1719	NTS

DRAWING No.	REV.
RC.10	1



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PROJECT

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DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	2/11/2018
Plot Time	12:08 PM

Original Scale (mm)

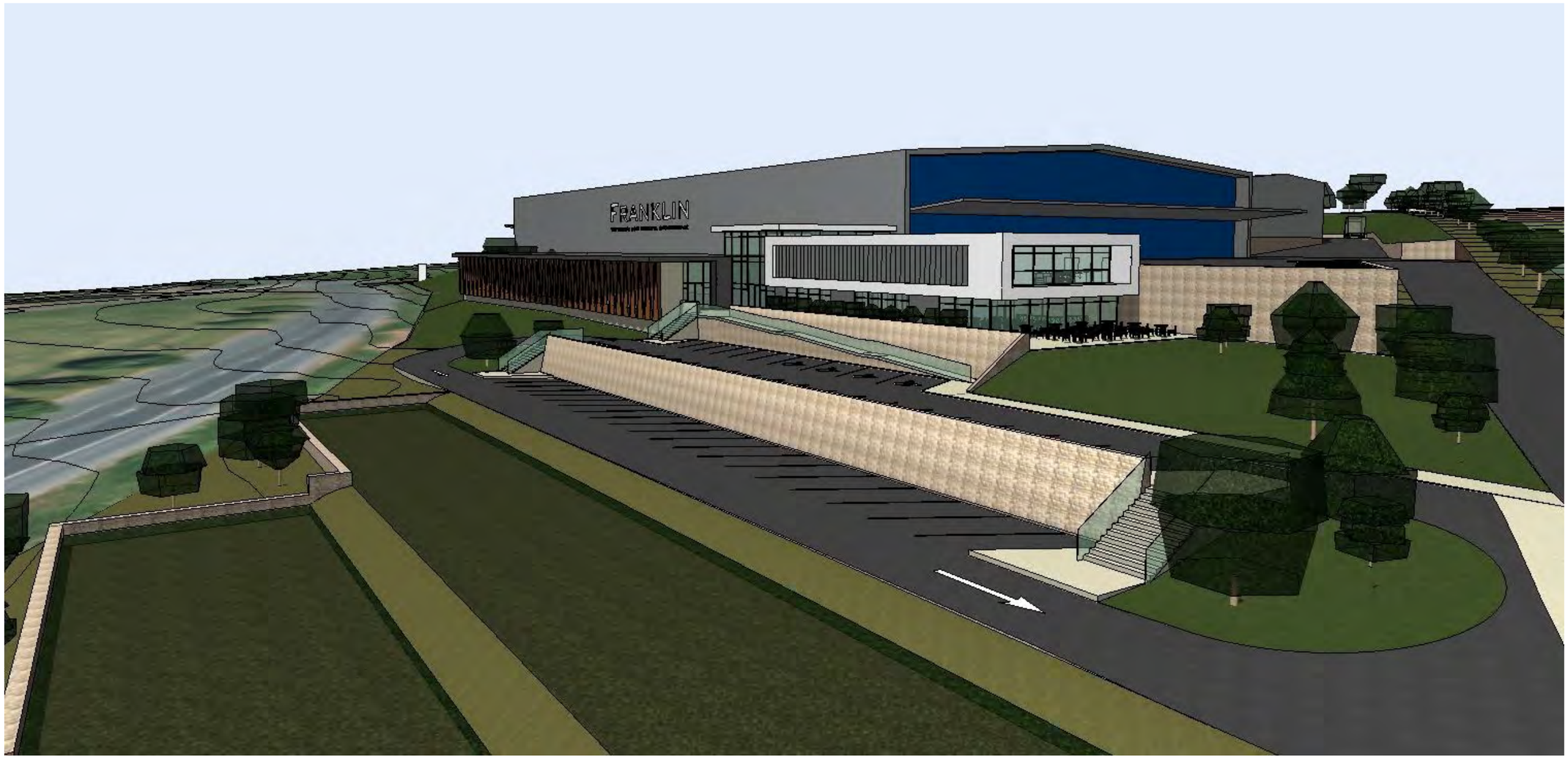
0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
PROPOSED 3D VIEWS - CAMERA 4

JOB No.	SCALE (A3)
1719	NTS

DRAWING No.	REV.
RC.11	1



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PROJECT

Franklins Warehouse & Head Office

DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	2/11/2018
Plot Time	12:08 PM

Original Scale (mm)

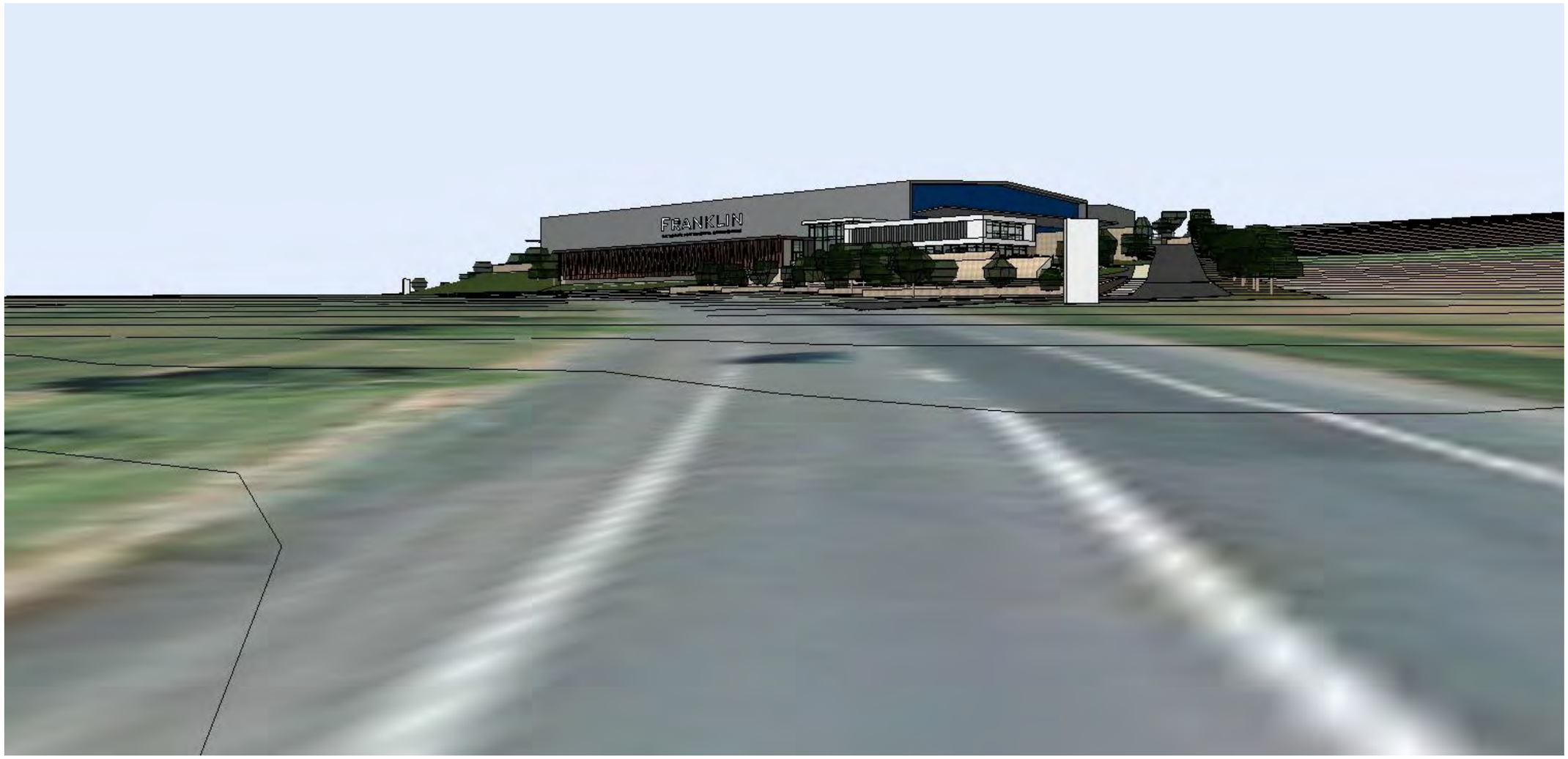
0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
PROPOSED 3D VIEWS - CAMERA 5

JOB No.	SCALE (A3)
1719	NTS

DRAWING No.	REV.
RC.12	1



ARCHITECT

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CLIENT

Franklins Plumbing

PROJECT

Franklins Warehouse & Head Office

DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	2/11/2018
Plot Time	12:08 PM

Original Scale (mm)

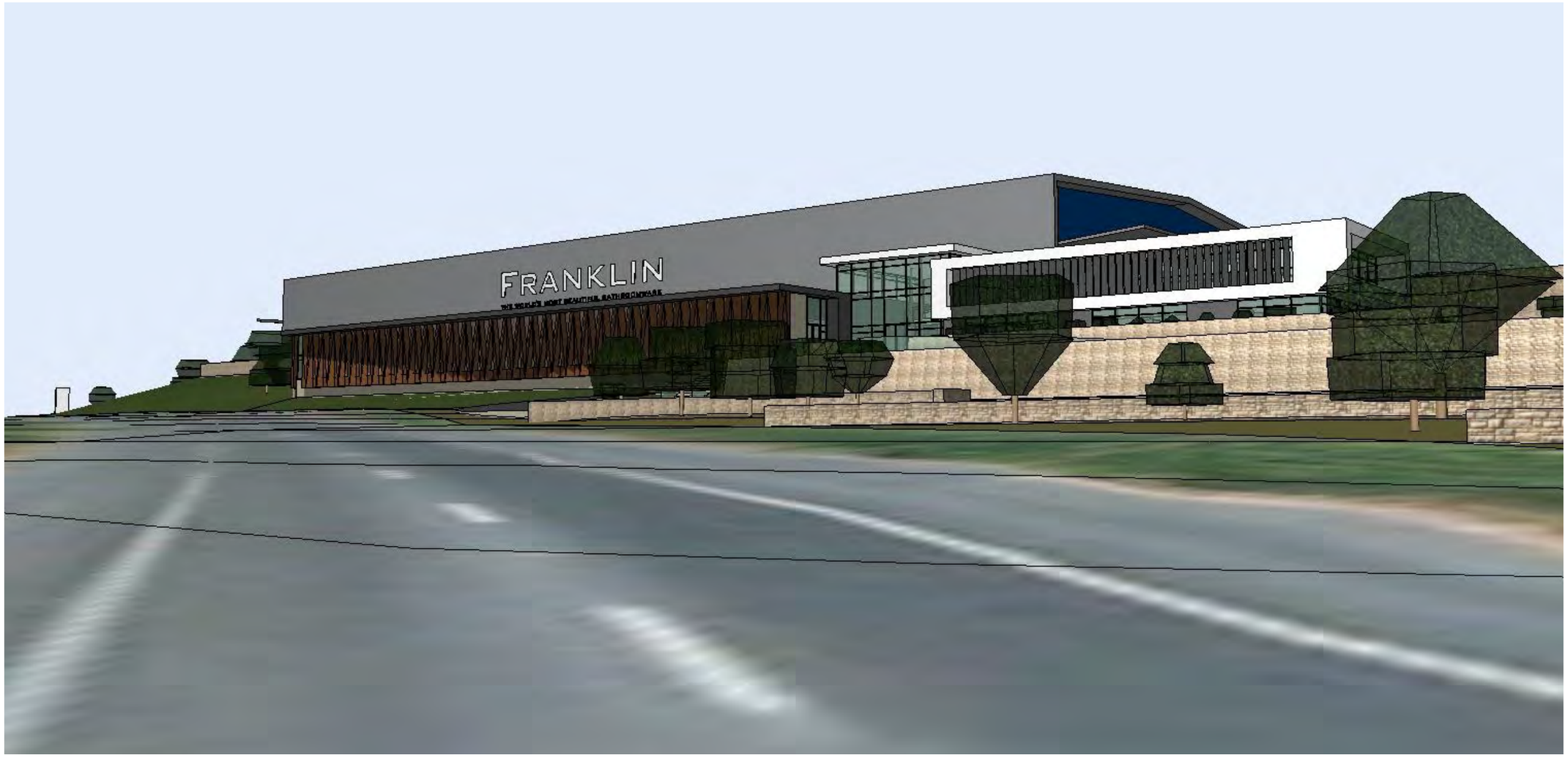
0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
PROPOSED 3D VIEWS - CAMERA 6

JOB No.	SCALE (A3)
1719	NTS

DRAWING No.	REV.
RC.13	1



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PROJECT

Franklins Warehouse & Head Office

DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	2/11/2018
Plot Time	12:08 PM

Original Scale (mm)

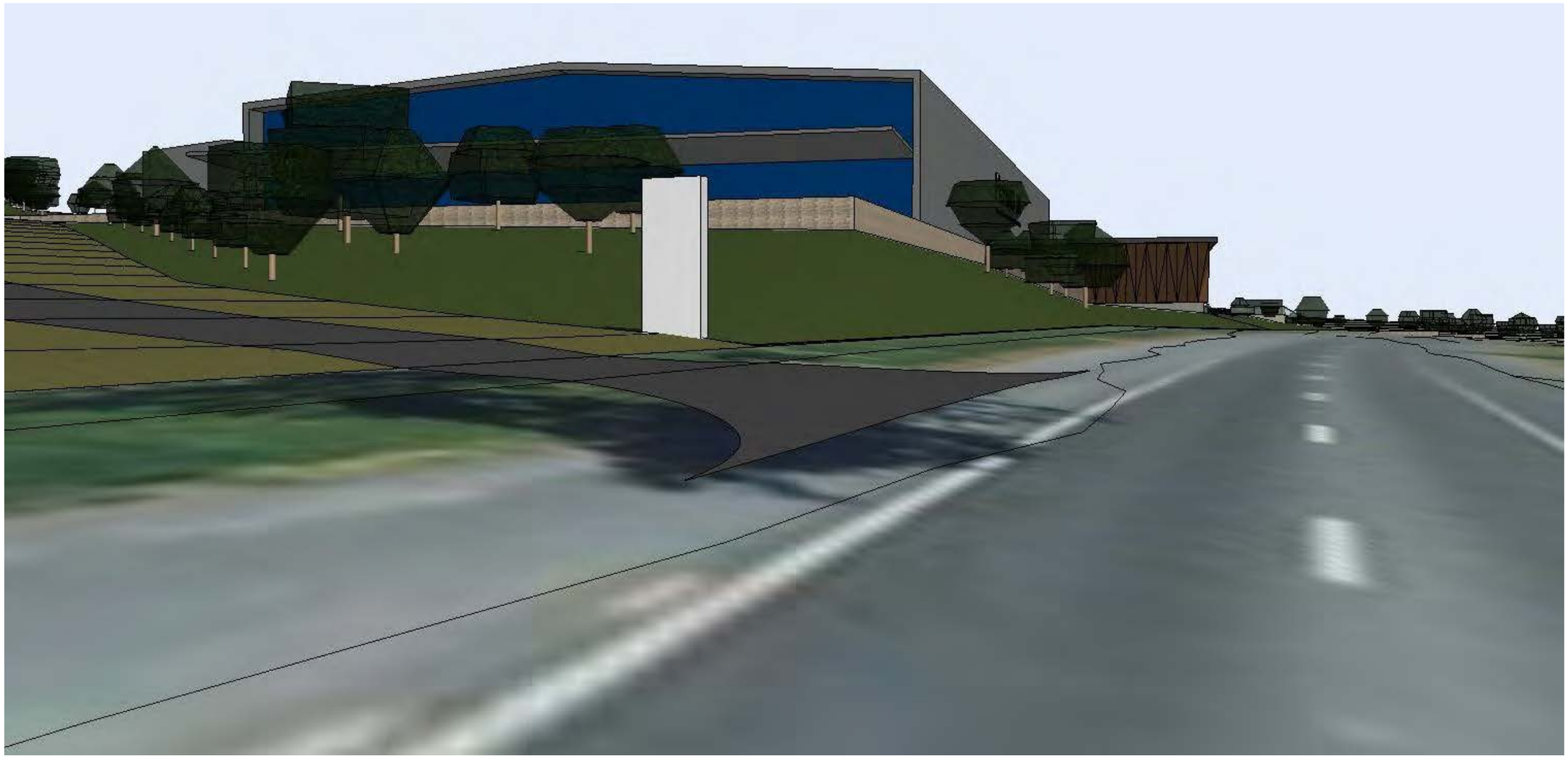
0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
PROPOSED 3D VIEWS - CAMERA 7

JOB No.	SCALE (A3)
1719	NTS

DRAWING No.	REV.
RC.14	1



ARCHITECT

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PROJECT

Franklins Warehouse & Head Office

DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	2/11/2018
Plot Time	12:08 PM

Original Scale (mm)

0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
PROPOSED 3D VIEWS - CAMERA 8

JOB No.	SCALE (A3)
1719	NTS

DRAWING No.	REV.
RC.15	1

Legend

- Tree Trunk
- Tree
- Hydrant
- Street Light
- Power Pole
- Manhole
- Gate
- Water Meter
- Fence
- Dripline
- Watermain GIS
- O/head Power Lines
- Existing Dwelling
- Existing Shed

2
DP 337473
222-250 Manukau Road

1
DP 64805
303 Buckland Road

2
DP 100207
222-250 Manukau Road

Legal Road
Buckland Road (SH22)
30.00 Wide

298° 35' 97.85

305° 42' 30" 95.73

62° 22' 20" 269.91

314° 26' 95.03

324° 05' 93.55

234° 05' 18.80

350° 09' 343.32 (364.49)

Part Lot 1
DP 3363
4.3644ha
NA56A/559
301 Buckland Road

Gravel Driveway

Pt 1
DP 8466
1 Webb Street

21.17

2
DP 411744
42 Kitchener Road

Legal Road
Webb Street
20.12 Wide

20 0 20 40 60 80 100
SCALE 1:1250

Applicant: Frankin Plumbing

Comprised In: NA56A/559

Local Authority: Auckland Council
Total Area: 4.3644ha

Notes:
1. Changes may occur to the layout of the proposal shown as a result of the Resource Consent Conditions.
2. Areas and dimensions on this plan may be subject to change following field survey.
3. The copyright and intellectual property rights for the information shown on this plan remain the property of CKL Surveys Ltd.
4. This plan has been prepared only for the purpose of illustrating an application for resource consent. It should not be used for any other purpose.

FOR CONSENT

CKL
Planning | Surveying | Engineering | Environmental

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A: 25 Broadway, Newmarket
P: 09 524 7029
Hamilton Office
A: 58 Church Road, Hamilton
P: 07 849 9921
Te Awamutu Office
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Application Plan
301 Buckland Road
Pukekohe

Proposed Subdivision Of Part Lot 1 DP 3363 Existing Site Plan

Issue	Description	Checked	Date

		Date
Designed:		
Drawn:	SMR	23.10.18
Checked:	DB	24.10.18

Scale: 1:1250 (A3 Original)

Job No: W3150 Dwg No: 171150 Rev: 0

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2
DP 337473
222-250 Manukau Road

2
DP 100207
222-250 Manukau Road

1
DP 64805
303 Buckland Road

Legal Road
Buckland Road (SH22)
30.00 Wide

Lot 1
3.8229ha

Lot 2
0.5415ha
(Road to Vest)

Pt 1
DP 8466
1 Webb Street

2
DP 411744
42 Kitchener Road

Legal Road
Webb Street
20.12 Wide

39.1
58.7
28.5
95.7
236.4
189.0
20.0
95.0
93.5
18.8
343.3
27.1
33.5
21.2

20 0 20 40 60 80 100
SCALE 1:1250

Applicant:	Frankin Plumbing
Comprised In:	NA56A/559
Local Authority:	Auckland Council
Total Area:	4.3644ha

Notes:
1. Changes may occur to the layout of the proposal shown as a result of the Resource Consent Conditions.
2. Areas and dimensions on this plan may be subject to change following field survey.
3. The copyright and intellectual property rights for the information shown on this plan remain the property of CKL Surveys Ltd.
4. This plan has been prepared only for the purpose of illustrating an application for resource consent. It should not be used for any other purpose.

FOR CONSENT

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Application Plan
301 Buckland Road
Pukekohe

Proposed Subdivision Of Part Lot 1 DP 3363 Proposed Site Layout

Issue	Description	Checked	Date

		Date
Designed:		
Drawn:	SMR	23.10.18
Checked:	DB	24.10.18

Scale: **1:1250** (A3 Original)

Job No: **W3150** Dwg No: **172** Rev: **0**

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CLIMBER
Trachelospermum jasminoides

SPECIMEN TREES
Mixed natives
e.g Vitex lucens, Podocarpus totara, Prumnopitys taxifolia

LAWN
e.g Chewings fescue
Creeping fescue
Colonial browntop

SHELTER BELT
Black poplar
Populus nigra

BANK PLANTING
Mixed Natives 1-2m tall
e.g Phormium cookianum, Carex secta, Carex dissita, Chionochloa flavicans, Muehlenbeckia complexa

SPECIMEN TREES
Wetland edge natives
e.g Cordyline australis, Lepto-spermum scoparium, Myrsine australis

RAIN GARDEN
Rain garden plant mix
e.g Apodasmia similis, Machaerina articulata, Eleocharis sphacelata

Orchard/Amenity
Fruit trees
e.g Malus domestica, Prunus domestica, Prunus avium

VEGETATED SWALE
Rain garden plant mix
e.g Apodasmia similis,

Amenity Garden
Native groundcover
e.g Lobelia angulata, Libertia ixioides

0 10 20 30 40 50m

For Resource Consent
NOT FOR CONSTRUCTION

REVISION HISTORY:

D FOR RESOURCE CONSENT 17.01.2019

NOTES:

RESILIOSTUDIO
Landscape Architecture
Architectural Design
Permaculture
Social Innovation

RESILIO

2 Galatos Street
Auckland
1010

021 591 279

www.Resilio.nz

PROJECT 18013
Franklins Plumbing
Warehouse & Head Office

SHEET
Landscape Plan

DRAWING NUMBER
RS_001

SCALE
1:1000 @ A3

APPROVED GM
For RESILIO Limited

DO NOT SCALE
CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORK

REVISION D

FRANKLIN PLUMBING

WAREHOUSE AND HEAD OFFICE

301 BUCKLAND ROAD, PUKEKOHE, AUCKLAND

CIVIL ENGINEERING DRAWINGS

DRAWING INDEX		DATE & REV			
DWG NO.	DESCRIPTION	30 JULY 18			
W3150-100	TOPOGRAPHICAL SURVEY OF PART LOT 1 DP 3363 CFR NA56A/559	00			
W3150-200	PROPOSED EARTHWORKS PLAN DESIGN CONTOUR	04			
W3150-210	PROPOSED EARTHWORKS PLAN CUT AND FILL PLAN	02			
W3150-220	PROPOSED EARTHWORKS SECTIONS LINES PLAN	01			
W3150-221	PROPOSED EARTHWORKS PLAN - SECTIONS	01			
W3150-250	EROSION AND SEDIMENT CONTROL PLAN	01			
W3150-251	EROSION AND SEDIMENT CONTROL STANDARD DETAILS - SHEET 1	01			
W3150-252	EROSION AND SEDIMENT CONTROL STANDARD DETAILS - SHEET 2	01			
W3150-253	EROSION AND SEDIMENT CONTROL STANDARD DETAILS - SHEET 3	01			
W3150-280	PROPOSED RETAINING WALLS LAYOUT PLAN	01			
W3150-281	PROPOSED RETAINING WALL LONGSECTIONS - SHEET 1	01			
W3150-282	PROPOSED RETAINING WALL LONGSECTIONS - SHEET 2	01			
W3150-300	PROPOSED ROADING PLAN - LAYOUT PLAN	01			
W3150-310	PROPOSED ROAD LONGSECTION AND TYPICAL CROSS SECTION	01			
W3150-440	PROPOSED STORMWATER MANAGEMENT LAYOUT - SHEET 1 OF 3	00			
W3150-441	PROPOSED STORMWATER MANAGEMENT LAYOUT - SHEET 2 OF 3	00			
W3150-442	PROPOSED STORMWATER MANAGEMENT LAYOUT - SHEET 3 OF 3	00			
W3150-500	PROPOSED PUBLIC WASTEWATER EXTENSION	00			
W3150-510	DRAINAGE LONGSECTIONS	00			
W3150-520	PUBLIC WASTEWATER CATCHMENTS PLAN	00			

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A: 103 Market Street, Te Awamutu
P: 07 871 6144

CKL PROJECT NO: W3150
DATE OF ISSUE: JULY 2018
ISSUED FOR CONSENT

Notes:
- Bearing & Coordinate Datum: Geodetic 2000
- Mt Eden Circuit Coordinates: 800 000.00mN
  400 000.00mE
- Origin of Coordinates: SM 6121 (BU59) SO 60216
  762698.405mN
  413272.820mE

- Height Datum: Auckland Vertical Datum 1946
- Origin of Levels: SM 6121 (BU59) SO 60216
  RL = 60.92m

- Contour Intervals: Major = 1.00m
  Minor = 0.20m See Cad Model
- Boundary data extracted from LINZ Landonline as at 08/12/2017
- See CAD model for entire limits of survey.

Disclaimer:
This plan is produced for the sole purpose of providing topographic information for the use of Franklin Plumbing.
It is not a formal survey plan of boundaries.
The use of this plan by any other persons other than Franklin Plumbing is at the users risk.
The liability of CKL Planning | Surveying | Engineering | Environmental is limited to the accuracy of the topographic data hereon.

The topographic survey has been completed by RTK-GNSS / EDM.

Legend
- Tree Trunk
- Tree
- Hydrant
- Street Light
- Power Pole
- Manhole
- Gate
- Water Meter
- Fence
- Dripline
- Watermain GIS

1
DP 64805

Legal Road
Buckland Road (SH22)
30.00 Wide

298° 35' 97.85
305° 42' 30" 95.73
314° 26' 95.03
324° 05' 93.55
234° 05' 18.80
350° 09' 343.32 (364.49)
62° 22' 20" 269.91
21.17

Gravel Driveway
Shed
Dwelling
Shed
Shed

Part Lot 1
DP 3363
43644m²
NA56A/559

2
DP 411744

Legal Road
Webb Street
20.12 Wide

FOR INFORMATION

SCALE 1:1250

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WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

Topographical Survey
Of Part Lot 1 DP 3363
CFR NA56A/559

Issue	Description	Checked	Date
01	ISSUED FOR CONSENT	SS	30.07.18

		Date
Designed:		
Drawn:	SMR	09.12.17
Checked:	SS	11.12.17

Scale: **1:1250** (A3 Original)
Job No: **W3150**
Dwg No: **100**
Rev: **00**

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EARTHWORKS NOTES:

1. ALL WORKS TO COMPLY WITH THE RELEVANT LOCAL AUTHORITY STANDARDS.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE OPERATIONAL PRIOR TO ANY WORKS COMMENCING AND SHALL BE INSTALLED IN ACCORDANCE WITH AC GD005 'EROSION AND SEDIMENT CONTROL GUIDE FOR LAND DISTURBING ACTIVITIES'.
3. REFER TO EARTHWORKS SPECIFICATION FOR EARTHFILL REQUIREMENTS AND STANDARDS OF COMPACTION. ALL EARTHWORKS TO BE UNDERTAKEN IN ACCORDANCE WITH GEOTECHNICAL INVESTIGATION REPORT, CONTRACTOR TO VIEW THE REPORT TO INFORM THEMSELVES.
4. ALL MATERIAL FROM GULLIES DEEMED BY THE ENGINEER TO BE UNSUITABLE SHALL BE EXCAVATED.
5. TOPSOIL AND OTHER RELATIVELY DRY ORGANIC MATERIAL THAT CAN BE STRIPPED FROM STEEP AREAS/GULLIES USING EXCAVATOR/TRACTOR AND SCOOP SHALL BE CLASSIFIED AS SUBSOIL/TOPSOIL STRIPPING.
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8. THE LOCATIONS OF ALL STOCKPILES ARE WHOLLY THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE LOCATED CLEAR OF ALL EARTHWORKS OPERATIONS AND AWAY FROM GEOTECHNICALLY UNSTABLE LAND. NO PAYMENT SHALL BE MADE FOR RELOCATION OF ANY STOCKPILES THAT HAVE BEEN FOUND TO HAVE BEEN PLACED IN THE INCORRECT LOCATION.
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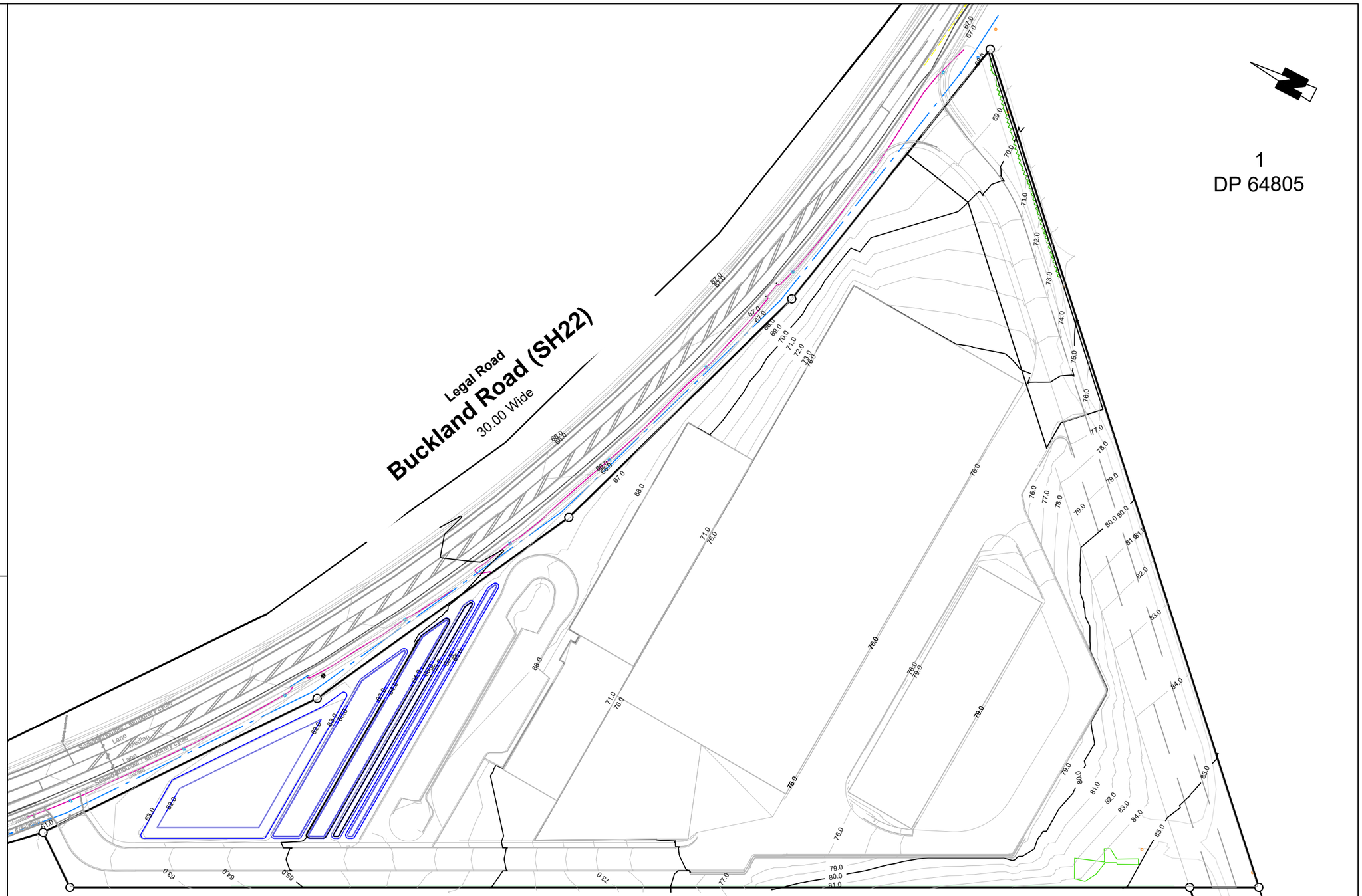
11. FINAL QUANTITIES AND EXTENT OF EARTHWORKS TO BE DETERMINED BY THE ENGINEER.

EARTHWORKS LEGEND:

85 — PROPOSED CONTOURS - MAJOR (1.0)



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WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

PROPOSED EARTHWORKS PLAN
DESIGN CONTOUR

Issue	Description	Checked	Date
01	PRELIMINARY	GW	23.03.18
02	PLATFORMS REVISED	GW	07.03.18
03	PLATFORMS REVISED	GW	23.03.18
04	ISSUED FOR CONSENT	SS	30.07.18

		Date
Designed:	MJW	22.07.18
Drawn:	MJW	22.07.18
Checked:	SS	30.07.18

Scale: 1:1250 (A3 Original)

Job No: W3150 Dwg No: 17600 Rev: 04

EARTHWORKS NOTES:

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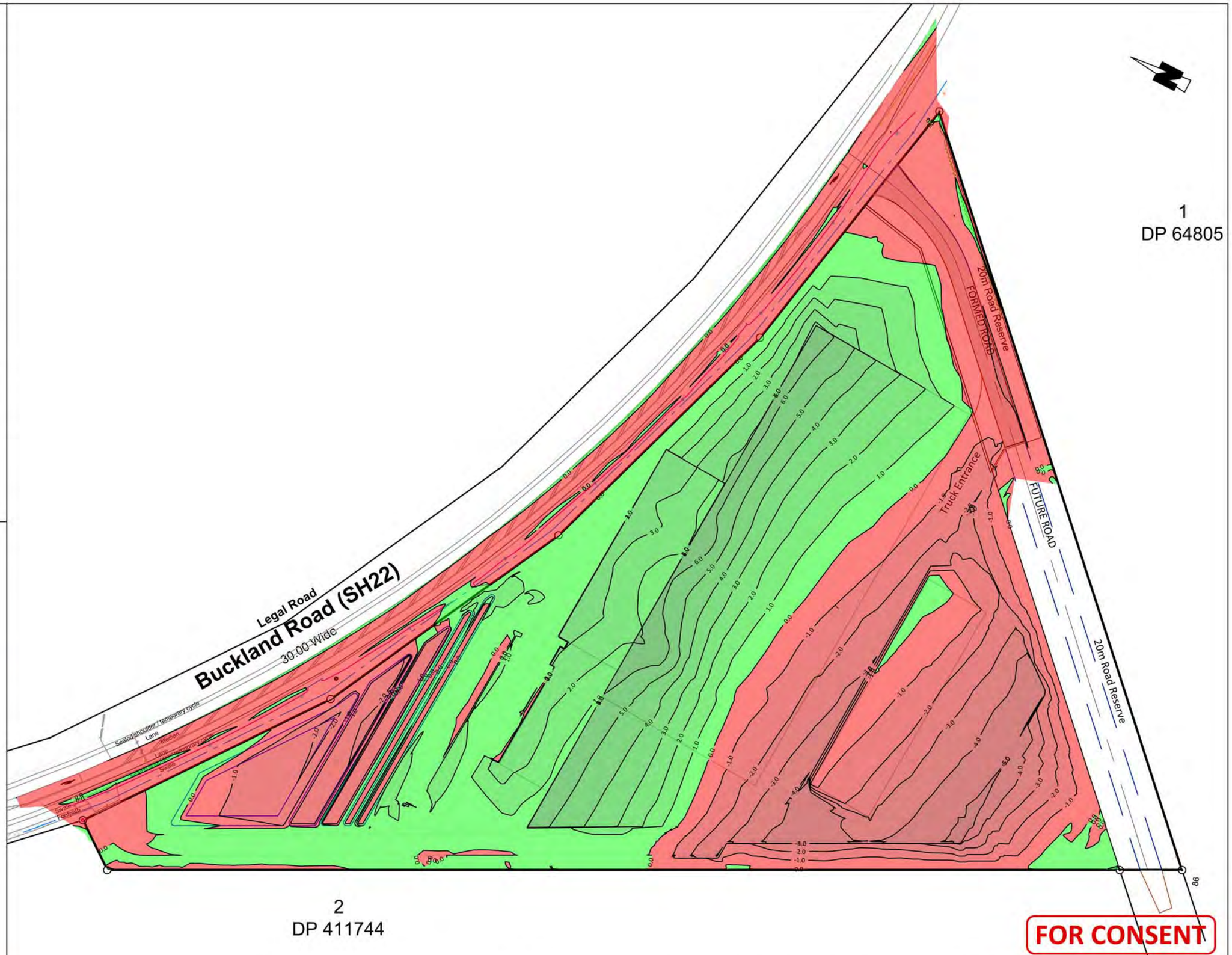
EARTHWORKS LEGEND:

85 — PROPOSED CONTOURS - MAJOR (1.0)

EARTHWORKS CUT-FILL TABLE				
FROM	TO	UNIT	COLOUR	RANGE VOLUME (m³)
0	1	m		42086
0	-1	m		-31785



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WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

PROPOSED EARTHWORKS PLAN
CUT FILL

Issue	Description	Checked	Date			Date	Scale:
01	PRELIMINARY	GW	26.03.18	Designed:	MJW	22.07.18	1:1250
02	ISSUED FOR CONSENT	SS	30.07.18	Drawn:	MJW	22.07.18	(A3 Original)
				Checked:	SS	30.07.18	

Job No: W3150 | Dwg No: 17710 | Rev: 02

EARTHWORKS NOTES:

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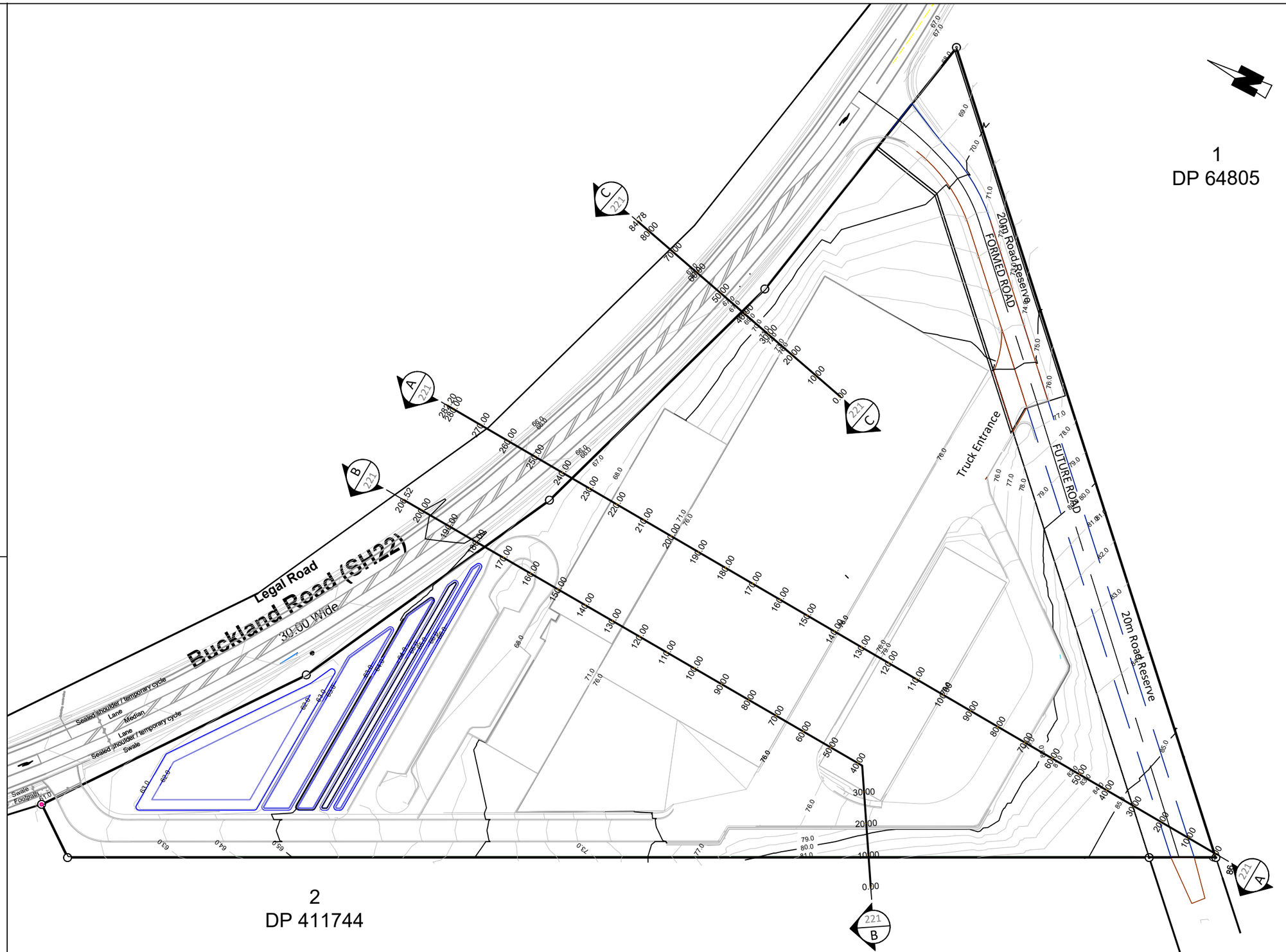
EARTHWORKS LEGEND:

85 — PROPOSED CONTOURS - MAJOR (1.0)



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WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

PROPOSED EARTHWORKS
SECTION LINES
PLAN

Issue	Description	Checked	Date
01	ISSUED FOR CONSENT	SS	30.07.18

		Date
Designed:	MJW	22.07.18
Drawn:	MJW	22.07.18
Checked:	SS	30.07.18

Scale: **1:1250** (A3 Original)

Job No: **W3150**
Dwg No: **17820**
Rev: **01**

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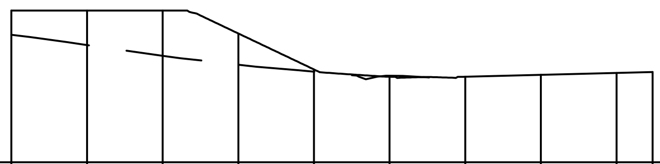


DATUM R.L. = 56.0

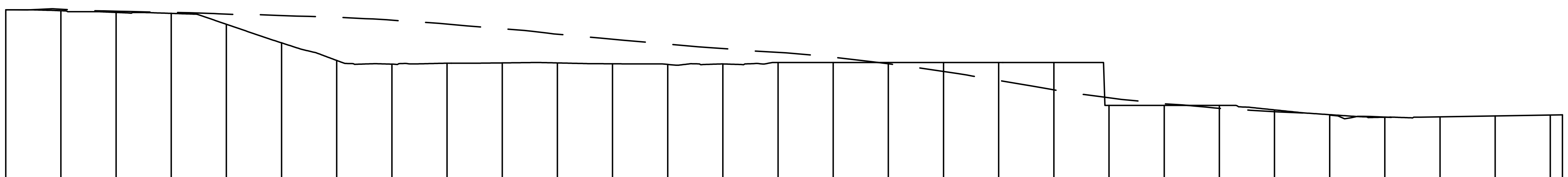
FINISHED SURFACE LEVEL	76	76	76	72.99	68.24	67.28	67.28	67.53	67.78	67.9
EXISTING SURFACE LEVEL	72.81	71.46	70.05	68.87	67.95	67.4	67.28	67.53	67.78	67.9
CUT/FILL DEPTH	3.19	4.54	5.95	4.12	0.3	-0.12	0.0	0.0	0.0	0.0
CHAINAGE (M)	0	10	20	30	40	50	60	70	80	84.78

EARTHWORKS LONGITUDINAL SECTION - SECTION C
HORIZONTAL SCALE 1:1000
VERTICAL SCALE 1:1000

DATUM R.L. = 54.0

FINISHED SURFACE LEVEL	85.57	82.2	77.9	78.89	79	79	75.76	76	76	76	76	76	76	71	71	67.97	67.41	66.72	64.96	65.2	65.01	65.69
EXISTING SURFACE LEVEL		82.3	81.86	81.34	80.54	79.69	78.8	77.85	76.83	75.36	73.67	71.44	69.82	69	68.15	67.34	66.51	65.56	65.42	65.27		
CUT/FILL DEPTH		-0.09	-3.96	-2.45	-1.54	-0.69	-3.05	-1.85	-0.83	0.64	2.33	4.56	6.18	2	2.85	0.63	0.91	1.16	-0.45	-0.07		
CHAINAGE (M)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	206.52

EARTHWORKS LONGITUDINAL SECTION - SECTION B
HORIZONTAL SCALE 1:1000
VERTICAL SCALE 1:1000



DATUM R.L. = 55.0

FINISHED SURFACE LEVEL	85.56	85.4	85.09	84.92	82.94	79.56	76.37	75.7	75.87	75.92	75.92	75.76	75.65	75.73	76	76	76	76	76	76	68.2	68.2	68.2	67.39	66.52	66.06	66.13	66.29	66.46 66.49
EXISTING SURFACE LEVEL	85.54	85.67	85.32	85.1	84.79	84.53	84.21	83.68	82.98	82.13	81.13	80.23	79.34	78.53	77.84	76.97	75.76	74.37	72.73	71.03	69.6	68.5	67.67	67.06	66.43	66.09	66.13	66.29	66.46 66.49
CUT/FILL DEPTH	0.03	-0.27	-0.23	-0.18	-1.85	-4.96	-7.84	-7.98	-7.11	-6.2	-5.21	-4.46	-3.7	-2.8	-1.84	-0.97	0.24	1.63	3.27	4.97	-1.4	-0.3	0.53	0.33	0.09	-0.03	0.00	0.00	0.00 0.00
CHAINAGE (M)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280 282.2

EARTHWORKS LONGITUDINAL SECTION - SECTION A
HORIZONTAL SCALE 1:1000
VERTICAL SCALE 1:1000

FOR CONSENT

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Hamilton Office
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Te Awamutu Office
A: 103 Market Street, Te Awamutu
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WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

PROPOSED EARTHWORKS PLAN
EARTHWORKS SECTIONS

Issue	Description	Checked	Date
01	ISSUED FOR CONSENT	SS	30.07.18

		Date
Designed:	MJW	22.07.18
Drawn:	MJW	22.07.18
Checked:	SS	30.07.18

Scale: **1:1250** (A3 Original)

Job No: W3150 | Dwg No: 921 | Rev: 01

AC TP90/GD05 SEDIMENT RETENTION POND SIZING

PROJECT:	W3150
PREPARED:	MJW
CHECKED:	SS
DATE:	26.07.18
AREA:	Site Earthworks

	STAGE 1 - SRP 01	
CATCHMENT AREA:	4.36	ha
WORKING AREA:	4.36	ha
AVERAGE SITE SLOPE:	8.00	%
SITE LENGTH:	366	m

MINIMUM TREATMENT VOLUME

SRP sized for 2% catchment area where site length <200m/gradient <18%, or 3% where length/grade exceeded

Min. pond size =	3	% of contributing catchment area	
Min. total volume =	1308	m^3	
Min. forebay volume =	*196.2*	*m^3*	*15% of total volume*
Min. main pond volume =	*1111.8*	*m^3*	
Min. dead storage =	*392*	*m^3*	*30% of total volume*
Min. live storage =	*916*	*m^3*	*70% of total volume*

DESIGN TREATMENT VOLUME

Design Volume to match or exceed Minimum Volume

Main Pond

Pond Length =		40.0		
Pond Width =	1 in 3	13.3		Not to exceed 1:2 unless max. 1m deep
Surface Area =		**533**	m^2	
Pond Depth =		2	m	Not to exceed 2m
Side Slopes =	**1vt :**	1	hz	
Pond Volume =		**869**	m^3	
Dead Storage Volume - Main Pond =		*316*	*m^3*	
Live Storage Volume - Main Pond =		*553*	*m^3*	

Forebay

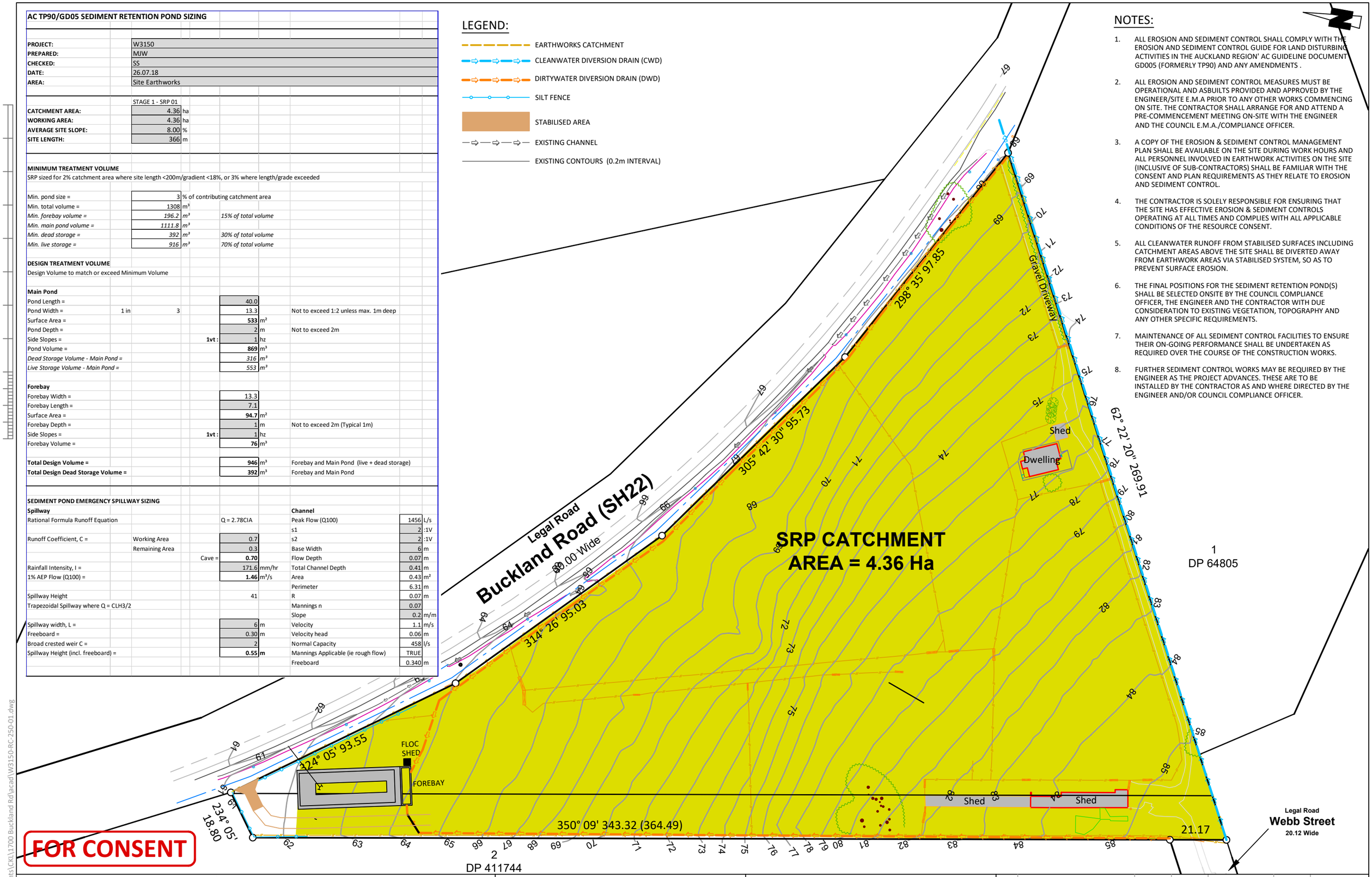
Forebay Width =	13.3		
Forebay Length =	7.1		
Surface Area =	**94.7**	m^2	
Forebay Depth =	1	m	Not to exceed 2m (Typical 1m)
Side Slopes =	**1vt :** 1	hz	
Forebay Volume =	**76**	m^3	
Total Design Volume =	**946**	m^3	Forebay and Main Pond (live + dead storage)
Total Design Dead Storage Volume =	**392**	m^3	Forebay and Main Pond

SEDIMENT POND EMERGENCY SPILLWAY SIZING

Spillway				**Channel**		
Rational Formula Runoff Equation			Q = 2.78CIA	Peak Flow (Q100)	1456	L/s
				s1	2	:1V
Runoff Coefficient, C =	Working Area	0.7		s2	2	:1V
	Remaining Area	0.3		Base Width	6	m
		Cave = **0.70**		Flow Depth	0.07	m
Rainfall Intensity, I =		171.6	mm/hr	Total Channel Depth	0.41	m
1% AEP Flow (Q100) =		**1.46**	m^3/s	Area	0.43	m^2
				Perimeter	6.31	m
Spillway Height		41		R	0.07	m
Trapezoidal Spillway where Q = CLH3/2				Mannings n	0.07	
				Slope	0.2	m/m
Spillway width, L =		6	m	Velocity	1.1	m/s
Freeboard =		0.30	m	Velocity head	0.06	m
Broad crested weir C =		2		Normal Capacity	458	l/s
Spillway Height (incl. freeboard) =		**0.55**	**m**	Mannings Applicable (ie rough flow)	TRUE	
				Freeboard	0.340	m

LEGEND:

- EARTHWORKS CATCHMENT
- CLEANWATER DIVERSION DRAIN (CWD)
- DIRTYWATER DIVERSION DRAIN (DWD)
- SILT FENCE
- STABILISED AREA
- EXISTING CHANNEL
- EXISTING CONTOURS (0.2m INTERVAL)



NOTES:

1. ALL EROSION AND SEDIMENT CONTROL SHALL COMPLY WITH THE EROSION AND SEDIMENT CONTROL GUIDE FOR LAND DISTURBING ACTIVITIES IN THE AUCKLAND REGION' AC GUIDELINE DOCUMENT GD005 (FORMERLY TP90) AND ANY AMENDMENTS .
2. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE OPERATIONAL AND ASBUILTS PROVIDED AND APPROVED BY THE ENGINEER/SITE E.M.A PRIOR TO ANY OTHER WORKS COMMENCING ON SITE. THE CONTRACTOR SHALL ARRANGE FOR AND ATTEND A PRE-COMMENCEMENT MEETING ON-SITE WITH THE ENGINEER AND THE COUNCIL E.M.A./COMPLIANCE OFFICER.
3. A COPY OF THE EROSION & SEDIMENT CONTROL MANAGEMENT PLAN SHALL BE AVAILABLE ON THE SITE DURING WORK HOURS AND ALL PERSONNEL INVOLVED IN EARTHWORK ACTIVITIES ON THE SITE (INCLUSIVE OF SUB-CONTRACTORS) SHALL BE FAMILIAR WITH THE CONSENT AND PLAN REQUIREMENTS AS THEY RELATE TO EROSION AND SEDIMENT CONTROL.
4. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING THAT THE SITE HAS EFFECTIVE EROSION & SEDIMENT CONTROLS OPERATING AT ALL TIMES AND COMPLIES WITH ALL APPLICABLE CONDITIONS OF THE RESOURCE CONSENT.
5. ALL CLEANWATER RUNOFF FROM STABILISED SURFACES INCLUDING CATCHMENT AREAS ABOVE THE SITE SHALL BE DIVERTED AWAY FROM EARTHWORK AREAS VIA STABILISED SYSTEM, SO AS TO PREVENT SURFACE EROSION.
6. THE FINAL POSITIONS FOR THE SEDIMENT RETENTION POND(S) SHALL BE SELECTED ONSITE BY THE COUNCIL COMPLIANCE OFFICER, THE ENGINEER AND THE CONTRACTOR WITH DUE CONSIDERATION TO EXISTING VEGETATION, TOPOGRAPHY AND ANY OTHER SPECIFIC REQUIREMENTS.
7. MAINTENANCE OF ALL SEDIMENT CONTROL FACILITIES TO ENSURE THEIR ON-GOING PERFORMANCE SHALL BE UNDERTAKEN AS REQUIRED OVER THE COURSE OF THE CONSTRUCTION WORKS.
8. FURTHER SEDIMENT CONTROL WORKS MAY BE REQUIRED BY THE ENGINEER AS THE PROJECT ADVANCES. THESE ARE TO BE INSTALLED BY THE CONTRACTOR AS AND WHERE DIRECTED BY THE ENGINEER AND/OR COUNCIL COMPLIANCE OFFICER.

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WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

SEDIMENT AND EROSION CONTROL PLAN

Issue	Description	Checked	Date
01	ISSUED FOR CONSENT	SS	30.07.18

Designed:	MJW	27.07.18
Drawn:	MJW	27.07.18
Checked:	SS	30.07.18

Scale: **1:1250** (A3 Original)

Job No: **W3150** Dwg No: **180 250** Rev: **01**

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STABILISED CONSTRUCTION ENTRANCE SPECIFICATIONS:

APPLICATION

USE A STABILISED CONSTRUCTION ENTRANCE AT ALL POINTS OF CONSTRUCTION SITE INGRESS AND EGRESS WITH A CONSTRUCTION PLAN LIMITING TRAFFIC TO THESE ENTRANCES ONLY. THEY ARE PARTICULARLY USEFUL ON SMALL CONSTRUCTION SITES BUT CAN BE UTILISED FOR ALL PROJECTS.

DESIGN:

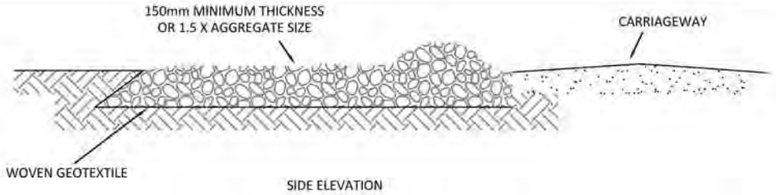
1. CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS AND OTHER UNSUITABLE MATERIAL AND PROPERLY GRADE IT.
2. LAY WOVEN GEOTEXTILE; PIN DOWN EDGES AND OVERLAP JOINTS.
3. PROVIDE DRAINAGE TO CARRY RUNOFF FROM THE STABILISED CONSTRUCTION ENTRANCE TO A SEDIMENT CONTROL MEASURE.
4. PLACE AGGREGATE TO THE SPECIFICATIONS BELOW AND SMOOTH IT.

STABILISED CONSTRUCTION ENTRANCE AGGREGATE SPECIFICATIONS:

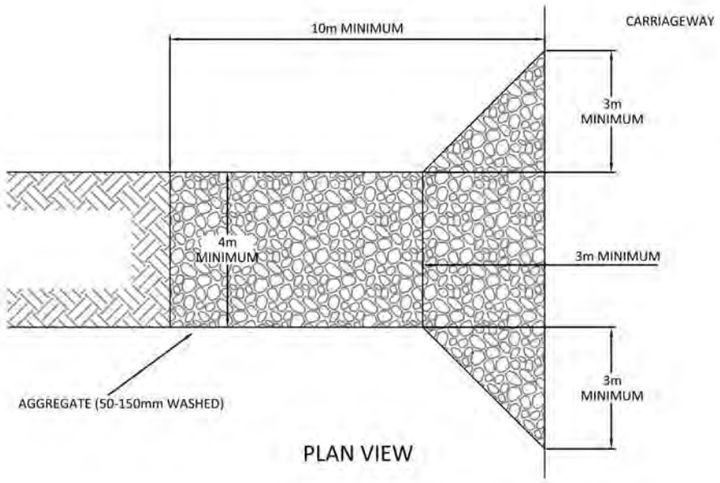
AGGREGATE SIZE	5-150mm WASHED AGGREGATE
THICKNESS	150mm MINIMUM OR 1.5 X AGGREGATE SIZE
LENGTH	10m MINIMUM
WIDTH	4m MINIMUM

MAINTENANCE

1. MAINTAIN THE STABILISED CONSTRUCTION ENTRANCE IN A CONDITION TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. AFTER EACH RAINFALL INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT FROM THE STABILISED CONSTRUCTION ENTRANCE AND CLEAN OUT AS NECESSARY.
2. WHEN WHEEL WASHING IS ALSO REQUIRED, ENSURE THIS IS DONE ON AN AREA STABILISED WITH AGGREGATE WHICH DRAINS TO AN APPROVED SEDIMENT RETENTION FACILITY.

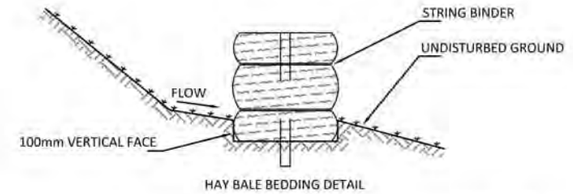


SIDE ELEVATION

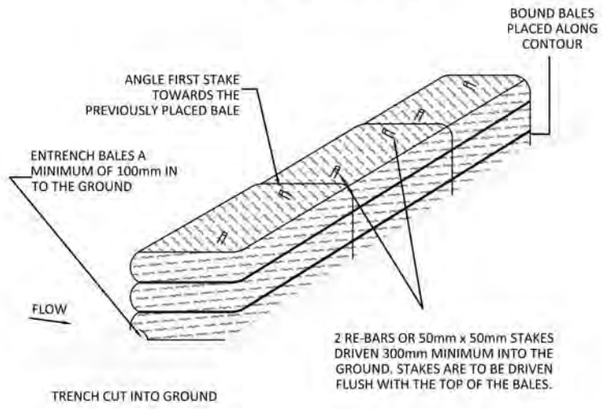


PLAN VIEW

STABILISED CONSTRUCTION ENTRANCE



HAY BALE BEDDING DETAIL



HAY BALE BARRIER

NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE OPERATIONAL PRIOR TO ANY OTHER WORKS COMMENCING ON SITE. THE CONTRACTOR SHALL ARRANGE FOR AND ATTEND A PRELIMINARY SEDIMENT CONTROL MEETING ON-SITE WITH THE ENGINEER AND THE EW SOIL CONSERVATOR.
2. A COPY OF THE EROSION MANAGEMENT PLAN SHALL BE AVAILABLE ON THE SITE DURING WORK HOURS AND ALL PERSONNEL INVOLVED IN EARTHWORK ACTIVITIES ON THE SITE (INCLUSIVE OF SUB-CONTRACTORS) SHALL BE FAMILIAR WITH THE CONSENT AND PLAN REQUIREMENTS AS THEY RELATE TO EROSION AND SEDIMENT CONTROL.
3. THAT ALL ``CLEANWATER" RUNOFF FROM STABILISED SURFACES INCLUDING CATCHMENT AREAS ABOVE THE SITE SHALL BE DIVERTED AWAY FROM EARTHWORK AREAS VIA STABILISED SYSTEM, SO AS TO PREVENT SURFACE EROSION.
4. ALL EROSION AND SEDIMENT CONTROL SHALL COMPLY WITH THE `EROSION AND SEDIMENT CONTROL GUIDE FOR LAND DISTURBING ACTIVITIES IN THE AUCKLAND REGION' AC GUIDELINE DOCUMENT GD005 (FORMERLY TP90) AND ANY AMENDMENTS .
5. THE SITES FOR SEDIMENT RETENTION PONDS SHALL BE SELECTED ONSITE BY THE EW OFFICER, THE ENGINEER AND THE CONTRACTOR WITH DUE CONSIDERATION TO THE NATIVE VEGETATION, TOPOGRAPHY AND ANY OTHER SPECIFIC REQUIREMENTS. THE MAIN SILT CONTROL MEASURES FOR THIS SITE ARE:

(I) DIVERSION OF "CLEAN WATER" FROM THE ABOVE CATCHMENTS AROUND THE EARTHWORKS AREA BY MEANS OF DIVERSION DRAINS, AND/OR OTHER APPROVED METHOD.

(II) CONSTRUCTION OF CUT OFF DRAINS, CONTOUR DRAINS AND EARTH BUNDS TO INTERCEPT SILT LADEN WATERS AND DIRECT INTO RETENTION PONDS AND OTHER SEDIMENT CONTROL FACILITIES. CONTOUR DRAINS ARE TO BE SPREAD AT 100m INTERVALS WITH THE SLOPE LIMITED TO 2%

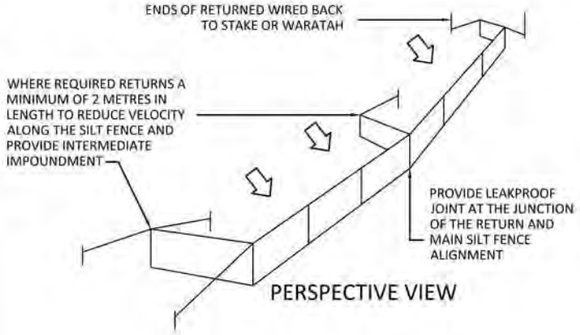
(III) CONSTRUCTION OF SEDIMENT RETENTION POND TO COLLECT SILT FROM (II) ABOVE WITH THE ADDITIONAL TEMPORARY CONSTRUCTION OF HAY BALE BARRIER/SILT FENCES AS REQUIRED.

(IV) THAT THE SITE BE STABILISED AGAINST EROSION AS SOON AS PRACTICABLE AND IN A PROGRESSIVE MANNER AS EARTHWORKS ARE FINISHED OVER VARIOUS AREAS OF THE SITE. REVEGETATION IS TO BE COMPLETED BY 30 APRIL IN THE YEAR OF EARTHWORKS CONSTRUCTION, UNLESS A LATER DATE IS APPROVED IN WRITING BY THE AUCKLAND COUNCIL.

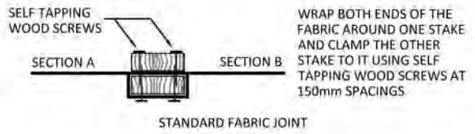
(V) MAINTENANCE OF ALL SEDIMENT CONTROL FACILITIES AS REQUIRED.

(VI) THE CONTRACTOR SHALL SUBMIT ASBUILTS SHOWING ALL THE APPROPRIATE SEDIMENT CONTROL MEASURES ARE INSTALLED AND IS TO BE SUBMITTED TO THE ARC WITHIN 7 DAYS FOLLOWING THE CONSTRUCTION OF THE CONTROLS.

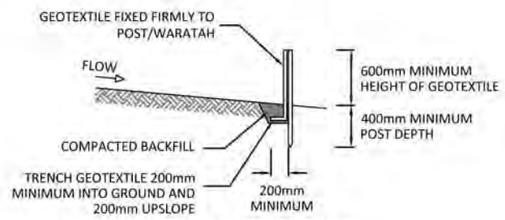
6. FURTHER SEDIMENT CONTROL WORKS MAY BE REQUIRED BY THE ENGINEER AS THE PROJECT ADVANCES. THESE WILL BE INSTALLED AS AND WHERE DIRECTED BY THE ENGINEER. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING THAT THE SITE HAS EFFECTIVE SILT DETENTION FACILITIES OPERATING AT ALL TIMES.



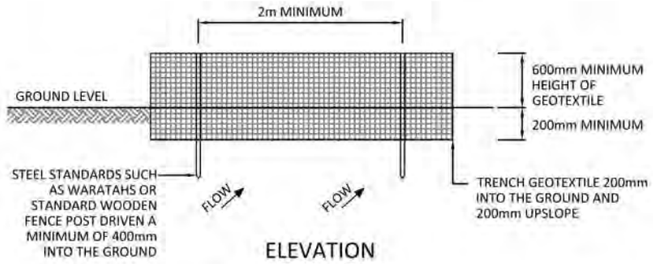
PERSPECTIVE VIEW



STANDARD FABRIC JOINT



CROSS SECTION



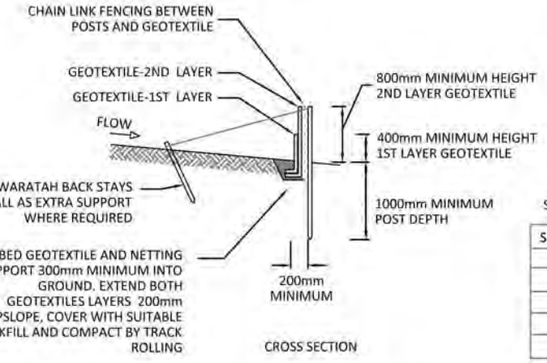
ELEVATION

SILT FENCE DESIGN CRITERIA:

SLOPE STEEPNESS %	SLOPE LENGTH (m) (MAXIMUM)	SPACING OF RETURNS (m)
< 2%	N/A	UNLIMITED
2-10%	40	60
10-20%	30	50
20-33%	20	40
33-50%	15	30
>50%	6	20

GRAB TENSILE STRENGTH: >440N (ASTM D4632)
TENSILE MODULUS: 0.140 pa (MINIMUM)
APPARENT OPENING SIZE: 0.1-0.5mm (ASTM D4751)

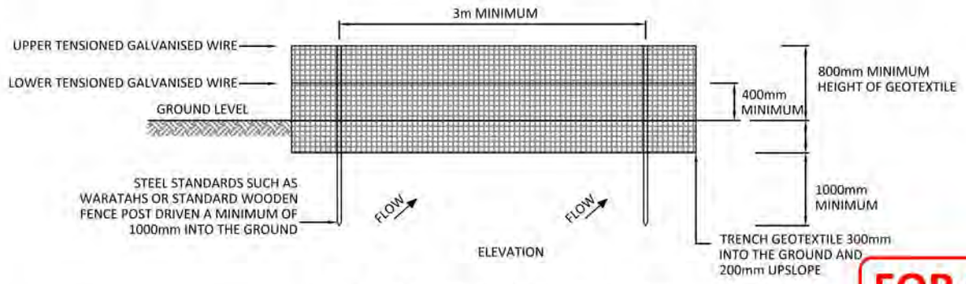
SILT FENCE CONSTRUCTION



CROSS SECTION

SUPER SILT FENCE DESIGN CRITERIA:

SLOPE STEEPNESS %	SLOPE LENGTH (m) (MAXIMUM)	SPACING OF RETURNS (m)
0-10%	UNLIMITED	60
10-20%	60	50
20-33%	30	40
33-50%	30	30
>50%	15	20



ELEVATION

SUPER SILT FENCE CONSTRUCTION

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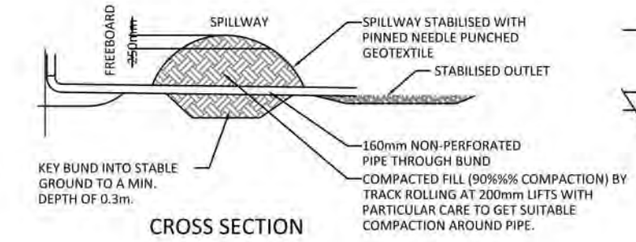
EROSION & SEDIMENT CONTROL
TYPICAL STANDARD DETAILS
SHEET 1

Issue	Description	Checked	Date
01	ISSUED FOR CONSENT	SS	30.07.18

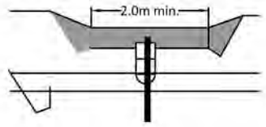
		Date
Designed:		27.07.18
Drawn:	MJW	27.07.18
Checked:	SS	30.07.18

Scale: NTS (A3 Original)

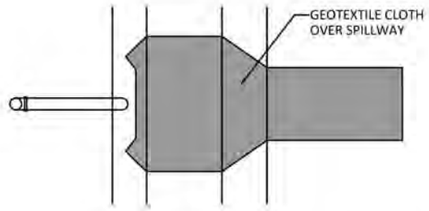
Job No: W3150 Dwg No: 181251 Rev: 01



CROSS SECTION



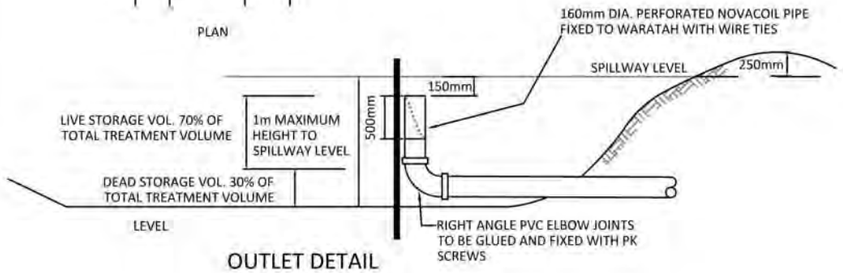
ELEVATION



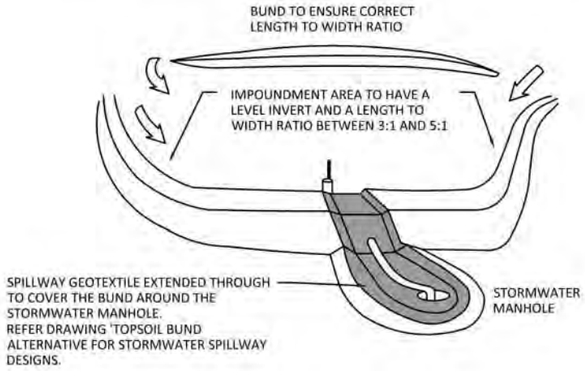
PLAN

DECANTING EARTH BUND

MAXIMUM CATCHMENT 0.3ha
2% VOLUME (60m[3] PER 0.3ha CATCHMENT)



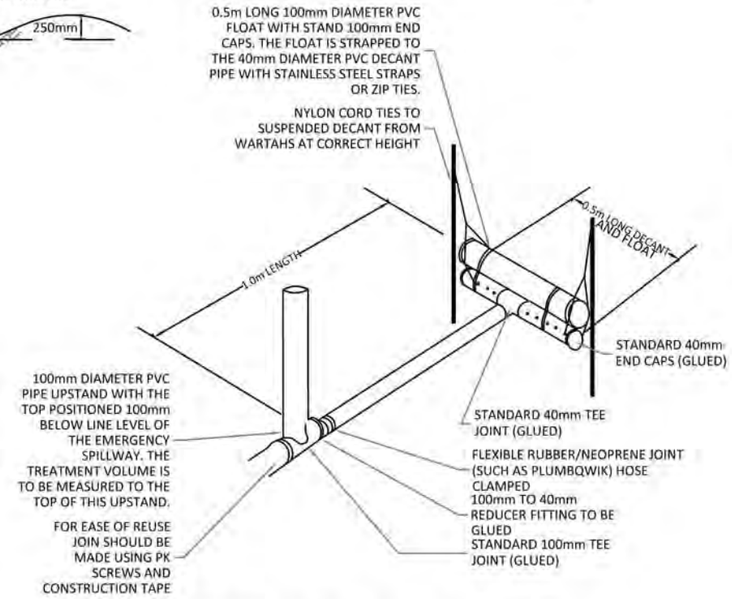
OUTLET DETAIL



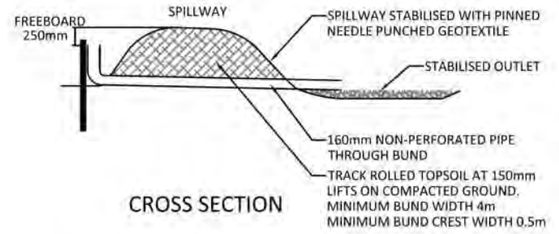
DECANTING EARTH BUND

NOTE: THE 100mm DIAMETER PVC PIPE UPSTAND IS ONLY REQUIRED WHERE THE 2m WIDE EMERGENCY SPILLWAY DISCHARGES TO VULNERABLE AREA OR WHERE THE DISCHARGE IS REQUIRED TO BE PIPED TO A SAFE OUTFALL SUCH AS A STORMWATER MANHOLE. IF THE UPSTAND IS NOT REQUIRED THE DECANT CAN BE CONNECTED DIRECT TO A 40mm DIAMETER OUTFALL PIPE AND THE TREATMENT VOLUME IS MEASURED TO THE INVERT OF THE EMERGENCY SPILLWAY.

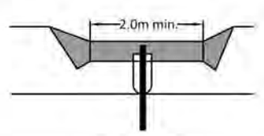
NOTE: THE DECANT HAS A 40mm DIAMETER PVC PIPE WITH A 1.3m LONG ARM (INCLUDING FLEXIBLE JOINT), A 0.5m LONG DECANT AND 20 x 10mm DIAMETER EQUALLY SPACED HOLES POSITIONED HORIZONTALLY AT 10 AND 2 OCLOCK



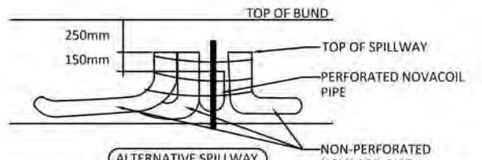
40mm DECANT WITH UPSTAND FOR DECANTING EARTH BUND



CROSS SECTION



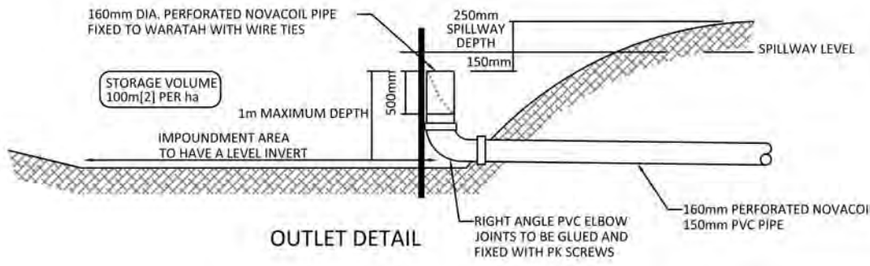
ELEVATION



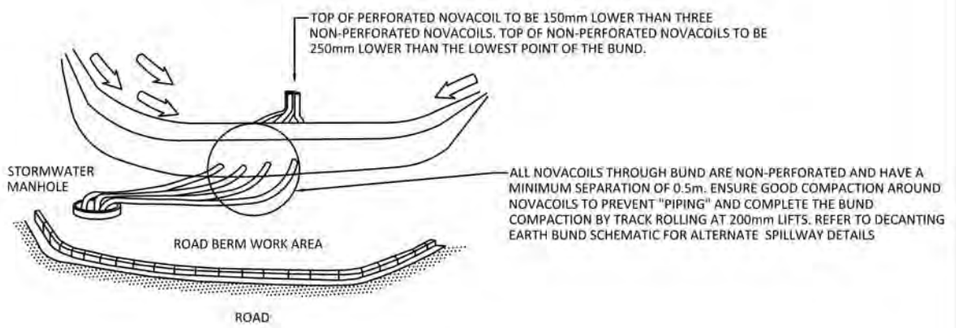
ALTERNATIVE SPILLWAY DESIGN USING NON-PERFORATED NOVACOILS

1% DECANTING TOPSOIL BUND

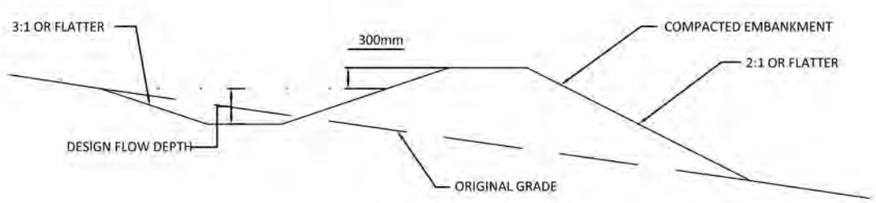
MAXIMUM CATCHMENT IS 1ha IF THE MAXIMUM SLOPE IS LESS THAN 10% AND THE SLOPE LENGTH IS LESS THAN 200m OTHERWISE THE MAXIMUM CATCHMENT IS 0.3ha. DECANTING TOPSOIL BUNDS ARE ONLY TO BE USED FOR TOPSOILED/STABILISED CATCHMENTS.



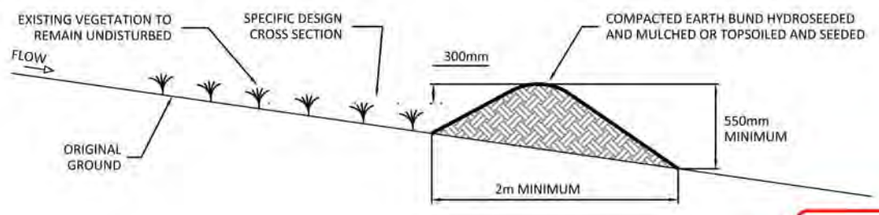
OUTLET DETAIL



DECANTING TOPSOIL BUND



RUNOFF DIVERSION BUND - CROSS SECTION



CLEANWATER RUNOFF DIVERSION BUND - CROSS SECTION

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WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

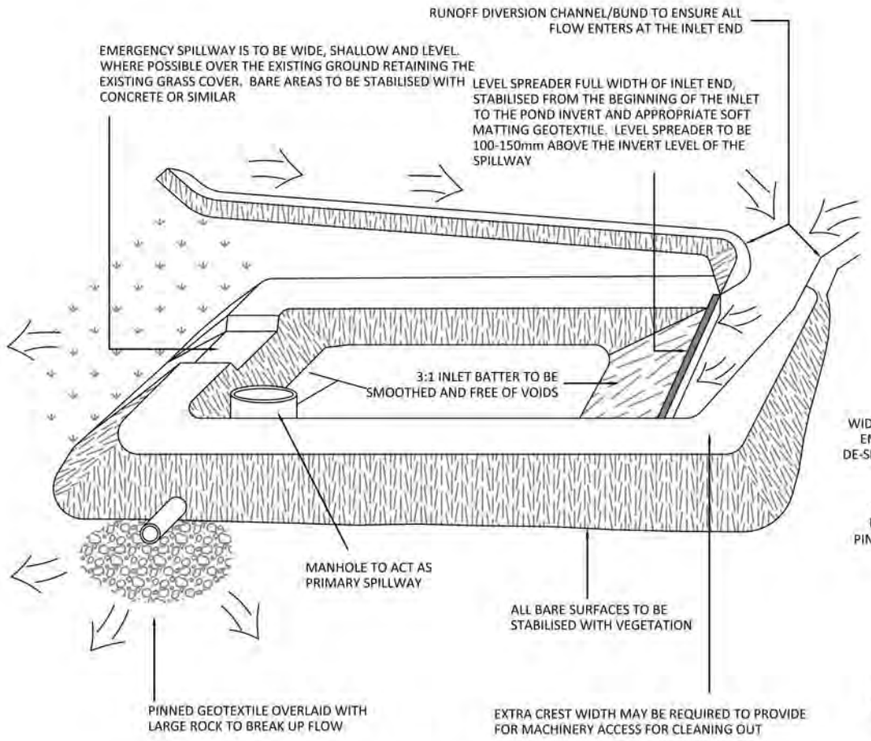
EROSION & SEDIMENT CONTROL
TYPICAL STANDARD DETAILS
SHEET 2

Issue	Description	Checked	Date
A	ISSUED FOR CONSENT	SS	30.07.18

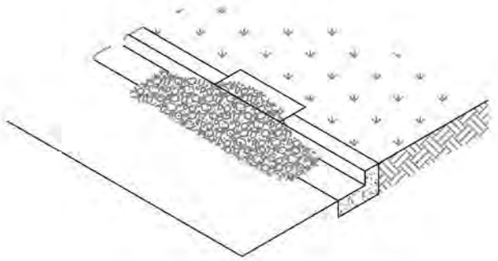
		Date
Designed:		27.07.18
Drawn:	MJW	27.07.18
Checked:	SS	30.07.18

Scale: NTS (A3 Original)

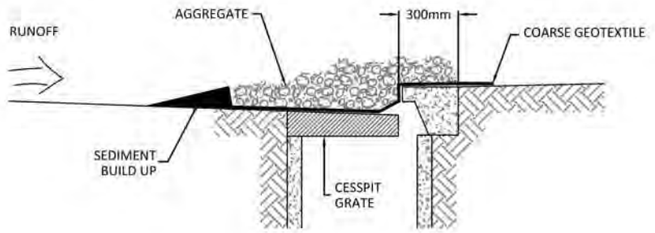
Job No: W3150 Dwg No: 252 Rev: 01



SEDIMENT RETENTION POND

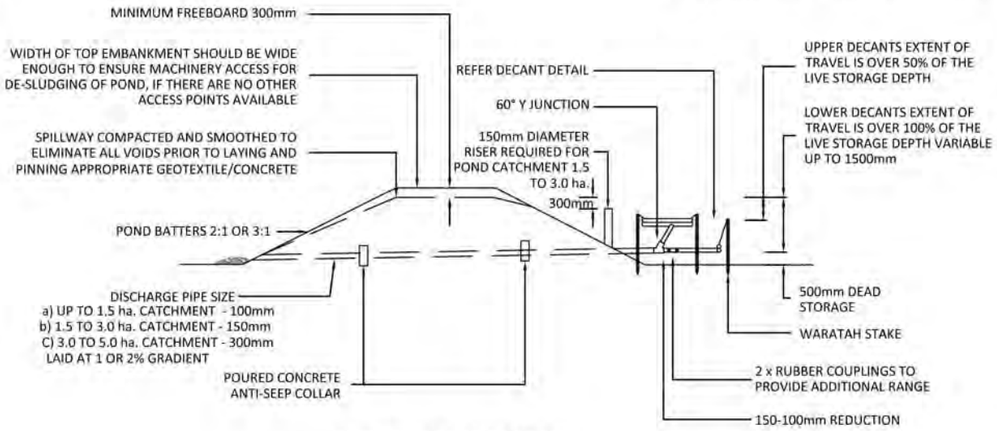


PERSPECTIVE VIEW

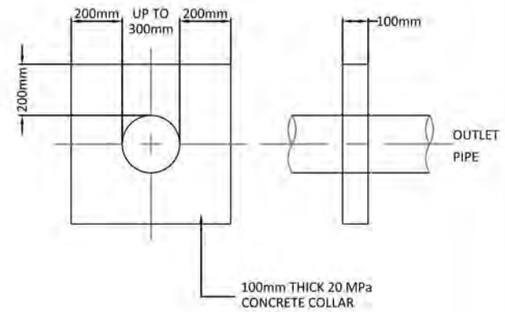


CROSS SECTION

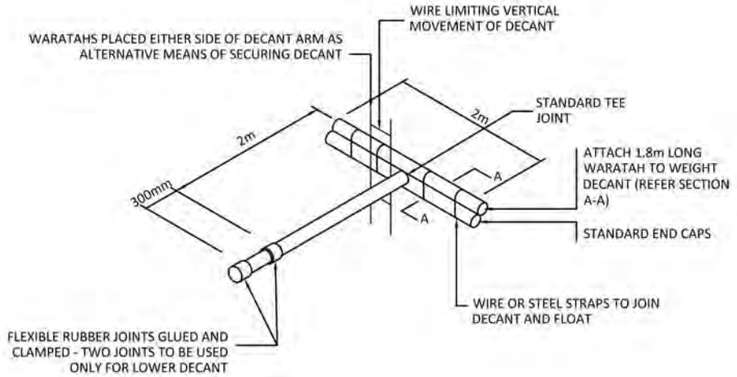
STORMWATER INLET PROTECTION - FILTER MEDIA DESIGN



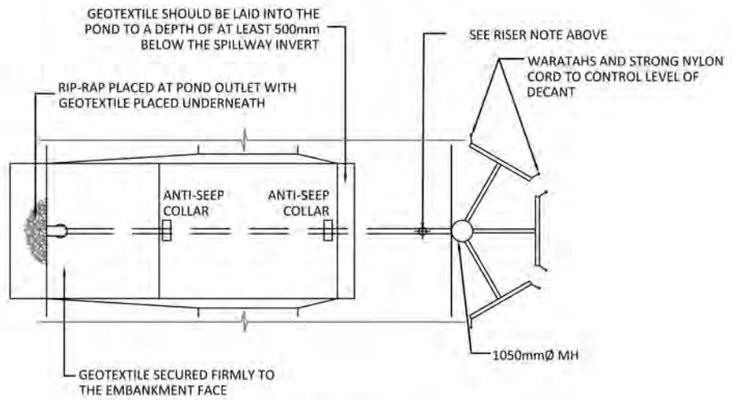
TYPICAL CROSS SECTION
1.5 - 3.0 CATCHMENT



ANTI-SEEP COLLAR



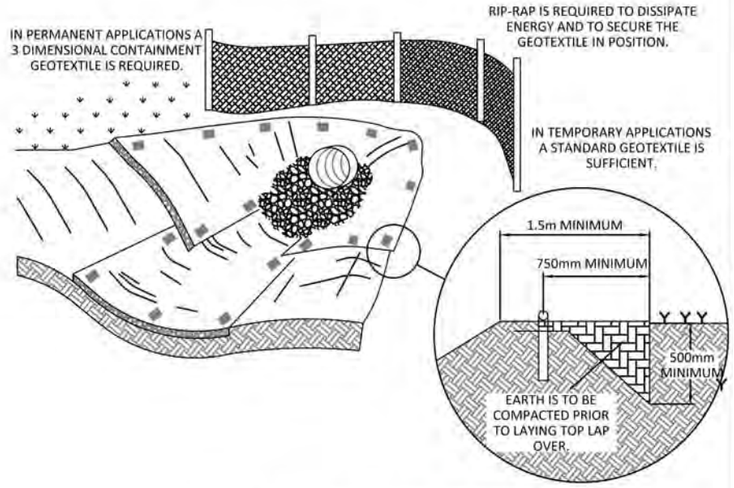
SEDIMENT RETENTION POND - DECANT DETAIL



TYPICAL PLAN 3.0-5.0 ha CATCHMENT

SEDIMENT RETENTION POND EMBANKMENT

NUMBER OF DECANTS FOR EACH POND SHALL BE AS FOLLOWS:
i) UP TO 1.5ha CATCHMENT - 1 DECANT
ii) 1.5-3.0ha CATCHMENT - 2 DECANTS
iii) 3 TO 5 ha CATCHMENT - 3 DECANTS-CONNECTED TO 1050Ø MH



GEOTEXTILE AT CULVERT OUTLET

INFORMATION FROM AUCKLAND REGIONAL COUNCIL TP10-EROSION & SEDIMENT CONTROL

FOR CONSENT

CKL
Planning | Surveying | Engineering | Environmental

Auckland Office:
A: 25 Broadway, Newmarket
P: 09 524 7029
Hamilton Office
A: 58 Church Road, Hamilton
P: 07 849 9921
Te Awamutu Office
A: 103 Market Street, Te Awamutu
P: 07 871 6144

WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

EROSION & SEDIMENT CONTROL
TYPICAL STANDARD DETAILS
SHEET 3

Issue	Description	Checked	Date
01	ISSUED FOR CONSENT	SS	30.07.18

		Date
Designed:		27.07.18
Drawn:	MJW	27.07.18
Checked:	SS	30.07.18

Scale: **NTS** (A3 Original)

Job No: **W3150** Dwg No: **183** Rev: **01**

EARTHWORKS NOTES:

1. ALL WORKS TO COMPLY WITH THE RELEVANT LOCAL AUTHORITY STANDARDS.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE OPERATIONAL PRIOR TO ANY WORKS COMMENCING AND SHALL BE INSTALLED IN ACCORDANCE WITH AC GD005 'EROSION AND SEDIMENT CONTROL GUIDE FOR LAND DISTURBING ACTIVITIES'.
3. REFER TO EARTHWORKS SPECIFICATION FOR EARTHFILL REQUIREMENTS AND STANDARDS OF COMPACTION. ALL EARTHWORKS TO BE UNDERTAKEN IN ACCORDANCE WITH GEOTECHNICAL INVESTIGATION REPORT, CONTRACTOR TO VIEW THE REPORT TO INFORM THEMSELVES.
4. ALL MATERIAL FROM GULLIES DEEMED BY THE ENGINEER TO BE UNSUITABLE SHALL BE EXCAVATED.
5. TOPSOIL AND OTHER RELATIVELY DRY ORGANIC MATERIAL THAT CAN BE STRIPPED FROM STEEP AREAS/GULLIES USING EXCAVATOR/TRACTOR AND SCOOP SHALL BE CLASSIFIED AS SUBSOIL/TOPSOIL STRIPPING.
6. ALL GULLIES SHALL BE SURVEYED AFTER CLEARING OPERATIONS (PRIOR TO REMOVAL OF UNSUITABLE) AND THEN AGAIN AFTER UNSUITABLE REMOVAL FOR VOLUMES.
7. UNSUITABLE MATERIAL SHALL BE CLASSIFIED AS SOILS DEEMED BY THE ENGINEER TO HAVE EXCESSIVE NATURAL WATER CONTENT AND/OR ORGANIC CONTENT REQUIRING MULTIPLE HANDLING, DRYING/CONDITIONING AND STOCKPILING/ RESPREADING AS DIRECTED.
8. THE LOCATIONS OF ALL STOCKPILES ARE WHOLLY THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE LOCATED CLEAR OF ALL EARTHWORKS OPERATIONS AND AWAY FROM GEOTECHNICALLY UNSTABLE LAND. NO PAYMENT SHALL BE MADE FOR RELOCATION OF ANY STOCKPILES THAT HAVE BEEN FOUND TO HAVE BEEN PLACED IN THE INCORRECT LOCATION.
9. ALL SETOUT TO BE UNDERTAKEN BY THE CONTRACTOR.
10. IT IS THE CONTRACTORS RESPONSIBILITY FOR HEALTH & SAFETY & SECURITY ON SITE, APPROPRIATE FENCING AND SIGNAGE SHALL BE ERECTED AND MAINTAINED AT ALL TIMES TO KEEP THE GENERAL PUBLIC OFF SITE.
11. FINAL QUANTITIES AND EXTENT OF EARTHWORKS TO BE DETERMINED BY THE ENGINEER.

EARTHWORKS LEGEND:

85 — PROPOSED CONTOURS - MAJOR (1.0)

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WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

PROPOSED RETAINING WALLS
LAYOUT PLAN

Issue	Description	Checked	Date
01	ISSUED FOR CONSENT	SS	30.07.18

		Date
Designed:	MJW	19.07.18
Drawn:	MJW	30.07.18
Checked:	SS	19.07.18

Scale: **1:1250** (A3 Original)

Job No: **W3150** Dwg No: **280** Rev: **01**

EARTHWORKS NOTES:

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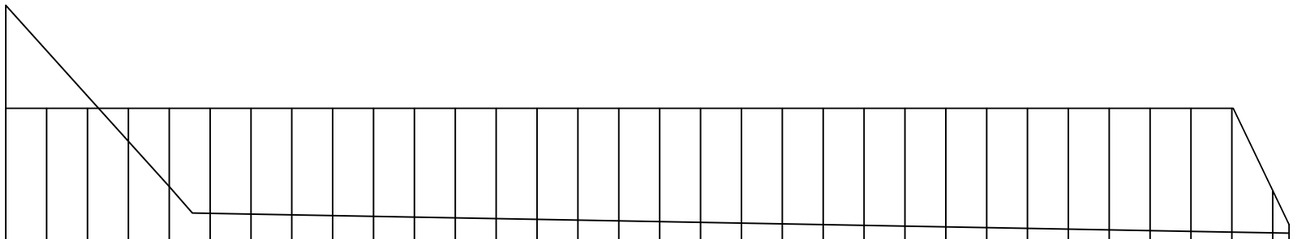
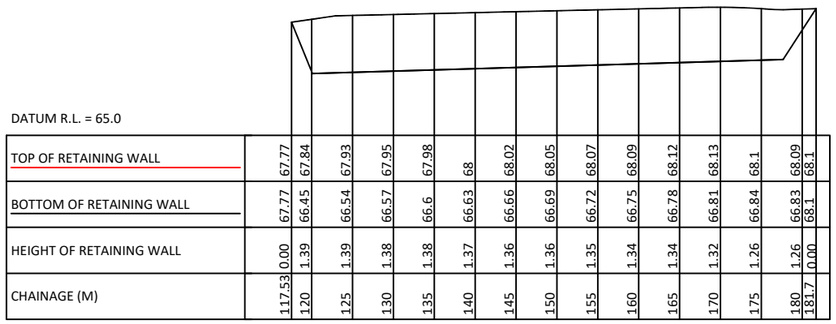


DATUM R.L. = 66.0

CHAINAGE (M)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	157
TOP OF RETAINING WALL	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68.99	68.16
BOTTOM OF RETAINING WALL	73.52	72.41	71.3	70.19	69.09	68.43	68.41	68.4	68.38	68.36	68.34	68.32	68.3	68.29	68.27	68.25	68.23	68.21	68.19	68.17	68.16	68.14	68.12	68.1	68.08	68.06	68.05	68.03	68.01	67.99		67.96	67.95
HEIGHT OF RETAINING WALL	-2.52	-1.41	-0.3	0.81	1.91	2.57	2.59	2.6	2.62	2.64	2.66	2.68	2.7	2.71	2.73	2.75	2.77	2.79	2.81	2.83	2.84	2.86	2.88	2.9	2.92	2.94	2.95	2.97	2.99	3.01		1.03	0.21

RETAINING WALL LONGITUDINAL SECTION - WALL 2

HORIZONTAL SCALE 1:750
VERTICAL SCALE 1:150



DATUM R.L. = 65.0

CHAINAGE (M)	117.53	120	125	130	135	140	145	150	155	160	165	170	175	180	181.7
TOP OF RETAINING WALL	67.77	67.84	67.93	67.95	67.98	68	68.02	68.05	68.07	68.09	68.12	68.13	68.1	68.09	68.1
BOTTOM OF RETAINING WALL	67.77	66.45	66.54	66.57	66.6	66.63	66.66	66.69	66.72	66.75	66.78	66.81	66.84	66.83	68.1
HEIGHT OF RETAINING WALL	0.00	1.39	1.39	1.38	1.38	1.37	1.36	1.36	1.35	1.34	1.34	1.32	1.26	1.26	0.00

RETAINING WALL LONGITUDINAL SECTION - WALL 1

HORIZONTAL SCALE 1:750
VERTICAL SCALE 1:150

FOR CONSENT

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A: 25 Broadway, Newmarket
P: 09 524 7029
Hamilton Office
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P: 07 849 9921
Te Awamutu Office
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P: 07 871 6144

WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

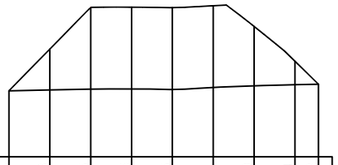
PROPOSED RETAINING WALL LONGSECTIONS
SHEET 1

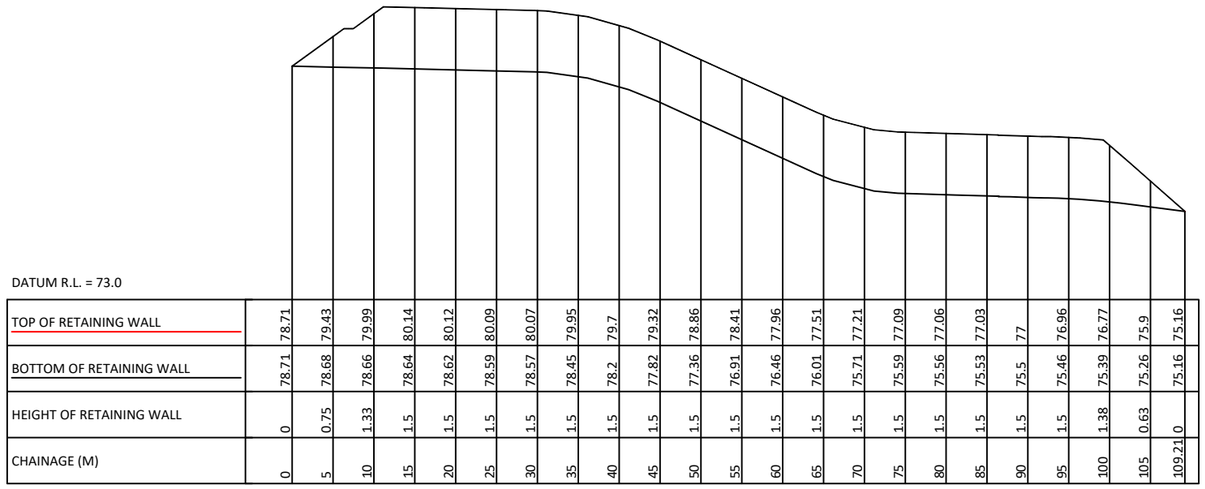
Issue	Description	Checked	Date
01	ISSUED FOR CONSENT	SS	30.07.18

		Date
Designed:	MJW	19.07.18
Drawn:	MJW	19.07.18
Checked:	SS	30.07.18

Scale: **AS SHOWN** (A3 Original)

Job No: **W3150** Dwg No: **185281** Rev: **01**





EARTHWORKS NOTES:

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11. FINAL QUANTITIES AND EXTENT OF EARTHWORKS TO BE DETERMINED BY THE ENGINEER.

DATUM R.L. = 77.0

TOP OF RETAINING WALL	78.61	79.63	80.65	80.66	80.65	80.7	80.19	79.34	78.78
BOTTOM OF RETAINING WALL	78.61	78.64	78.66	78.66	78.65	78.7	78.74	78.76	
HEIGHT OF RETAINING WALL	-0	1	1.99	2	2	2	1.45	0.57	
CHAINAGE (M)	0	5	10	15	20	25	30	35	37.86

RETAINING WALL LONGITUDINAL SECTION - WALL 4

HORIZONTAL SCALE 1:750
VERTICAL SCALE 1:150

DATUM R.L. = 73.0

TOP OF RETAINING WALL	78.71	79.43	79.99	80.14	80.12	80.09	80.07	79.95	79.7	79.32	78.86	78.41	77.96	77.51	77.21	77.09	77.06	77.03	77	76.96	76.77	75.9	75.16
BOTTOM OF RETAINING WALL	78.71	78.68	78.66	78.64	78.62	78.59	78.57	78.45	78.2	77.82	77.36	76.91	76.46	76.01	75.71	75.59	75.56	75.53	75.5	75.46	75.39	75.26	75.16
HEIGHT OF RETAINING WALL	0	0.75	1.33	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.38	0.63	0
CHAINAGE (M)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	109.21

RETAINING WALL LONGITUDINAL SECTION - WALL 3

HORIZONTAL SCALE 1:750
VERTICAL SCALE 1:150

FOR CONSENT

CKL
Planning | Surveying | Engineering | Environmental

Auckland Office:
A: 25 Broadway, Newmarket
P: 09 524 7029
Hamilton Office
A: 58 Church Road, Hamilton
P: 07 849 9921
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A: 103 Market Street, Te Awamutu
P: 07 871 6144

WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

PROPOSED RETAINING WALL
LONGSECTIONS
SHEET 2

Issue	Description	Checked	Date
01	ISSUED FOR CONSENT	SS	30.07.18

		Date
Designed:	MJW	19.07.18
Drawn:	MJW	19.07.18
Checked:	SS	30.07.18

Scale: **AS SHOWN**
(A3 Original)

Job No:	Dwg No:	Rev:
W3150	**282**	**01**

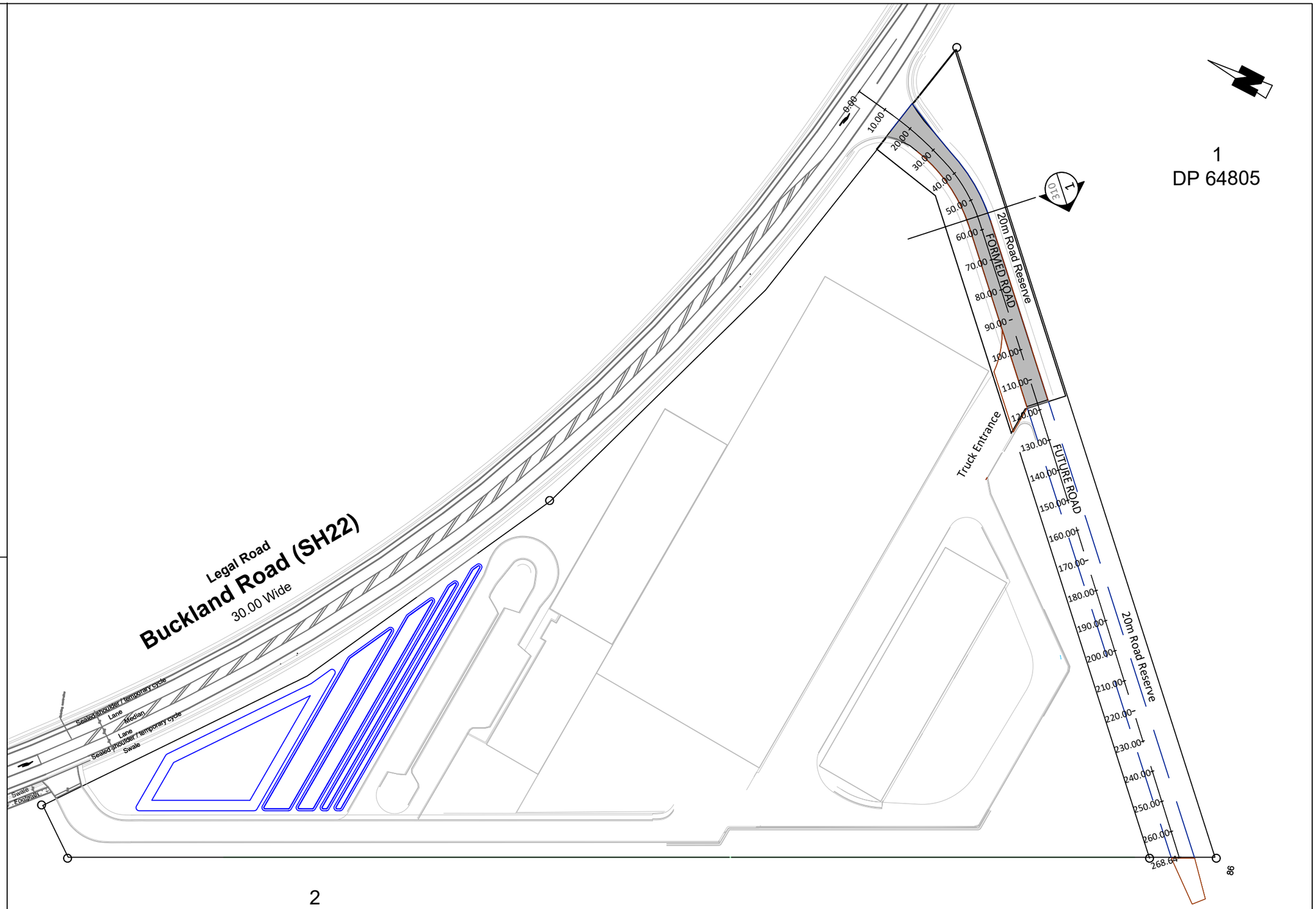
ROADING AND PAVEMENT NOTES:

1. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH AUCKLAND COUNCIL AND AUCKLAND TRANSPORT (ATCOP) ENGINEERING STANDARDS.
2. ALL EXTRUDED/INSITU CONCRETE TO BE MIN. 20 MPa STRENGTH AT 28 DAYS.
3. ALL UNDERCHANNEL DRAINS TO BE LAID IN TNZ F/2 DRAINAGE MATERIAL AND HAVE FREE-FLOWING OUTLET TO NEAREST DOWNSTREAM CATCHPIT.
4. ALL FOOTPATHS TO COMPRISE 100mm THICK 20MPa BROOM FINISH CONCRETE ON MIN. 100mm COMPACTED DEPTH GAP40 BASECOURSE.
5. ALL REINFORCING SHALL BE PLACED ON APPROVED CHAIRS AND IS TO BE PLACED CENTRALLY OR AS PER DESIGN PLANS.
6. ALL FOOTPATH SAWCUTS ARE TO COINCIDE WITH KERB SAWCUTS AT 3m CRS TYP. UNLESS NOTED OTHERWISE.
7. PAVEMENT DESIGN IS PROVISIONAL ONLY AND INSITU SUBGRADE STRENGTH SHALL BE CONFIRMED VIA SCALA PENETROMETER TESTING FOLLOWING GULLETTING OF THE CARRIAGEWAYS TO CONFIRM FINAL PAVEMENT THICKNESS AND ANY SUBGRADE IMPROVEMENT WORKS i.e. UNDERCUTTING OR STABILISATION. THE ENGINEER IS TO INSPECT, TEST AND APPROVE ALL SUBGRADES PRIOR TO AGGREGATE PLACEMENT.
8. ALL SUBGRADES SHALL BE TRIMMED WITHIN +/- 10mm TOLERANCE TO DESIGN LEVELS AND SHALL BE STRUNG AND APPROVED PRIOR TO METAL COURSE PLACEMENT.

LEGEND:

15.0 PROPOSED CONTOURS - MAJOR (1.0m)

PROPOSED CHIPSEAL ROAD



FOR CONSENT

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WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

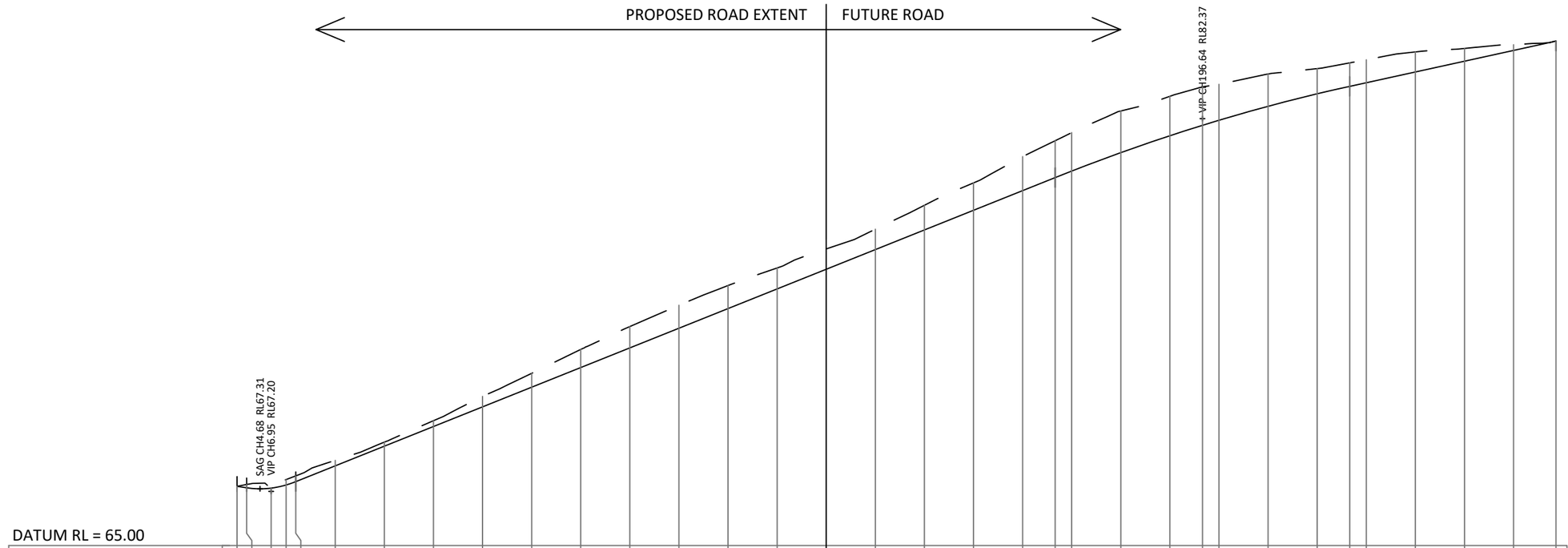
PROPOSED ROADING PLAN
LAYOUT PLAN

Issue	Description	Checked	Date
01	ISSUED FOR CONSENT	SS	30.07.18

		Date
Designed:	MJW	26.07.18
Drawn:	MJW	26.07.18
Checked:	SS	30.07.18

Scale: **1:1250** (A3 Original)

Job No: **W3150** Dwg No: **700** Rev: **01**



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LEGEND:

— — — — — — —	EXISTING GROUND LEVEL
———————	PROPOSED GROUND LEVEL

DATUM RL = 65.00

HORZ. CURVE LENGTH						100 R			50 R									
ROAD VERT. GEOMETRY GRADE / LENGTH		-3% 6.95m L												8% 189.69m L				
ROAD VERT. CURVES LENGTH / K VALUE			10m VC K = 0.91															
DESIGN LEVELS	67.41	67.35	67.34	67.46	67.60	68.24	69.04	69.84	70.64	71.44	72.24	73.04	73.84	74.64	75.44	76.24	77.04	77.84
EXISTING LEVELS	67.41	67.48	67.30	67.68	67.83	68.47	69.21	70.08	71.07	72.01	72.98	73.91	74.78	75.58	76.29	77.07	77.87	78.84
CUT / FILL DEPTH	-0.00	-0.13	0.04	-0.22	-0.23	-0.22	-0.16	-0.24	-0.43	-0.56	-0.74	-0.87	-0.94	-0.94	-0.85	-0.83	-0.83	-1.00
CHAINAGE	0.00	1.95	6.95	10.00	11.95	20.00	30.00	40.00	50.00	60.00	70.00	80.00	90.00	100.00	110.00	120.00	130.00	140.00

HORZ. CURVE LENGTH																
ROAD VERT. GEOMETRY GRADE / LENGTH													4.38% 72m L			
ROAD VERT. CURVES LENGTH / K VALUE							60m VC K = 16.57									
DESIGN LEVELS	78.64	79.44	79.97	80.24	80.99	81.68	82.10	82.31	82.87	83.38	83.69	83.83	84.27	84.71	85.15	85.53
EXISTING LEVELS	79.76	80.83	81.47	81.81	82.69	83.28	83.67	83.77	84.19	84.41	84.64	84.77	85.09	85.23	85.38	85.53
CUT / FILL DEPTH	-1.12	-1.39	-1.50	-1.57	-1.70	-1.60	-1.56	-1.46	-1.31	-1.02	-0.96	-0.94	-0.81	-0.52	-0.23	-0.01
CHAINAGE	150.00	160.00	166.64	170.00	180.00	190.00	196.64	200.00	210.00	220.00	226.64	230.00	240.00	250.00	260.00	268.64

1
300

ROAD 1 LONG SECTION

SCALE 1:500 (A3)

1
300

ROAD 1 CROSS SECTION 1

SCALE 1:50 (A3)

FOR CONSENT

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WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

PROPOSED ROAD,
LONGSECTION
AND TYPICAL CROSS-SECTION

Issue	Description	Checked	Date
01	ISSUED FOR CONSENT	SS	30.07.18

		Date
Designed:	MJW	27.07.18
Drawn:	MJW	27.07.18
Checked:	SS	30.07.18

Scale:
AS SHOWN
(A3 Original)

Job No:	Dwg No:	Rev:
W3150	310	01

PAVED E UNDERGROUND
HYNDS/GRAF ECOBLOC
DETENTION
MINIMUM COVER = 800mm
3 LAYERS = 644m³ DTI = 1.76m

ATTENUATION TANK TO
DISCHARGE TO SWALE

55 CELLS
44.00m

16.00m
20 CELLS

ONSITE SWALE FOR
CONVEYANCE
4m WIDTH x 0.33m DEPTH

RUNOFF FROM CARPARK
TO DRAIN DIRECTLY TO
RAINGARDENS

ATTENUATION BASIN FOR 100 YR
ARI DETENTION TO PRE
DEVELOPMENT PEAK FLOW RATES
DEPTH = 1.1m
VOLUME = 1052m³

OUTLET TO ROADSIDE
DRAIN VIA CONCRETE
BEAM LEVEL SPREADER

SHOWROOM

WAREHOUSE

ADMIN OFFICE

CARPARK

DEVANNING
AND PIPE
STORAGE

ALL PAVED AREAS
SHADED PINK TO DRAIN
TO DETENTION TANK

PERVIOUS AREA
DRAINS TO TANK

ATTENUATION
BASIN

RAINGARDEN 4
WIDTH = 8.4m

RAINGARDEN 3
WIDTH = 5.6m

RAINGARDEN 2
WIDTH = 2.8m

RAINGARDEN 1
WIDTH = 2.8m

DRIVEWAY

TERRACED RAINGARDENS FOR SMAF1
MITIGATION AND TREATMENT

DRIVEWAY TO HAVE SINGLE CROSSFALL TOWARDS
THE RAINGARDENS AND ATTENUATION BASIN

FOR CONSENT

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WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

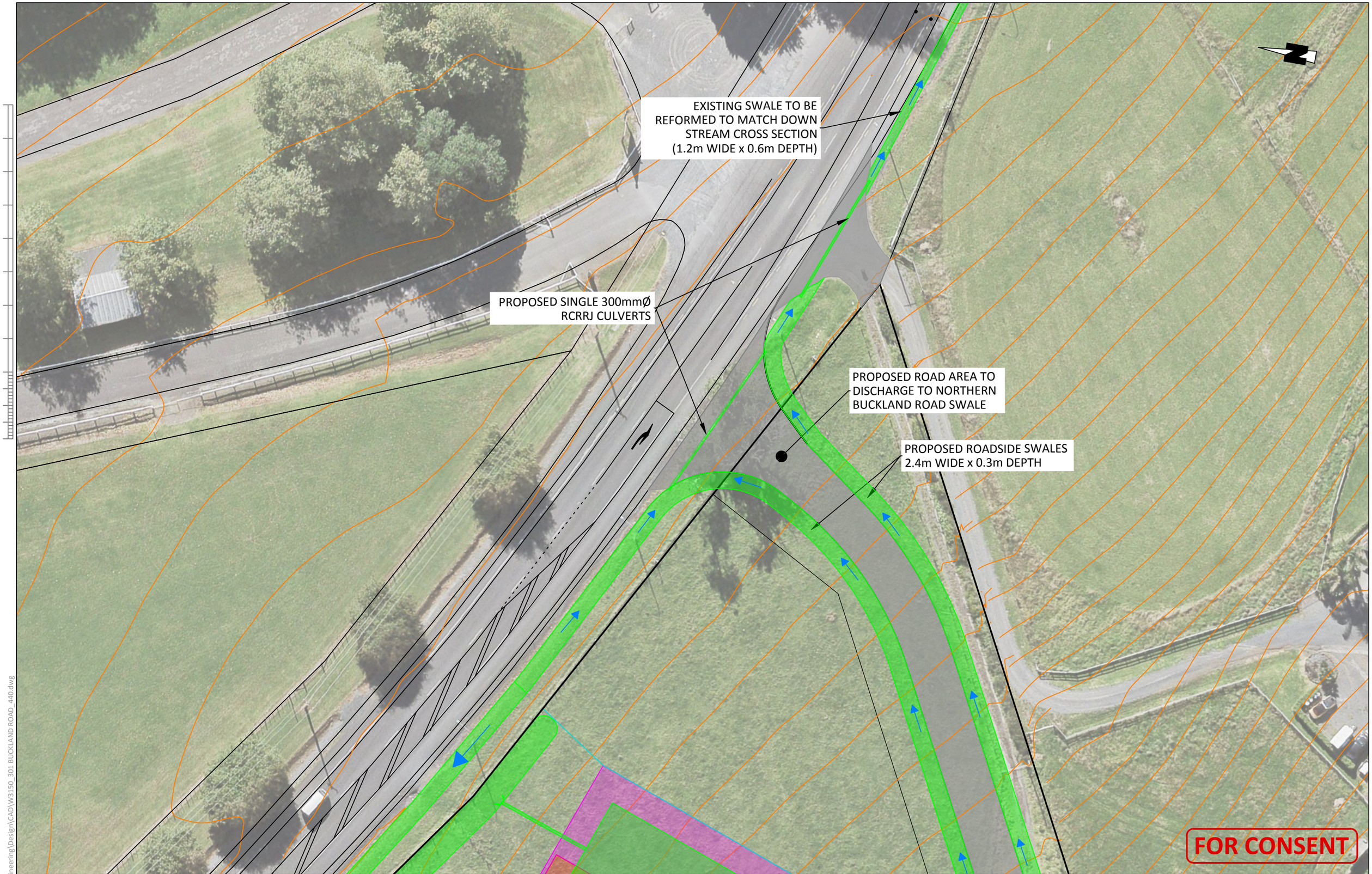
STORMWATER MANAGEMENT LAYOUT
SHEET 1 OF 3

Issue	Description	Checked	Date
0	FOR RESOURCE CONSENT	SS	26.07.18

		Date
Designed:	JR	26.07.18
Drawn:	JR	26.07.18
Checked:	SS	26.07.18

Scale: 1:1000 (A3 Original)

Job No: W3150 Dwg No: 440 Rev: 00



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WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

STORMWATER MANAGEMENT LAYOUT
SHEET 2 OF 3

Issue	Description	Checked	Date
0	FOR RESOURCE CONSENT	SS	26.07.18

		Date
Designed:	JR	26.07.18
Drawn:	JR	26.07.18
Checked:	SS	26.07.18

Scale: 1:500 (A3 Original)

Job No: W3150 Dwg No: 441 Rev: 00

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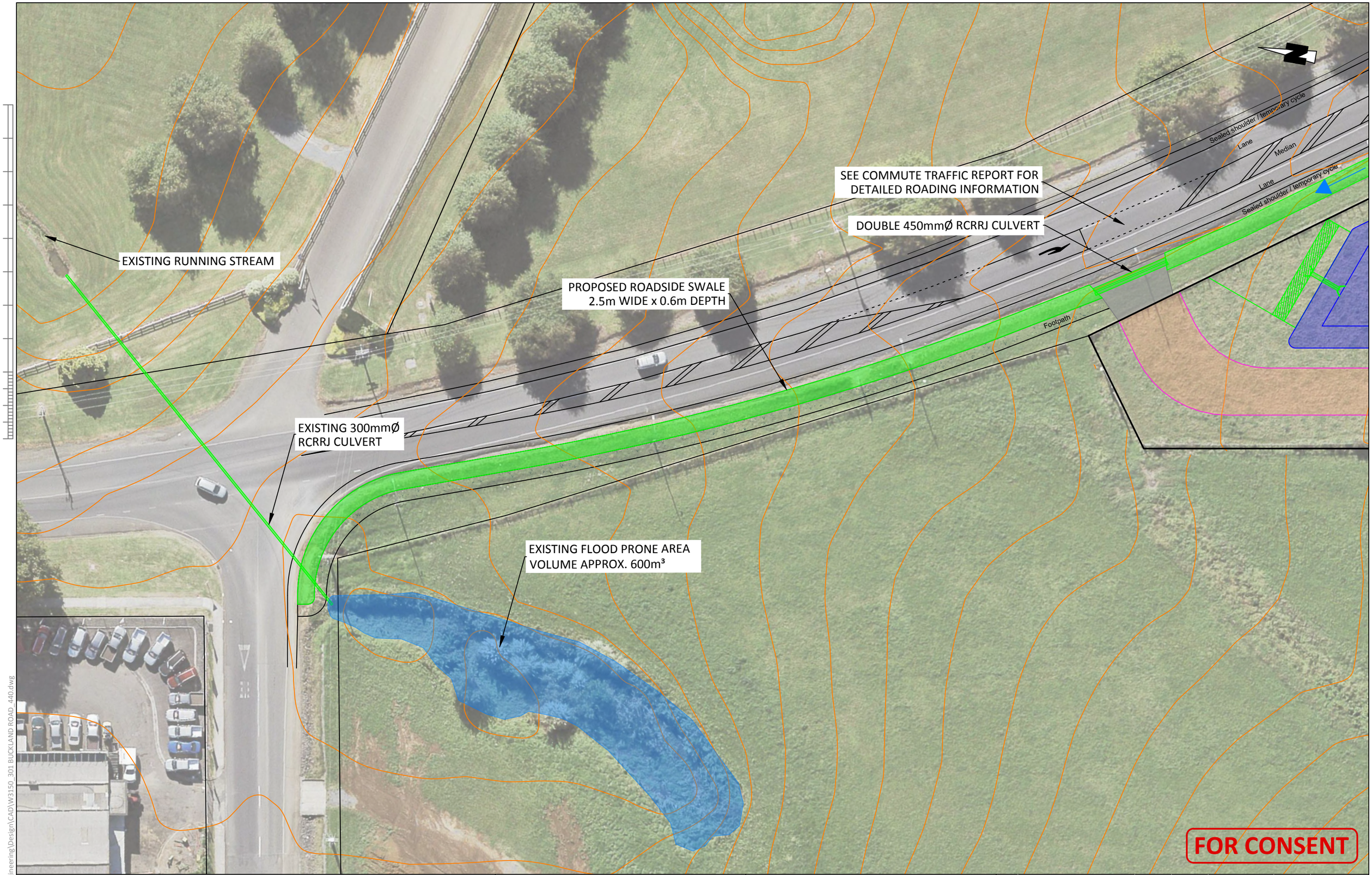

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WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

STORMWATER MANAGEMENT LAYOUT
SHEET 3 OF 3

Issue	Description	Checked	Date
0	FOR RESOURCE CONSENT	SS	26.07.18

Designed:	JR	26.07.18
Drawn:	JR	26.07.18
Checked:	SS	26.07.18

Scale: **1:500** (A3 Original)

Job No: **W3150** Dwg No: **442** Rev: **00**

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TO PUKEKOHE

DEVELOPMENT SITE

BUCKLAND ROAD

PUKEKOHE PARK RACEWAY

TO BUCKLAND

PROP MH 1.8
1050Ømm
LL = 69.00mRL
IL = 67.66mRL
DTI = 1.34m

250Ømm PE100 SDR17
95.47m @ 2.45%

PROP MH 1.7
1050Ømm
LL = 66.75mRL
IL = 65.27mRL
DTI = 1.48m

250Ømm PE100 SDR17
95.47m @ 2.45%

PROP MH 1.6
1050Ømm
LL = 64.75mRL
IL = 62.88mRL
DTI = 1.87m

250Ømm PE100 SDR17
60.33m @ 4.92%

PROP MH 1.5
1200Ømm
LL = 63.25mRL
IL = 59.86mRL
DTI = 3.39m

250Ømm PE100 SDR17
54.90m @ 4.92%

PROP MH 1.4
1200Ømm
LL = 61.25mRL
IL = 57.11mRL
DTI = 4.14m

250Ømm PE100 SDR17
86.84m @ 5.88%

PROP MH 1.3
1200Ømm
LL = 56.75mRL
IL = 51.90mRL
DTI = 4.85m

280Ømm PE100 SDR17
53.24m @ 2.01%

PROP MH 1.2
1200Ømm
LL = 55.00mRL
IL = 50.78mRL
DTI = 4.22m

280Ømm PE100 SDR17
56.35m @ 2.09%

IL = 49.60mRL

525Ømm CONC
74.1m @ 0.20%

EXISTING PUBLIC
525Ømm CONC
91.97m @ 0.20%

EXISTING MH
ID: 422629
LL = 51.71mRL
IL = 49.40mRL
DTI = 2.31m

PROP MH 1.1
1350Ømm
LL = 54.50mRL
IL = 49.25mRL
DTI = 5.25m

EXISTING MH
ID: 422630
LL = 52.47mRL
IL = 49.07mRL
DTI = 3.4m

EXISTING WW
PUMP STATION

FOR CONSENT

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WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

PUBLIC WASTEWATER EXTENTION

Issue	Description	Checked	Date
0	FOR RESOURCE CONSENT	SS	26.07.18
1	S92 - UPDATED PIPE SIZES		

		Date
Designed:	JR	26.07.18
Drawn:	JR	26.07.18
Checked:	SS	26.07.18

Scale: **1:2000** (A3 Original)

Job No: **W3150** Dwg No: **500** Rev: **1**

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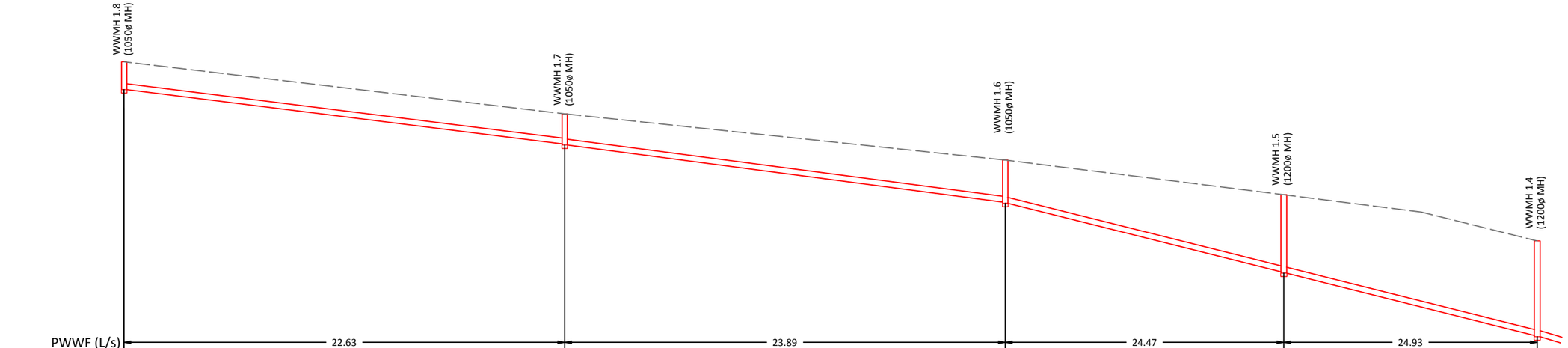
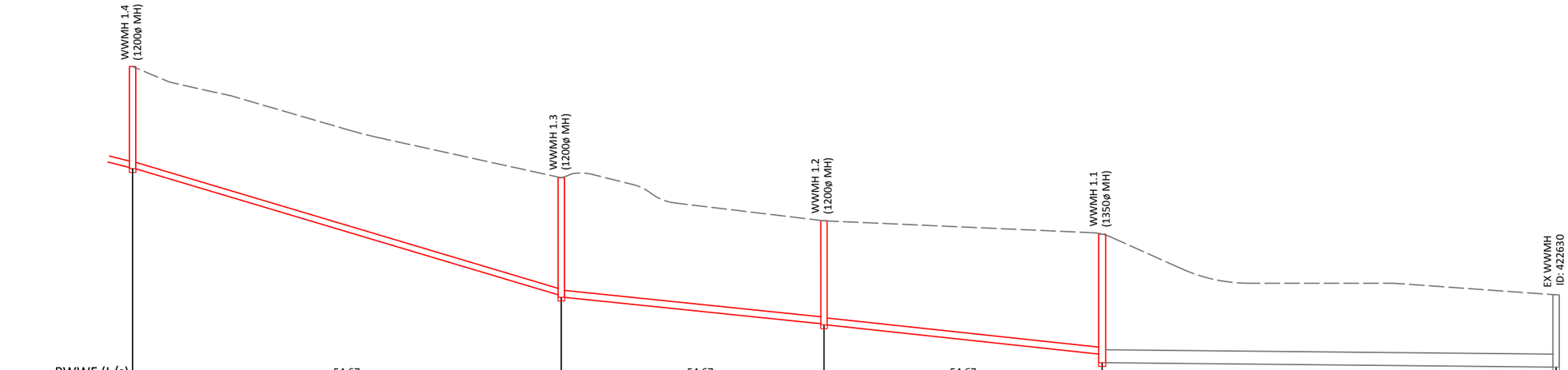


PWWF (L/s)	22.63					23.89					24.47					24.93			
PIPE CAPACITY (L/s)	67.38					67.38					95.58					95.54			
DATUM =	55.0																		
LID LEVEL	69.00					66.75					64.75					63.25			61.25
INVERT LEVEL	67.66				65.32	65.27				62.93	62.88				59.91	59.86			57.16	57.11
DEPTH TO INVERT	1.34				1.43	1.48				1.82	1.87				3.34	3.39			4.19	4.14
PIPE GRADE	2.45%					2.45%					4.92%					4.92%			
SIZE AND TYPE	250Ø PE100 SDR17					250Ø PE100 SDR17					250Ø PE100 SDR17					250Ø PE100 SDR17			
DISTANCE (m)	95.47					95.47					60.33					54.90			



PWWF (L/s)	54.67					54.67					54.67								
PIPE CAPACITY (L/s)	105.03					82.09					83.80					EXISTING PUBLIC WASTEWATER LINE			
DATUM =	47.0																		
LID LEVEL	61.25					56.75					55.00					54.50			52.47
INVERT LEVEL	57.11				52.00	51.90				50.83	50.78				49.60	49.25			49.07
DEPTH TO INVERT	4.14				4.75	4.85				4.17	4.22				4.90	5.25			3.40
PIPE GRADE	5.88%					2.01%					2.09%					0.20%			
SIZE AND TYPE	250Ø PE100 SDR17					280Ø PE100 SDR17					280Ø OD PE100 SDR17					525ø CONCRETE			
DISTANCE (m)	86.84					53.24					56.35					91.97			

FOR CONSENT

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WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

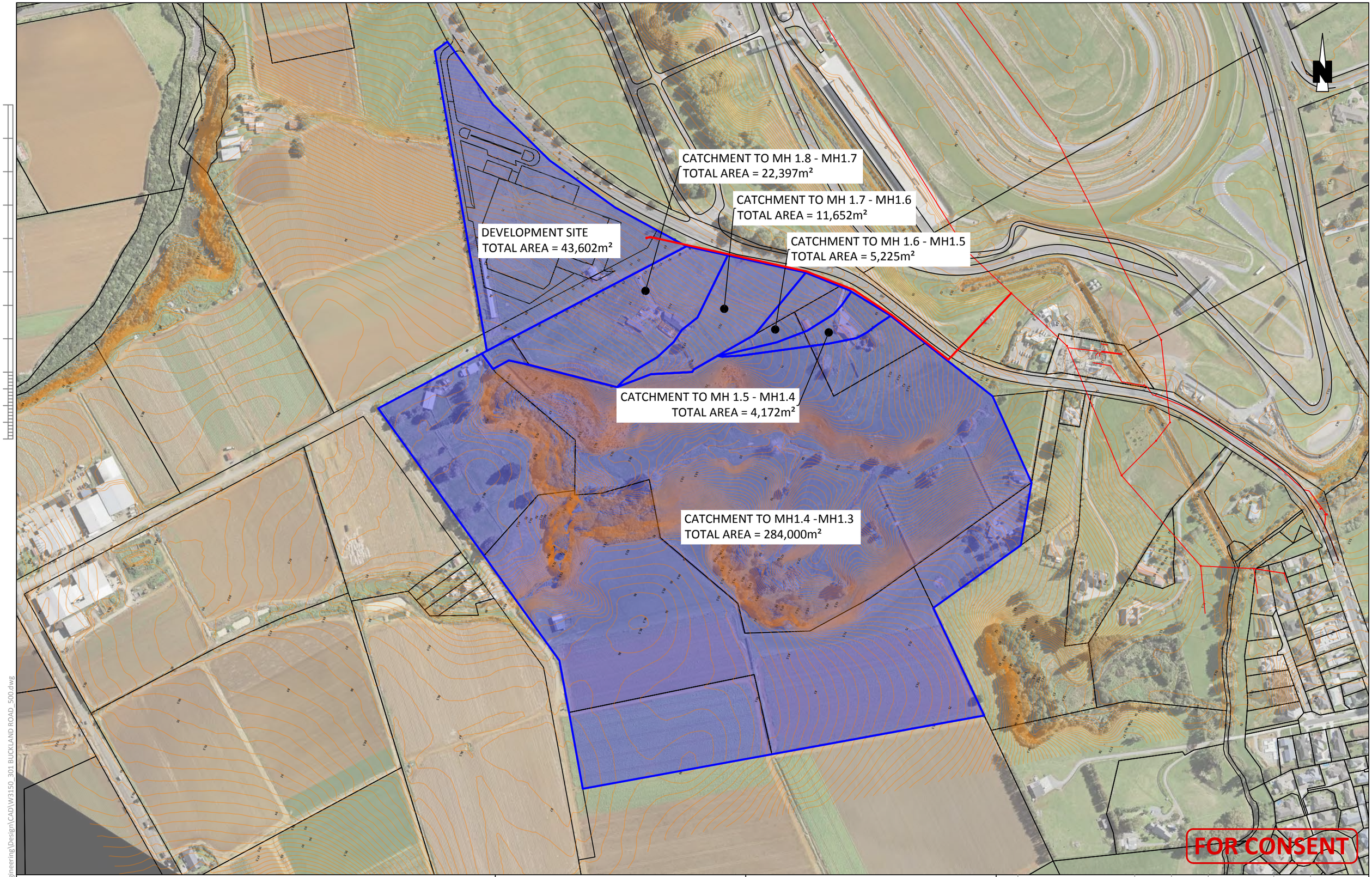
DRAINAGE LONGSECTIONS WASTEWATER

Issue	Description	Checked	Date
0	FOR RESOURCE CONSENT	SS	26.07.18
1	S92 - UPDATED PIPE SIZES	AD	10.06.19

			Date
Designed:	JR		26.07.18
Drawn:	JR		26.07.18
Checked:	SS		26.07.18

Scale: 1:1000H 1:200V (A3 Original)

Job No: W3150 Dwg No: 510 Rev: 1



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WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

PUBLIC WASTEWATER CATCHMENTS

Issue	Description	Checked	Date
0	FOR RESOURCE CONSENT	SS	26.07.18

		Date
Designed:	JR	26.07.18
Drawn:	JR	26.07.18
Checked:	SS	26.07.18

Scale: 1:4000 (A3 Original)

Job No: W3150 Dwg No: 194420 Rev: 00

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Decision on an application for resource consent under the Resource Management Act 1991

Discretionary activity

Application numbers:	BUN60368560 (Council Reference) LUC60368561(s9 land use consent)
Applicant:	Pukekohe Limited
Site address:	303 Buckland Road, Pukekohe
Legal description:	Lot 1 DP 64805

Proposal:

To authorise the use of up to 4,320m^2 of the land at 303 Buckland Road, Pukekohe (including construction and upgrade of access) as an industrial service storage yard for a period of 10 years.

Resource consent is required for the following reasons:

Land use consent (s9) – LUC60368561

Auckland Unitary Plan (Operative in part)

District land use (operative plan provisions)

Chapter E12 – Land Disturbance (District)

- Earthworks of a volume of approximately 3,100m^3 across approximately 9,600m^2 are proposed and consent is therefore required in accordance with E12.4.1 as **restricted discretionary activities** for earthworks greater than 2,500m^2 (A6) and 2,500m^3 (A10).

Chapter E27 – Transport

- The use of an existing vehicle crossing where a Vehicle Access Restriction applies under Standard E27.6.4.1 (1) to service the establishment of a new activity, requires consent as a **restricted discretionary activity** in accordance with E27.4.1 (A6).
- The proposal involves accessory parking and access that does not meet the following parking and access standards and is a **restricted discretionary activity** under rule E27.4.1(A2) as follows:
    - The whole area of parking and manoeuvring areas are not designed, formed, drained, or provided with an all-weather surface as required by E27.6.3.2, E27.6.3.3, and E27.6.3.6;
    - The parking and manoeuvring areas are not proposed to be lit as required by E27.6.3.7.

- The existing vehicle crossing will be widened to 7.5m at the boundary, infringing the 7m maximum pursuant to E27.6.4.3.2 (T156);
- The proposed activities require a minimum of 1 visitor bicycle space to be provided, and no specific space is provided; and
- the vehicle access gradient is 1 in 15 rather than 1 in 20 and therefore does not comply with E27.6.4.4.1 (3)

Chapter H18 – Future Urban Zone

- The industrial service storage yard activity is not provided for within the Future Urban zone. In accordance with C1.7, consent is required as a **discretionary.**

Decision

I have read the application, supporting documents, and the report and recommendations on the application for resource consent. I am satisfied that I have adequate information to consider the matters required by the Resource Management Act 1991 (RMA) and make a decision under delegated authority on the application.

Acting under delegated authority, under sections 104, 104B, and Part 2 of the RMA, the resource consent is **GRANTED**.

Reasons

The reasons for this decision are:

1. In accordance with an assessment under ss104(1)(a) and (ab) of the RMA, the actual and potential effects from the proposal will be acceptable as:
    a. In the context of the site and surrounding environment, and in particular with regards to the proximity of the site to the Pukekohe township and the identification of the subject site for future industrial zoned land in the Pukekohe Area Plan, the operation of an industrial service storage yard for a 10 year duration on the site is considered to be acceptable, and any adverse amenity effects on the surrounding future urban zoned rural environment are considered to be less than minor;
    b. The provision of a 0.3m high and 2m wide bund along the front boundary, with landscaping of 1.5m will provide an effective visual screen of the site, and minimise any adverse visual effects of the proposal;
    c. Traffic effects associated with the activity and development of the land are considered to be less than minor and can be appropriately managed by conditions of consent relating to detailed design, whilst the proposed site access design (including access width and sealed portion of the accessway), and provision of informal vehicle and bicycle parking is considered to be appropriate to service the activity, and acceptable in the context of the wider traffic network;
    d. The land disturbance works can be managed in accordance with best practice land management to ensure that any effects associated with silt and sediment are less that minor;

e. Appropriate provision has been made to manage any adverse effects on water quality and water quantity and as a result of stormwater management on the site.

f. In terms of positive effects, the temporary use enables the use of the site in a manner consistent with the anticipated use of the Future Urban land and in-line with the Pukekohe Area Plan and Draft Pukekohe – Paerata Structure Plan. Additionally, the activity enables a practical and an efficient use of the land resource for an activity with an identified demand in the local area.

g. With reference to s104(1)(ab), there are no specific offsetting or environmental compensation measures proposed or agreed to by the applicant to ensure positive effects on the environment.

2. In accordance with an assessment under s104(1)(b) of the RMA, the proposal is consistent with the relevant statutory documents. In particular:

   a. The land disturbance activities and stormwater management can be undertaken and managed to ensure that the outcomes of the proposal are consistent with the anticipated outcomes of the New Zealand Coastal Policy Statement and National Policy Statement for Freshwater Management and the management of effects on water bodies is appropriate;

   b. The proposed industrial yard activity, land disturbance and access upgrades, and stormwater management, are considered to be generally consistent with the direction of the AUP OP and are acceptable in the context of the anticipated outcomes of the Plan for the Future Urban Zone (FUZ). In particular, the use of the land is considered appropriate in the context of the existing environment and anticipated use of the Future Urban Land in line with the Pukekohe Area Plan and Draft Pukekohe – Paerata Structure Plan, and the proposed activity supports rural activities and services. In this context the proposal does not urbanise or compromise the future use or development of the land.

      In addition, the necessary works to establish the activity can be managed in accordance with best practice land management. Overall, the scale, nature, and duration of the activity are considered to be appropriate in the context of the site, existing surrounding rural environment, and transitional nature of the FUZ, and any adverse effects are considered to be less than minor.

3. In accordance with an assessment under s104(1)(c) of the RMA, no other matters are considered relevant.

4. In the context of this discretionary activity application for land use consent, where the objectives and policies of the relevant statutory documents were prepared having regard to Part 2 of the RMA, they capture all relevant planning considerations and contain a coherent set of policies designed to achieve clear environmental outcomes. They also provide a clear framework for assessing all relevant potential effects and there is no need to go beyond these provisions and look to Part 2 in making this decision as an assessment against Part 2 would not add anything to the evaluative exercise.

5. Overall the proposal is considered to be consistent with the relevant matters of the AUP OP, and the outcomes anticipated for the Future Urban zone. Any actual or potential adverse effects are assessed to be acceptable in the context of the receiving environment and

management techniques that form part of the application, and the proposal is considered to have positive effects in terms of facilitating the efficient use of the land resource for the period of the consent. Furthermore the application is considered to meet the relevant tests of the RMA.

For these reasons, the proposal is considered to be acceptable from a resource management perspective.

Conditions

Under section 108 of the RMA, these consents are subject to the following conditions:

General conditions

1. This consent shall be carried out in accordance with the documents and drawings and all supporting additional information submitted with the application, detailed below, and all referenced by the council as resource consent number LUC60368561 (BUN60368560)

    - Application Form and Assessment of Environmental Effects prepared by Daniel Shaw of SFH Consultants, dated 1 December 2021.

Report title and reference	Author	Rev	Dated
Sediment and Erosion Control Management Plan	Birch Surveyors	A	25 November 2020
Traffic Assessment Report – 303 Buckland Road, Pukekohe	Commute	-	1 December 2020
Stormwater Report	Birch Surveyors	A	25 November 2020
Preliminary Site Investigation	EMS	1	29 September 2020
Geotechnical Assessment – Proposed Industrial Yard Development – 303 Buckland Road, Pukekohe	Initia	2	December 2020

Drawing title and reference	Author	Rev	Dated
Location Plan	Birch	E	10/20
Existing Site Plan	Birch	E	10/20
Proposed access and extent of metalled yard	Birch	E	10/20
Plan of sediment control overall plan of works	Birch	E	10/20
Proposed Earthworks	Birch	E	10/20

Proposed Stormwater	Birch	E	10/20
Proposed Sign	Birch	D	10/20

Other additional information	Author	Rev	Dated
Further Information Response: Including: - Stormwater and ITA response - Iwi Correspondence - Traffic memo (Commute) - Sign Plan (Birch)	Collated by Stephen Havill	-	19 February 2021
Further Information Response: Email: *"By law Signage"*	Stephen Havill to Colin Hopkins	-	29/03/2021

2. Under section 125 of the RMA, this consent lapses five years after the date it is granted unless:

   a. The consent is given effect to; or

   b. The council extends the period after which the consent lapses.

3. The consent holder shall pay the council an initial consent compliance monitoring charge of $340 (inclusive of GST), plus any further monitoring charge or charges to recover the actual and reasonable costs incurred to ensure compliance with the conditions attached to this consent.

   Advice note:

   The initial monitoring deposit is to cover the cost of inspecting the site, carrying out tests, reviewing conditions, updating files, etc., all being work to ensure compliance with the resource consent(s). In order to recover actual and reasonable costs, monitoring of conditions, in excess of those covered by the deposit, shall be charged at the relevant hourly rate applicable at the time. The consent holder will be advised of the further monitoring charge. Only after all conditions of the resource consent(s) have been met, will the council issue a letter confirming compliance on request of the consent holder.

Consent Duration

4. LUC60368561 and the operation of the industrial yard shall expire on the 15th of April 2031 (being a period of 10 years) following the granting of consent unless it has lapsed, been surrendered or been cancelled at an earlier date pursuant to the RMA.

Pre commencement meeting

5. Prior to the commencement of the land disturbance activities, the consent holder shall hold a pre-start meeting that:

   a) is located on the subject site;

b) is scheduled not less than 5 days before the anticipated commencement of construction and/or earthworks;

c) includes Council's Monitoring officer; and

d) includes representation from the contractors who will undertake the works and any suitably qualified professionals if required by other conditions.

The following information shall be made available at the pre-start meeting:

- Timeframes for key stages of the works authorised under this consent;
- Resource consent conditions;
- Erosion and Sediment Control Plan.
- Chemical Treatment Management Plan (attachment C to the Earthworks Management Plan).
- Updated Landscaping/bund plan

Advice Note:

To arrange the pre-start meeting please contact the Team Leader Southern Monitoring to arrange this meeting or email monitoring@aucklandcouncil.govt.nz . The conditions of consent should be discussed at this meeting. All information required by the council and listed in that condition should be provided two days prior to the meeting.

Construction Traffic Management Plan (CTMP)

6. Prior to the commencement of any earthworks or construction activity on the site, the consent holder must submit to Auckland Council, a Construction Traffic Management Plan (CTMP) for certification. The CTMP must be prepared in accordance with the Council's requirements for traffic management plans or CTMPs (as applicable) and must be consistent with the New Zealand Transport Authority's Code of Practice for Temporary Traffic Management and must address the surrounding environment, including pedestrian and cycle traffic. The CTMP must also:

(i) Provide a parking management plan for construction traffic;

(ii) Address the transportation and parking of oversize vehicles (if any);

(iii) Provide appropriate loading / working areas to minimise disruption to traffic;

(iv) Provide cleaning facilities within the site to thoroughly clean all vehicles prior to exit to prevent mud or other excavated material from being dropped on the road. In the event that material is dropped on the road, resources must be on hand to clean-up as soon as possible;

(v) Provide traffic management plans in compliance with the latest edition of the NZTA "Code of Practice for Temporary Traffic Management" (COPTTM) document;

(vi) Ensure the site access point must be clearly signposted;

(vii) Include measures that are to be adopted to ensure that pedestrian access on the public footpaths in the vicinity of the site is safe during construction works;

(viii) Identify proposed numbers and timing of heavy vehicle movements throughout the day;

(ix) Identify the location of vehicle and construction machinery access during the period of site works;

(x) Identify the storage and loading areas for materials and vehicles; and

(xi) Identify the relevant Auckland Transport approvals.

The approved CTMP must be implemented and maintained throughout the entire period of earthworks and construction activity on site to the satisfaction of Auckland Council.

Advice Note:

A CAR is required for open cut trenching and trenchless techniques for utility installations. The application for a CAR is to be made online to www.beforeudig.co.nz. The application form requires relevant background information including resource consent details, traffic management plans, and the locations and nature of the works. Please note that a CAR may take up to 15 days to process and construction hours may be restricted on Level 2 or 3 roads, as defined in the Code of Practice for Temporary Traffic Management (COPTTM) of NZTA. Application for a CAR is made online to www.beforeudig.co.nz*. A charge may apply.*

Specific earthworks conditions

7. Prior to the commencement of the earthworks activity, all required erosion and sediment control measures on the subject site must be constructed and carried out in accordance with the approved Earthworks Management Plan by Birch Surveyors (and referenced in condition 1).

8. All earthworks shall be managed to ensure that no debris, soil, silt, sediment or sediment-laden water is discharged in an uncontrolled manner beyond the subject site to either land, stormwater drainage systems, watercourses or receiving waters. In the event that an uncontrolled discharge occurs, works shall cease immediately, and the discharge shall be mitigated and/or rectified to the satisfaction of the Council.

9. There shall be no deposition of earth, mud, dirt or other debris on any road or footpath resulting from earthworks activity on the subject site. In the event that such deposition does occur, it shall immediately be removed. In no instance shall roads or footpaths be washed down with water without appropriate erosion and sediment control measures in place to prevent contamination of the stormwater drainage system, watercourses or receiving waters.

Advice Note:

In order to prevent sediment laden water entering waterways from the road, the following methods may be adopted to prevent or address discharges should they occur:

- *provision of a stabilised entry and exit(s) point for vehicles*
- *provision of wheel wash facilities*
- *ceasing of vehicle movement until materials are removed*
- *cleaning of road surfaces using street-sweepers*

- *silt and sediment traps*
- *cesspit protection*

In no circumstances should the washing of deposited materials into drains be advised or otherwise condoned.

It is recommended that you discuss any potential measures with the Council's monitoring officer who may be able to provide further guidance on the most appropriate approach to take. Please contact the Team Leader – Compliance Monitoring South for more details. Alternatively, please refer to Auckland Council's Guideline Document 2016/005 Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05).

10. The operational effectiveness and efficiency of all erosion and sediment control measures shall be maintained in accordance with Auckland Council's Guideline Document 2016/005 Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05) throughout the duration of earthworks activity, or until the site is permanently stabilised against erosion.

11. There shall be no airborne or deposited dust beyond the subject site as a result of the earthworks activity that in the opinion of the council is noxious, offensive or objectionable.

Advice Notes

It is recommended that potential measures as discussed with Council's monitoring officer who will guide you on the most appropriate approach to take. Please contact the council on +64 9 301 0101 for more details.

Alternatively, please refer to the Ministry for the Environment publication "Good Practice Guide for Assessing and Managing the Environmental Effects of Dust Emissions".

Geotechnical

12. All earthworks shall be managed to ensure that they do not lead to any uncontrolled instability or collapse either affecting the site or adversely affecting any neighbouring properties. In the event that such collapse or instability does occur, it shall immediately be rectified.

13. The construction of all earthworks including the placement and compaction of fill materials shall be supervised by a suitably qualified engineering professional. In supervising the works, the suitably qualified engineering professional shall ensure that the works are constructed and otherwise completed in accordance with the approved plans forming part of the application.

    Certification confirming that the works have been completed in accordance with approved plans within ten (10) working days following completion. Written certification shall be in the form of a Geotechnical Completion Report, producer statement or any other form acceptable to Council.

Traffic

14. The first 25m of the driveway from the vehicle crossing boundary into the site must be formed sealed and constructed with stormwater control in accordance with ATCOP Standards.

15. The existing vehicle crossing must be designed and widened, formed, sealed, and constructed with stormwater control in accordance with drawing GD020A-1B of Auckland Transport Code of Practice 2013 and the approved plans.

    Advice Note:

    A vehicle crossing permit is required to be obtained from Auckland Transport prior to the construction of the vehicle crossing on existing public roads. See Auckland Transport's website https://at.govt.nz/about-us/working-on-the-road/vehicle-crossing-application/ for more information.

16. The following must be installed/marked within the site in accordance with ATCOP Standards:

    a. Directional arrows for two-way access within the site boundary on the sealed driveway as per ATCOP Standards.

17. No gate is to be located at the vehicle entry to the site to avoid vehicle queuing on Buckland Road.

Landscaping

18. The consent holder shall install and maintain for the duration of the consent an effective 1.8m high visual screen along the front boundary of the site. The screen shall consist of a 0.3m high and 2m wide bund with landscaping (or similar).

    Advice Note
    The purpose of this condition is to establish an effective landscape screen along the front boundary of the site. To achieve an effective screen, the consent holder ensure the spacing for the planting is consistent with good arboriculture practice, and in combination with the height of plants at the time of planting, enables an effective screen to be in place within a year of planting.

19. A plan of the landscaping and bund, including final details of the planting (species, spacing, and height at planting) shall be submitted to the Council 5 working days prior to the pre-commencement meeting.

Operational Conditions

20. The industrial service storage yard is limited to the following activities:

    - Scaffolding storage
    - Stack and store of general bulk storage from infrastructure repairs, maintenance and expansion (including motorway barriers, electric cables, metal pipes and construction materials)
    - Portaloo storage

- Security fencing storage
- Skip bin storage
- Motor vehicle / Truck / Agricultural machinery storage
- Contractors storage yard (including earth working machinery and equipment, plumbing, drain laying and building equipment);
- Pool storage
- Storage of bulk landscape supplies
- Storage of transportable / modular homes
- No retail sales, or sales of motor vehicles are proposed.

21. There shall be no onsite retail activities associated with any of the storage activities.

22. There shall be no storage of containers, other than associated with the activities listed in condition 20 above.

Review condition

23. Pursuant to Section 128 of the Resource Management Act 1991, the conditions of this consent may be reviewed by the Council at the consent holder's cost:

    a. At twelve (12) monthly intervals for a period of three (3) years following commencement of consent in order:

        (i) To deal with any adverse effect on the environment which may arise or potentially arise from the exercise of this consent and which it is appropriate to deal with at a later stage, in particular adverse traffic effects on the primary road network and include monitoring truck movements, unconsented activities, lighting and to reinstate any damage to crossing/road and tidy-up the sealed road/crossing and driveway surfaces.

Advice notes:

The result of this review(s) may require additional measures to mitigate any unsafe right turn movements or queuing on Buckland Road.

Under section 128 of the RMA the conditions of this consent may be reviewed by the Manager Resource Consents at the consent holder's cost in the following circumstances:

- *At any time, if it is found that the information made available to the council in the application contained inaccuracies which materially influenced the decision and the effects of the exercise of the consent are such that it is necessary to apply more appropriate conditions.*

Advice notes

1. *Any reference to number of days within this decision refers to working days as defined in s2 of the RMA.*

2. *For the purpose of compliance with the conditions of consent, "the council" refers to the council's monitoring officer unless otherwise specified. Please email monitoring@aucklandcouncil.govt.nz to identify your allocated officer.*

3. *For more information on the resource consent process with Auckland Council see the council's website: www.aucklandcouncil.govt.nz. General information on resource consents, including making an application to vary or cancel consent conditions can be found on the Ministry for the Environment's website: www.mfe.govt.nz.*

4. *If you disagree with any of the above conditions, and/or disagree with the additional charges relating to the processing of the application(s), you have a right of objection pursuant to sections 357A and/or 357B of the Resource Management Act 1991. Any objection must be made in writing to the council within 15 working days of your receipt of this decision (for s357A) or receipt of the council invoice (for s357B).*

5. *The consent holder is responsible for obtaining all other necessary consents, permits, and licences, including those under the Building Act 2004, and the Heritage New Zealand Pouhere Taonga Act 2014. This consent does not remove the need to comply with all other applicable Acts (including the Property Law Act 2007 and the Health and Safety at Work Act 2015), regulations, relevant Bylaws, and rules of law. This consent does not constitute building consent approval. Please check whether a building consent is required under the Building Act 2004.*

6. *The activities covered by this resource consent are to be those which are permitted under Table H18.4.1 under the Future Urban Zone and have been applied for as part of this resource consent as listed in the conditions of consent.*

7. *This resource consent expressly does not provide for the establishment and operation of retail activities nor public parking activities as confirmed in application material.*

8. *This consent does not authorise the discharge of contaminants from or use of land for an industrial or trade activity. Any industrial or trade activity to be established on the site should be reviewed against Chapter E33 of the Auckland Unitary Plan and demonstrate that all aspects of the relevant permitted activity standards can be compiled with, or apply for any relevant consents prior to operations commencing.*

Delegated decision maker:

Name: Tommy Lai

Title: Team Leader, Resource Consents

Signed: 

Date: 15 April 2021

Decision on an application for exemption under the Auckland Council Signage Bylaw 2015

Application number:	BYX70018719 (signage bylaw exemption) BUN60368560 (Council Reference)
Applicant:	Pukekohe Limited
Site address:	303 Buckland Road, Pukekohe
Legal description:	Lot 1 DP 64805

Proposal:

To install a free standing sign measuring 2.3m x 1.2m installed on a 1m support structure (3.3m total height) adjacent to the entrance of the site is proposed;

This requires an exemption under the Auckland Council Signage Bylaw 2015 ("the bylaw") for the following non-complying aspects of the signage:

Clause 6 – Publicly visible signage control measures

Clause 6(1) requires publicly visible signage to comply with control measures in schedule 1, specifically the following:

- For free standing signage (table 3) in the Future Urban zone, signs are only provided for by application and with landowner consent.

Decision

Acting under delegated authority, this application for exemption under the bylaw is **GRANTED**.

Reasons

The reasons for this decision are:

1. There are no other strategies or policies for the management of signage relevant to this proposal (clause 29(1)(a) of the bylaw).
2. The effects on the visual amenity of the locality are acceptable (clause 29(1)(b) of the bylaw) based on the conclusions reached on visual amenity for the granting of resource consent, where it was concluded that the proposed sign is considered to be of scale and nature that is appropriate in the context of the site and the proposed activity and any adverse effect on the streetscape and amenity of the surrounding environment are considered to be less than minor.
3. The effects on traffic safety and public safety are acceptable (clause 29(1)(c) of the bylaw) based on the conclusions reached regarding transportation effects for the grant of resource

consent, where it was concluded in the reviews by Council's Traffic Engineer and Auckland Transport that the sign is appropriate to ensure that any adverse traffic effects will be less than minor.

4. In addition to the above, with regard to the purpose of the bylaw (clause 4(1) of the bylaw), the proposed signage:

    - involves no foreseeable issues in respect of public nuisance or harm associated with poor maintenance;
    - involves no relevant implications regarding protection of roads or public assets; and
    - enables economic benefits for the proposed activity from the signage.

5. With regard to the requirements of clause 28(4) of the bylaw, an exemption may be granted to the proposal as:

    - granting the exemption will not significantly prejudice the achievement of the bylaw's purpose; and
    - the following applies in this circumstance:
        - The signage is in substantial compliance with the bylaw, when considered in the context of signage for industrial activities

Conditions

Under clause 30 of the bylaw, this exemption is subject to the following terms and conditions:

1. The installation of the proposed signage shall be carried out in accordance with the documents and drawings and all supporting information submitted with the application, detailed below, and all referenced by the council as BYX70018719 (BUN60368560)

    - Application Form and Assessment of Environmental Effects prepared by Daniel Shaw of SFH Consultants, dated 1 December 2021.

Drawing title and reference	Author	Rev	Dated
Proposed Sign	Birch	D	10/20

Other additional information	Author	Rev	Dated
Further Information Response: Including: - Stormwater and ITA response - Iwi Correspondence - Traffic memo (Commute) - Sign Plan (Birch)	Collated by Stephen Havill	-	19 February 2021
Further Information Response: Email: *"By law Signage"*	Stephen Havill to Colin Hopkins	-	29/03/2021

Sign Location

2. The consent holder shall ensure that the proposed free-standing sign shall be installed within the subject site and shall not encroach onto the road reserve. This is to be undertaken to the satisfaction of Auckland Council.

Sign Content

3. All messages must be consistent with the Auckland Transport Bylaws as well as guidelines contained in the NZTA Traffic Control Devices Manual Part 3 Advertising Signs unless otherwise agreed by Auckland Council.

4. Text size for all messages on the billboard shall be at least 160mm high.

5. Spacing between lines of text must not be less than 50mm.

6. The sign must not contain reflective, fluorescent or phosphorescent materials or anything that would interfere with the vision of a person using the road.

7. Illumination of the sign is to meet the requirements of the Auckland Transport Bylaw.

Advice notes

1. *The holder of this exemption is responsible for obtaining all other necessary consents, permits, and licences, including those under the Building Act 2004, and the Heritage New Zealand Pouhere Taonga Act 2014. This exemption does not remove the need to comply with all other applicable Acts (including the Property Law Act 2007 and the Health and Safety at Work Act 2015), regulations, relevant Bylaws, and rules of law. This exemption does not constitute building consent approval. Please check whether a building consent is required under the Building Act 2004.*

Delegated decision maker:

Name: Tommy Lai

Title: Team Leader, Resource Consents

Signed:

Date: 15 April 2021

Resource Consent Notice of Works Starting

Please email this form to **monitoring@aucklandcouncil.govt.nz at least *5* days prior to work starting** on your development or post it to the address at the bottom of the page.

Site address:				
AREA (please tick the box)	**Auckland CBD☐**	**Auckland Isthmus☐**	**Hauraki Gulf Islands ☐**	**Waitakere ☐**
Manukau ☐	**Rodney ☐**	**North Shore ☐**	**Papakura ☐**	**Franklin ☐**

Resource consent number:	**Associated building consent:**
Expected start date of work:	**Expected duration of work:**

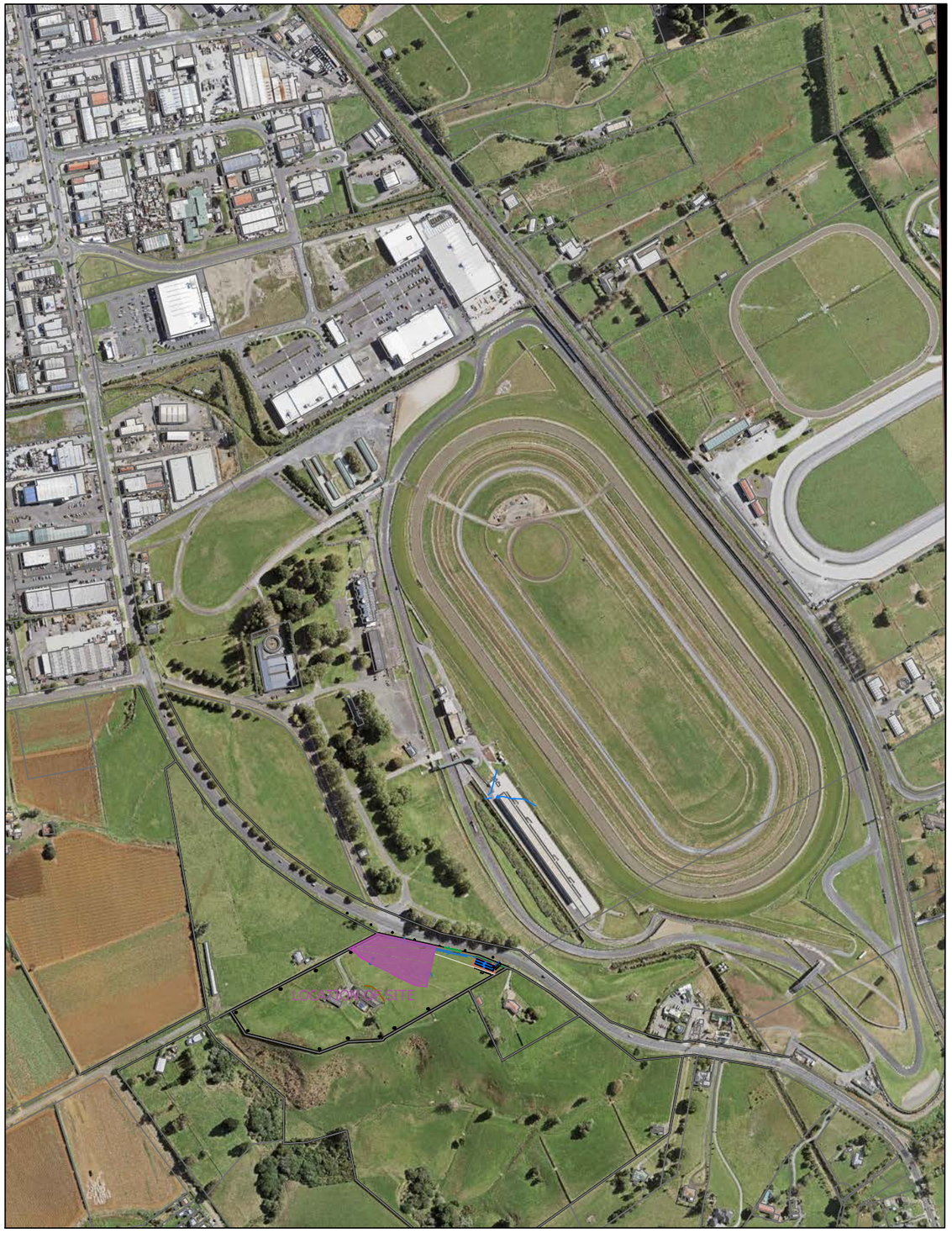
Primary contact	**Name**	**Mobile / Landline**	**Address**	**Email address**
Owner				
Project manager				
Builder				
Earthmover				
Arborist				
Other (specify)				

Signature: Owner / Project Manager (indicate which)	**Date:**

Once you have been contacted by the Monitoring Officer, all correspondence should be sent directly to them.

SAVE $$$ minimise monitoring costs!

The council will review your property for start of works every three months from the date of issue of the resource consent and charge for the time spent. You can contact your Resource Consent Monitoring Officer on 09 301 0101 or via monitoring@aucklandcouncil.govt.nz to discuss a likely timetable of works before the inspection is carried out and to avoid incurring this cost.



Auckland Council

BUN60368560

Approved Resource Consent Plan

15/04/2021

original size A3

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Quality ISO 9001

Birch surveyors
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2A Wesley Street, Pukekohe
PO Box 475,
Pukekohe 2340
Ph: 09 237 1111
Fax: 09 238 0033
pukekohe@bslnz.com
www.birchsurveyors.co.nz

LOCAL AUTHORITY	AUCKLAND COUNCIL
PLANNING MAP	-
ZONING	FUTURE URBAN
ACTIVITY	-
COMPRISED IN	NA21A/288
TOTAL AREA	3.5038ha
REGISTERED OWNERS	Pukekohe Ltd

PROJECT NAME

PUKEKOHE LTD

303 BUCKLAND ROAD
PUKEKOHE

Surveyed Pilbrow Surveyors	Date 2020	Project No. 4620			
Designed KDB	Date 08/2020	Scale Hz: 1:1000 @ A3			
Drawn KDB	Date 10/2020	REV.	BY	DATE	COMMENT
		E	KDB	10/20	Final Draft
Approved PROJECT MANAGER	Date				

TITLE

LOCATION PLAN

Drawing Name	F:\..CAD\CP 4620 E.dwg /Locality Plan	Rev.	E

NOTES

1) All works to comply with local authority Engineering Quality Standards latest edition and the details and specifications hereon.

2) Vertical datum is Auckland Vertical 1946.

3) Horizontal Datum is Geodetic Datum 2000, Mt Eden circuit coordinates.

4) Existing Underground Telecom cables, Fibre Optic Cables, Power cables, Gas pipes and Water Pipes are APPROXIMATELY only. Additional services may not be shown on the plans. Contractor to verify all existing services and their positions prior to commencing work.

5) All setout of the works is the responsibility of the contractor.

6) Hardfill backfill to be placed under all roads and driveways at the direction of the engineer.

7) Contractor is to arrange appropriate traffic permits and is responsible for maintaining traffic safety.

KEY

Lot Boundaries

Road Boundaries

Auckland Council

BUN60368560

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15/04/2021

original size A3

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LOCAL AUTHORITY	AUCKLAND COUNCIL
PLANNING MAP	-
ZONING	FUTURE URBAN
ACTIVITY	-
COMPRISED IN	NA21A/288
TOTAL AREA	3.5038ha
REGISTERED OWNERS	Pukekohe Ltd

PROJECT NAME

PUKEKOHE LTD

303 BUCKLAND ROAD
PUKEKOHE

Surveyed: Pilbrow Surveyors	Date: 2020	Project No.	4620
Designed: KDB	Date: 08/2020	Scale	Hz: 1:1000 @ A3
Drawn: KDB	Date: 10/2020		
Approved: PROJECT MANAGER	Date:		

REV.	BY	DATE	COMMENT
E	KDB	10/20	Final Draft

TITLE

EXISTING SITE PLAN

Drawing Name	F:\..CAD\CP 4620 E.dwg /EX SITE PLAN	212	Rev. E

NOTES

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N

KEY

Lot Boundaries

Road/Abuttal Boundaries

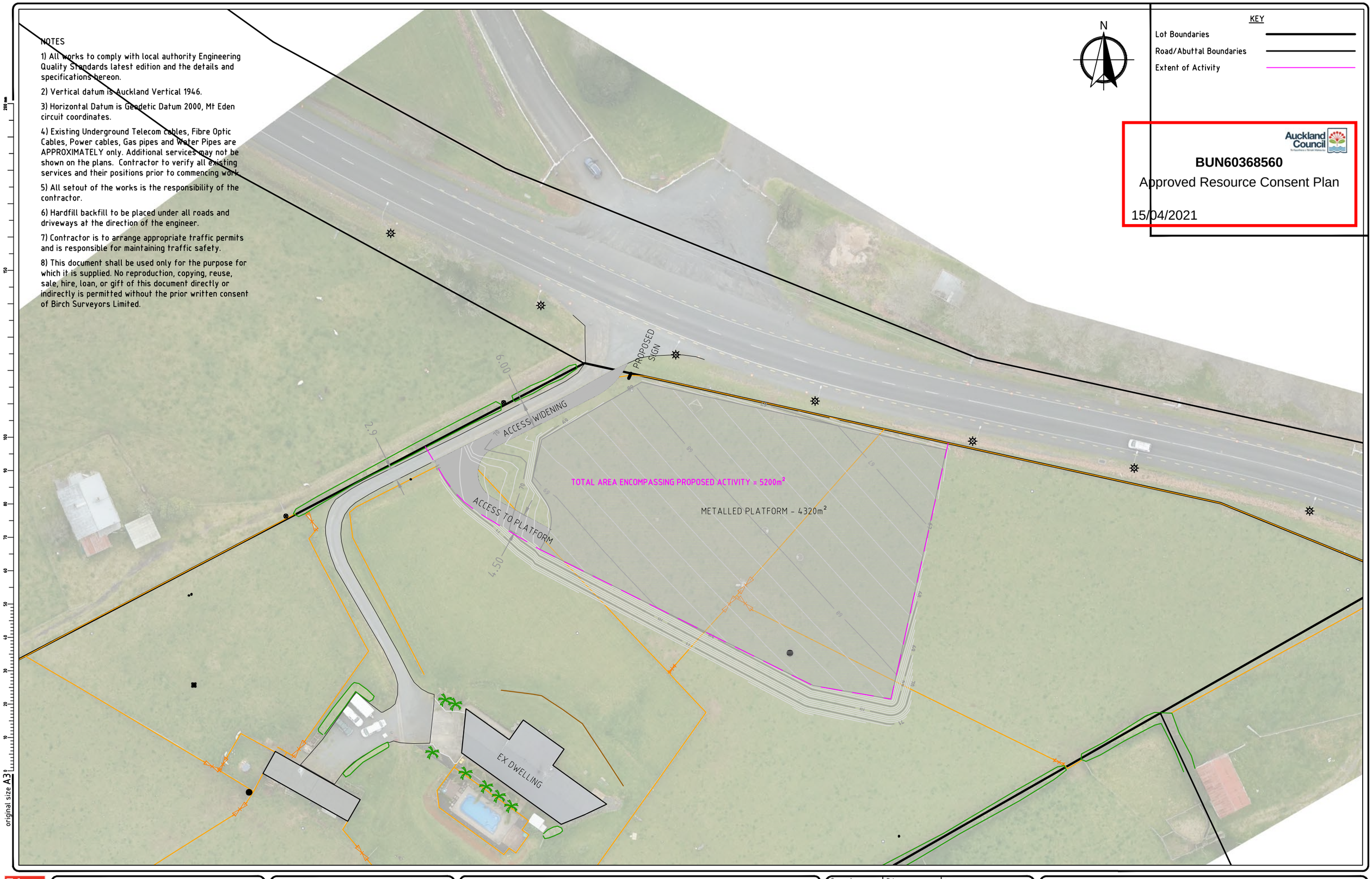
Extent of Activity

Auckland Council

BUN60368560

Approved Resource Consent Plan

15/04/2021



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LOCAL AUTHORITY	AUCKLAND COUNCIL
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ZONING	FUTURE URBAN
ACTIVITY	-
COMPRISED IN	NA21A/288
TOTAL AREA	3.5038ha
REGISTERED OWNERS	Pukekohe Ltd

PROJECT NAME

PUKEKOHE LTD

303 BUCKLAND ROAD
PUKEKOHE

Surveyed Pilbrow Surveyors	Date 2020	Project No. 4620	
Designed KDB	Date 08/2020	Scale Hz: 1:750 @ A3	
Drawn KDB	Date 10/2020	REV. D	BY KDB
Approved PROJECT MANAGER	Date	DATE 10/20	COMMENT Final Draft

TITLE

PROPOSED ACCESS AND EXTENT OF METALLED YARD

Drawing Name	F:\..CAD\CP 4620 E.dwg /PROPOSAL	213	Rev. E

NOTES

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SEDIMENT CONTROL AREAS:

SILT FENCE: 1400m² - TOPSOIL

SED POND: 8200m² - EARTHWORKS SITE

TOTAL - 9600m²

KEY

- Lot Boundaries
- Road Boundaries
- Earth Bund
- Clean Water
- Dirty Water
- Decanting
- Sediment Retention Pond
- Fabric Silt Fence

Auckland Council

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LOCAL AUTHORITY	AUCKLAND COUNCIL
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ZONING	FUTURE URBAN
ACTIVITY	-
COMPRISED IN	NA21A/288
TOTAL AREA	3.5038ha
REGISTERED OWNERS	Pukekohe Ltd

PROJECT NAME

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303 BUCKLAND ROAD
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Drawn: KDB	Date: 10/2020		
Approved: PROJECT MANAGER	Date:		

REV.	BY	DATE	COMMENT
E	KDB	10/20	Final Draft

TITLE

PLAN OF SEDIMENT CONTROL
OVERALL PLAN OF WORKS

Drawing Name	F:\..CAD\CP 4620 E.dwg /SED CNTRL OVERALL	214	Rev.	E

NOTES

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FILL AREA FOR EXCESS CLAY 1800m³

KEY

- Lot Boundaries
- Road/Abuttal Boundaries
- Earth Bund
- Clean Water
- Dirty Water
- Decanting
- Sediment Retention Pond
- Fabric Silt Fence

Auckland Council

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DEPTH KEY		
FILL	2.00 <	
	1.50 - 2.00	
	1.00 - 1.50	
	0.50 - 1.00	
	0.00 - 0.50	
	0.00	
CUT	0.00 - 0.50	
	0.50 - 1.00	
	1.00 - 1.50	
	1.50 - 2.00	
	> 2.00	

EARTHWORKS:

CUT VOLUME: 3100 m³
FILL VOLUME: 500 m³
EXCESS CLAY: 2600m³

TOPSOIL STRIP AREA: 7300m²
TOPSOIL STRIP VOLUME: 1650m³

original size A3

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REV.	BY	DATE	COMMENT
E	KDB	10/20	Final Draft

TITLE

PROPOSED EARTHWORKS

Drawing Name	F:\..CAD\CP 4620 E.dwg /EARTHWORKS	215	Rev.	E

NOTES

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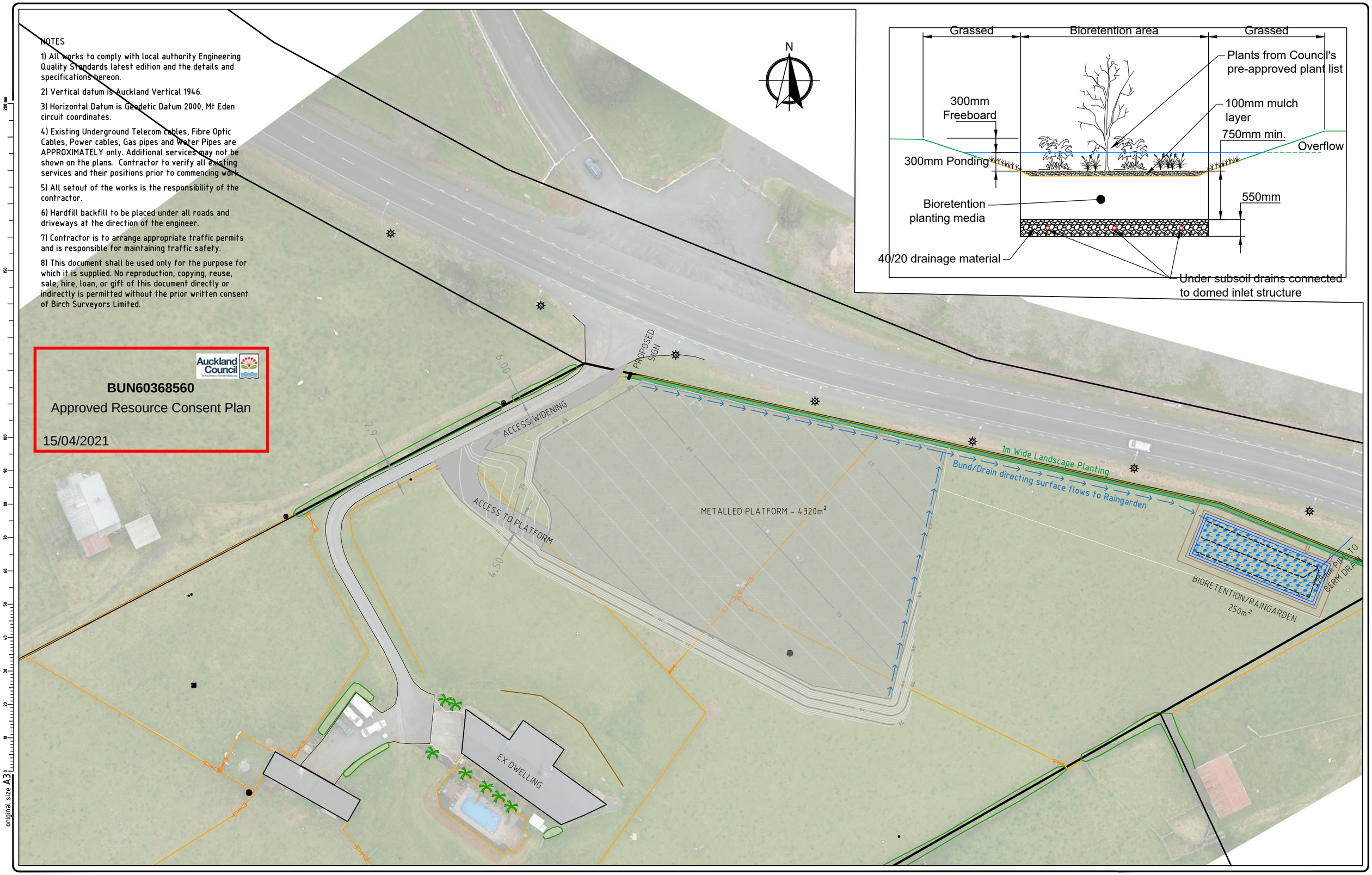

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COMPRISED IN	NA21A/288
TOTAL AREA	3.5038ha
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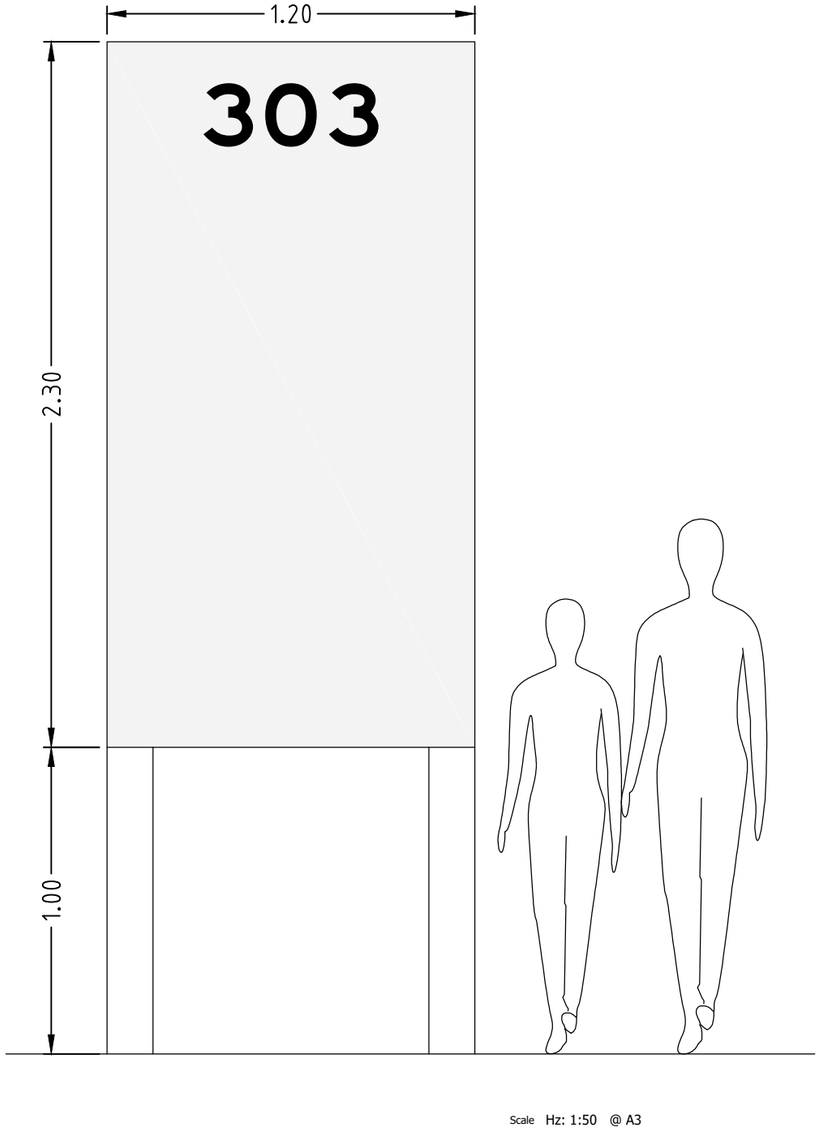
Drawn: KDB	Date: 10/2020		
Approved: PROJECT MANAGER	Date:		

REV.	BY	DATE	COMMENT
D	KDB	10/20	Final Draft

TITLE

PROPOSED STORMWATER

Drawing Name	F:\..CAD\CP 4620 E.dwg /STORMWATER	Rev.	E



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Auckland Council

BUN60368560

Approved Resource Consent Plan

15/04/2021

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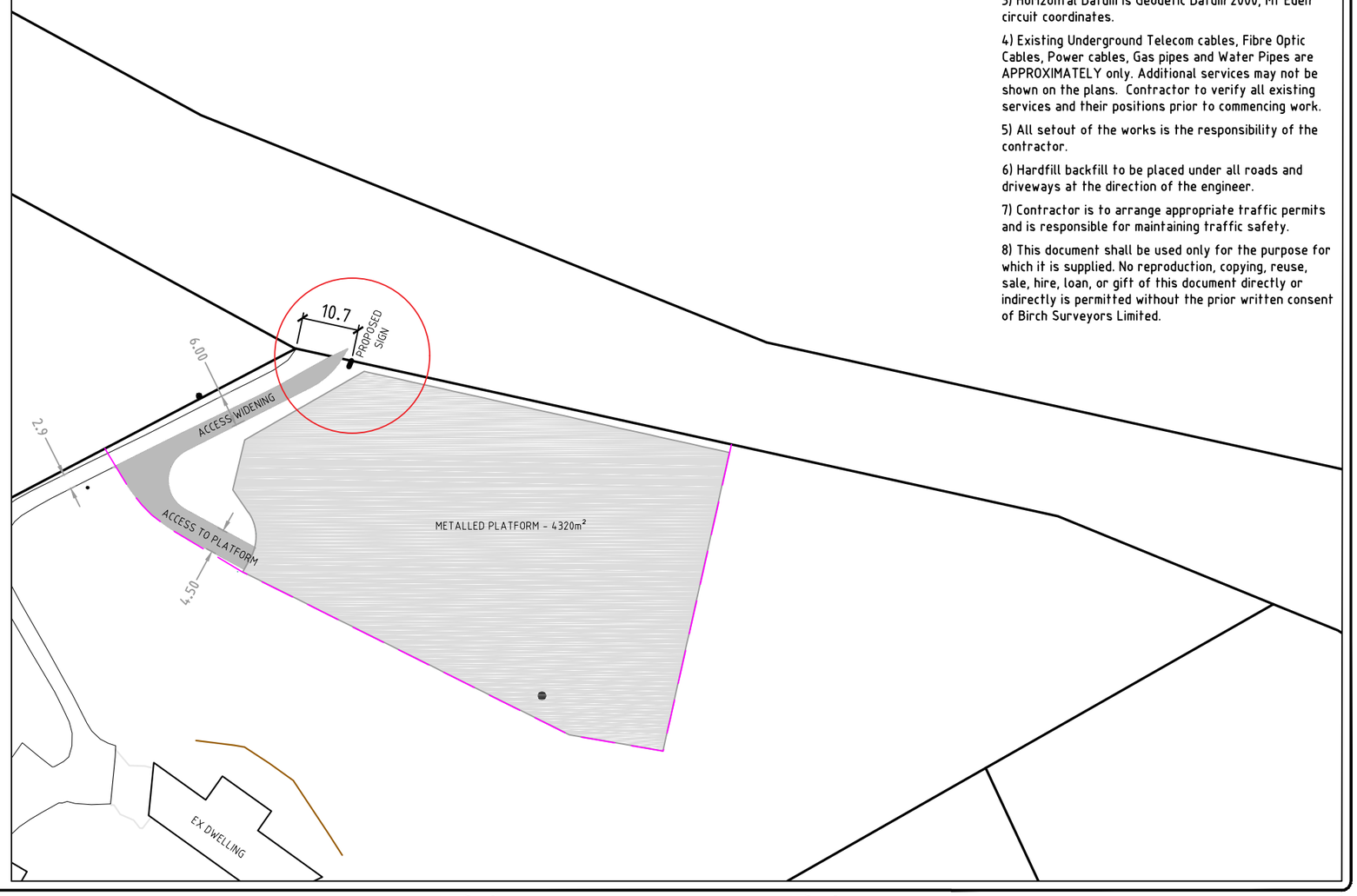

KEY

Lot Boundaries	
Road/Abuttal Boundaries	
Extent of Activity	

NOTES

1) All works to comply with local authority Engineering Quality Standards latest edition and the details and specifications hereon.

2) Vertical datum is Auckland Vertical 1946.

3) Horizontal Datum is Geodetic Datum 2000, Mt Eden circuit coordinates.

4) Existing Underground Telecom cables, Fibre Optic Cables, Power cables, Gas pipes and Water Pipes are APPROXIMATELY only. Additional services may not be shown on the plans. Contractor to verify all existing services and their positions prior to commencing work.

5) All setout of the works is the responsibility of the contractor.

6) Hardfill backfill to be placed under all roads and driveways at the direction of the engineer.

7) Contractor is to arrange appropriate traffic permits and is responsible for maintaining traffic safety.

8) This document shall be used only for the purpose for which it is supplied. No reproduction, copying, reuse, sale, hire, loan, or gift of this document directly or indirectly is permitted without the prior written consent of Birch Surveyors Limited.

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LOCAL AUTHORITY	AUCKLAND COUNCIL
PLANNING MAP	-
ZONING	FUTURE URBAN
ACTIVITY	-
COMPRISED IN	NA21A/288
TOTAL AREA	3.5038ha
REGISTERED OWNERS	Pukekohe Ltd

PROJECT NAME

PUKEKOHE LTD

303 BUCKLAND ROAD
PUKEKOHE

Surveyed: Pilbrow Surveyors	Date: 2020	Project No.	4620
Designed: KDB	Date: 08/2020	Scale	Hz: 1:1000 @ A3
Drawn: KDB	Date: 10/2020		
Approved: PROJECT MANAGER	Date:		

REV.	BY	DATE	COMMENT
D	KDB	10/20	Final Draft

TITLE

PROPOSED SIGN

Drawing Name F:\..CAD\CP 4620 E.dwg /Sign

217

Rev. E

H14. Business – General Business Zone

H14.1. Zone description

The Business – General Business Zone provides for business activities from light industrial to limited office, large format retail and trade suppliers. Large format retail is preferred in centres but it is recognised that this is not always possible, or practical. These activities are appropriate in the Business – General Business Zone only when they do not adversely affect the function, role and amenity of the Business – City Centre Zone, Business – Metropolitan Centre Zone and Business – Town Centre Zone.

Although the application of the zone within Auckland is limited, it is an important part of this Plan's strategy to provide for growth in commercial activity and manage the effects of large format retail.

The establishment of small retail activities in the zone should be limited as the presence of these activities, in combination with large format retail, can effectively create an unplanned centre. Residential activity is also not envisaged due to the potential presence of light industrial activities and the need to preserve land for appropriate commercial activities.

The zone is located primarily in areas close to the Business – City Centre Zone, Business – Metropolitan Centre Zone and Business – Town Centre Zone or within identified growth corridors, where there is good transport access and exposure to customers.

New development within the zone requires assessment in order to ensure that it is designed to a good standard.

H14.2. Objectives

General objectives for all centres, Business – Mixed Use Zone, Business – General Business Zone and Business – Business Park Zone

(1) A strong network of centres that are attractive environments and attract ongoing investment, promote commercial activity, and provide employment, housing and goods and services, all at a variety of scales.

(2) Development is of a form, scale and design quality so that centres are reinforced as focal points for the community.

(3) Development positively contributes towards planned future form and quality, creating a sense of place.

(4) Business activity is distributed in locations, and is of a scale and form, that:

(a) provides for the community's social and economic needs;

(b) improves community access to goods, services, community facilities and opportunities for social interaction; and

(c) manages adverse effects on the environment, including effects on infrastructure and residential amenity.

(5) A network of centres that provides:

(a) a framework and context to the functioning of the urban area and its transport network, recognising:

(i) the regional role and function of the city centre, metropolitan centres and town centres as commercial, cultural and social focal points for the region, sub-regions and local areas; and

(ii) local centres and neighbourhood centres in their role to provide for a range of convenience activities to support and serve as focal points for their local communities.

(b) a clear framework within which public and private investment can be prioritised and made; and

(c) a basis for regeneration and intensification initiatives.

Business – General Business Zone objectives

(6) A range of business activities outside centres are provided for, while ensuring activities within the zone do not compromise the function, role and amenity of centres.

(7) The zone is located primarily in areas close to the Business – City Centre Zone, Business – Metropolitan Centre Zone and Business – Town Centre Zone, or in other areas where appropriate.

(8) The adverse effects on amenity values and the quality of the environment at the interface with other zones are managed.

H14.3. Policies

General policies for all centres, Business – Mixed Use Zone, Business – General Business Zone and Business – Business Park Zone

(1) Reinforce the function of the city centre, metropolitan centres and town centres as the primary location for commercial activity, according to their role in the hierarchy of centres.

(2) Enable an increase in the density, diversity and quality of housing in the centre zones and Business – Mixed Use Zone while managing any reverse sensitivity effects including from the higher levels of ambient noise and reduced privacy that may result from non-residential activities.

(3) Require development to be of a quality and design that positively contributes to:

(a) planning and design outcomes identified in this Plan for the relevant zone;

(b) the visual quality and interest of streets and other public open spaces; and

(c) pedestrian amenity, movement, safety and convenience for people of all ages and abilities.

(4) Encourage universal access for all development, particularly medium to large scale development.

(5) Require large-scale development to be of a design quality that is commensurate with the prominence and visual effects of the development.

(6) Encourage buildings at the ground floor to be adaptable to a range of uses to allow activities to change over time.

(7) Require at grade parking to be located and designed in such a manner as to avoid or mitigate adverse effects on pedestrian amenity and the streetscape.

(8) Require development adjacent to residential zones and the Special Purpose – School Zone and Special Purpose – Māori Purpose Zone to maintain the amenity values of those areas, having specific regard to dominance, overlooking and shadowing.

(9) Discourage activities, which have noxious, offensive, or undesirable qualities from locating within the centres and mixed use zones, while recognising the need to retain employment opportunities.

(10) Discourage dwellings at ground floor in centre zones and enable dwellings above ground floor in centre zones.

(11) Require development to avoid, remedy or mitigate adverse wind and glare effects on public open spaces, including streets, and shading effects on open space zoned land.

(12) Recognise the functional and operational requirements of activities and development.

(13) In identified locations within the centres zones, Business – Mixed Use Zone, Business – General Business Zone and Business – Business Park Zone enable greater building height than the standard zone height, having regard to whether the greater height:

(a) is an efficient use of land;

(b) supports public transport, community infrastructure and contributes to centre vitality and vibrancy;

(c) considering the size and depth of the area, can be accommodated without significant adverse effects on adjacent residential zones; and

(d) is supported by the status of the centre in the centres hierarchy, or is adjacent to such a centre.

(14) In identified locations within the centre zones, Business – Mixed Use Zone, Business – General Business Zone and Business – Business Park Zone, reduce building height below the standard zone height, where the standard zone height would have significant adverse effects on identified special character, identified landscape features, or amenity.

Business – General Business Zone policies

(15) Locate the zone adjacent or close to the Business – City Centre Zone, Business – Metropolitan Centre Zone and Business – Town Centre Zone and within the Identified Growth Corridor Overlay and in other areas where appropriate.

(16) Enable a range of business activities, including large format retail, trade suppliers, light industry and small service activities that are either:

(a) difficult to accommodate within centres due to their scale and functional requirements;

(b) more appropriately located outside of the Business – City Centre Zone, Business – Metropolitan Centre Zone or Business – Town Centre Zone; or

(c) already established in locations where they are able to continue.

(17) Avoid commercial and retail activities of a scale and type locating within the zone that will compromise the function, role and amenity of the Business – City Centre Zone, Business – Metropolitan Centre Zone and Business – Town Centre Zone beyond those effects ordinarily associated with trade effects on trade competitors.

(18) Avoid small-scale retail activities locating within the zone except for commercial services and food and beverage activities.

(19) Enable light industrial activities to locate within the zone but discourage activities which have objectionable odour, dust or noise emissions.

(20) Manage compatibility issues of activities within and between developments through site layout and design measures.

(21) Manage adverse effects on the safe and efficient operation of the transport network.

(22) Require activities adjacent to residential zones to avoid, remedy or mitigate adverse effects on amenity values of those areas.

(23) Restrict maximum impervious area within a riparian yard in order to ensure that adverse effects on water quality, water quantity and amenity values are avoided or mitigated.

H14.4. Activity table

Table H14.4.1 Activity table specifies the activity status of land use and development activities in the Business – General Business Zone pursuant to section 9(3) of the Resource Management Act 1991.

Table H14.4.1 Activity table

Activity		Activity status
General		
(A1)	Activities not provided for	NC
Use		
Accommodation		
(A2)	Dwellings	NC
(A3)	Conversion of a building or part of a building to dwellings, residential development, visitor accommodation or boarding houses	NC
(A4)	Integrated residential development	NC
(A5)	Supported residential care	NC
(A6)	Visitor accommodation and boarding houses	NC
Commerce		
(A7)	Commercial services	P
(A8)	Commercial sexual services	D
(A9)	Conference facilities	D
(A10)	Department stores	RD
(A11)	Drive-through restaurants	P
(A12)	Entertainment facilities	P
(A13)	Cinemas	NC
(A14)	Food and beverage	P
(A15)	Food and beverage activities that form part of an integrated development, with more than 5 food and beverage activities	RD*
(A16)	Funeral directors' premises	D
(A17)	Garden centres	P
(A18)	Marine retail	P
(A19)	Motor vehicle sales	P
(A20)	Offices up to 500m² gross floor area per site	P
(A21)	Offices greater than 500m² gross floor area per site	D
(A22)	Retail up to 200m^2 gross floor area per tenancy	NC
(A23)	Retail exceeding 200m^2 per tenancy and up to 450m² gross floor area per tenancy	D
(A24)	Retail greater than 450m² gross floor area per tenancy	P
(A25)	Service stations	RD

Activity		Activity status
(A26)	Supermarkets up to 450m² gross floor area per tenancy	D
(A27)	Supermarkets greater than 450m² gross floor area per tenancy	RD
(A28)	Trade suppliers	P
Community		
(A29)	Artworks	P
(A30)	Care centres	D
(A31)	Community facilities	D
(A32)	Education facilities	D
(A33)	Emergency services	RD
(A34)	Healthcare facilities	D
(A35)	Hospitals	D
(A36)	Justice facilities	D
(A37)	Recreation facility	P
(A38)	Tertiary education facilities	D
Industry		
(A39)	Industrial activities	P
(A40)	Waste management facilities	NC
Mana Whenua		
(A41)	Marae complex	P
Development		
(A42)	New buildings	RD
(A43)	Demolition of buildings	P
(A44)	Alterations to building facades that are less than 25m^2	P
(A45)	Additions to buildings that are less than: (a) 25 per cent of the existing gross floor area of the building; or (b) 250m² whichever is the lesser	P
(A46)	Internal alterations to buildings	P
(A47)	Additions and alterations to buildings not otherwise provided for	RD

*Integrated development means a development that shares the same parking or access.

H14.5. Notification

(1) Any application for resource consent for any of the following activities must be publicly notified:

(a) H14.4.1(A2) Dwellings; and

(b) H14.4.1(A4) Integrated residential development.

(2) Any application for resource consent for an activity listed in Table H14.4.1 Activity table and which is not listed in H14.5(1) above will be subject to the normal tests for notification under the relevant sections of the Resource Management Act 1991.

(3) When deciding who is an affected person in relation to any activity for the purposes of section 95E of the Resource Management Act 1991 the Council will give specific consideration to those persons listed in Rule C1.13(4).

H14.6. Standards

All permitted and restricted discretionary activities in Table H14.4.1 Activity table must comply with the following standards.

H14.6.0 Activities within 30m of a residential zone

(1) The following activities are restricted discretionary activities where they are located within 30m of a residential zone and are listed as a permitted activity in the activity table:

(a) bars and taverns;

(b) drive-through restaurants;

(c) outdoor eating areas accessory to restaurants;

(d) entertainment facilities;

(e) child care centres; and

(f) animal breeding and boarding.

This standard only applies to those parts of the activities subject to the application that are within 30m of the residential zone.

H14.6.1. Building height

Purpose:

- manage the effects of building height;
- Manage shadowing effects of building height on public open space, excluding streets;
- manage visual dominance effects;
- enable greater height in areas identified for intensification; and
- provide for variations to the standard zone height through the Height Variation Control, to recognise the character and amenity of particular areas and provide a transition in building scale to lower density zones.

(1) Buildings must not exceed 16.5m in height, unless otherwise specified in the Height Variation Control on the planning maps.

H14.6.2. Height in relation to boundary

Purpose:

- manage the effects of building height;
- allow reasonable sunlight and daylight access to public open space excluding streets, and neighbouring zones; and
- manage visual dominance effects on neighbouring zones where lower height limits apply.

(1) Buildings must not project beyond a recession plane that begins vertically above ground level along the zone boundary. The angle of the recession plane and the height above ground level from which it is measured is specified in Table H14.6.2.1 and Figure H14.6.2.1 or Figure H14.6.2.2 below.

(2) Where the boundary forms part of an entrance strip, access site or pedestrian access-way, the standard applies from the farthest boundary of that entrance strip or access site. However, if an entrance strip, access site or pedestrian access-way is greater than 2.5m in width, the standard will be measured from a parallel line 2.5m out from the site boundary.

Table H14.6.2.1 Height in relation to boundary

Zoning of adjacent site	Angle of recession plane (identified as x in Figure H14.6.2.1 or Figure H14.6.2.2)	Height above ground level which the recession plane will be measured from (identified as y in Figure H14.6.2.1 or Figure H14.6.2.2)
Residential – Single House Zone; or Residential – Mixed Housing Suburban Zone	45º	2.5m
Residential – Mixed Housing Urban Zone	45º	3m
Residential – Terrace Housing and Apartment Buildings Zone	60º	8m
Special Purpose – Māori Purpose Zone; or Special Purpose – School Zone	45º	6m
Open Space –Conservation Zone; Open Space – Informal Recreation Zone; Open Space – Sports and Active Recreation Zone; Open Space – Civic Spaces Zone; or Open Space – Community Zone	45º	4.5m

Figure H14.6.2.1 Height in relation to boundary

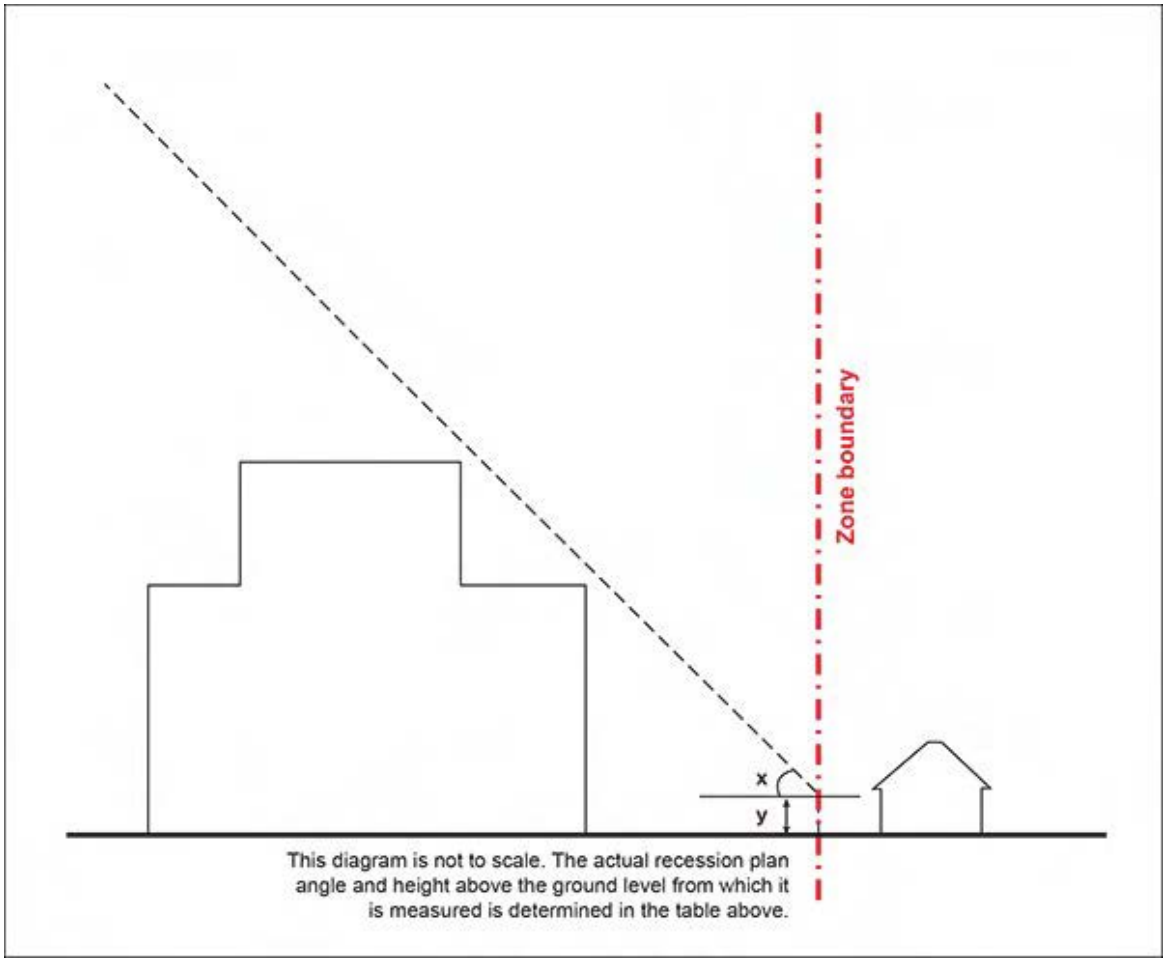
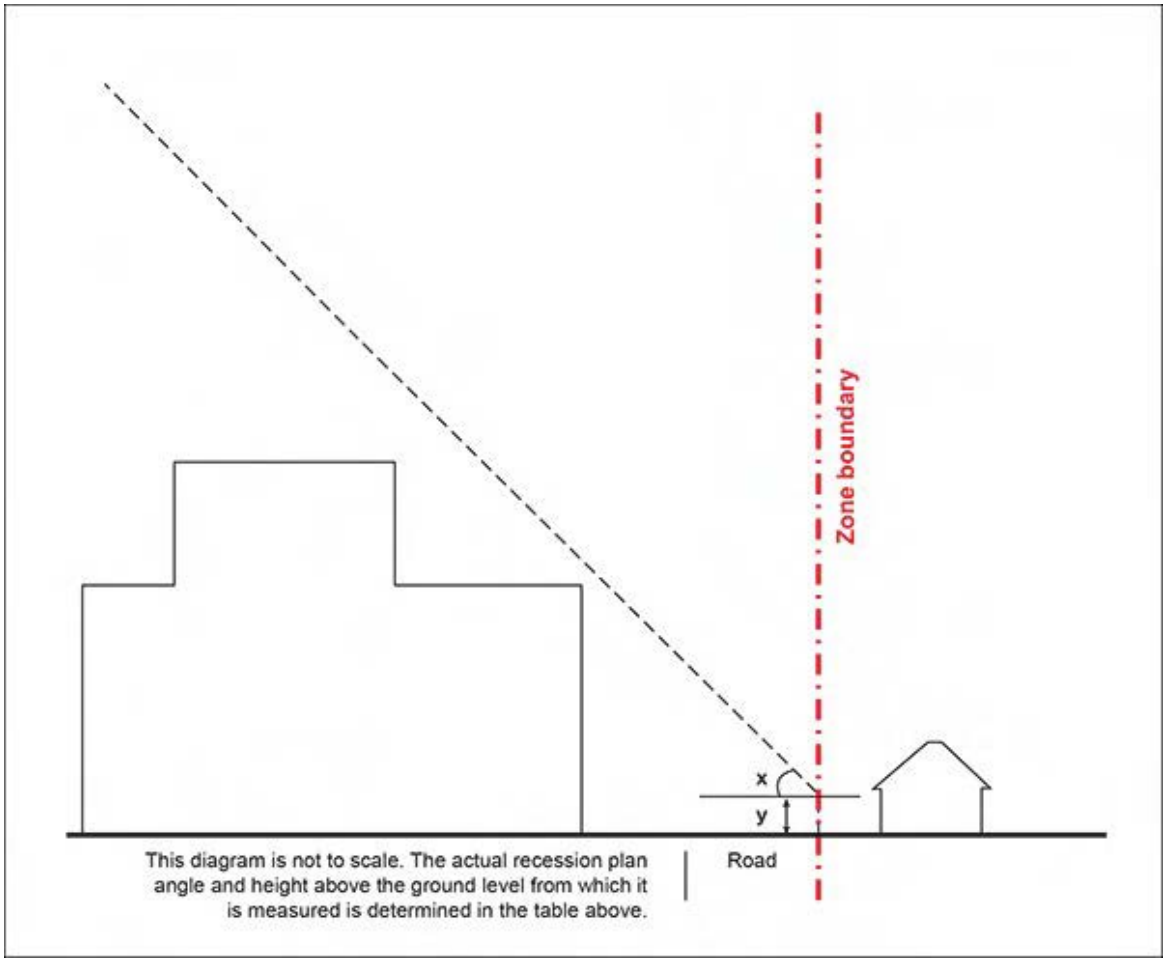


Figure H14.6.2.2 Height in relation to boundary opposite a road



H14.6.3. Yards

Purpose:

- provide a landscaped buffer between buildings and activities and adjoining residential zones and some special purpose zones, to mitigate adverse visual and nuisance effects; and
- ensure buildings are adequately setback from lakes, streams and the coastal edge to maintain water quality, amenity, provide protection from natural hazards, and potential access to the coast.

(1) A building or parts of a building must be set back from the relevant boundary by the minimum depth listed in Table H14.6.3.1 below.

Table H14.6.3.1 Yards

Yard	Minimum depth
Rear	3m where the rear boundary adjoins a residential zone or the Special Purpose – Māori Purpose Zone
Side	3m where a side boundary adjoins a Residential zone or the Special Purpose – Māori Purpose Zone

Riparian	10m from the edge of all permanent and intermittent streams
Lakeside yard	30m
Coastal protection yard	25m, or as otherwise specified in Appendix 6 Coastal protection yard

Note 3

A side or rear yard, and/or landscaping within that yard, is only required along that part of the side or rear boundary adjoining a residential zone or the Special Purpose – Māori Purpose Zone.

(2) Side and rear yards must be planted with a mixture of trees, shrubs or ground cover plants (including grass) within and along the full extent of the yard for a depth of at least 3m.

H14.6.4. Landscaping

Purpose:

- ensure landscaping provides a buffer and screening between car parking, loading, or service areas commercial activities and the street; and
- ensure landscaping is of sufficient quality as to make a positive contribution to the amenity of the street.

(1) A landscape buffer of 2m in depth must be provided along the street frontage between the street and car parking, loading, or service areas which are visible from the street frontage. This rule excludes access points.

(2) The required landscaping in Standard H14.6.4(1) above must comprise a mix of trees, shrubs or ground cover plants (including grass).

H14.6.5. Maximum impervious area in the riparian yard

Purpose: support the functioning of riparian yards and in-stream health.

(1) The maximum impervious area within a riparian yard must not exceed 10 per cent of the riparian yard area.

H14.6.6. Wind

Purpose: mitigate the adverse wind effects generated by tall buildings.

(1) A new building exceeding 25m in height and additions to existing buildings that increase the building height above 25m must not cause:

(a) the mean wind speed around it to exceed the category for the intended use of the area as set out in Table H14.6.6.1 and Figure H14.6.6.1 below;

(b) the average annual maximum peak 3-second gust to exceed the dangerous level of 25m per second; and

(c) an existing wind speed which exceeds the controls of Standard H14.6.6(1)(a) or Standard H14.6.6(1)(b) above to increase.

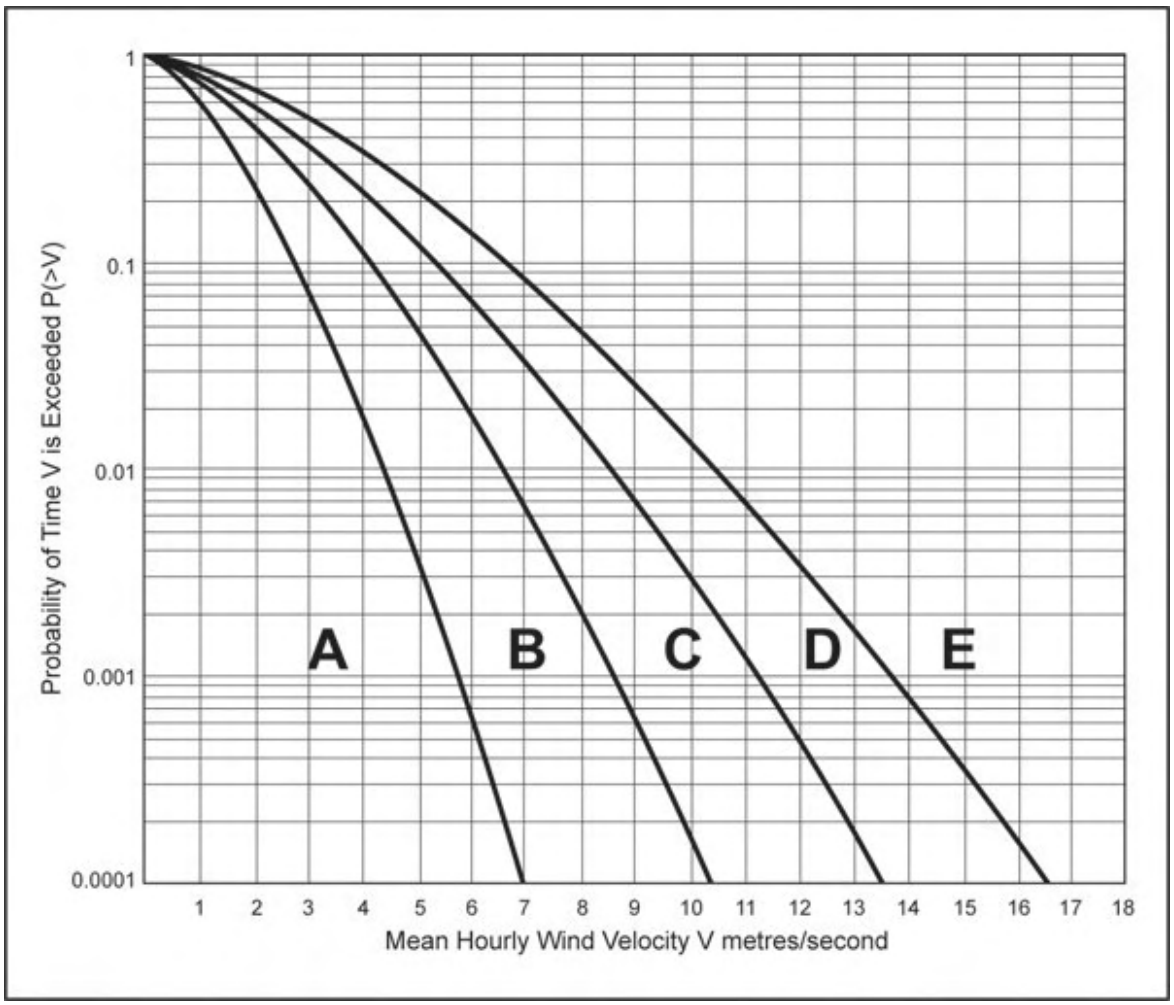
(2) A report and certification from a suitably qualified and experienced person, showing that the building complies with Standard H14.6.6(1) above, will demonstrate compliance with this standard.

(3) If the information in Standard H14.6.6(2) above is not provided, or if such information is provided but does not predict compliance with the rule, a further wind report including the results of a wind tunnel test or appropriate alternative test procedure is required to demonstrate compliance with this standard.

Table H14.6.6.1 Categories

Category		Description
(B48)	Category A	Areas of pedestrian use or adjacent dwellings containing significant formal elements and features intended to encourage longer term recreational or relaxation use i.e. public open space and adjacent outdoor living space
(B49)	Category B	Areas of pedestrian use or adjacent dwellings containing minor elements and features intended to encourage short term recreation or relaxation, including adjacent private residential properties
(B50)	Category C	Areas of formed footpath or open space pedestrian linkages, used primarily for pedestrian transit and devoid of significant or repeated recreational or relaxational features, such as footpaths not covered in categories A or B above
(B51)	Category D	Areas of road, carriage way, or vehicular routes, used primarily for vehicular transit and open storage, such as roads generally where devoid of any features or form which would include the spaces in categories A - C above
(B52)	Category E	Category E represents conditions which are dangerous to the elderly and infants and of considerable cumulative discomfort to others, including residents in adjacent sites. Category E conditions are unacceptable and are not allocated to any physically defined areas of the city

Figure H14.6.6.1 Wind environment control



Derivation of the wind environment control graph:

The curves on the graph delineating the boundaries between the acceptable categories (A-D) and unacceptable (E) categories of wind performance are described by the Weibull expression:

$P(>V) = e^{-(v/c)^k}$

where V is a selected value on the horizontal axis, and P is the corresponding value of the vertical axis:

and where:

P(>V) = Probability of a wind speed V being exceeded;

e = The Napierian base 2.7182818285

v = the velocity selected;

k = the constant 1.5; and

c = a variable dependent on the boundary being defined:

A/B, c = 1.548

B/C, c = 2.322

C/D, c = 3.017

D/E, c = 3.715

H14.7. Assessment – controlled activities

There are no controlled activities in this zone.

H14.8. Assessment – restricted discretionary activities

H14.8.1. Matters of discretion

The Council will restrict its discretion to the following matters when assessing a restricted discretionary resource consent application:

(1) activities within 30m of a residential zone, emergency services and service stations:

(a) the compatibility of:

(i) the effects of intensity and scale of the development arising from the numbers of people and/or vehicles using the site; and

(ii) the effects of the operation of the activity;

on the existing and expected future amenity values of the surrounding area and any practicable mitigation measures that would be appropriate to manage those effects;

(b) the effects of the design and location of parking areas and vehicle access and servicing arrangements on visual amenity of the streetscape and on pedestrian safety;

(c) the effects of location, design and management of storage and servicing facilities on the amenity values of nearby residential properties including potential visual effects, adequacy of access for service vehicles (including waste collection) and any night time noise effects; and

(d) the assessment of the above matters having regard to the need to provide for the functional requirements of the activity;

(2) supermarkets greater than 450m^2 gross floor area and department stores:

(a) the compatibility of the effects of intensity and scale of the development arising from the numbers of people and/or vehicles using the site, with the existing and expected future amenity values of the surrounding area and any practicable mitigation measures that would be appropriate to manage those effects;

(b) the effects of the design and location of parking areas and vehicle access and servicing arrangements on visual amenity of the streetscape and on pedestrian safety;

(c) the effects of the size, composition and characteristics of retail and office activities proposed on the existing and expected future function, role and amenity of other Centre zones having regard to the need to enable convenient access of communities to commercial and community services while disregarding any effects ordinarily associated with trade effects on trade competitors; and

(d) the assessment of the above matters having regard to the need to provide for the functional requirements of the activity;

(3) food and beverage activities that form part of an integrated development, with more than 5 food and beverage activities:

(a) any association between the scale of the proposed development and the enablement of high-intensity residential development either on the same site or in close vicinity; and

(b) the effects, including cumulative effects, of the size, composition and characteristics of retail activities proposed on the existing and expected future function, role and amenity of other centre zones having regard to the need to enable convenient access of communities to commercial and community services while disregarding effects ordinarily associated with trade effects on trade competitors;

(4) new buildings and alterations and additions to buildings not otherwise provided for:

(a) the design and appearance of buildings in so far as it affects the existing and future amenity values of public streets and spaces used by significant numbers of people. This includes:

(i) the contribution that such buildings make to the attractiveness pleasantness and enclosure of the public space;

(ii) the maintenance or enhancement of amenity for pedestrians using the public space or street;

(iii) the provision of convenient and direct access between the street and building for people of all ages and abilities;

(iv) measures adopted for limiting the adverse visual effects of any blank walls along the frontage of the public space; and

(v) the effectiveness of screening of car parking and service areas from the view of people using the public space.

(b) the provision of floor to floor heights that will provide the flexibility of the space to be adaptable to a wide variety of use over time;

(c) the extent of glazing provided on walls fronting public streets and public spaces and the benefits it provides in terms of:

(i) the attractiveness and pleasantness of the public space and the amenity for people using or passing through that space;

(ii) the degree of visibility that it provides between the public space and the building interior; and

(iii) the opportunities for passive surveillance of the street from the ground floor of buildings.

(d) the provision of verandahs to provide weather protection in areas used, or likely to be used, by significant numbers of pedestrians;

(e) the application of Crime Prevention through Environmental Design principles to the design and layout of buildings adjoining public spaces;

(f) the effects of creation of new roads and/or service lanes on the matters listed above;

(g) the positive effects that landscaping, including required landscaping, on sites adjoining public spaces is able to contribute to the amenity values of the people using or passing through the public space;

(h) taking an integrated stormwater management approach; and

(i) all the above matters to be assessed having regard to the outcomes set out in this Plan and the functional requirements of the activities that the buildings are intended to accommodate;

(5) in addition to the matters for new buildings stated above the Council will restrict its discretion to the following matter in regard to:

- supermarkets, department stores and large format retail where the activity or integrated retail development exceeds 1000m^2 gross floor area per tenancy; or
- trade suppliers where the activity or integrated retail development exceeds 1000m^2 gross floor area per tenancy:

(a) the manner in which these building/developments are integrated with the adjacent existing and planned future centre and zone activities and public spaces and provide for the continuity of active public frontages and associated pedestrian amenity that is appropriate to those centres and zones having regard to the outcomes set out in this Plan and the functional requirements of the activities that the buildings are intended to accommodate. This will include the effects of the design and location of parking areas, vehicle access and servicing arrangements on the visual amenity of the streetscape and on pedestrian safety;

(6) in addition to the matters for new buildings stated above the Council will restrict its discretion to the following matter in regard to:

- drive through restaurants; or
- service stations:

(a) the effects of the location and design of:

(i) buildings and associated equipment, parking and service areas;

(ii) access for vehicles including service vehicles; and

(iii) landscaping;

on the amenity of surrounding areas (particularly residential areas), on streetscapes and on pedestrian amenity and any methods by which those effects can be appropriately managed;

(7) buildings that do not comply with the standards:

(a) any policy which is relevant to the standard;

(b) the purpose of the standard;

(c) the effects of the infringement of the standard;

(d) the effects on the amenity of neighbouring sites;

(e) the effects of any special or unusual characteristic of the site which is relevant to the standard;

(f) the characteristics of the development;

(g) any other matters specifically listed for the standard; and

(h) where more than one standard will be infringed, the effects of all infringements.

H14.8.2. Assessment criteria

The Council will consider the relevant assessment criteria below for restricted discretionary activities:

(1) activities within 30m of a residential zone, emergency services and service stations:

(a) for Matter H14.8.1(1)(a)(i) refer to Policy H14.3(3)(a), Policy H14.3(3)(b), Policy H14.3(3)(c), Policy H14.3(8) and Policy H14.3(22);

(b) for Matter H14.8.1(1)(a)(ii) refer to Policy H14.3(3)(a), Policy H14.3(3)(b), Policy H14.3(3)(c), Policy H14.3(8) and Policy H14.3(22);

(c) for Matter H14.8.1(1)(b) refer to Policy H14.3(3)(c) and Policy H14.3(7);

(d) for Matter H14.8.1(1)(c) refer to Policy H14.3(22); and

(e) for Matter H14.8.1(1)(d) refer to Policy H14.3(12);

(2) supermarkets greater than 450m^2 gross floor area and department stores:

(a) for Matter H14.8.1(2)(a) refer to Policy H14.3(3)(a), Policy H14.3(3)(b), Policy H14.3(3)(c), Policy H14.3(8) and Policy H14.3(20);

(b) for Matter H14.8.1(2)(b) refer to Policy H14.3(7);

(c) for Matter H14.8.1(2)(c) refer to Policy H14.3(1) and H14.3(17); and

(d) for Matter H14.8.1(2)(d) refer to Policy H14.3(12);

(3) food and beverage activities that form part of an integrated development, with more than 5 food and beverage activities:

(a) for Matter H14.8.1(3)(a) refer to Policy H14.3(2); and

(b) for Matter H14.8.1(3)(a) refer to Policy H14.3(1) and Policy H14.3(17);

(4) new buildings and alterations and additions to buildings not otherwise provided for:

(a) for Matter H14.8.1(4)(a)(i) refer to Policy H14.3(3)(a) and Policy H14.3(3)(b);

(b) for Matter H14.8.1(4)(a)(ii) refer to Policy H14.3(3)(c);

(c) for Matter H14.8.1(4)(a)(iii) refer to Policy H14.3(4);

(d) for Matter H14.8.1(4)(a)(iv) refer to Policy H14.3(3)(a);

(e) for Matter H14.8.1(4)(a)(v) refer to Policy H14.3(7);

(f) for Matter H14.8.1(4)(b) refer to Policy H14.3(6);

(g) for Matter H14.8.1(4)(c)(i) refer to Policy H14.3(3)(a) and Policy H14.3(3)(b);

(h) for Matter H14.8.1(4)(c)(ii) refer to Policy H14.3(3)(a) and Policy H14.3(3)(b);

(i) for Matter H14.8.1(4)(c)(iii) refer to Policy H14.3(3)(a) and Policy H14.3(3)(b);

(j) for Matter H14.8.1(4)(d) refer to Policy H14.3(3)(c);

(k) for Matter H14.8.1(4)(e) refer to Policy H14.3(3)(c);

(l) for Matter H14.8.1(4)(f) refer to Policy H14.3(3)(b);

(m) for Matter H14.8.1(4)(g) refer to H14.3(3)(c);

(n) for Matter H14.8.1(4)(h) refer to E1.3(10)

(o) for Matter H14.8.1(4)(i) refer to Policy H14.3(3)(12);

(5) in addition to the policies for new buildings stated above the Council will have regard to the following policies when considering new buildings for the following purposes:

- supermarkets, department stores and large format retail where the activity or integrated retail development exceeds 1000m^2 gross floor area per tenancy; or
- trade suppliers where the activity or integrated retail development exceeds 1000m^2 gross floor area per tenancy:

(a) refer to Policy H14.3(1), Policy H14.3(5), Policy H14.3(17), Policy H14.3(16) and Policy H14.3(20);

(6) in addition to the policies for new buildings stated above the Council will have regard to the following policies when considering new buildings for the following purposes:

- drive through restaurants; or
- service stations:

(a) refer to Policy H14.3(3)(a), Policy H14.3(3)(b), Policy H14.3(3)(c), Policy H14.3(7), Policy H14.3(8), Policy H14.3(12), Policy H14.3(16) and Policy H14.3(20);

(7) buildings that do not comply with the standards:

(a) height and height in relation to boundary:

(i) refer to Policy H14.3(3)(a), Policy H14.3(3)(b) and Policy H14.3(8);

(b) yards and landscaping:

(i) refer to Policy H14.3(3)(b), Policy H14.3(3)(c), Policy H14.3(7) and Policy H14.3(8);

(c) wind:

(i) refer to Policy H14.3(11)

(d) maximum impervious area in a riparian yard:

(i) refer to Policy H14.3(23).

H14.9. Special information requirements

There are no special information requirements in this zone.

INITIA

GEOTECHNICAL SPECIALISTS

JASON WOODYARD AND STEPHEN SMITH

301 & 303 BUCKLAND RD

GEOTECHNICAL REPORT – FOR LAND USE CHANGE

INITIA REF P-000925-1 REV 0

SEPTEMBER 2021

Contents

1. Introduction

1.1 General

This Geotechnical Interpretative Report (GIR) has been prepared to provide geotechnical advice and recommendations to support the change in land use of 301 & 303 Buckland Road, Pukekohe. This report identifies any geohazards present at the site.

It is understood that the site is proposed to be re-zoned from Future Urban Zone to Business – General Business Zone (BGBZ). This geotechnical report is intended to support the Private Plan Change Request (PPR). It provides a preliminary assessment of the ground conditions and the key geotechnical considerations that could affect likely future development based on the rezoning and anticipated development types. Further investigation and analyses will be required to support detailed design of future buildings and infrastructure on the site.

1.2 Site Description

The proposed PPR is for two neighbouring properties, located at No. 301 and 303 Buckland Rd, Buckland. The site is presented in Figure 1-1 below and on Figure 925-1-001 in Appendix A. Both sites are currently used as pastoral land and have an approximate combined area of 7.86 HA. Each property has single storey dwellings with associated sheds and garages. Topography at the site slopes gently to moderately (~5-10°) toward the northeast from up to RL 86m at the western and southern boundaries down to RL 62m along Buckland Road in the east. There is a small gully situated near the centre of 301 Buckland Road. At the back of 303 Buckland Road, to the south, the topography drops away steeply.

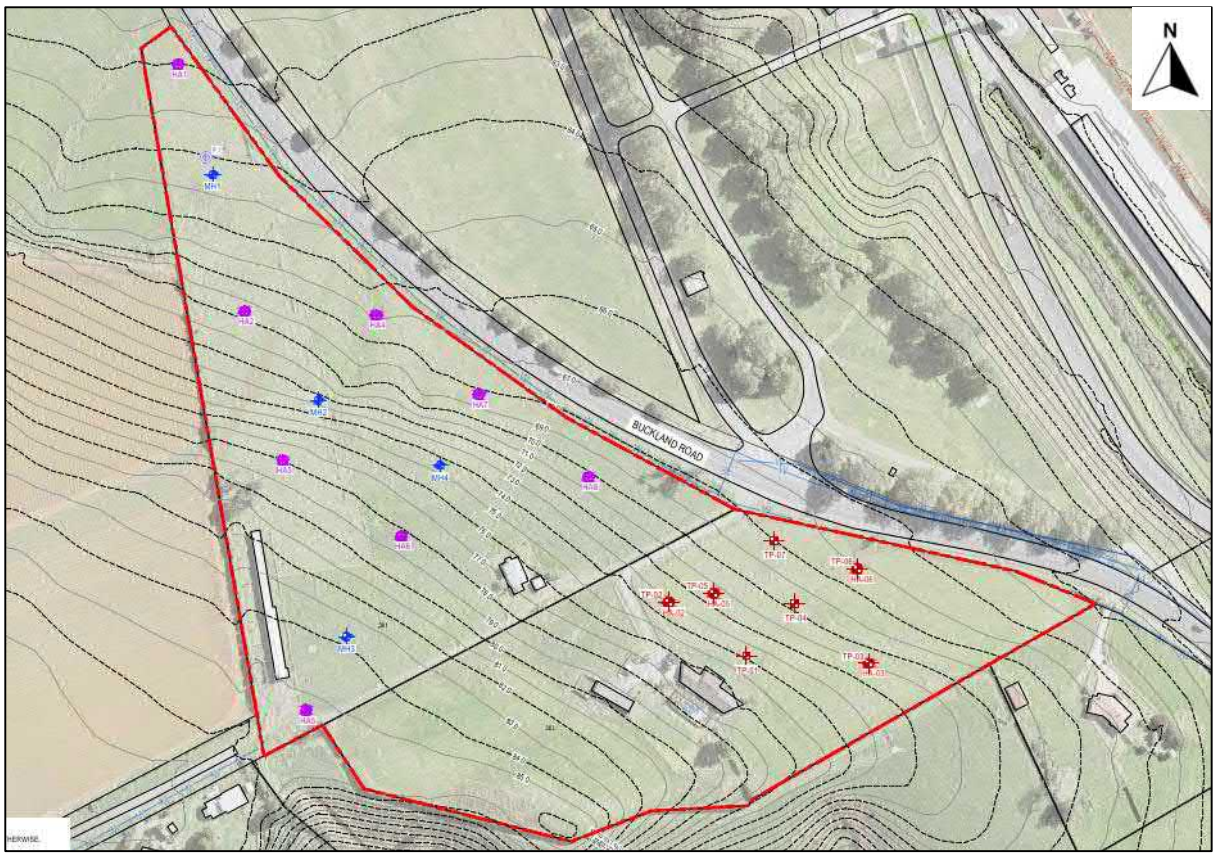


Figure 1-1: 301 – 303 Buckland Road, Pukekohe.

1.3 Proposed Development

We have not been provided any details of any future proposed development plans at the site, however we expect any new development will comprise light industrial and/or commercial buildings, similar to those located ~200m north on Manakau Road.

2. Published Geology

Based on a preliminary review of the published geological maps (see below) for the area, historical geotechnical investigation data from the New Zealand Geotechnical Database (NZGD), the sites are underlain by fine grained and coarse grained basalt and basanite rock associated with the Kerikeri Volcanic Group of the South Auckland Volcanic Field (SAVF) (Red in Figure 2-1 below). Based on the investigation data available for the sites and our knowledge of the local geology, the rock is overlain by a thick mantle of weathered ash / tuff and gravelly soils also from the AVF (light pink). Holocene river deposits (off white) are located directly north-east of the site.

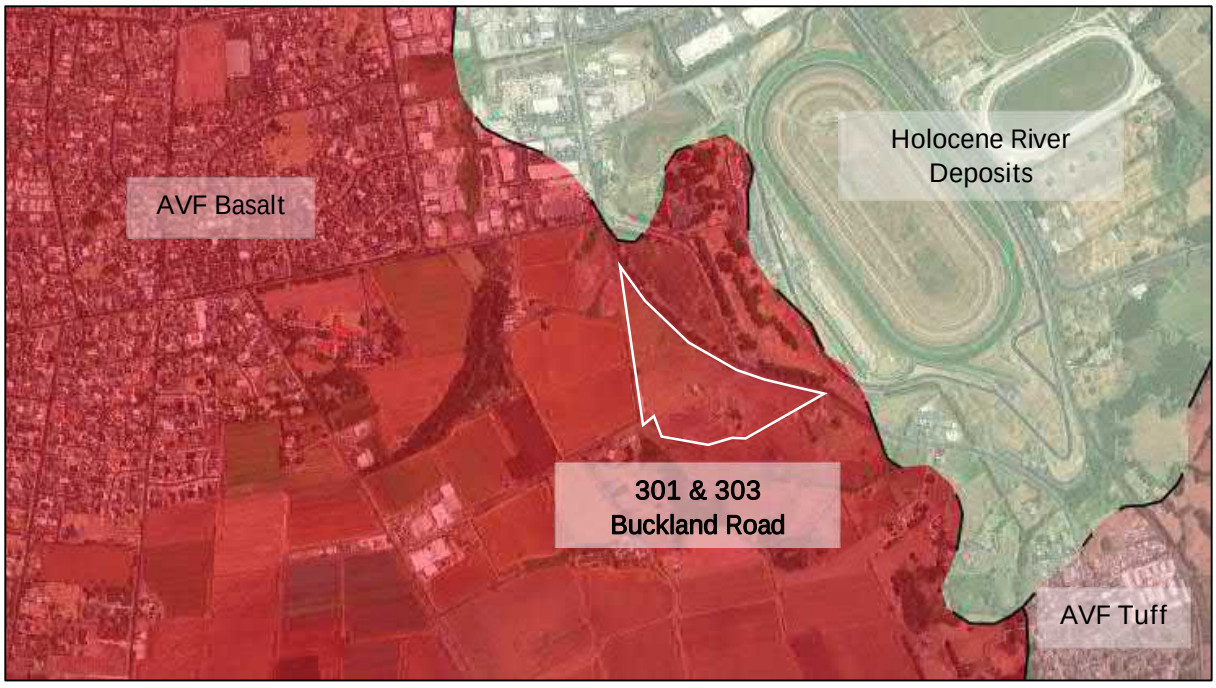


Figure 2-1: Geology of the Buckland area[1]

[1] GNS Science. New Zealand Geology Web Map. 1:250K. https://data.gns.cri.nz/geology/

3. Geotechnical Investigations

3.1 Historical Investigations

A historical investigation has been carried out at each of the properties and referenced as part of this report. The first by Lander Geotechnical at 301 Buckland Road in January 2018 comprising:

- 9 Hand Auger Boreholes (HA) to depths up to 5.0m;
- 4 Machine Boreholes (MH) to a depth of 10.5m; and
- 1 Falling Head Percolation Test to 2.5m.

The results of this investigation are outlined in the Lander Geotechnical Investigation Report dated 23 July 2018[2].

Subsequently, an investigation was carried out by Initia at 303 Buckland Road on 16 and 23 October 2020. The investigation consisted of 7 No. Test Pits and 4 No. Hand Auger Boreholes to depths of between 2 m to 5 m. The results of this investigation are outlined in the Initia Geotechnical Assessment dated December 2020[3].

A summary of the investigations is presented in Table 3-1 and Table 3-2 below. All investigation locations are presented on Figure 925-1-001 in Appendix A, and investigation logs are presented in Appendix B and Appendix C.

Table 3-1 - Summary of Lander Investigations

Investigation ID	Investigation Type	Coordinates (NZTM)[1]		Ground Surface Elevation[2] (m RL)	Termination Depth (m BGL)
		Easting (mE)	Northing (mN)		
HA01	Hand Auger Borehole	1769638	5879390	62.0	5.0
HA02	Hand Auger Borehole	1769669	5879265	69.8	5.0
HA03	Hand Auger Borehole	1769687	5879189	78.0	5.0
HA04	Hand Auger Borehole	1769736	5879261	67.0	0.5
HA05	Hand Auger Borehole	1769697	5879061	85.3	5.0
HA06	Hand Auger Borehole	1769747	5879149	78.2	5.0
HA07	Hand Auger Borehole	1769788	5879220	68.3	5.0
HA08	Hand Auger Borehole	1769843	5879177	70.3	5.0
P1	Falling Head Percolation Test	1769651	5879343	64.1	2.5
MH01	Machine Borehole	1769654	5879334	64.5	10.5
MH02	Machine Borehole	1769706	5879218	72.5	10.5
MH03	Machine Borehole	1769718	5879099	83.7	10.5
MH04	Machine Borehole	1769767	5879185	74.5	10.5

Note 1: Co-ordinate system – NZTM 2000. Test location coordinates are determined via hand-held GPS Survey, accuracy +/- 0.5m).
Note 2: Datum – AUCKHT 1946. Ground surface elevations are based on interpretation from Auckland Council Contours and are expected to be accurate + or – 0.5m.

[2] Lander Geotechnical. Geotechnical Investigation Report. 301 Buckland Road, Pukekohe. Ref: J00858. Dated 23 July 2018.
[3] Initia. Geotechnical Assessment. Proposed Industrial Yard Development – 303 Buckland Road, Pukekohe. Ref: P-000925 Rev 2. Dated December 2020.

Table 3-2 - Summary of Initia Investigations

Investigation ID	Investigation Type	Coordinates (NZTM)[1]		Ground Surface Elevation[2] (m RL)	Termination Depth (m BGL)
		Easting (mE)	Northing (mN)		
TP-01	Test Pit	1769921	5879085	74.0	2.6
TP-02	Test Pit	1769882	5879113	73.0	2.0
TP-03	Test Pit	1769983	5879080	71.0	5.0
TP-04	Test Pit	1769946	5879111	69.5	5.0
TP-05	Test Pit	1769905	5879117	71.5	5.0
TP-06	Test Pit	1769978	5879128	67.0	2.0
TP-07	Test Pit	1769936	5879143	68.0	2.0
HA-02	Hand Auger Borehole	1769882	5879113	73.0	4.0
HA-03	Hand Auger Borehole	1769983	5879080	71.0	5.0
HA-05	Hand Auger Borehole	1769905	5879117	71.5	5.0
HA-06	Hand Auger Borehole	1769978	5879128	67.0	4.0

Note 1: Co-ordinate system – NZTM 2000. Test location coordinates are determined via hand-held GPS Survey, accuracy +/- 0.5m).
Note 2: Datum – AUCKHT 1946. Ground surface elevations are based on interpretation from Auckland Council Contours and are expected to be accurate + or – 0.5m.

3.2 Laboratory Testing

The Lander investigation carried out laboratory testing on two samples taken from HA01 and HA05. Initia testing comprised bulk soil samples taken from TP-03, TP-04 and TP-05.

Table 3-3 and Table 3-4 below summarises the results from the laboratory testing undertaken at the site, test results are attached in Appendix D and Appendix E.

Table 3-3: Lander Geotechnical Laboratory Testing Summary

Sample Location	Depth interval (mBGL)	Liquid Limit	Plastic limit	Linear Shrinkage	Liquidity Index	Plasticity Index	Moisture Content (%)
HA01	1.5 – 2.0	104	74	21	0.2	30	79.1
HA05	1.5 – 2.1	114	80	24	-0.2	34	72.2

Table 3-4: Initia Laboratory Testing Summary

Sample Location	Depth interval (mBGL)	Allophane Content	Max Dry Density (t/m3)	Natural water content (%)	Optimum water content (%)	Liquid Limit	Plastic limit	Plasticity Index
TP-05	0.0 – 0.5	<5%		44.9				
TP-05	1.0 – 1.5	<5%	0.99	64.5	60.0			
TP-03	3.0 – 4.0		1.16	65.3	45.0			
TP-04	3.5 - 4.5			84.1		111	82	29
TP-05	3.5 – 4.5			79.9		93	70	23

4. Subsurface Conditions

4.1 General

The interpreted geotechnical model for the site is outlined below. The geotechnical investigations undertaken, and our understanding of the site geology, forms the basis of the recommendations and opinions presented within this report. The nature and continuity of the subsoils away from the investigation locations are inferred and it must be appreciated that the actual conditions may vary from the assumed model.

4.2 Soil Units

Based on a review of available geotechnical information the underlying geological conditions generally comprise:

- Topsoil;
- Non engineered fill;
- South Auckland Volcanic Field Ash

A summary of the geotechnical units identified beneath the site is presented in Table 4-1 below.

4.2.1 Topsoil

Topsoil was encountered at all investigation locations, with a thickness between 100 mm and 500 mm

4.2.2 Fill

Localised areas of fill were encountered at the 301 Buckland Road property in HA05, HA06, HA07 and P1 during the Lander investigation. The fill was typically a brown and orange/brown clayey silt, very stiff and moist, with a low plasticity. The fill was typically between 100mm and 600mm thick.

The fill is likely reworked ground from historical horticultural activities at the site.

4.2.3 South Auckland Volcanic Field

Weathered ash deposits from the South Auckland Volcanic Field were encountered in all the investigations. This typically comprised an orange/brown, yellow/brown or red/brown clayey silt, with low to high plasticity. Shear strengths ranged between 80 and 205+ kPa indicating stiff to hard soil, and SPT 'N' values were typically around 5 but ranged between 1 and 19.

Localised areas of firm and sensitive soils were encountered, typically between 4.5m and 9.0m within the machine boreholes. These shear strength readings and sensitivity observations may have been affected by drilling processes, therefore may be conservative.

Lab testing of the upper soils (TP-05, 0.0 – 1.5 m bgl) resulted in an allophane contents of less than 5%, however, testing of the deeper soils (TP-04 & TP-05, 3.5 – 4.5 m bgl) gave high liquid and plastic limits, indicating the potential for high allophane content.

Table 4-1: Summary of Geological Units.

Geological Unit	Soil Type	Depth to Top of Unit (m, BEGL)	Typical Layer Thickness (m)	In Situ Test Strength Parameters range [typical value]	
				Undrained Shear Strength, Su (kPa);	SPT – N Values [Blows/300]
Topsoil	SILT, dark brown, firm, non-plastic, moist.	0.0	0.1 -0.5	N/A	-
Fill	Clayey SILT, brown mottled orange/brown. Very stiff, moist, low plasticity.	0.1	0.1 – 0.5	120	-
South Auckland Volcanic Field (Ash)	Clayey SILT, orange/brown, yellow/brown & red/brown, stiff to hard, low to high plasticity, moist.	0.2 - 0.6	2.3 – 4.9+	97-205+ [130]	1 – 19 [5]

4.3 Groundwater

Standing groundwater levels of between 2.5m and 4.2m were recorded in the hand auger boreholes during the Lander fieldwork at 301 Buckland Road. Water levels were recorded in the machine drilled boreholes eight days following the completion of the drilling programme The following table summarises the results.

Groundwater observed is likely to be perched and is unlikely to affect any construction activities.

BH No.	Date	Depth (BEGL)
MH01	1/2/18	3.65
MH02	1/2/18	3.0
MH03	1/2/18	4.73
MH04	1/2/18	Standpipe damaged
HA01	22/1/18	3.7
HA02	22/1/18	4.2
HA03	22/1/18	4.1
HA04	22/1/18	Groundwater not encountered
HA05	22/1/18	Groundwater not encountered
HA06	22/1/18	Groundwater not encountered
HA07	22/1/18	2.5
HA08	22/1/18	Groundwater not encountered

Groundwater was not encountered during the Initia investigation at 303 Buckland Road, which extended to depths of up to 5.0 m below existing ground level. We expect groundwater levels to vary seasonally with rainfall.

5. Geotechnical Considerations

The following geotechnical considerations are considered pertinent to the proposed re-zoning of the land and any subsequent development plans at the site. The geotechnical assessment below is a high level assessment of identified potential geotechnical constraints to the suitability of a land use change at the site from Future Urban to Business – General Business Zone (BGBZ), with the anticipated development types as discussed in Section 1.3 above. As mentioned earlier in this report, additional ground investigations and analysis will be required to support the detailed design and consenting stages of any future development at the site. The nature and continuity of the subsoils away from the site investigation locations is inferred bit it must be appreciated that actual conditions could vary from the assumed model.

The below principal Geotechnical considerations for the site are addressed in more detail in the below Section:

- Site seismicity/site subsoil class;
- Slope stability;
- Long term static settlement;
- Soil expansivity (shrink/swell);
- Foundation types for likely buildings; and
- Earthworks

5.1 Site Seismicity and Site Subsoil Class

5.1.1 Site Subsoil Class

The depth to engineering rock was not confirmed during the investigations carried out at the site, nor is there any deep geotechnical information available to confirm rock on any neighbouring sites.

In absence of a detailed site-specific seismic study, the site subsoil class has been assessed in accordance with NZS 1770.5:2004, Clause 3.1.3. The consistency of the soils beneath the site comprises stiff to hard cohesive South Auckland Volcanic Field volcanic ash. Based on boreholes approximately 800m away sourced from the New Zealand Geotechnical Database, the site is expected to be underlain by soils to at least 60m depth. On this basis, the site has been assessed as having a **site subsoil class of D – Deep soil**.

5.1.2 Design Seismic Parameters

Design peak ground acceleration and associated magnitude M_w for serviceability (SLS) and ultimate limit state (ULS) seismic design have been estimated in accordance with the MBIE Geotechnical guidelines and NZTA Bridge Manual, 3rd Edition, 3rd Amendment, using the following design assumptions:

- Design life of 50 years
- Importance Level IL2 (normal structures and structures not in other importance levels)
- Site Subsoil Class D –Deep Soil
- Annual probability of exceedance for ULS of 1 in 500 years
- Annual probability of exceedance for SLS of 1 in 25 years.

The derived design earthquake parameters to be adopted for geotechnical design and liquefaction assessment are presented in Table 5-1.

Table 5-1: Summary of design peak ground acceleration (PGA) and associated magnitude M_w

Design Seismic Parameters	Serviceability Limit State	Ultimate Limit State
$C_{0,1000}$	0.22	
Return Period Factor	0.25	1.0
Peak ground acceleration (PGA)	0.04	0.19 (1)
Effective Earthquake Magnitude M_w	5.9	6.5 (1)

Note 1: As a lower bound, the ultimate limit state effects to be designed for shall not be taken to be less than those due to a 6.5 magnitude earthquake at 20 km distance, for which a PGA coefficient of 0.19 g is derived in accordance with Bridge Manual, Table 6.3 minimum design requirements.

5.1.3 Liquefaction susceptibility

The soils underlying the site are fine grained and cohesive, comprising stiff to hard volcanic soils, and are therefore considered to have a negligible risk of liquefaction during both serviceability limit state (SLS) and ultimate limit state (ULS) seismic events. No specific design or detailing is required to address liquefaction effects.

5.2 Slope stability

Topography at the site slopes gently to moderately toward the northeast from RL 86.0m down to RL 62.0m along Buckland Road. A review of historic aerial photographs did not identify signs of deep-seated, global instability at the sites. No obvious signs of instability were noted as part of a site walkover of 303 Buckland Road by Initia in 2020. Similarly, Lander reported no obvious signs of instability at 301 Buckland Road on site during the time of their investigation in 2018. Given the gentle slopes, subsurface ground conditions and geomorphology of the site, instability of natural slopes is not considered to be a significant constraint for future development across the site generally. It is noted however, that, as discussed in Section 1.2 above, the neighbouring site to the south slopes relatively steeply down from the site boundary. These slopes appear to have some signs of instability based on a review of aerial photography. Accordingly for development immediately adjacent to the southern boundary a specific assessment of the stability of these slopes may be required, however it is not generally expected to constrain development on the subject site.

Notwithstanding, once development plans have been formalised, slope stability analyses may be required to support building consent applications where earthworks are proposed to form accessways and building platforms. Analyses will need to demonstrate that generally accepted factors of safety (e.g. those stipulated in Auckland Council Code of Practice for Land development and subdivision) can be achieved.

Given the strengths of the subsoils it is expected that required factors of safety could be demonstrated through the use of appropriate batter angles (likely to be in the order of 1 V : 2.5 H) and/or specifically designed retention or stabilisation measures.

5.3 Long term consolidation settlement

Based on the nature and strengths of the subsoils beneath the site, consolidation settlement is unlikely to constrain development on this site.

Further specific site investigation and analyses should be carried out to support building consent applications once loadings due to fill placement and/or building surcharges are known. Mitigation measures if required, could comprise:

- Specifically detailed foundations;
- Preload; or
- Specifically designed ground improvement.

5.4 Expansive soils

The site is underlain by fine grained cohesive South Auckland Volcanic Field ash. Two samples of ash tested by Lander at 301 Buckland Road[2] resulted in linear shrinkages of 21 to 24, and liquid limits between 104 and 114, indicating a high shrink/swell potential. The shrinking and swelling of surficial soils can result in foundation movement, which can distort the superstructure. If this movement occurs it typically manifests as cracking damage to foundations, rigid cladding systems and to the internal linings (ceilings and walls). Due to the nature of the damage mechanism, i.e. wetting and drying of the soils, thus tends to occur seasonally and effect only near surface soils which are subject to moisture change.

This risk of shrink/swell can be mitigated through foundation embedment and/or specific foundation detailing. Alternatively, ground improvement could be undertaken.

5.5 Foundations

The site is considered suitable for the support of typical light industrial and commercial buildings on shallow foundations embedded in AVF soils or engineered fill. A suitable foundation system would be conventional isolated strip and pad footings.

Foundations should be designed to accommodate the shrinking and swelling cycles mentioned above in Section 5.4.

5.6 Earthworks

Based on the test pits and laboratory testing as outlined in Section 3 above, we expect the soils below the topsoil layer will be suitable for reuse as engineered fill, however, they are generally wet of optimum water with the soils becoming wetter and more sensitive at depth. Some of the soils may require additional conditioning (drying) to achieve suitable water contents for earthworks compaction. It is noted however that the soils are expected to be allophanic. Allophanic soils require careful handling to allow effective compaction for earthworks. This is not considered to be a constraint on cut to fill earthworks on site but will need to be managed by the earthworks contractor for any future development.

Any significant earthworks proposed for the site should be assessed and designed by a geotechnical and civil engineer. Appropriate design details, such as subsoil drainage, benching of fill and control of surface water, will be required.

6. Further Work

Further investigations will likely be required to support the design of any future developments at the site. The volume and scope of investigations should be as appropriate for the scale and details of any proposed development.

7. Conclusions

The following conclusions are made in relation to land use change at 301 – 303 Buckland Road, Pukekohe:

1. The site is underlain by weathered ash deposits from the South Auckland Volcanic Field, with overlying topsoil up to 500mm thick, and localised areas of fill at 301 Buckland Road up to 600mm thick.
2. Perched groundwater levels of between 2.5m and 4.2m were recorded in the hand auger boreholes. Groundwater is not likely to affect construction activities.
3. The site has been assessed as having a site subsoil class of D – Deep soil.
4. There is negligible risk of liquefaction at the site and no specific design or detailing is required to address liquefaction effects.
5. Instability of the natural slopes on the site is not generally expected to be a constraint for future development. Development immediately in the vicinity of the southern boundary may need to consider the stability of the relatively steep slopes in the neighbouring property. Slope stability assessments will likely be required for specific development proposals particularly where significant earthworks are proposed. However stability considerations are expected to be able to be adequately managed by the used of appropriate batter slopes, or the design of specific retention measures.
6. Consolidation settlement is not expected to constrain typically expected development of the site based on the natural and strengths of the subsoils. Specific settlement assessment will be required for future developments however in accordance with good engineering practice.
7. The subsoils are likely to be susceptible to volume expansivity (shrink/swell). However the effects can be mitigated through foundation embedment or specifically detailed reinforcement.
8. The site is considered suitable for the support of typical light industrial and commercial buildings on shallow foundations embedded in AVF soils or engineered fill. A suitable foundation system would be conventional isolated strip and pad footings.
9. In general, the soils below the topsoil layer will be suitable for reuse as engineered fill, however, they are generally wet of optimum with the soils becoming wetter and more sensitive at depth.
10. Based on our understanding of the local ground conditions and our experience with typical retail and commercial developments, i.e. lightly to moderately loaded buildings, we do not expect any significant geotechnical constraints to BGBZ development at the site. Provided that geotechnical considerations are addressed, along with specific investigations and assessment for any future development at the site, we expect the competent nature of the ground at the site to support a variety of development types and options.

8. Applicability

This report has been prepared for our client, Jason Woodyard and Stephen Smith, with respect to the brief provided to us. The advice and recommendations presented in this report should not be applied to any other project or used in any other context without prior written approval from Initia Limited.

This report is considered suitable to support a re-zoning application, however, further investigations and analyses will be required to support detailed design.

Report prepared by:

Andrew Klahn
Engineering Geologist

Report reviewed by:

Nathan Hickman
Senior Geotechnical Engineer

Report approved by:

Matthew Wansbone
Senior Geotechnical Engineer, Director

Document control record

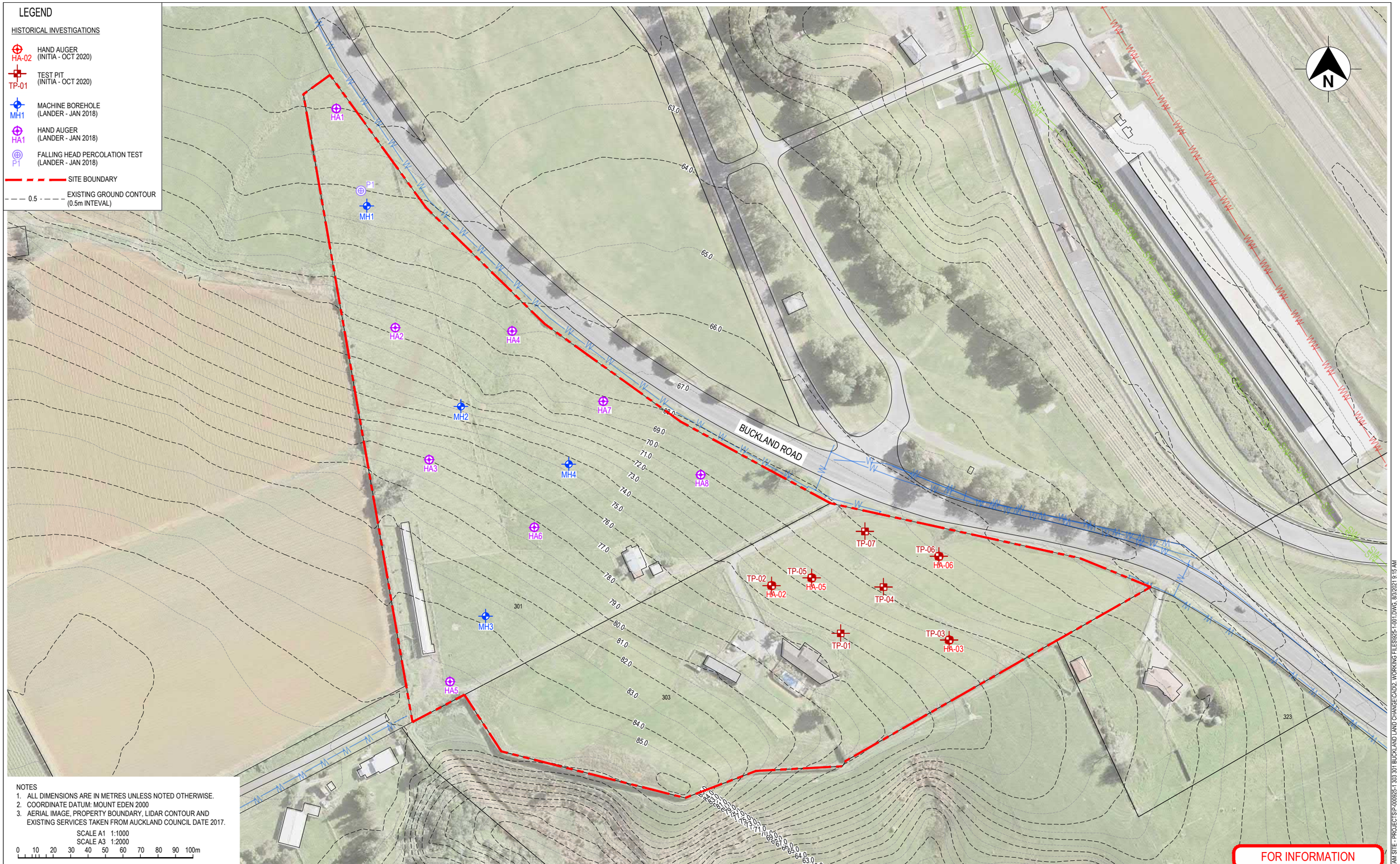
Report Title		301 & 303 Buckland Rd Geotechnical Report – For Land Use Change			
Initia Project Reference		P-000925-1			
Client		Jason Woodyard and Stephen Smith			
Revision	Date	Revision detail	Author	Reviewer	Approved by
-	07-09-21	First Issue	A. Klahn	N. Hickman	M. Wansbone
Current Revision		0			

Appendix A Figures

LEGEND

HISTORICAL INVESTIGATIONS

- HA-02 — HAND AUGER (INITIA - OCT 2020)
- TP-01 — TEST PIT (INITIA - OCT 2020)
- MH1 — MACHINE BOREHOLE (LANDER - JAN 2018)
- HA1 — HAND AUGER (LANDER - JAN 2018)
- P1 — FALLING HEAD PERCOLATION TEST (LANDER - JAN 2018)
- SITE BOUNDARY
- 0.5 — EXISTING GROUND CONTOUR (0.5m INTEVAL)



NOTES
1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
2. COORDINATE DATUM: MOUNT EDEN 2000
3. AERIAL IMAGE, PROPERTY BOUNDARY, LIDAR CONTOUR AND EXISTING SERVICES TAKEN FROM AUCKLAND COUNCIL DATE 2017.

SCALE A1 1:1000
SCALE A3 1:2000

0 10 20 30 40 50 60 70 80 90 100m

FOR INFORMATION

Rev	Revision Description	Designed	Drawn	Checked
A	INVESTIGATION LOCATION (03/08/2021)		GG	

NOT FOR CONSTRUCTION
THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED

APPROVED:

DATE:

Scale AS SHOWN | Original Size A3

INITIA GEOTECHNICAL SPECIALISTS

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JASON WOODYARD AND STEPHEN SMITH

301 & 303 BUCKLAND RD - LAND USE CHANGE

GEOTECHNICAL INVESTIGATION LOCATION PLAN

Initia Project ref: P000925-1

Figure Number 925-1-001

Revision A

D:\INITIA LIMITED\INITIA LIMITED TEAM SITE - PROJECTS\P-000925-1 303 301 BUCKLAND LAND CHANGE\CAD\2. WORKING FILES\925-1-001.DWG, 8/3/2021 9:15 AM

Appendix B Lander Investigation Logs

Client : PETEREX LIMITED

Project Location : 1700 BUCKLAND ROAD, PUKEKOHE

Job Number: J00858

Auger Borehole No. HA01

Sheet 1 of 9

Vane Head:	Logged By:	Processor :	Date:
1900	LJ	LJ	22.01.18

Borehole Location: mN | mE | Ground R.L.

Description: Refer to site plan

SOIL DESCRIPTION	Depth (m)	Standing Water Level	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL, with minor rootlet inclusions					
clayey SILT, mottled orange/brown and yellow/brown. Very stiff, moist, low plasticity, moderately sensitive, with minor limonite [ASH]	0.5		188/54	3.5	Sample 1 Disturbed 0.5-1.0m
becoming yellow/brown, without limonite	1.0		154/65	2.4	
becoming moist to wet					
	1.5		127/38	3.3	Sample 2 Disturbed 1.5-2.0m
becoming light grey/white and yellow/brown mottled red/pink, intermixed with light grey/white, high plasticity silty clay					
becoming yellow/brown, hard, without silty clay	2.0		204/84	2.4	
becoming soft to firm, wet, with minor fine to medium sand sized white clast inclusions					
becoming slightly clayey SILT, mottled red/pink, yellow/brown and grey, hard, no to low plasticity, intermixed with minor grey, high plasticity silty clay	2.5		239+		Sample 3 Disturbed 2.5-3.0m
becoming brown, loose to medium dense, no plasticity	3.0	▽	UTP		
becoming clayey SILT, yellow/brown, stiff, saturated, low plasticity, insensitive	3.5		89/47	1.9	
becoming slightly clayey SILT, brown, hard, no to low plasticity	4.0		UTP		
with minor manganese oxidation	4.5		239+		
EOB at 5.0m. Target Depth.	5.0		239+		
	5.5				
	6.0				

LANDER geotechnical

Comments:
Groundwater encountered 3.4m.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm

Checked: KM

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	PETEREX LIMITED	**Auger Borehole No.**	HA02
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 2 of 9
Job Number:	J00858	Vane Head: 1900 / Logged By: LJ / Processor : LJ / Date: 22.01.18	

Borehole Location: mN | mE | Ground R.L.
Description: Refer to site plan

SOIL DESCRIPTION	Depth (m)	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL, with minor rootlet inclusions				
clayey SILT, light grey and pink/red mottled orange/brown. Very stiff, moist, low plasticity, moderately sensitive, with minor limonite, with minor organic staining [ASH]				
becoming red/brown mottled orange/brown, without organic staining	0.5	120/54	2.2	
becoming slightly clayey SILT, light grey mottled orange/brown and red/brown, hard, no to low plasticity, sensitive, with minor light grey, high plasticity silty clay	1.0	222/56	4.0	
becoming brown, without silty clay				
becoming grey/brown				
becoming moderately sensitive	1.5	213/65	3.3	
becoming brown, moist to wet				
becoming clayey SILT, very stiff, low plasticity, with trace to minor manganese oxidation	2.0	158/75	2.1	
becoming yellow/brown, wet, low to medium plasticity, without manganese oxidation				
becoming stiff	2.5	84/40	2.1	
becoming slightly clayey SILT, brown, moist, no to low plasticity				
becoming orange/brown, hard, wet, no plasticity	3.0	239+		
	3.5	UTP		
becoming clayey SILT, yellow/brown, very stiff, wet to saturated, low to medium plasticity, moderately sensitive				
	4.0	116/47	2.5	
becoming slightly clayey SILT, brown, saturated, no to low plasticity, with minor manganese oxidation	▽			
becoming hard	4.5	239+		
EOB at 5.0m. Target Depth.	5.0	239+		
	5.5			
	6.0			

LANDER geotechnical

Comments:
Groundwater encountered 3.8m.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm
Checked: KM

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	PETEREX LIMITED	**Auger Borehole No.**	HA03
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 3 of 9
Job Number:	J00858	Vane Head: 1900 / Logged By: LJ / Processor : LJ / Date: 23.01.18	

Borehole Location: mN | mE | Ground R.L.
Description: Refer to site plan

SOIL DESCRIPTION	Depth (m)	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL, with minor rootlets				
clayey SILT, orange/brown. Hard, moist, low plasticity, sensitive, with minor manganese oxidation [ASH]				
at 0.5m, without manganese oxidation	0.5	232/40	5.8	
becoming brown	1.0	239+		
becoming red/brown				
becoming very stiff, moderately sensitive	1.5	193/88	2.2	
	2.0	186/80	2.3	
	2.5	195/81	2.4	
becoming wet	3.0	195/88	2.2	
becoming stiff	3.5	97/34	2.9	
becoming very stiff	4.0 ▽	127/56	2.3	
becoming saturated, sensitive	4.5	135/29	4.7	
becoming slightly clayey SILT, black mottled red/pink, no to low plasticity, with minor manganese oxidation				
at 5.0m, becoming stiff, insensitive	5.0	83/47	1.8	
EOB at 5.0m. Target Depth.	5.5			
	6.0			

LANDER geotechnical

Comments:
Groundwater encountered 4.5m.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm
Checked: KM

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	PETEREX LIMITED	**Auger Borehole No.**	HA04
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 4 of 9
Job Number:	J00858	Vane Head: 1900 / Logged By: LJ / Processor : LJ / Date: 23.01.18	

Borehole Location: mN | mE | Ground R.L.

Description: Refer to site plan

SOIL DESCRIPTION

Depth (m)	Legend	Standing Water Level	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
0.0	TOPSOIL slightly clayey SILT, yellow/brown. Loose to medium dense, moist, no plasticity, with some fine to medium gravel [TUFF]				Scala Penetrometer Test (blows/100mm)
0.5	EOB at 0.5m. Too dense to auger further. Scala penetrometer test commenced. Unable to overcore		UTP		6
1.0					17
1.5					3
2.0					3
2.5					4
3.0					2
3.5					2
4.0					2
4.5					5
5.0					18
5.5					
6.0					

LANDER geotechnical

Comments:
Groundwater not encountered.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm

Checked: Km

Topsoil	Sand	Sandstone	Plutonic				
Fill	Gravel	Siltstone	No Core				
Clay	Organic	Limestone					
Silt	Pumice	Volcanic					

Client :	PETEREX	**Auger Borehole No.**	HA05
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 5 of 9
Job Number:	J00858	Vane Head: 946 / Logged By: KM / Processor : RG / Date: 22.01.18	

Borehole Location: mN | mE | Ground R.L.
Description: Refer to site plan

SOIL DESCRIPTION	Depth (m)	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL				
clayey SILT with trace fine to medium sand, light brown, mottled orange/brown. Very stiff, moist, low plasticity [FILL]				
silty CLAY, orange/brown. Hard, moist, medium plasticity [ASH]	0.5	186+		Sample 1 Disturbed 0.5-1.2m
clayey SILT, orange/brown. Hard, moist, low plasticity	1.0	186+		
	1.5	186+		Sample 2 Disturbed 1.5-2.1m
becoming very stiff, wet, sensitive	2.0	111/22	5.0	
becoming slightly clayey SILT, orange/brown and red/brown, hard, wet	2.5	UTP		Sample 3 Disturbed 2.5-3.0m
becoming clayey SILT, orange/brown, very stiff				
becoming moderatley sensitive	3.0	168/67	2.5	
becoming red/brown	3.5	124/57	2.2	
becoming mottled black with some ash streaks	4.0	186+		
becoming stiff, without black mottling, insensitive	4.5	81/43	1.9	
at 5.0m, becoming very stiff, moderately sensitive	5.0	124/57	2.2	
EOB at 5.0m. Target Depth.	5.5			
	6.0			

LANDER geotechnical

Comments:
Groundwater not encountered.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm
Checked: KM

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	PETEREX LIMITED	**Auger Borehole No.**	HA06
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 6 of 9
Job Number:	J00858	Vane Head: 946 / Logged By: KM / Processor : RG / Date: 22.01.18	

Borehole Location: mN | mE | Ground R.L.

Description: Refer to site plan

SOIL DESCRIPTION	Depth (m)	Vane Shear(kPa) peak / residual	Soil Sensitivity
TOPSOIL			
clayey SILT, brown mottled orange/brown. Very stiff, moist, low plasticity [TUFF/FILL?]			
silty CLAY, orange/brown. Hard, moist, low plasticity [ASH]	0.5	186+	
clayey SILT with trace fine sand, orange/brown. Hard, moist, low plasticity	1.0	186+	
becoming very stiff, moderately sensitive becoming wet	1.5	184/73	2.5
	2.0	184/92	2.0
becoming orange/brown mottled red/brown			
becoming slightly clayey SILT, orange/brown, hard	2.5	UTP	
becoming clayey SILT, very stiff			
	3.0	126/57	2.2
becoming red/brown, hard			
	3.5	186+	
becoming very stiff			
	4.0	168/61	2.8
becoming red/brown mottled orange/brown, insensitive	4.5	122/70	1.7
at 5.0, becoming moderately sensitive	5.0	100/38	2.6
EOB at 5m. Target Depth.			
	5.5		
	6.0		

Standing Water Level | Sample and Laboratory / Other Test Details

LANDER geotechnical

Comments:
Groundwater not encountered.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm

Checked: km

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	PETEREX LIMITED	**Auger Borehole No.**	HA07
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 7 of 9
Job Number:	J00858	Vane Head: 946 / Logged By: KM / Processor : LJ / Date: 22.01.18	

Borehole Location: mN | mE | Ground R.L.
Description: Refer to site plan

SOIL DESCRIPTION	Depth (m)	Standing Water Level	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL					
clayey SILT, brown mottled orange/brown. Very stiff, moist, low plasticity, sensitive, with trace fine gravel [FILL]					
at 0.3m, with occasional black and red mottles	0.5		120/28	4.3	
clayey SILT, light brown/grey streaked orange/brown. Very stiff, wet, low plasticity, sensitive [ASH]					
at 0.8m, becoming grey	1.0		183/39	4.7	
becoming wet					
becoming grey streaked orange, moderately sensitive	1.5		113/43	2.6	
	2.0		130/49	2.7	
becoming stiff	2.5	▽	70/27	2.6	
becomng hard, with trace fine to medium sand and fine pumiceous gravel			186+		
becoming slightly clayey SILT, orange/brown, no to low plasticity, without sand and gravel					
becoming orange/brown mottled red/brown, low plasticity	3.0		186+		
becoming stiff, poor sample recovery to 3.9m due to groundwater suction	3.5		57/23	2.5	
becoming red/brown, with normal sample recovery					
becoming hard	4.0		UTP		
becoming very stiff	4.5		171/62	2.8	
at 5.0m, becoming hard					
EOB at 5.0m. Target Depth.	5.0		186+		
	5.5				
	6.0				

LANDER geotechnical

Comments:
Groundwater encountered 2.7m.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm
Checked: KM

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	PETEREX LIMITED	**Auger Borehole No.**	HA08
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 8 of 9
Job Number:	J00858	Vane Head: 1900 / Logged By: LJ / Processor : LJ / Date: 23.01.18	

Borehole Location: mN | mE | Ground R.L.
Description: Refer to site plan

SOIL DESCRIPTION	Depth (m)	Vane Shear(kPa) peak / residual	Soil Sensitivity
TOPSOIL			
clayey SILT, orange/brown. Hard, moist, low plasticity [ASH]	0.5	239+	
	1.0	239+	
becoming moderately sensitive	1.5	204/100	2.0
becoming wet, with minor fine to coarse sand sized white clast inclusions			
becoming slightly clayey SILT, no to low plasticity, extra sensitive	2.0	204/24	8.5
	2.5	UTP	
becoming clayey SILT, very stiff, wet, low to medium plasticity			
becoming moderately sensitive becoming brown, moist, low plasticity	3.0	170/73	2.3
becoming hard	3.5	230/89	2.6
intermixed with moderately thin bed of light grey, high plasticity silty clay	4.0	213/94	2.3
becoming very stiff	4.5	158/69	2.3
becoming orange/brown, with minor limonite silt clast inclusions			
EOB at 5.0m. Target Depth.	5.0	177/86	2.1
	5.5		
	6.0		

Standing Water Level: Sample and Laboratory / Other Test Details

LANDER geotechnical

Comments:
Groundwater not encountered.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm
Checked: KM

Topsoil | Fill | Clay | Silt | Sand | Gravel | Organic | Pumice | Sandstone | Siltstone | Limestone | Volcanic | Plutonic | No Core

Client :	PETEREX LIMITED	**Auger Borehole No.**	P1
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 9 of 9
Job Number:	J00858	Vane Head: 1900 / Logged By: LJ / Processor : LJ / Date: 22.01.18	

Borehole Location: mN | mE | Ground R.L.
Description: Refer to site plan

SOIL DESCRIPTION	Depth (m)	Vane Shear(kPa) peak / residual	Soil Sensitivity
TOPSOIL			
clayey SILT, brown/grey streaked black. Very stiff, moist, low plasticity, with trace fine gravel [TUFF/FILL?]			
silty CLAY, orange/brown. Very stiff, moist, medium plasticity, moderately sensitive [ASH]			
with occasional manganese oxidation	0.5	177/49	3.6
clayey SILT, orange/brown. Very stiff, moist, low plasticity, moderately sensitive	1.0	158/54	2.9
with minor manganese oxidation	1.5	195/84	2.3
becoming yellow/brown and light grey mottled red/pink, insensitive, intermixed with light grey, high plasticity silty clay, without manganese oxidation	2.0	154/86	1.8
at 2.5m, becoming moderately sensitive	2.5	177/69	2.6
EOB at 2.5m. Target Depth.	3.0		
	3.5		
	4.0		
	4.5		
	5.0		
	5.5		
	6.0		

LANDER geotechnical

Comments:
Groundwater not encountered.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm

Checked: KM

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	PETEREX LIMITED	**Machine Borehole No.**	MH01
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 1 of 2
Job Number:	J00858	Vane Head: 307 / Logged By: AB / Processor : AB	Start Date: 24.01.18 Finish Date: 24.01.18

Borehole Location: mN ____ mE ____ Ground R.L.
Description: Refer to site plan Orientation: vertical

Stratigraphy	CORE DESCRIPTION	Legend	Depth (m)	DEFECTS	Groundwater/ Piezometer	Drilling Method & Casing	Recovery (%)	RQD (%)	Sample and Laboratory Test Details	Vane Dial / Sensitivity & SPT
	TOPSOIL									
	clayey SILT, dark orange/ brown. Hard, moist, low to medium plasticity		0.5	Bentonite		OPEN BARREL	60			UTP
	at 0.7m, becoming orange mottled orange/ brown, low plasticity, with some limonite inclusions and staining									
	becoming brown, very stiff, medium plasticity, insensitive		1.0				100			158/82 - 1.9
			1.5				100			112/66 - 1.7
							SPT			SPT at 1.5-1.95m 3/4/4 N=8
			2.0	Piezometer screened from 1.5-6m						
	becoming orange/ brown		2.5				76			
	becoming dark orange/ brown, modrately sensitive		3.0				SPT			161/49 - 3.3
Ash										SPT at 3.0-3.45m 6/8/11 N=19
			3.5	Groundwater Level as measured on 1.02.18: 3.65m						
	becoming yellow/ brown		4.0				95			
	becoming dark orange/ brown, hard		4.5				SPT			UTP SPT at 4.5-4.95m 4/2/4 N=6
			5.0							
			5.5				100			
	becoming slightly clayey SILT, very stiff, low plasticity, insensitive, with occasional manganese oxide inclusions		6.0				SPT			156/92 - 1.7 SPT at 6.0-6.45m 2/2/3 N=5
			6.5							
			7.0				86			
	becoming stiff, quick		7.5				SPT			92/4 - 23.0 SPT at 7.5-7.95m 1/2/5 N=7
			8.0							

LANDER geotechnical

Comments:

Driller: Pro-Drill Rig: Tractor

Drilling Fluid: water

Checked: KM

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	PETEREX LIMITED	**Machine Borehole No.**	MH01
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 2 of 2
Job Number:	J00858	Vane Head: 307 / Logged By: AB / Processor : AB	Start Date: 24.01.18 / Finish Date: 24.01.18

Borehole Location: mN ____ mE ____ Ground R.L. ____
Description: Refer to site plan Orientation: vertical

Stratigraphy	CORE DESCRIPTION	Legend	Depth (m)	DEFECTS	Groundwater/ Piezometer	Drilling Method & Casing	Recovery (%)	RQD (%)	Sample and Laboratory Test Details	Vane Dial / Sensitivity & SPT
Ash	slightly clayey SILT, pink/ red mottled orange/ brown. Firm, moist, low to no plasticity, with occasional manganese oxide inclusions		8.5			OPEN BARREL	62			
			9.0				SPT			46/8 - 5.8 SPT at 9.0-9.45m 1/1/1 N=2
			9.5				62			
	at 10.5m, becoming brown, stiff		10.0							
	EOB at 10.5m. Target Depth.		10.5				SPT			92/19 - 4.8 SPT at 10.5-10.95m 2/4/5 N=9
			11.0							
			11.5							
			12.0							
			12.5							
			13.0							
			13.5							
			14.0							
			14.5							
			15.0							
			15.5							
			16.0							

LANDER geotechnical

Comments:

Driller: Pro-Drill Rig: Tractor

Drilling Fluid: water

Checked: km

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

LANDER geotechnical	client:	PETEREX LIMITED	project no:	figure no:
	project:	1700 BUCKLAND ROAD	J 00858	Figure MH01
		PUKEKOHE	compiled:	date:
	title:	MH01 CORE PHOTOS	AB	25.01.18

Client : PETEREX LIMITED

Project Location : 1700 BUCKLANDS ROAD, PUKEKOHE

Job Number: J00858

Machine Borehole No. MH02

Sheet 1 of 2

Vane Head:	Logged By:	Processor :	Start Date: 24.01.18
307	AB	RG	Finish Date: 24.01.18

Borehole Location: mN mE

Description: Refer to site plan

Ground R.L.

Orientation: vertical

Stratigraphy	CORE DESCRIPTION	Legend	Depth (m)	DEFECTS	Groundwater/ Piezometer	Drilling Method & Casing	Recovery (%)	RQD (%)	Sample and Laboratory Test Details	Vane Dial / Sensitivity & SPT
Ash	TOPSOIL		0.0							
	clayey SILT, dark orange and brown. Hard, moist, low plastic			Bentonite →						
	becoming orange/brown mottled red/brown, with occasional limonite inclusions and staining		0.5				60			UTP
	becoming very stiff, moderately sensitive		1.0			OPEN BARREL	96			174/82 - 2.1
	becoming insensitive		1.5	Piezometer screened from 1.0m to 6.0m →			92			148/94 - 1.5 SPT at 1.5-1.95m 2/3/4 N=7
			2.0				SPT			
			2.5				43			
	becoming stiff		3.0	Groundwater Level as measured on 1.02.18: 3.0m → ▽			SPT			92/52 - 1.8 SPT at 3.0-3.45m 2/2/2 N=4
			3.5				44			
			4.0							
	becoming brown speckled red/orange		4.5				SPT			52/29 - 1.8 SPT at 4.5-4.95m 1/1/1 N=2
	becoming pink/red mottled with red/orange		5.0				100			
			5.5							
	becoming slightly clayey SILT, streaked red/orange and brown, quick		6.0				SPT			69/4 - 17.6 SPT at 6.0-6.45m 1/1/1 N=2
			6.5				86			
			7.0							
	becoming firm, sensitive		7.5				SPT			49/12 - 4.2 SPT at 7.5-7.95m 0/1/2 N=3
			8.0							

LANDER geotechnical

Comments:

Driller: Pro-Drill Rig: Tractor

Drilling Fluid: water

Checked: KCK

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client : PETEREX LIMITED

Project Location : 1700 BUCKLAND ROAD, PUKEKOHE

Job Number: J00858

Machine Borehole No. MH02

Sheet 2 of 2

Vane Head:	Logged By:	Processor :	Start Date:	Finish Date:
307	AB	RG	24.01.18	24.01.18

Borehole Location: mN mE

Description: Refer to site plan

Ground R.L.

Orientation: vertical

Stratigraphy	CORE DESCRIPTION	Legend	Depth (m)	DEFECTS	Groundwater/ Piezometer	Drilling Method & Casing	Recovery (%)	RQD (%)	Sample and Laboratory Test Details	Vane Dial / Sensitivity & SPT
Ash	becoming brown, loose,		8.5				85			
	becoming very loose, extra sensitive		9.0				SPT			49/12 - 11.8 SPT at 9.0-9.45m 1/1/2 N=3
	becoming clayey SILT, stiff, low to moderate plasticity, with trace fine sand		9.5							
	with trace fine sand in a very thin limonite bed		10.0				81			
	at 10.4m, becoming orange/brown, with some limonite silt clast inclusions		10.5							42/4 - 10.8 SPT at 10.5-10.95m 1/1/2 N=3
	EOB at 10.5m. Target Depth		11.0							
			11.5							
			12.0							
			12.5							
			13.0							
			13.5							
			14.0							
			14.5							
			15.0							
			15.5							
			16.0							

LANDER geotechnical

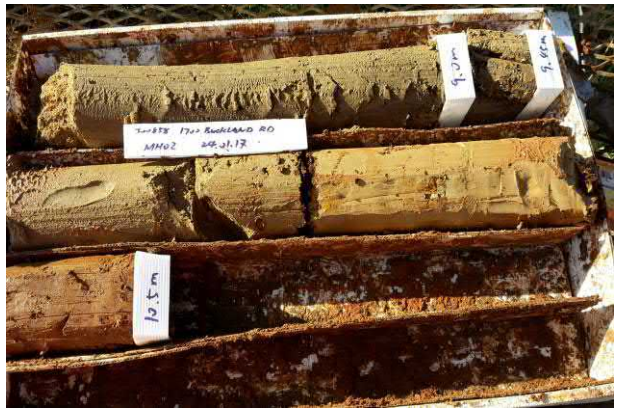
Comments:

Driller: Pro-Drill Rig: Tractor

Drilling Fluid: water

Checked: Km

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			



LANDER geotechnical	client:	PETEREX LIMITED	project no:	figure no:
	project:	1700 BUCKLAND ROAD	J 00858	Figure MH02
		PUKEKOHE	compiled:	date:
	title:	MH02 CORE PHOTOS	AB	25.01.18

Client : PETEREX LIMITED

Project Location : 1700 BUCKLAND ROAD, PUKEKOHE

Job Number: J00858

Machine Borehole No. MH03

Sheet 1 of 2

Vane Head:	Logged By:	Processor :	Start Date: 23.01.18
307	AB	AB	Finish Date: 23.01.18

Borehole Location: mN mE

Description: Refer to site plan

Ground R.L.

Orientation: vertical

Stratigraphy	CORE DESCRIPTION	Legend	Depth (m)	DEFECTS	Groundwater/ Piezometer	Drilling Method & Casing	Recovery (%)	RQD (%)	Sample and Laboratory Test Details	Vane Dial / Sensitivity & SPT
Ash	TOPSOIL clayey SILT, dark orange/ brown. Very stiff, moist to dry, low plasticity, moderately sensitive		0.0			OPEN BARREL	64			
	becoming orange/ brown		0.5	Bentonite			100			174/69 - 2.5
	becoming hard		1.0				100			UTP
	becoming slightly clayey SILT, red/ orange, low to no plasticity		1.5	Piezometer screened from 1.5m to 6.0m			SPT			211/49 - 4.3 SPT at 1.5-1.95m 3/4/6 N=10
			2.0				100			
	becoming stiff, insensitive		3.0				SPT			86/66 - 1.3 SPT at 3.0-3.45m 2/1/2 N=3
			3.5				81			
	becoming moderately sensitive, with some manganese oxide inclusions		4.5	Groundwater Level as measured on 1.02.18: 4.73m			SPT			79/34 - 2.3 SPT at 4.5-4.95m 1/1/1 N=2
			5.0				95			
	becoming mottled brown and red/ orange, extra sensitive		6.0				SPT			82/8 - 10.3 SPT at 6.0-6.45m 1/0/1 N=1
			6.5				100			
	becoming slightly clayey SILT, mottled red/ pink and yellow/ brown, low to no plasticity		7.0				SPT			66/8 - 8.3 SPT at 7.5-7.95m 1/0/2 N=2
			7.5							
			8.0							

LANDER geotechnical

Comments:

Drilling Fluid: water

Checked: KM

Driller: Pro-Drill

Rig: Tractor

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	PETEREX LIMITED	**Machine Borehole No.**	MH03
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 2 of 2
Job Number:	J00858	Vane Head: 307 / Logged By: AB / Processor : AB	Start Date: 23.01.18 / Finish Date: 23.01.18

Borehole Location: mN ____ mE ____ Ground R.L. ____
Description: Refer to site plan Orientation: vertical

Stratigraphy	CORE DESCRIPTION	Legend	Depth (m)	DEFECTS	Groundwater/ Piezometer	Drilling Method & Casing	Recovery (%)	RQD (%)	Sample and Laboratory Test Details	Vane Dial / Sensitivity & SPT
	becoming firm		8.5, 9.0, 9.5, 10.0			OPEN BARREL	71			35/4 - 8.8 SPT at 9.0-9.45m 1/1/2 N=3
	becoming brown, with some fine to medium sand sized clast inclusions at 10.5m, becoming moderately sensitive						SPT 65			
	EOB at 10.5m. Target Depth.		10.5, 11.0, 11.5, 12.0, 12.5, 13.0, 13.5, 14.0, 14.5, 15.0, 15.5, 16.0				SPT			46/15 - 3.1 SPT at 10.5-10.95m 1/1/3 N=4

LANDER geotechnical

Comments:

Driller: Pro-Drill Rig: Tractor

Drilling Fluid: water

Checked: KM

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

LANDER geotechnical	client:	PETEREX LIMITED	project no:	figure no:
	project:	1700 BUCKLAND ROAD	J 00858	Figure MH03
		PUKEKOHE	compiled:	date:
	title:	MH03 CORE PHOTOS	AB	25.01.18

Client : PETEREX LIMITED

Project Location : 1700 BUCKLAND ROAD, PUKEKOHE

Job Number: J00858

Machine Borehole No. MH04

Sheet 1 of 2

Vane Head:	Logged By:	Processor :	Start Date: 23.01.18
307	AB	RG	Finish Date: 23.01.18

Borehole Location: mN mE

Description: Refer to site plan

Ground R.L.

Orientation: vertical

Stratigraphy	CORE DESCRIPTION	Legend	Depth (m)	DEFECTS	Groundwater/ Piezometer	Drilling Method & Casing	Recovery (%)	RQD (%)	Sample and Laboratory Test Details	Vane Dial / Sensitivity & SPT
Ash	TOPSOIL		0.0							
	clayey SILT, dark orange/brown mottled orange/brown. Hard, dry, low plasticity									
	at 0.5m, becoming orange and brown		0.5	Bentonite			88			UTP
			1.0				76			UTP
			1.5	Piezometer screened from 1.0-6.0m			83			UTP
			2.0				SPT			SPT at 1.5-1.95m 4/4/4 N=8
	becoming red/orange		2.5				100			
	becoming very stiff, insensitive, with occasional limonite inclusions and staining		3.0				SPT			149/82 - 1.8 SPT at 3.0-3.45m 2/2/4 N=6
			3.5				86			
			4.0							
	becoming firm, extra sensitive		4.5				SPT			49/4 - 12.25 SPT at 4.5-4.95m 1/0/1 N=1
	with occasional manganese oxidation		5.0				86			
			5.5							
	becoming sensitive		6.0				SPT			49/8 - 6.1 SPT at 6.0-6.45m 1/1/2 N=3
			6.5				76			
			7.0							
	becoming mottled red/brown and brown		7.5				SPT			49/19 - 2.8 SPT at 7.5-7.95m 1/0/2 N=2
			8.0							

LANDER geotechnical

Comments:

Driller: Pro-Drill Rig: Tractor

Drilling Fluid: water

Checked: km

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client : PETEREX LIMITED

Project Location : 1700 BUCKLAND ROAD, PUKEKOHE

Job Number: J00858

Machine Borehole No. MH04

Sheet 2 of 2

Vane Head:	Logged By:	Processor :	Start Date:	Finish Date:
307	AB	RG	23/01/18	23/01/18

Borehole Location: mN mE

Description: Refer to site plan

Ground R.L.

Orientation: vertical

Stratigraphy	CORE DESCRIPTION	Legend	Depth (m)	DEFECTS	Groundwater/ Piezometer	Drilling Method & Casing	Recovery (%)	RQD (%)	Sample and Laboratory Test Details	Vane Dial / Sensitivity & SPT
Ash			8.5				90			
	slightly clayey SILT, red and brown with brown streaks. Stiff, moist, low to no plasticity, sensitive, with occasional sand sized silt clast inclusions									
	becoming brown, medium dense, sensitive		9.0				SPT			66/19 - 3.5 SPT at 9.0-9.45m 2/2/2 N=4
Tuff			9.5							
			10.0				59			
	EOB at 10.5m. Target Depth		10.5				SPT			49/19 - 2.6 SPT at 10.5-10.95m 2/2/2 N=4
			11.0							
			11.5							
			12.0							
			12.5							
			13.0							
			13.5							
			14.0							
			14.5							
			15.0							
			15.5							
			16.0							

LANDER geotechnical

Comments:

Driller: Pro-Drill Rig: Tractor

Drilling Fluid: water

Checked: KM

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

LANDER geotechnical	client:	PETEREX LIMITED	project no:	figure no:
	project:	1700 BUCKLAND ROAD	J 00858	Figure MH04
		PUKEKOHE	compiled:	date:
	title:	MH04 CORE PHOTOS	AB	25.01.18

STORMWATER PERCOLATION TEST

Client:	PETEREX LIMITED	Job No:	J00858
Location:	1700 BUCKLAND ROAD	Date:	23.01.18
	PUKEKOHE	Page	1 of 2
Hole No:	P1	Diameter:	0.1 (m)
Location:	refer to site plan	Depth:	2.45 (m)
Weather conditions preceding test:	dry		
Details of presoaking:	16 hours		

Time of Test (hr.min)	Time Interval (min)	Depth Reading (m)	Water Depth (m)	Cum Time (min)
9:03	-	0.30	2.15	0
9:04	1	0.36	2.09	1
9:06	2	0.45	2.00	3
9:08	2	0.53	1.92	5
9:10	2	0.57	1.88	7
9:15	5	0.70	1.75	12
9:20	5	0.75	1.70	17
9:40	20	0.87	1.58	37
10:00	20	0.97	1.48	57
10:20	20	1.03	1.42	77
10:40	20	1.12	1.33	97
11:00	20	1.15	1.30	117
11:20	20	1.20	1.25	137
11:40	20	1.23	1.22	157
12:00	20	1.25	1.20	177
12:20	20	1.28	1.17	197
12:40	20	1.30	1.15	217
13:00	20	1.35	1.10	237

Test	P1	
Gradient	0.001	m/min
Percolation	0.02	$L/m^2/min$

Lander Geotechnical Consultants Limited
P O Box 97 385, Manukau, Auckland 2241
Phone: 027 488 6882
Email: shane@landergeotechnical.co.nz

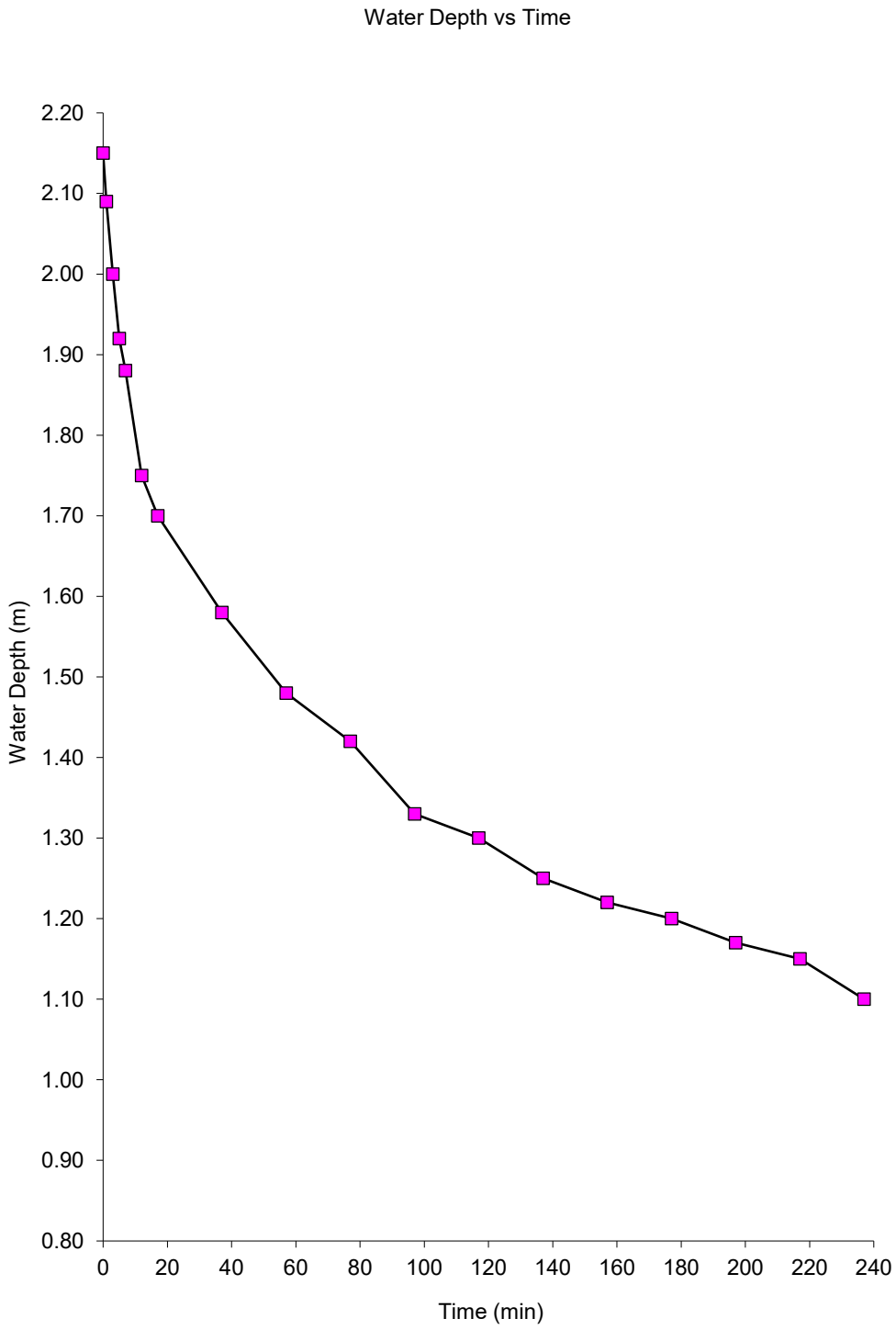
Operator: KM

Checked: SL

LGCL_percolation_210715

STORMWATER PERCOLATION TEST

Client:	PETEREX LIMITED			Job No:	J00858
Location:	1700 BUCKLAND ROAD			Date:	23.01.18
	PUKEKOHE			Page	2 of 2
Hole No:	P1	Diameter:	0.1	(m)	
Location:	refer to site plan	Depth:	2.5	(m)	



Lander Geotechnical Consultants Limited
P O Box 97 385, Manukau, Auckland 2241
Phone: 027 488 6882
Email: shane@landergeotechnical.co.nz

Operator: KM

Checked: SL

Appendix C Initia Investigation Logs

TEST PIT LOG

HOLE NO.: TP-01

CLIENT: Jason Woodyard
PROJECT: 303 Buckland Road
SITE LOCATION: 303 Buckland Road, Pukekohe
Project Ref.: P-000925

CO-ORDINATES: 1769921mE, 5879085mN
Co-ordinate system: NZTM
Location method: GPSH
ELEVATION: 74m
Datum: AUCKHT1946
Level method: CONTOUR
CONTRACTOR: Local Contractor
MACHINE: Excavator
OPERATOR: Eugene
START DATE: 16/10/2020
END DATE: 16/10/2020
LOGGED BY: QS
CHECKED BY: MDH

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: 2503	Values	WATER
Topsoil SILT; dark brown. Firm; non-plastic; dry.		0.0	TS				
South Auckland Volcanic Field Clayey SILT; orange brown. Very stiff; high plasticity; moist.		0.6				131 61	
Clayey SILT; brown with light brown mottles. Very stiff; high plasticity; moist.		1.2				161 99	Groundwater Not Encountered
EOH: 2.60m		2.0				175 91	
		2.6					

Scala Penetrometer: 2 4 6 8 10 12 14 16 18
Vane Shear Strength (kPa): 50 100 150 200

REMARKS

WATER
- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE
- [ ] Hand Auger
- [x] Test Pit

Checked By: MDH

TEST PIT LOG

HOLE NO.: TP-02

CLIENT: Jason Woodyard
PROJECT: 303 Buckland Road
SITE LOCATION: 303 Buckland Road, Pukekohe
Project Ref.: P-000925

CO-ORDINATES: 1769882mE, 5879113mN
Co-ordinate system: NZTM
Location method: GPSH
ELEVATION: 73m
Datum: AUCKHT1946
Level method: CONTOUR
CONTRACTOR: Local Contractor
MACHINE: Excavator
OPERATOR: Eugene
START DATE: 16/10/2020
END DATE: 16/10/2020
LOGGED BY: QS
CHECKED BY: MDH

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: 2503	Values	WATER
Top soil: SILT; dark brown. Firm; non-plastic; dry.		0.2	TS				
South Auckland Volcanic Field: Clayey SILT; orange brown. Very stiff; high plasticity; moist.		0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8				124 66	
Clayey SILT; yellowish brown. Hard; high plasticity; moist.		2.0				204.54+ -	Groundwater Not Encountered
1.8m: Grading to very stiff		2.2, 2.4, 2.6, 2.8, 3.0, 3.2, 3.4, 3.6, 3.8, 4.0, 4.2, 4.4, 4.6, 4.8, 5.0, 5.2, 5.4, 5.6, 5.8				190 61	
EOH: 2.00m							

REMARKS

Continued as hand auger. Refer to HA-02

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [ ] Hand Auger
- [x] Test Pit

Checked By: MDH

TEST PIT LOG

HOLE NO.: TP-03

CLIENT: Jason Woodyard
PROJECT: 303 Buckland Road
SITE LOCATION: 303 Buckland Road, Pukekohe
Project Ref.: P-000925

CO-ORDINATES: 1769983mE, 5879080mN
Co-ordinate system: NZTM
Location method: GPSH
ELEVATION: 71m
Datum: AUCKHT1946
Level method: CONTOUR
CONTRACTOR: Local Contractor
MACHINE: Excavator
OPERATOR: Eugene
START DATE: 16/10/2020
END DATE: 16/10/2020
LOGGED BY: QS
CHECKED BY: MDH

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: 2503	WATER
Topsoil SILT; dark brown. Firm; non-plastic; dry.		0.0 – 0.2	TS			
Clayey silty; orange brown. Very stiff; high plasticity; moist.	B	0.2 – 0.6			178 53	
Clayey SILT; brown with some grey mottles. Hard; high plasticity; moist.	B	0.6 – 1.4			204.54+ -	
Clayey SILT; reddish brown. Hard; high plasticity; moist.	B	1.4 – 5.0			204.54+ -	
EOH: 5.00m		5.0				

South Auckland Volcanic Field

Groundwater Not Encountered

REMARKS

WATER
- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE
- ☐ Hand Auger
- ☑ Test Pit

Ver 2. Generated with CORE-GS by Geroc - Test Pit_Initia - 20/10/2020 1:10:30 pm

Checked By: MDH

TEST PIT LOG

HOLE NO.: TP-04

CLIENT: Jason Woodyard
PROJECT: 303 Buckland Road
SITE LOCATION: 303 Buckland Road, Pukekohe
Project Ref.: P-000925

CO-ORDINATES: 1769946mE, 5879111mN
Co-ordinate system: NZTM
Location method: GPSH
ELEVATION: 69.5m
Datum: AUCKHT1946
Level method: CONTOUR
CONTRACTOR: Local Contractor
MACHINE: Excavator
OPERATOR: Eugene
START DATE: 16/10/2020
END DATE: 16/10/2020
LOGGED BY: QS
CHECKED BY: MDH

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: 2503	Values	WATER
Topsoil SILT, with some gravel; dark brown. Firm; non-plastic; dry; gravel, fine to coarse.		0.2	TS				
Clayey SILT; orange brown. Very stiff; high plasticity; moist.	B	0.4 0.6 0.8 1.0 1.2 1.4				155 41 123 56	
South Auckland Volcanic Field Clayey SILT; yellow brown with some black mottles. Hard; high plasticity; moist.	B	1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8				204.54+ - 204.54+ - 204.54+ -	Groundwater Not Encountered
EOH: 5.00m		5.0 5.2 5.4 5.6 5.8					

REMARKS

WATER
- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE
- ☐ Hand Auger
- ☑ Test Pit

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TEST PIT LOG

HOLE NO.: TP-05

CLIENT: Jason Woodyard
PROJECT: 303 Buckland Road
SITE LOCATION: 303 Buckland Road, Pukekohe
Project Ref.: P-000925

CO-ORDINATES: 1769905mE, 5879117mN
Co-ordinate system: NZTM
Location method: GPSH
ELEVATION: 71.5m
Datum: AUCKHT1946
Level method: CONTOUR
CONTRACTOR: Local Contractor
MACHINE: Excavator
OPERATOR: Eugene
START DATE: 16/10/2020
END DATE: 16/10/2020
LOGGED BY: QS
CHECKED BY: MDH

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: 2503	WATER
Topsoil SILT; dark brown. Firm; non-plastic; dry.		0.2	TS			
Clayey SILT; orange brown with some grey mottles. Very stiff; high plasticity; moist.	B	0.4, 0.6, 0.8, 1.0			143 / 38; 178 / 76	
Clayey SILT; brown with grey mottles. Very stiff to hard; high plasticity; moist.	B	1.2, 1.4			204.54+ -	
Clayey SILT; reddish brown. Hard; high plasticity; moist. EOH: 5.00m	B	1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2, 3.4, 3.6, 3.8, 4.0, 4.2, 4.4, 4.6, 4.8, 5.0, 5.2, 5.4, 5.6, 5.8			204.54+ -	

South Auckland Volcanic Field

Groundwater Not Encountered

REMARKS

WATER
- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE
- ☐ Hand Auger
- ☑ Test Pit

Checked By: MDH

TEST PIT LOG

HOLE NO.: TP-06

CLIENT: Jason Woodyard
PROJECT: 303 Buckland Road
SITE LOCATION: 303 Buckland Road, Pukekohe
Project Ref.: P-000925

CO-ORDINATES: 1769978mE, 5879128mN
Co-ordinate system: NZTM
Location method: GPSH
ELEVATION: 67m
Datum: AUCKHT1946
Level method: CONTOUR
CONTRACTOR: Local Contractor
MACHINE: Excavator
OPERATOR: Eugene
START DATE: 16/10/2020
END DATE: 16/10/2020
LOGGED BY: QS
CHECKED BY: MDH

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: 2503	WATER
Topsoil SILT; dark brown. Firm; non-plastic; dry.		0.2	TS			
South Auckland Volcanic Field Clayey SILT; orange brown. Very stiff; high plasticity; moist.		0.4 0.6 0.8 1.0			120 50 175 79	
Clayey SILT; reddish brown. Very stiff; high plasticity; moist. - INTERBEDDED WITH - Silty CLAY; grey. Stiff; high plasticity; moist.		1.2 1.4 1.6			178 99	Groundwater Not Encountered
Clayey SILT; light brown. Very stiff; high plasticity; moist.		1.8 2.0			161 47	
EOH: 2.00m		2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8 5.0 5.2 5.4 5.6 5.8				

REMARKS

Continued as hand auger. Refer to HA-01

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- ☐ Hand Auger
- ☑ Test Pit

Checked By: MDH

INITIA
GEOTECHNICAL SPECIALISTS

TEST PIT LOG

HOLE NO.: TP-07

CLIENT: Jason Woodyard
PROJECT: 303 Buckland Road
SITE LOCATION: 303 Buckland Road, Pukekohe
Project Ref.: P-000925

CO-ORDINATES: 1769936mE, 5879143mN
Co-ordinate system: NZTM
Location method: GPSH
ELEVATION: 68m
Datum: AUCKHT1946
Level method: CONTOUR
CONTRACTOR: Local Contractor
MACHINE: Excavator
OPERATOR: Eugene
START DATE: 16/10/2020
END DATE: 16/10/2020
LOGGED BY: QS
CHECKED BY: MDH

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: 2503	WATER
Topsoil SILT; dark brown. Firm; non-plastic; dry.		0.0 – 0.2	TS			
Auckland Volcanic Field Clayey SILT; orange brown. Very stiff; high plasticity; moist.		0.2 – 1.0			117 / 44 167 / 64	Groundwater Not Encountered
Clayey SILT; reddish brown. Hard; high plasticity; moist.		1.0 – 1.4			204.54+ -	
Clayey SILT; light brown. Hard; high plasticity; moist.		1.4 – 2.0			204.54+ -	
EOH: 2.00m		2.0				

REMARKS

WATER
- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE
- ☐ Hand Auger
- ☑ Test Pit

Checked By: MDH

HAND AUGER LOG

INITIA
GEOTECHNICAL SPECIALISTS

HOLE NO.: HA-02

CLIENT: Jason Woodyard
PROJECT: 303 Buckland Road
SITE LOCATION: 303 Buckland Road, Pukekohe
Project Ref.: P-000925

CO-ORDINATES: 1769936mE, 5879128mN
Co-ordinate system: NZTM
Location method: GPSH
ELEVATION: 73m
Datum: AUCKHT1946
Level method: CONTOUR
START DATE: 16/10/2020
END DATE: 16/10/2020
LOGGED BY: QS
CHECKED BY: MDH

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: 2503	WATER
	Test Pit 0.0 to 2.0 m (refer to TP-02)		0.0 to 2.0				
South Auckland Volcanic Field	Clayey SILT; light brown. Very stiff; high plasticity; moist.		2.0 to 3.6			126 / 58 146 / 66 131 / 73 161 / 80 153 / 76	Groundwater Not Encountered
	3.6m: Grades to hard						
	SILT, with some clay; orange brown. Hard; low plasticity; moist.		3.6 to 4.0			205+ / - 205+ / -	
	EOH: 4.00m						

Scala Penetrometer: 2, 4, 6, 8, 10, 12, 14, 16, 18
Vane Shear Strength (kPa): 50, 100, 150, 200; Values

REMARKS

WATER
- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE
- [x] Hand Auger
- [ ] Test Pit

Ver 2. Generated with CORE-GS by Geroc - Hand Auger_Initia - 20/10/2020 1:10:38 pm

Checked By: MDH

HAND AUGER LOG

INITIA
GEOTECHNICAL SPECIALISTS

HOLE NO.: HA-03

CLIENT: Jason Woodyard
PROJECT: 303 Buckland Road
SITE LOCATION: 303 Buckland Road, Pukekohe
Project Ref.: P-000925

CO-ORDINATES: 1769983mE, 5879080mN
Co-ordinate system: NZTM
Location method: GPSH
ELEVATION: 71m
Datum: AUCKHT1946
Level method: CONTOUR
START DATE: 23/10/2020
END DATE: 23/10/2020
LOGGED BY: QS
CHECKED BY: MDH

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: 2689	Values	WATER
Topsoil	SILT; dark brown. Firm; non-plastic; dry.		0.0	TS				
South Auckland Volcanic Field	Clayey SILT; orange brown. Very stiff to hard; high plasticity; moist.		0.6				200+ -	
	Clayey SILT; brown with some grey mottles. Hard; high plasticity; moist.		1.2				200+ -	
	Clayey SILT; reddish brown. Very stiff; high plasticity; moist.		1.8				200+ -	
	2.6m: Grades to stiff		2.6				122 72	
	3.3m: Grades to very stiff		3.3				122 74	
	EOH: 5.00m		5.0				172 100	Groundwater Not Encountered

REMARKS

WATER
- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE
- [x] Hand Auger
- [ ] Test Pit

Checked By: MDH

HAND AUGER LOG

HOLE NO.: HA-05

CLIENT: Jason Woodyard
PROJECT: 303 Buckland Road
SITE LOCATION: 303 Buckland Road, Pukekohe
Project Ref.: P-000925

CO-ORDINATES: 1769905mE, 5879117mN
Co-ordinate system: NZTM
Location method: GPSH
ELEVATION: 71.5m
Datum: AUCKHT1946
Level method: CONTOUR
START DATE: 23/10/2020
END DATE: 23/10/2020
LOGGED BY: QS
CHECKED BY: MDH

INITIA
GEOTECHNICAL SPECIALISTS

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: 2689	Values	WATER
Topsoil	SILT; dark brown. Firm; non-plastic; dry.		0.2	TS			200+ -	
South Auckland Volcanic Field	Clayey SILT; orange brown. Very stiff to hard; high plasticity; moist.		0.4					
			0.6				129 60	
			0.8				200+ -	
	Clayey SILT; brown with grey mottles. Hard; high plasticity; moist.		1.0					
			1.2				200+ -	
			1.4					
	Clayey SILT; brownish. Very stiff; high plasticity.		1.6				200+ -	
			1.8				172 79	
	2.1m: Grades to hard		2.0					
			2.2				200+ -	
	2.4m: Grades to very stiff		2.4				122 64	
			2.6					
			2.8				143 74	
	3.0m: Grades to hard		3.0				200+ -	
			3.2					
			3.4				200+ -	
			3.6					
			3.8				200+ -	
			4.0					
			4.2				200+ -	
			4.4					
	4.5m: Grades to very stiff		4.6				114 37	
			4.8					
	4.8m: Grades to hard		5.0				200+ -	
	EOH: 5.00m		5.2					
			5.4					
			5.6					
			5.8					

Groundwater Not Encountered

REMARKS

WATER
- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE
- [x] Hand Auger
- [ ] Test Pit

Checked By: MDH

HAND AUGER LOG

HOLE NO.: HA-06

CLIENT: Jason Woodyard
PROJECT: 303 Buckland Road
SITE LOCATION: 303 Buckland Road, Pukekohe
Project Ref.: P-000925

CO-ORDINATES: 1769882mE, 5879113mN
Co-ordinate system: NZTM
Location method: GPSH
ELEVATION: 67m
Datum: AUCKHT1946
Level method: CONTOUR
START DATE: 16/10/2020
END DATE: 16/10/2020
LOGGED BY: QS
CHECKED BY: MDH

INITIA
GEOTECHNICAL SPECIALISTS

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: 2503	Values	WATER
	Test Pit 0.0 to 2.0 m (refer to TP-06)		0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0		2 4 6 8 10 12 14 16 18	50 100 150 200		Groundwater Not Encountered
South Auckland Volcanic Field	Clayey SILT; light brown. Very stiff; high plasticity; moist.		2.2 2.4 2.6 2.8 3.0 3.2 3.4				161 47 124 69 161 82	
	SILT, with some clay; brown. Hard; low plasticity; moist. EOH: 4.00m		3.6 3.8 4.0				205+ -	
			4.2 4.4 4.6 4.8 5.0 5.2 5.4 5.6 5.8					

REMARKS

WATER
- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE
- [x] Hand Auger
- [ ] Test Pit

Checked By: MDH

Appendix D Lander Lab Testing Results

East Tamaki Laboratory

Coffey Services (NZ) Limited

144A Cryers Road, East Tamaki NZ 2013
PO Box 58877, Botany, Manukau NZ 2163

Phone: +64 9 272 3375
Fax: +64 9 272 3378

Material Test Report

Report No: ETAM18S-00533-1
Issue No: 1

Client:	Lander Geotechnical Consultants Limited PO Box 97385 Manukau City 2241
Principal:	Kyle Meffan
Project No.:	773-ETAM00588AA
Project Name:	J00858 - 1700 Buckland Road, Pukekohe
Lot No.:	- **TRN:** -

Tests indicated as not accredited are outside the scope of the laboratory's accreditation.
{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}

Approved Signatory: James McKelvey
(Senior Technician)
IANZ Accredited Laboratory Number:105
Date of Issue: 2/02/2018

Sample Details

Sample ID:	ETAM18S-00533
Client Sample:	S2
Date Sampled:	22/01/2018
Source:	Unknown (Sampled by Client)
Material:	Disturbed Soil
Specification:	NZ Grading Full
Sampling Method:	Unknown (Not IANZ Endorsed)
Project Location:	1700 Buckland Road, Pukekohe
Sample Location:	HA1 1.5 - 2.0 m

Test Results

Description	Method	Result	Limits
Allophane Content	NZS 4402:1986 Test 3.4	5 - 7 %	
Date Tested		1/02/2018	

Comments

Work Order: ETAM18W00227
Tested By: CT

300

East Tamaki Laboratory

Coffey Services (NZ) Limited

144A Cryers Road, East Tamaki NZ 2013
PO Box 58877, Botany, Manukau NZ 2163

Phone: +64 9 272 3375
Fax: +64 9 272 3378

Report No: ETAM18S-00534-1
Issue No: 1

Material Test Report

Client:	Lander Geotechnical Consultants Limited PO Box 97385 Manukau City 2241
Principal:	Kyle Meffan
Project No.:	773-ETAM00588AA
Project Name:	J00858 - 1700 Buckland Road, Pukekohe
Lot No.:	- **TRN:** -

Tests indicated as not accredited are outside the scope of the laboratory's accreditation.
{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}

Approved Signatory: James McKelvey
(Senior Technician)
IANZ Accredited Laboratory Number:105
Date of Issue: 2/02/2018

Sample Details

Sample ID:	ETAM18S-00534
Client Sample:	S2
Date Sampled:	22/01/2018
Source:	Unknown (Sampled by Client)
Material:	Disturbed Soil
Specification:	NZ Grading Full
Sampling Method:	Unknown (Not IANZ Endorsed)
Project Location:	1700 Buckland Road, Pukekohe
Sample Location:	HA5
	1.5 - 2.1 m

Test Results

Description	Method	Result	Limits
Allophane Content	NZS 4402:1986 Test 3.4	5 - 7 %	
Date Tested		1/02/2018	

Comments

Work Order: ETAM18W0027
Tested By: CT

East Tamaki Laboratory

Coffey Services (NZ) Limited

144A Cryers Road, East Tamaki NZ 2013
PO Box 58877, Botany, Manukau NZ 2163
Phone: +64 9 272 3375
Fax: +64 9 272 3378

Report No: CLAS:ETAM18S-00533
Issue No:1
This report replaces all previous issues of Report No. CLAS:ETAM18S-00533

Atterberg Classification Test Report

Client:	Lander Geotechnical Consultants Limited PO Box 97385 Manukau City 2241
Principal:	Kyle Meffan
Project No.:	773-ETAM00588AA
Project Name:	J00858 - 1700 Buckland Road, Pukekohe

Tests indicated as not accredited are outside the scope of the laboratory's accreditation.

Approved Signatory: James McKelvey
Senior Technician
IANZ Accredited Laboratory Number: 105
Date of Issue: 02/02/2018

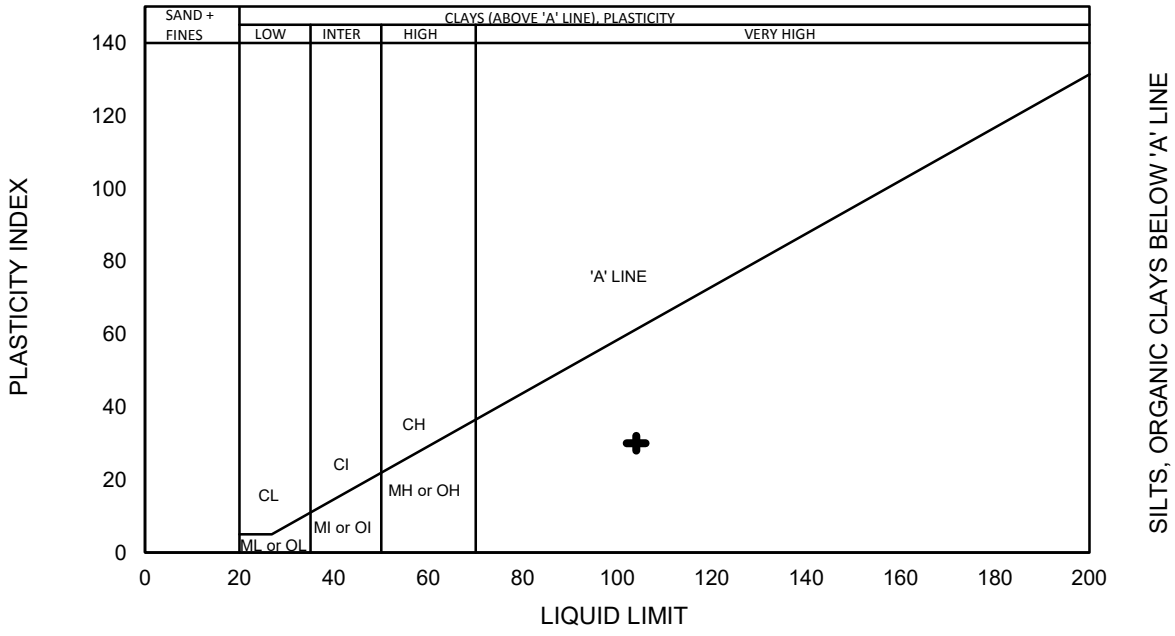
Sample Details

Sample Number:	ETAM18S-00533	**Date Sampled:**	22/01/2018
Project Location:	1700 Buckland Road, Pukekohe	**Date Tested:**	31/01/2018
Sample Location:	HA1, 1.5 - 2.0 m	**Tested by:**	Nara Yoon
Laboratory test Procedures:	*Atterberg Limits [NZS 4402 Test 2.2, 2.3, 2.4, 2.6], Moisture Content [NZS 4402:1986 Test 2.1]*		
Sampling Method:	*Unknown (Not IANZ Endorsed)*		

Laboratory Data

Liquid Limit	**104**	**Sample History:**	Natural state
Plastic Limit:	**74**	**Fraction Tested:**	Passing 425µm sieve
Plasticity Index:	**30**	**Material Description:**	Disturbed Soil
Linear Shrinkage:	**21**		
#Liquidity Index (w-PL)/PI	**0.2**	**Moisture Content (%)**	79.1

CASAGRANDE PLASTICITY CHART



Comments:

Form Number: R027A Issue Date: 19/09/2017

East Tamaki Laboratory

Coffey Services (NZ) Limited

144A Cryers Road, East Tamaki NZ 2013
PO Box 58877, Botany, Manukau NZ 2163
Phone: +64 9 272 3375
Fax: +64 9 272 3378

Report No: CLAS:ETAM18S-00534
Issue No:1
This report replaces all previous issues of Report No. CLAS:ETAM18S-00534

Atterberg Classification Test Report

Client:	Lander Geotechnical Consultants Limited PO Box 97385 Manukau City 2241
Principal:	Kyle Meffan
Project No.:	773-ETAM00588AA
Project Name:	J00858 - 1700 Buckland Road, Pukekohe

Tests indicated as not accredited are outside the scope of the laboratory's accreditation.

Approved Signatory: James McKelvey
Senior Technician
IANZ Accredited Laboratory Number: 105
Date of Issue: 02/02/2018

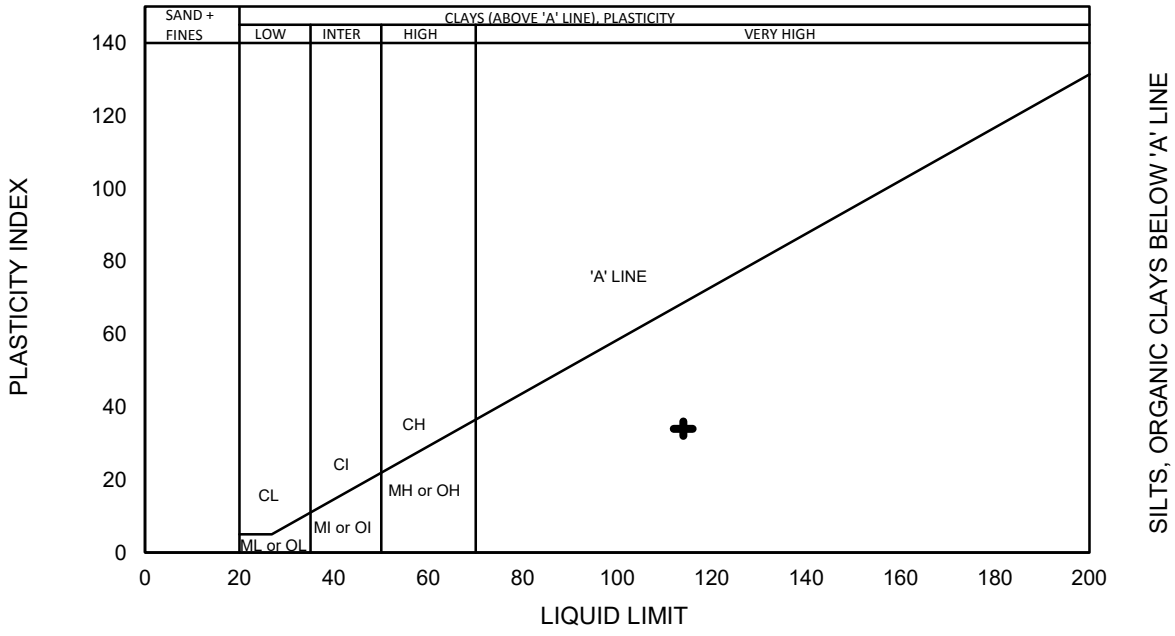
Sample Details

Sample Number:	ETAM18S-00534	**Date Sampled:**	22/01/2018
Project Location:	1700 Buckland Road, Pukekohe	**Date Tested:**	31/01/2018
Sample Location:	HA5, 1.5 - 2.1 m	**Tested by:**	Nara Yoon
Laboratory test Procedures:	*Atterberg Limits [NZS 4402 Test 2.2, 2.3, 2.4, 2.6], Moisture Content [NZS 4402:1986 Test 2.1]*		
Sampling Method:	*Unknown (Not IANZ Endorsed)*		

Laboratory Data

Liquid Limit	**114**	**Sample History:**	Natural state
Plastic Limit:	**80**	**Fraction Tested:**	Passing 425µm sieve
Plasticity Index:	**34**	**Material Description:**	Disturbed Soil
Linear Shrinkage:	**24**		
#Liquidity Index (w-PL)/PI	**-0.2**	**Moisture Content (%)**	72.2

CASAGRANDE PLASTICITY CHART



Comments:

Form Number: R027A Issue Date: 19/09/2017

PARTICLE SIZE DISTRIBUTION

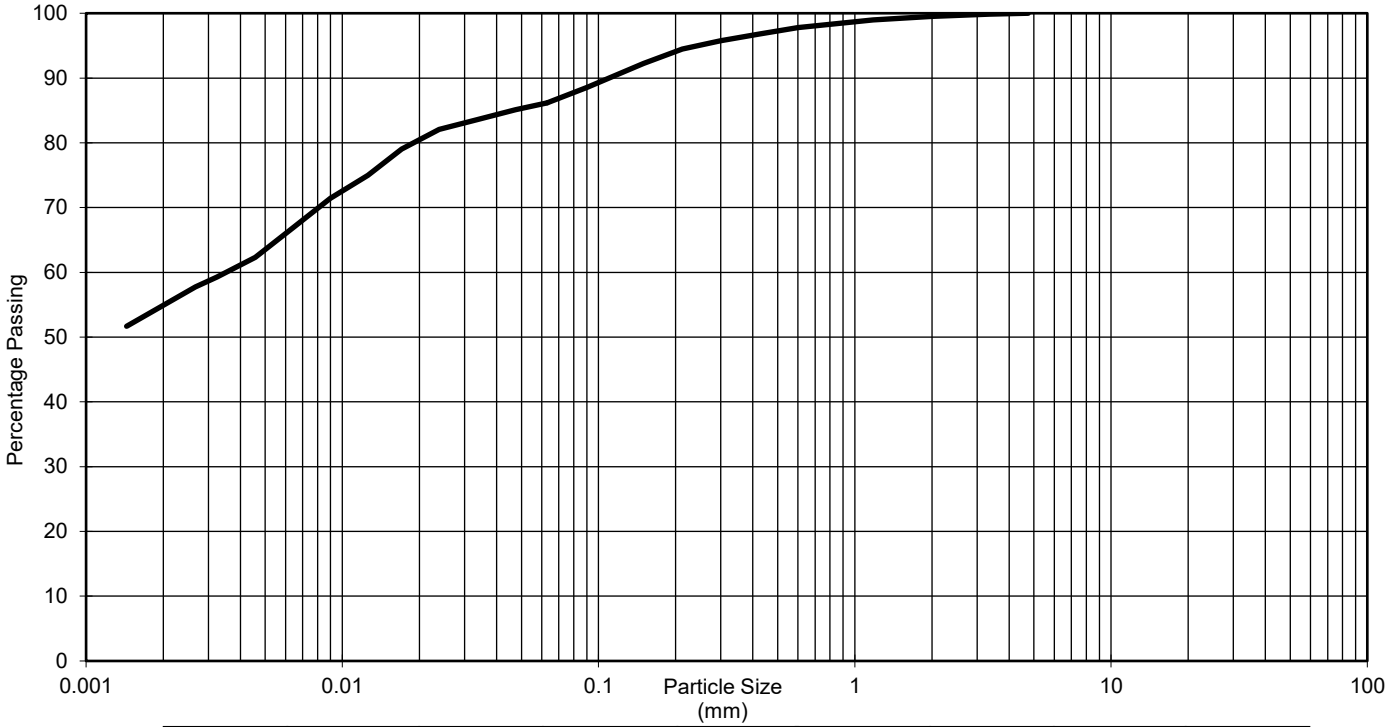
HYDROMETER NZS 4402:1986 TEST 2.8.4

IANZ ACCREDITED LABORATORY

Tests / comments indicated * are outside the scope of the laboratory's accreditation

J. McKelvey Approved Signatory

JOB NO	773-ETAM00588AA
PROJECT	J00858 - 1700 Buckland Road, Pukekohe
CLIENT	Lander Geotechnical Consultants Limited
BOREHOLE NO	HA1
CLIENT REF	S2
DEPTH	1.5 - 2.0 m
LAB SAMPLE ID	ETAM18S-00533



	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE
CLAY	SILT			SAND			GRAVEL		

Tested from 'As received natural' state without pretreatment pH 8.5 Solid Density 2.75 Assumed

'As received' natural water content 79.1 % Percentage passing obtained by difference

SIZE	FRACTION	RANGE mm	%	*Size parameters diam % passing	mm
COBBLES		> 60		d_{85}	0.046
GRAVEL	Coarse	60 - 20		d_{60}	0.0035
	Medium	20 - 6		d_{50}	-
	Fine	6 - 2		d_{30}	-
SAND	Coarse	2 - 0.6	2	d_{15}	-
	Medium	0.6 - 0.2	4	d_{10}	-
	Fine	0.2 - 0.06	8	d_5	-
SILT	Coarse	0.06-0.02	6	*Uniformity Coefficient	
	Medium	0.02-0.006	14	C_u	-
	Fine	0.006-0.002	12	*Curvature Coefficient	
CLAY		<0.002	54	C_c	-

coffey A TETRA TECH COMPANY

Coffey Services (NZ) Limited (Lab - East Tamaki)
144A Cryers Road, East Tamaki, Auckland NZ 2013
PO Box 58877, Botany, Auckland NZ 2163
Phone: +64 9 272 3375, Fax: +64 9 272 3378
www.coffey.com

DATE 2.02.18

CHECKED JM

psdhydro25 130716

PARTICLE SIZE DISTRIBUTION

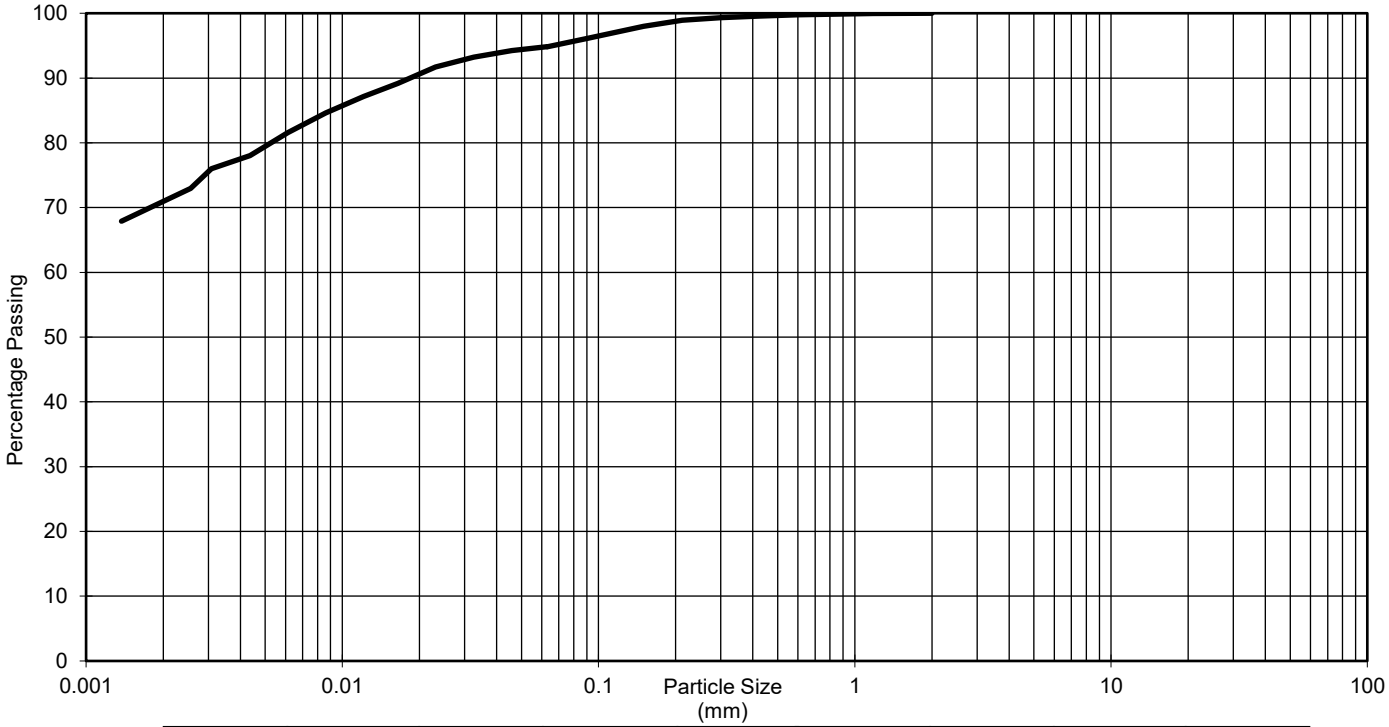
HYDROMETER NZS 4402:1986 TEST 2.8.4

IANZ ACCREDITED LABORATORY

Tests / comments indicated * are outside the scope of the laboratory's accreditation

J. McKelvey Approved Signatory

JOB NO	773-ETAM00588AA
PROJECT	J00858 - 1700 Buckland Road, Pukekohe
CLIENT	Lander Geotechnical Consultants Limited
BOREHOLE NO	HA5
CLIENT REF	S2
DEPTH	1.5 - 2.1 m
LAB SAMPLE ID	ETAM18S-00534



	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE
CLAY	SILT			SAND			GRAVEL		

Tested from 'As received natural' state without pretreatment pH 8.0 Solid Density 2.75 Assumed

'As received' natural water content 72.2 % Percentage passing obtained by difference

SIZE	FRACTION	RANGE mm	%	*Size parameters diam % passing	mm
COBBLES		> 60		d_{85}	0.0091
GRAVEL	Coarse	60 - 20		d_{60}	-
	Medium	20 - 6		d_{50}	-
	Fine	6 - 2		d_{30}	-
SAND	Coarse	2 - 0.6		d_{15}	-
	Medium	0.6 - 0.2	1	d_{10}	-
	Fine	0.2 - 0.06	4	d_5	-
SILT	Coarse	0.06-0.02	4	*Uniformity Coefficient	
	Medium	0.02-0.006	10	C_u	-
	Fine	0.006-0.002	10	*Curvature Coefficient	
CLAY		<0.002	71	C_c	-

coffey A TETRA TECH COMPANY

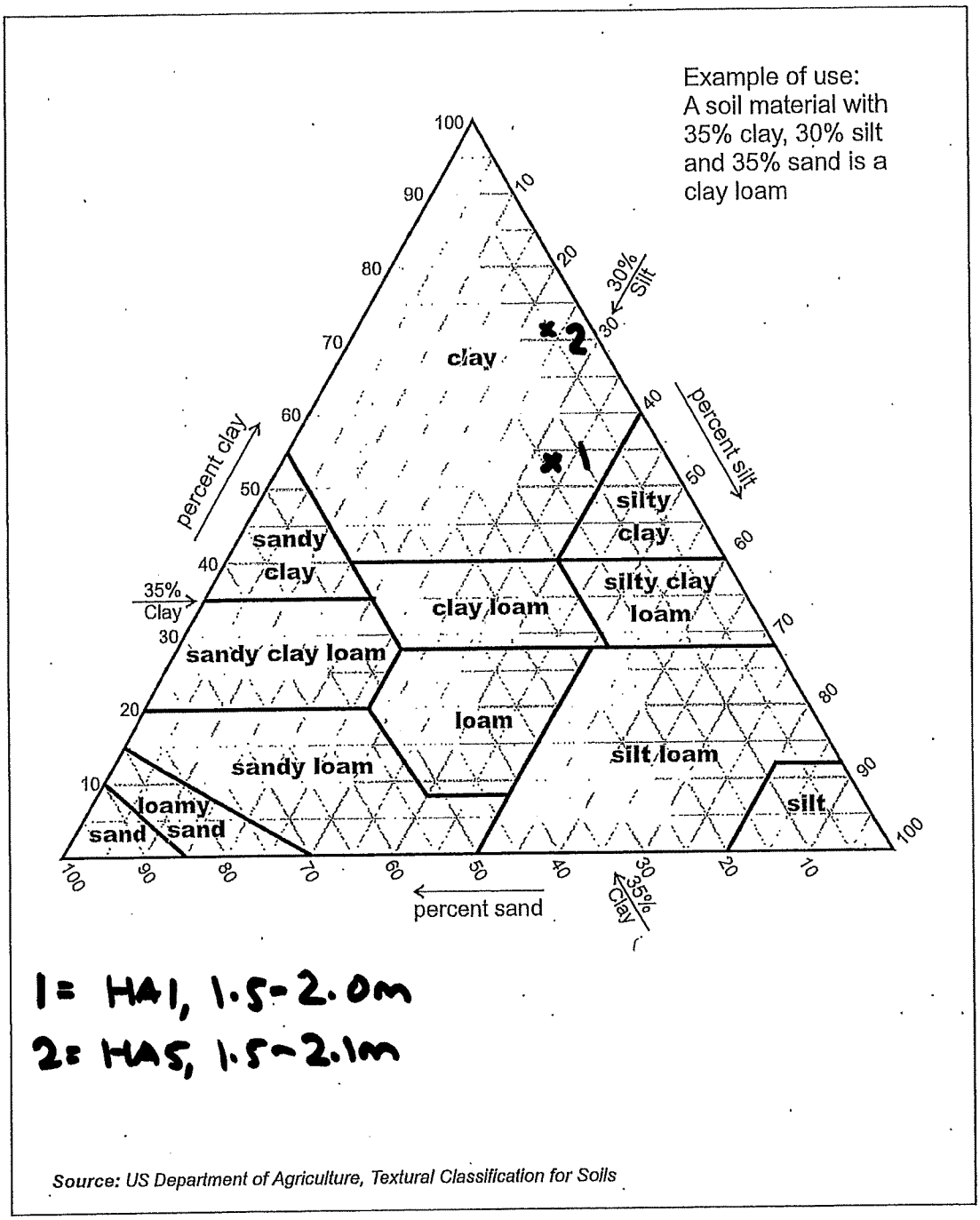
Coffey Services (NZ) Limited (Lab - East Tamaki)
144A Cryers Road, East Tamaki, Auckland NZ 2013
PO Box 58877, Botany, Auckland NZ 2163
Phone: +64 9 272 3375, Fax: +64 9 272 3378
www.coffey.com

DATE 2.02.18

CHECKED JM

psdhydro25 130716

Figure D1: US Department of Agriculture Textural Classification for Soils



1= HA1, 1.5-2.0m

2= HA5, 1.5-2.1m

Source: US Department of Agriculture, Textural Classification for Soils

Appendix E Initia Lab Testing Results

STEVENSON AGGREGATES LIMITED
Drury Quarry
Corner Quarry / Fitzgerald Roads, Drury
Auckland
www.stevenson.co.nz

Test Number: *203061* Report Number: *36953T*

Date of Issue: *2nd November 2020*

FINAL REPORT FOR *INITIA LTD*

Clients Address:	*PO Box 47647* *Ponsonby* *AUCKLAND 1144*
Attention:	*Kent Dalziel*
Reference:	*P-000925*
Subject:	***SOIL TESTING***
Clients Instructions:	*Conduct the tests as detailed below on the soil sample received*
Test Methods:	*1. NZS4402: 1986: Test* *2.1: Determination of the Water Content* *4.1.1: Determination of the Dry Density/Water Content Relationship - NZ Standard Compaction Test* *3.4: Detection of the Presence of Allophane in Soils* *2. NZ Geotechnical Society, Guideline - 2001 Determining the Shear Strength of a Cohesive Soil using a Hand Held Shear Vane*
Date Sampled:	*16th October 2020*
Date Received:	*23rd October 2020*
Date of Tests:	*October 2020*
Description of Sample:	***Clayey Silt, (Ash)***
Location:	***TP-05-02, 1.0-1.5m***
Project Name:	*303 Buckland Road*

Notes: *i. Field sample received in its natural state.*
ii. Sampling of soil is not covered by this report.

for STEVENSON AGGREGATES LTD

T A WHITMORE
IANZ APPROVED SIGNATORY

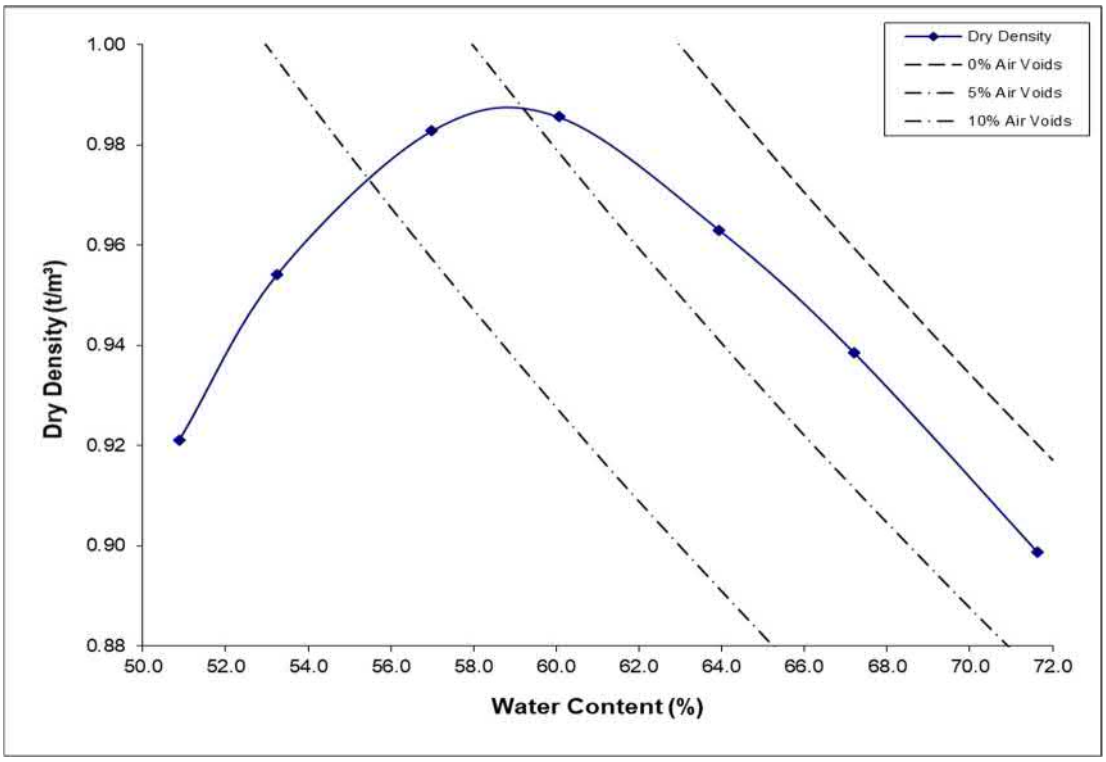
ACCREDITED IANZ TESTING LABORATORY Nº 17

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

TEST RESULTS

Material:	***Clayey Silt, (ASH)***	Test No:	***203061***
Location:	***TP-05-02, 1.0-1.5m***		
Project Name:	*303 Buckland Road*	Reference No.:	*P-000925*

NZ STANDARD COMPACTION



Maximum Dry Density (t/m³)	Optimum Water Content (%)	Solid Density Assumed t/m³	Natural Water Content %
0.99	*60.0*	*2.70*	*64.5*

Water Content (%)	*50.9*	*53.3*	*57.0*	*60.1*	*63.9*	*67.2*	*71.6*
Dry Density (t/m³)	*0.92*	*0.95*	*0.98*	*0.99*	*0.96*	*0.94*	*0.90*
Shear Strength (kPa)	*UTP*	*UTP*	*UTP*	*185*	*142*	*88*	*46*
Remould Shear Strength (kPa)	-	-	-	-	*62*	*32*	*8*

Note: *i.* *UTP = Unable to Penetrate.*
ii. *Test performed on material passing the 19.0mm sieve (97%)*

ALLOPHANE TEST RESULTS

Sample	Allophane Content %
TP-05-02, 1.0-1.5m	*< 5%*

STEVENSON AGGREGATES LIMITED
Drury Quarry
Corner Quarry / Fitzgerald Roads, Drury
Auckland
www.stevenson.co.nz

Test Number: *203060* Report Number: *36942T*

Date of Issue: *2nd November 2020*

FINAL REPORT FOR *INITIA LTD*

Clients Address: *PO Box 47647*
Ponsonby
AUCKLAND 1144

Attention: *Kent Dalziel*

Reference: *P-000925*

Subject: ***AGGREGATE TESTING***

Clients Instructions: *Conduct the tests as detailed below on the soil sample received.*

Test Methods: *1. NZS4402: 1986: Tests*
2.1: Determination of the Water Content
2.2: Determination of Liquid Limit
2.3: Determination of Plastic Limit
2.4: Determination of Plasticity Index

Date Sampled: *16th October 2020*

Date Received: *23rd October 2020*

Date of Test: *October 2020*

Description of Sample: ***Clayey Silt, (ASH)***

Location: ***TP-05-03, 3.5-4.5m***

Project Name: *303 Buckland Road*

TEST METHOD	RESULT	SPECIFICATION
Natural Water Content (%)	***79.9***	
Liquid Limit	***93***	-
Plastic Limit	***70***	-
Plasticity Index	***23***	-

Notes: *i. Field sample received in its natural state.*
ii. Sampling of soil is not covered by this report.
iii. Plasticity Index Test performed on material passing 0.425mm sieve.

for STEVENSON AGGREGATES LTD

T A WHITMORE
IANZ APPROVED SIGNATORY

ACCREDITED IANZ TESTING LABORATORY Nº 17
All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

STEVENSON AGGREGATES LIMITED
Drury Quarry
Corner Quarry / Fitzgerald Roads, Drury
Auckland
www.stevenson.co.nz

Test Number: *203059* Report Number: *36943T*

Date of Issue: *2nd November 2020*

FINAL REPORT FOR *INITIA LTD*

Clients Address: *PO Box 47647*
Ponsonby
AUCKLAND 1144

Attention: *Kent Dalziel*

Reference: *P-000925*

Subject: ***AGGREGATE TESTING***

Clients Instructions: *Conduct the tests as detailed below on the soil sample received.*

Test Methods: *1. NZS4402: 1986: Tests*
2.1: Determination of the Water Content
2.2: Determination of Liquid Limit
2.3: Determination of Plastic Limit
2.4: Determination of Plasticity Index

Date Sampled: *16th October 2020*

Date Received: *23rd October 2020*

Date of Test: *October 2020*

Description of Sample: ***Clayey Silt, (ASH)***

Location: ***TP-04-02, 3.5-4.5m***

Project Name: *303 Buckland Road*

TEST METHOD	RESULT	SPECIFICATION
Natural Water Content (%)	***84.1***	-
Liquid Limit	***111***	-
Plastic Limit	***82***	-
Plasticity Index	***29***	-

Notes: *i. Field sample received in its natural state.*
ii. Sampling of soil is not covered by this report.
iii. Plasticity Index Test performed on material passing 0.425mm sieve.

for STEVENSON AGGREGATES LTD

T A WHITMORE
IANZ APPROVED SIGNATORY

ACCREDITED IANZ TESTING LABORATORY Nº 17
All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

STEVENSON AGGREGATES LIMITED
Drury Quarry
Corner Quarry / Fitzgerald Roads, Drury
Auckland
www.stevenson.co.nz

Test Number: *203062* Report Number: *36944T*

Date of Issue: *2nd November 2020*

FINAL REPORT FOR *INITIA LTD*

Clients Address: *PO Box 47647*
Ponsonby
AUCKLAND 1144

Attention: *Kent Dalziel*

Reference: *TP-05-01*

Subject: ***AGGREGATE TESTING***

Clients Instructions: *Conduct the tests as detailed below on the soil sample received.*

Test Methods:
1. *NZS4402: 1986: Test*
   - *2.1: Determination of the Water Content*
   - *3.4: Detection of the Presence of Allophane in Soils*

Date Sampled: *16th October 2020*

Date Received: *23rd October 2020*

Date of Test: *October 2020*

Description of Sample: ***Clayey Silt, (ASH)***

Location: ***P-000925, 0.0 – 0.5m***

Project Name: *303 Buckland Road*

TEST RESULTS

Sample	Natural Water Content %	Allophane Content %
Source TP-05-01	*44.9*	*< 5%*

Notes:
i. *Field sample received in its natural state.*
ii. *Sampling of soil is not covered by this report.*

for STEVENSON AGGREGATES LTD

T A WHITMORE
IANZ APPROVED SIGNATORY

ACCREDITED IANZ TESTING LABORATORY Nº 17

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

STEVENSON AGGREGATES LIMITED
Drury Quarry
Corner Quarry / Fitzgerald Roads, Drury
Auckland
www.stevenson.co.nz

Test Number: *203058* Report Number: *36952T*

Date of Issue: *2nd November 2020*

FINAL REPORT FOR *INITIA LTD*

Clients Address:	*PO Box 47647* *Ponsonby* *AUCKLAND 1144*
Attention:	*Kent Dalziel*
Reference:	*P-000925*
Subject:	***SOIL TESTING***
Clients Instructions:	*Conduct the tests as detailed below on the soil sample received*
Test Methods:	*1. NZS4402: 1986: Test* *2.1: Determination of the Water Content* *4.1.1: Determination of the Dry Density/Water Content Relationship - NZ Standard Compaction Test* *2. NZ Geotechnical Society, Guideline - 2001 Determining the Shear Strength of a Cohesive Soil using a Hand Held Shear Vane*
Date Sampled:	*16th October 2020*
Date Received:	*23rd October 2020*
Date of Tests:	*October 2020*
Description of Sample:	***Clayey Silt, (Ash)***
Location:	***TP-03-02, 3.0-4.0m***
Project Name:	*303 Buckland Road*

Notes: *i. Field sample received in its natural state.*
ii. Sampling of soil is not covered by this report.

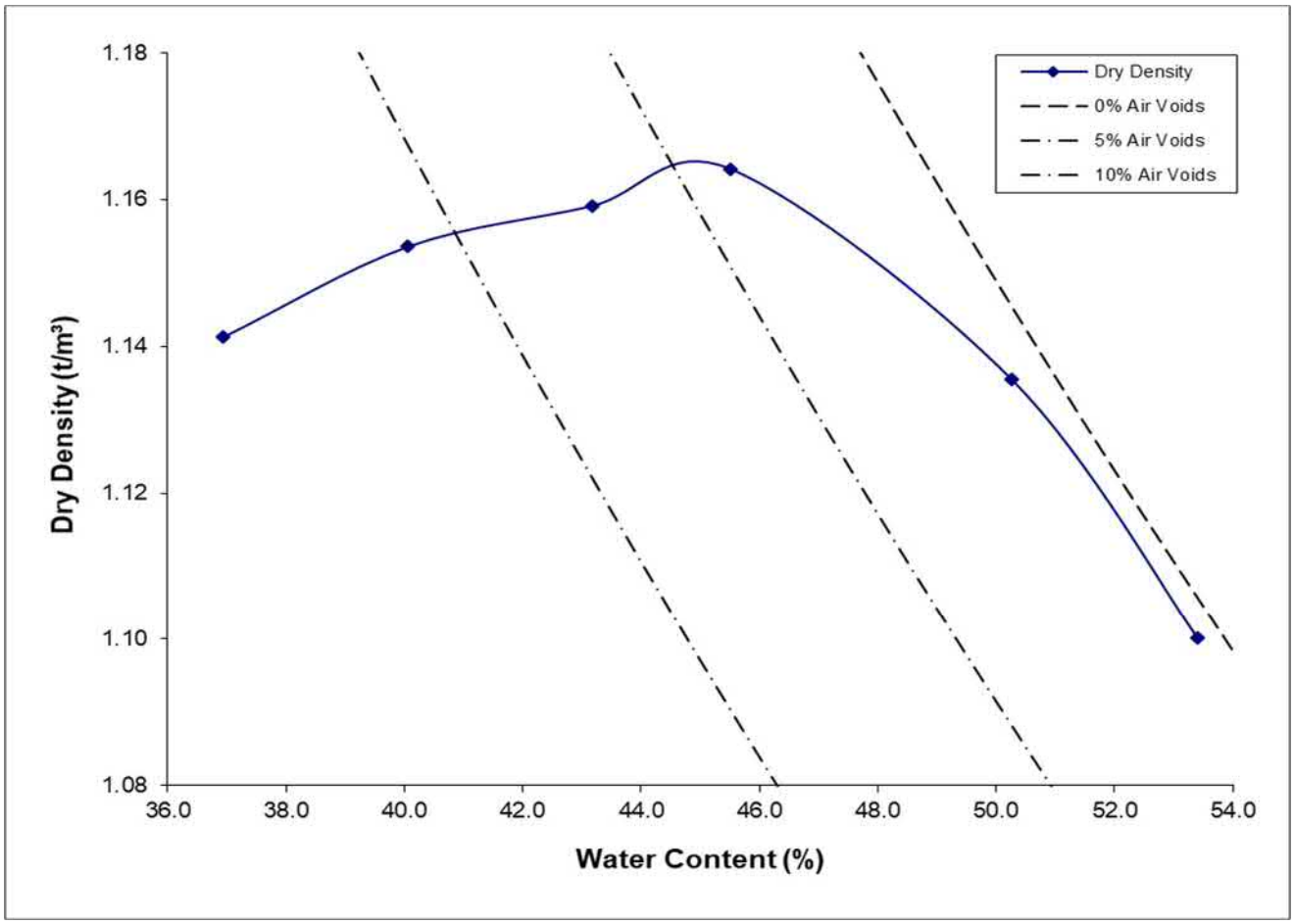
for STEVENSON AGGREGATES LTD

T A WHITMORE
IANZ APPROVED SIGNATORY

TEST RESULTS

Material:	***Clayey Silt, (ASH)***	Test No:	***203058***
Location:	***TP-03-02, 3.0-4.0m***		
Project Name:	*303 Buckland Road*	Reference No.:	*P-000925*

NZ STANDARD COMPACTION



Maximum Dry Density (t/m³)	Optimum Water Content (%)	Solid Density Assumed t/m³	Natural Water Content %
1.16	*45.0*	*2.70*	*65.3*

Water Content (%)	*36.9*	*40.1*	*43.2*	*45.5*	*50.3*	*53.4*
Dry Density (t/m³)	*1.14*	*1.15*	*1.16*	*1.16*	*1.16*	*1.14*
Shear Strength (kPa)	*UTP*	*UTP*	*UTP*	*185*	*131*	*86*
Remould Shear Strength (kPa)	-	-	-	*48*	*24*	*24*

Note: *i.* *UTP = Unable to Penetrate.*
ii. *Test performed on material passing the 19.0mm sieve (97%)*

PRELIMINARY SITE INVESTIGATION (PSI)

301 BUCKLAND ROAD, PUKEKOHE

Reference Number: REP-1258/PSI/NOV18

PREPARED FOR: FRANKLINS PLUMBERS & BUILDERS SUPPLIES LTD, C/- SCOTT WILKINSON PLANNING

16 NOVEMBER 2018

Geosciences Limited
47 Clyde Road, Browns Bay, Auckland
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Disclaimer

This report is provided on the condition that Geosciences Ltd disclaims all liability to any person or entity other than the client and Auckland Council in respect of anything done or omitted to be done and of the consequence of anything done or omitted to be done by any such person in reliance, whether in whole or in part, on the contents of this report. Furthermore, Geosciences Ltd disclaims all liability in respect of anything done or omitted to be done and of the consequence of anything done or omitted to be done by the client, or any such person in reliance, whether in whole or any part of the contents of this report of all matters not stated in the brief outlined in our proposal and according to our general terms and conditions and special terms and conditions for contaminated sites.

Statement

This site investigation has been prepared in accordance with the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. It has been managed by a suitably qualified and experienced practitioner (SQEP); and reported on in accordance with the current edition of the Ministry for the Environment's *Contaminated Land Management guidelines No.1 – Reporting on Contaminated Sites in New Zealand.*

Report prepared on behalf of GSL by:	Report reviewed on behalf of GSL by:	Report authorised on behalf of GSL by:
		
Chris Davies Environmental Scientist Geosciences Ltd	Carl O'Brien General Manager Geosciences Ltd	Johan Faurie Principle Geosciences Ltd

Thank you for the opportunity to carry out this investigation. Should you have any queries regarding this report please do not hesitate to contact us on 09 475 0222.

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EXECUTIVE SUMMARY

Geosciences Ltd (GSL) has been requested by Scott Wilkinson Planning on behalf of their client, Franklins Plumbers & Builders Supplies Ltd, to conduct a Preliminary Site Investigation (PSI) of the property located at 301 Buckland Road, Buckland ("the site"). It is proposed to develop the through the removal of existing structures on site, and construction of a commercial warehouse, showroom, and office complex. The site is located on the southern edge of Pukekohe's light industrial zone, in an area where historical and current horticultural farming is common.

The PSI included a review of the property file held by Auckland Council, the available historic aerial photographs, the certificates of title, and any available previous investigations at the site. Following the desktop review, a site inspection was undertaken to confirm findings in the review. The aim of the PSI was to identify whether any activities on the Ministry for the Environment's (MfE) Hazardous Activities and Industries List (HAIL) are more likely than not to currently be, or historically have been, occurring on site.

The historic photograph investigation revealed that the property has been used for pastoral farming for the majority of its recorded history. However, possible horticultural practices (HAIL Item A.10) prior to the 1960s cannot be conclusively ruled out based on aerial photographs of the site between 1942 and 1961. Recent aerial photographs revealed the migration of sediment from the neighbouring horticultural field onto the site (HAIL Item H), confirmed by the site inspection. As the dwelling has been located on the site since before 1942, the use of lead-based paint is likely (HAIL Item I).

The review of a recent geotechnical investigation suggests that unverified fill material (HAIL Item I) may be present on site. While it is likely the fill material encountered is locally derived material disturbed by pastoral farming activities, the lack of records regarding potential filling activities warrants further investigation. This should include the areas of buried concrete and building rubble located in the pasture west of the residential dwelling, where a pre-1940 building was located before its demolition, as well as the stockpiles of material located along the southern boundary of the site.

The investigation, carried out in accordance with the MfE contaminated land management guidelines, has found evidence to suggest it is more likely than not that the site has been the location of possible historic and current HAIL activity. Consequently, the site does not meet the definition of *Land not covered* under Regulation (9) of the National Environmental Standard (NES) for Assessing and Managing Contaminants in Soil to Protect Human Health. A Detailed Site Investigation (DSI) will therefore be required to determine the activity status of the proposed development under the NES and the Auckland Unitary Plan (AUP(OP)) *Chapter E.30 Contaminated Land*.

1 INTRODUCTION

Geosciences Ltd (GSL) has prepared the following report for Scott Wilkinson Planning on behalf of Franklins Plumbers & Builders Supplies Ltd in accordance with the GSL proposal, Ref: *Pro-1613/Oct18*, dated 19 October 2018.

This report has been prepared in accordance with the Ministry for the Environment (MfE) Contaminated Land Management Guidelines (CLMG): No. 1 - "*Guidelines for Reporting on Contaminated Sites in New Zealand*", and No. 5 – "*Site Investigation and Analysis of Soils*" (References 1 and 2).

2 PROPERTY DETAILS

Location:	301 Buckland Road, Pukekohe
Legal Description:	Pt Lot 1 DP 3363
Size:	4.36 Ha
Zoning:	Future Urban Zone

The property at the above address, hereafter referred to as 'the site' in this report, is located on a moderate slope on the southern end of Pukekohe's light industrial zone, overlooking the Pukukohe Park raceway to the east (Figure 1). It is bounded by agricultural land to the west, and lifestyle blocks with pastures to the south. The site currently functions as leased pasture for livestock and horses, with stables and animal pens in the south eastern corner.

3 PROPOSED CHANGE IN LANDUSE AND DEVELOPMENT

It is proposed to develop the site through the construction of a commercial showroom, offices, storerooms, and warehouse for Franklin Plumbers & Builders Supplies Ltd. The proposed development will include significant cut-to-fill earthworks to create a three-tiered split level surface for construction of the proposed buildings. The resulting configuration will include approximately 25,492 m^2 impermeable surfaces (including buildings), and approximately 17,745 m^2 permeable landscaped surfaces.

To achieve this, approximately 31,785 m^3 of cut, and 42,086 m^3 of fill work is proposed, with approximately 10,300 m^3 of engineered cleanfill material required to be imported to create the platform below the main warehouse and pipe storage building. Where cut material is deemed unsuitable for use in construction, it will be removed from site for disposal at an appropriate facility. A copy of the proposed earthworks plan is attached in Appendix A.

The proposal therefore involves change in landuse of the site from agricultural to commercial / industrial alongside soil disturbance development activities.

4 STANDARDS AND REGULATIONS

Because of the change in landuse, and proposed development outlined above it will be necessary to address the requirements of the following standards, rules, and regulations applicable for the site.

4.1 NATIONAL ENVIRONMENTAL STANDARD (NES)

The *National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health* (NES) (Reference 3) ensures that land affected by contaminants in soil is appropriately identified and assessed. When soil disturbance and/or land development activities take place it should be, if necessary, remediated or the contaminants contained to make the land safe for human use.

Under the NES, land is considered to be actually or potentially contaminated if an activity or industry on the MfE Hazardous Activities and Industries List (HAIL) has been, is, or is more likely than not to have been, undertaken on the land. Consequently, a change in landuse, subdivision, or development requires a preliminary site investigation (PSI) of the land to determine if there is a risk to human health because of any current or former activities that are occurring, or may have occurred, on the land under investigation.

4.2 AUCKLAND UNITARY PLAN (OPERATIVE IN PART) (AUP(OP))

Section 30(1)(f) of the RMA provides the Auckland Council with a statutory duty to investigate land for the purposes of identifying and monitoring contaminated land and for the control of discharges of contaminants into or onto land or water and discharges of water into water.

The Auckland Unitary Plan (Operative in Part) (AUP(OP)), which was formally notified on 30 September 2013, is a combined regional policy statement, regional coastal plan, regional plan, and district plan. Auckland Council notified an operative in part version of the plan on 15 November 2016 (Reference 4).

Chapter E.30 of the AUP(OP) deals specifically with contaminated land and maintains that Council is required to manage both the use of land containing elevated levels of contaminants and the discharge of contaminants from land containing elevated levels of contaminants. As no appeals have been lodged on Chapter E.30, the provisions of that section can be considered operative under Section 87 of the Resource Management Act 1991. For all purposes of this investigation, the relevant provisions of the AUP(OP) relating to soil contamination have legal jurisdiction and those provision have been considered where they may have an impact on the proposed development.

5 PSI OBJECTIVES

The objectives of this investigation were to assess:

- if the land is covered by the NES as a result of current or former HAIL activities;
- the extent of current or former HAIL activities on site, if any;
- if the activity can comply with NES permitted activity conditions;

- what, if any, contaminated land rules of the AUP(OP) apply to the proposed development; and
- the need, if any, for further detailed investigations.

6 SCOPE OF WORKS

To achieve the objectives of the PSI, GSL has undertaken the following:

- an historical appraisal of the property by a study of historical aerial photographs;
- a review of the certificates of titles of the property;
- a review of the property files held by council;
- a search of the Auckland Council's contaminated land database;
- a review of previous environmental / geotechnical reports (if any);
- a site visit and walkover of the property; and
- the preparation of a report in accordance with Contaminated Land Management Guideline No. 1 – "Reporting on contaminated Sites in New Zealand" (Ministry for the Environment, 2011) detailing the findings of this investigation and the recommendations, if any, for further work.

7 ENVIRONMENTAL CONTEXT

7.1 GEOLOGY & GEOHYDROLOGY

The local geology is described by Edbrooke (Reference 5) as fine-grained and coarse-grained, porphyritic, olivine basalt, basanite and hawaiite lava flows of the Kerikeri Volcanic Group of the South Auckland Volcanic Field.

7.2 TOPOGRAPHY AND DRAINAGE

The site has a moderate slope from south-east to north-west from its highest point at approximately 85.5m above sea level (asl) in the southern corner, to its lowest point in the northern corner at approximately 61.5m asl.

Stormwater dissipation is currently through soakage and surface runoff, with no apparent connections to a stormwater control system. The site contains only minor overland flow paths which lead into larger overland flow paths in engineered stormwater swales along Buckland Road. The largest of the overland flow paths enters the site from the neighbouring horticultural field to the west of the site. The engineered stormwater swales along Buckland Road channel surface stormwater runoff from the site, into the Tuatenui Stream approximately 260 m north-east of the site. The site does not fall within any flood prone areas, flood plains, or flood sensitive areas due to its slope. However, a flood prone area is located on the neighbouring property to the north of the site, which may receive stormwater from the site via the swales along Bucklands Road.

The site falls within three aquifer management area overlays of the AUP(OP):

- Natural Resources: High-Use Aquifer Management Areas Overlay [rp] - Pukekohe Kaawa Aquifer (Chapter D1)
- Natural Resources: High-Use Aquifer Management Areas Overlay [rp] - Pukekohe Central Volcanic (Chapter D1)
- Natural Resources: Quality-Sensitive Aquifer Management Areas Overlay [rp] - Franklin Volcanic Aquifer (Chapter D2)

8 SITE HISTORY

A desktop study of publically available files and photographs was undertaken to determine the history of the site with respect to any current or historic potentially contaminating landuses.

8.1 CERTIFICATE OF TITLE

GSL has reviewed a copy of the Certificate of Title for the aforementioned property, including any instruments on the title which detail relevant property information such as: current ownership, registered interests, easements, covenants, lease restrictions and transmissions, to determine if pre-existing consent notices or other restrictions / notifications which may be relevant to historic uses or potential soil contamination are held against the property. No notes of interest were recorded on the titles. Copies of these documents are attached in Appendix B.

8.2 HISTORIC AERIAL PHOTOGRAPHS

Historic aerial photographs from 1942, 1961, 1975, 1978, 1981, 1988, and 2003 are available for the site on the Retrolens website (Reference 6), while images from 2001, 2006, 2008, 2010, and 2017 are available on the Auckland Council GEOMaps website (Reference 7). Additional satellite images are available from Google Earth from 2001, 2009, and 2010 to 2018. The findings of the historic aerial photograph review are summarised below, while copies of these aerial photographs have been attached in Appendix C.

1942 This is the earliest photograph of the site, when it formed part of a larger property encompassing what is now part of Pukekohe Park on the eastern side of Buckland Road. The fields on site are in a larger configuration, with shelterbelts defining their boundaries and livestock identifiable in the south eastern field. The residential dwelling currently on site is already present in this image, as well as shed like structures located under the trees to the west of the house. A gully runs from south to north across the central field. The surrounding land contains a mix of pasture and horticulture to the north, south, and west, and the Pukukohe Park raceway to the east.

1961 The site appears in the same configuration as the 1942 image. However, the neighbouring fields to the west are being used for horticulture. The south eastern field on the site has a different appearance to the other fields, but it is not clear whether it is being used for horticulture or whether the grass has been mechanically cut as feed for the grazing livestock.

1975-1978 The 1975 aerial image is of very low quality, but appears to be very similar to the 1978 image. By 1975, the stables in the south western corner of the site have been constructed, and the large field configuration across the site removed. Smaller paddocks containing livestock are clearly visible across the site in the 1978 image. It appears that the northern end of the site is being prepared for the new road layout of Buckland Road.

1981-1988 By 1981 construction on Buckland Road has been completed, defining the current property boundary. The quality of the 1988 image is relatively low, and as such no significant differences with the 1981 image were noted.

2001-2006 The first colour image of the site, the 2001 image shows significant changes to the south western section of the site. The shed and trees west of the house have been removed to form a large paddock while the stables have been extended to include livestock pens on the northern end. The garage and shed adjacent to the house have also been removed, and a car port installed. The small pens in front of the stables have been removed and replaced with a training circle for horses. The rest of the site remains unchanged. No significant changes are visible between the 2001, 2003, and 2006 images.

2008 The site appears disused in the 2008 image, with the fields fallow, no livestock visible, and the livestock sheds appearing in apparent disrepair.

2009-2015 By 2009 the site appears to be once again used for pasture while wrapped bails are visible in the northern and southern paddocks, along with livestock. The horse training circle appears to have been grassed over, but no other significant changes are noted in the 2010 and 2015 images.

2017 A band of material can clearly be seen extending from the corner of the southern horticultural field on the neighbouring property in a north easterly direction along an overland flow path on the site. This material is clearly visible in the Auckland Council aerial photograph, and two satellite images from Google Earth in April 2017 demonstrating sedimentation runoff from the neighbouring property.

2018 The plume of material visible in the 2017 image is no longer visible in the 2018 satellite image from Google Earth. The site appears otherwise unchanged.

8.2.1 Summary of Historic Aerial Imagery

It is not clear whether the configuration of the site prior to 1975 was limited to pasture farming, or whether some localised horticultural activities took place. The neighbouring property to the west of the site appears to have been horticultural since at least 1961 while the layout of Buckland Road was altered between 1978 and 1981, resulting in the current triangular boundary of the site.

The residential dwelling has been present on site since before the earliest aerial photograph was captured in 1942. However, the shed like structures and trees to the west of the house, and the shed and garage adjacent to the house were removed at some time during the 1990s. The stables in the south western corner were constructed prior to 1975, with livestock pens later added during the 1990s.

The site appears to have been used exclusively for pasture since 1975, with no obvious signs of filling, dumping, or earthworks occurring on site visible in the aerial images. However, material can

clearly be seen to have migrated from the neighbouring horticultural field onto the site via an overland flow path.

8.3 PROPERTY FILE

GSL requested the property file from Auckland Council for review of historic activities. Recent investigations into the site, submitted as part of the current resource consent application, have been reviewed under Section 8.5 *Former Investigations* below. Copies of relevant historic plans have been attached in Appendix D. The following note of interest was found:

1996 Proposed plans, ref: *38706/398.02*, dated 17 December 1996, were submitted by a prospective buyer outlining the conversion of the existing stables on site into sheds for abrasive sand blasting of metal and for chemical stripping of wooden objects. However, no further correspondence regarding the matter is held on file and there is no evidence on site that the stables were ever converted, and as such these plans are considered negligible.

8.4 CONTAMINATED LAND DATABASE SEARCH

A request was made to Auckland Council for a search of the subject address against their contaminated land database which retains existing records of any investigated land contaminating activities that may have occurred at the site address and which were subsequently investigated by council. It should be noted that while there may be no information held on file this does not necessarily provide conclusive evidence that no potentially contaminating activities have taken place at the site address. A copy of the site contamination enquiry is provided in Appendix E. No items of note were on the file.

8.5 FORMER INVESTIGATIONS

The following former investigations have been conducted at the site:

2018 Geotechnical Investigation Report by Lander Geotechnical, ref: *J00858*, dated 23 July 2018. The investigation encountered fill material in four boreholes across the site, but was unable to determine whether it was placed fill material or locally derived disturbed material from the historic farming practices on the site. The description of the fill material is consistent with the description of the natural material on site. Minor gravel inclusions were encountered in HA7 and P1, both near to Buckland Road.

2018 Assessment of Environmental Effects by Scott Wilkinson Planning, ref: *4161.01*, dated August 2018. As part of the assessment of environmental affects, the site's history was reviewed and no evidence of HAIL activities occurring or having occurred on the site identified. Details of the review were not included.

Relevant pages from the above investigations have been extracted and attached in Appendix F.

9 SITE INSPECTION & INFRASTRUCTURE

At the time of the inspection, the property appeared identical to the 2018 satellite photograph. The structures in the south west corner were confirmed to be cinder block stables with concrete

floors and corrugated iron roofs on the southern half of the building, and timber frame livestock pens with dirt floors and corrugated iron roofs on the northern half of the building. A livestock loading race is located behind the southern end of the stables. There were no structures on the site that could have been spray races or dips.

The single residential dwelling on the southern boundary of the site appeared in relatively good condition, with no noticeable damage to the exterior of the building. A gravel driveway in a state of disrepair extends along the southern boundary of the property, from Buckland Road to Webb Street. Minor surficial rubbish around the house was noted, but no signs of significant dumping or buried rubbish were identified. A small grassed stockpile of soil lies along the southern boundary opposite the timber-frame car port, and is most likely locally derived material stockpiled during the construction of the house. The remnants of a horse training circle is located in front of the stables, with shallow coarse sand overlying geotextile material present beneath the current layer of grass.

Partially buried and grassed concrete and building rubble was encountered in three locations across the site; next to the gate onto Webb Street in the south western corner of the site, under the trees at the northern end of the livestock pens, and in the centre of the southern paddock, halfway between the stables and the residential dwelling. The material under the trees and in the south western corner appeared to be temporary emplacements left on site and eventually grassed over, whereas the partially buried material in the southern paddock is believed to be the remains of a shed visible in the historic aerial images, removed at some point during the 1990s. There were no visible signs of potentially contaminating materials such as lead-painted wood or asbestos containing materials. All materials encountered were inert brick, cinder block or other such concrete based products.

There are currently no visible signs on site of horticulture having occurred. However, it was noted that material from the neighbouring horticultural farm to the west of the site has migrated across the site along an overland flow path during heavy rain events. The horticultural field to the west is slightly elevated above the level of the site, with an earth berm running from north to south along the boundary line. It appears that this bund, and the boundary between the north and south horticultural fields forms a 'dam' where sediment accumulates during rainfall. The earth berm on the boundary does not appear to be structurally reinforced, so it is considered that periods of prolonged or heavy rain result in material migrating along the overland flow path as water moves from the horticultural field down gradient onto the site. This migration is visible in the 2017 aerial photograph.

Identified features appear on Figure 2, and site photographs are attached in Appendix G.

10 POTENTIAL FOR CONTAMINATION

The results of the investigation have indicated that the following potential sources of soil contamination exist on site (Figure 3):

TABLE 1. CURRENT & FORMER HAIL ACTIVITIES AND POTENTIAL HAZARDOUS SUBSTANCES

ACTIVITY	POTENTIAL HAZARDOUS SUBSTANCES
Migration of soil from neighbouring horticultural fields (Item H)	Persistent pesticides, including arsenic, copper, lead, and organochlorine pesticides (OCPs)

Possible historic horticulture (Item A.10)	Persistent pesticides, including arsenic, copper, lead, and organochlorine pesticides (OCPs)
Lead based paint on old buildings (Item I)	Lead
Non-engineered, unidentified, fill (Item I)	Non-uniform heavy metal, petroleum and hydrocarbon contamination

11 CONCLUSIONS

GSL has conducted a desktop study, in accordance with the MfE Contaminated Land Management Guidelines to determine the location and extent of current and / or former HAIL Activities on site and the potential for soil contamination, and the associated risk to human health and the environment, as a result. GSL has consequently concluded that:

- the site has been predominantly pasture grazing for the majority of its recent past;
- there is no evidence of any sheep dips or races on site;
- there is historical photographic evidence that suggests horticultural / production activities may have been conducted on the site prior to the 1960s (HAIL Item A.10);
- buildings have been present on site since prior to 1942, with reasonable probably of lead-based paint being used during their lifetime (considered HAIL Item I);
- there is the possibility of unverified fill (HAIL Item I) on site, however, it is considered to be low risk as it is more likely than not locally derived material disturbed during farming practices;
- buried building material (possible HAIL Item I) is present on site, with the exact extent and composition unknown; and
- soil from the neighbouring horticultural fields has been confirmed to have migrated onto the site (HAIL Item H) via an overland flow path during rain events.

Based on the above investigation, GSL concludes that it is more likely than not that the site has been the location of activities listed on the MfE Hazardous Activities and Industries List (HAIL).

11.1 NATIONAL ENVIRONMENTAL STANDARD (NES)

Portions of the land under redevelopment meets the definitions of HAIL land and will therefore require a detailed site investigation including soil sampling and analysis prior to the development being approved. The specific areas of the site that have been identified as being the location of HAIL landuses have been indicated in Figure 3. The NES regulations apply only to these pieces of land.

11.2 THE AUCKLAND UNITARY PLAN (OPERATIVE IN PART) (AUP(OP))

To satisfy the requirements of the AUP(OP), a detailed site investigation will be required to determine the possible extent of any potential contamination and whether the activity can subsequently meet the applicable environmental permitted activity criteria.

12 RECOMMENDATIONS / FURTHER INVESTIGATIONS REQUIRED

As a result of the findings of this report as outlined above, any subdivision, change in landuse, soil disturbance, or development projects conducted on the areas of the property where historic HAIL activities have been identified (refer Figure 3), are required to address the requirements of the NES, and the AUP(OP), and a suitable detailed site investigation, which includes the analysis of representative soil samples for the presence of potential contaminants of concern, will be required.

Following the analysis of the soil samples further actions may be required which may include the remediation of areas of contaminated soil and / or on-going site management and monitoring.

As the buildings on site were constructed prior to 1 January 2000, they require a suitable asbestos survey prior to demolition.

13 REFERENCES

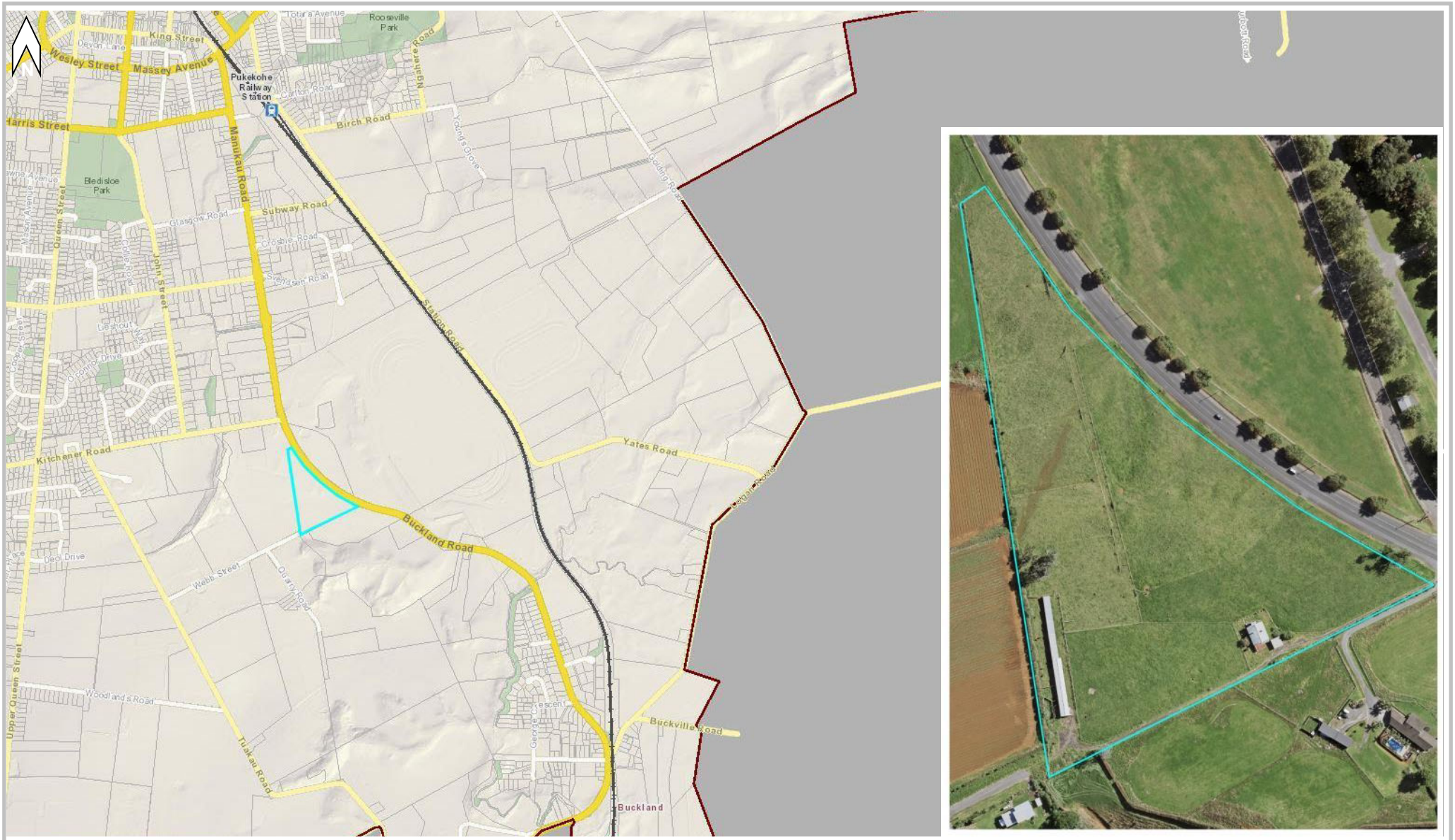
1. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.1: Reporting on contaminated Sites in New Zealand*. Ministry for the Environment, Wellington, New Zealand.
2. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils*. Ministry for the Environment, Wellington, New Zealand.
3. Ministry for the Environment (2012) - *Users Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*. Ministry for the Environment, Wellington, New Zealand.
4. Auckland Council (2013) – *Auckland Unitary Plan (Operative in Part) Chapter E30 Contaminated Land*, Auckland, New Zealand.
5. Edbrooke, S.W (2001) — *Geology of the Auckland Urban Area* Institute of Geological and Nuclear Sciences Geological Map 3, Lower Hutt, New Zealand.
6. Retrolens Historical Image Resource - www.retolens.co.nz
7. Auckland Council (2011) - *Auckland Council GEOMAPS*. http://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html

14 LIMITATIONS

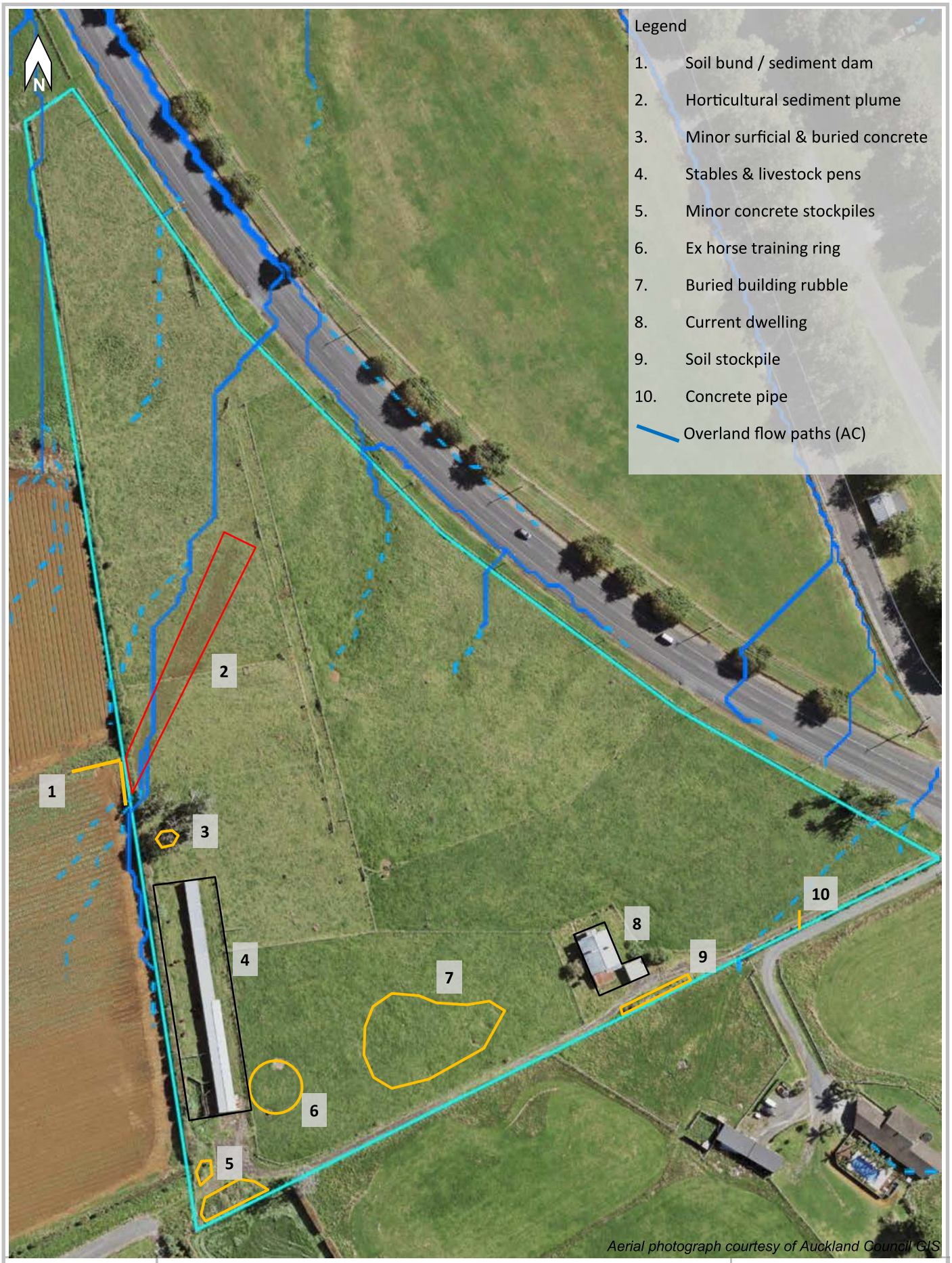
The conclusions and all information in this Report are given strictly in accordance with and subject to the following limitations and recommendations:

1. The assessment undertaken to form this conclusion is limited to the scope of work agreed between GSL and the client, or the client's agent as outlined in this Report. This report has been prepared for the sole benefit of the client and neither the whole nor any part of this report may be used or relied upon by any other party.
2. The investigations carried out for the purposes of the report have been undertaken, and the report has been prepared, in accordance with normal prudent practice and by reference to applicable environmental regulatory authority and industry standards, guidelines and assessment criteria in existence at the date of this report.
3. This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by GSL for use of any part of this report in any other context.
4. This Report was prepared on the dates and times as referenced in the report and is based on the conditions encountered on the site and information reviewed during the time of preparation. GSL accepts no responsibility for any changes in site conditions or in the information reviewed that have occurred after this period of time.
5. Where this report indicates that information has been provided to GSL by third parties, GSL has made no independent verification of this information except as expressly stated in the report. GSL assumes no liability for any inaccuracies in or omissions to that information.
6. Given the limited Scope of Works, GSL has only assessed the potential for contamination resulting from past and current known uses of the site.
7. Environmental studies identify actual sub-surface conditions only at those points where samples are taken and when they are taken. Actual conditions between sampling locations may differ from those inferred. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from that predicted. Nothing can be done to prevent the unanticipated and GSL does not guarantee that contamination does not exist at the site.
8. Except as otherwise specifically stated in this report, GSL makes no warranty or representation as to the presence or otherwise of asbestos and/or asbestos containing materials ("ACM") on the site. If fill has been imported on to the site at any time, or if any buildings constructed prior to 1970 have been demolished on the site or materials from such buildings disposed of on the site, the site may contain asbestos or ACM .
9. Except as specifically stated in this report, no investigations have been undertaken into any off-site conditions, or whether any adjoining sites may have been impacted by contamination or other conditions originating from this site. The conclusion set out above is based solely on the information and findings contained in this report.
10. Except as specifically stated above, GSL makes no warranty, statement or representation of any kind concerning the suitability of the site for any purpose or the permissibility of any use, development or re-development of the site.
11. The investigation and remediation of contaminated sites is a field in which legislation and interpretation of legislation is changing rapidly. Our interpretation of the investigation findings should not be taken to be that of any other party. When approval from a statutory authority is required for a project, that approval should be directly sought by the client.
12. Use, development or re-development of the site for any purpose may require planning and other approvals and, in some cases, environmental regulatory authority and accredited site auditor approvals. GSL offers no opinion as to whether the current or proposed use has any or all approvals required, is operating in accordance with any approvals, the likelihood of obtaining any approvals, or the conditions and obligations which such approvals may impose, which may include the requirement for additional environmental works.
13. GSL makes no determination or recommendation regarding a decision to provide or not to provide financing with respect to the site. The on-going use of the site and/or planned use of the site for any different purpose may require the owner/user to manage and/or remediate site conditions, such as contamination and other conditions, including but not limited to conditions referred to in this report.
14. Except as required by law, no third party may use or rely on, this report unless otherwise agreed by GSL in writing. Where such agreement is provided, GSL will provide a letter of reliance to the agreed third party in the form required by GSL.
15. To the extent permitted by law, GSL expressly disclaims and excludes liability for any loss, damage, cost or expenses suffered by any third party relating to or resulting from the use of, or reliance on, any information contained in this Report. GSL does not admit that any action, liability, or claim may exist or be available to any third party.
16. Except as specifically stated in this section, GSL does not authorise the use of this report by any third party.

FIGURES



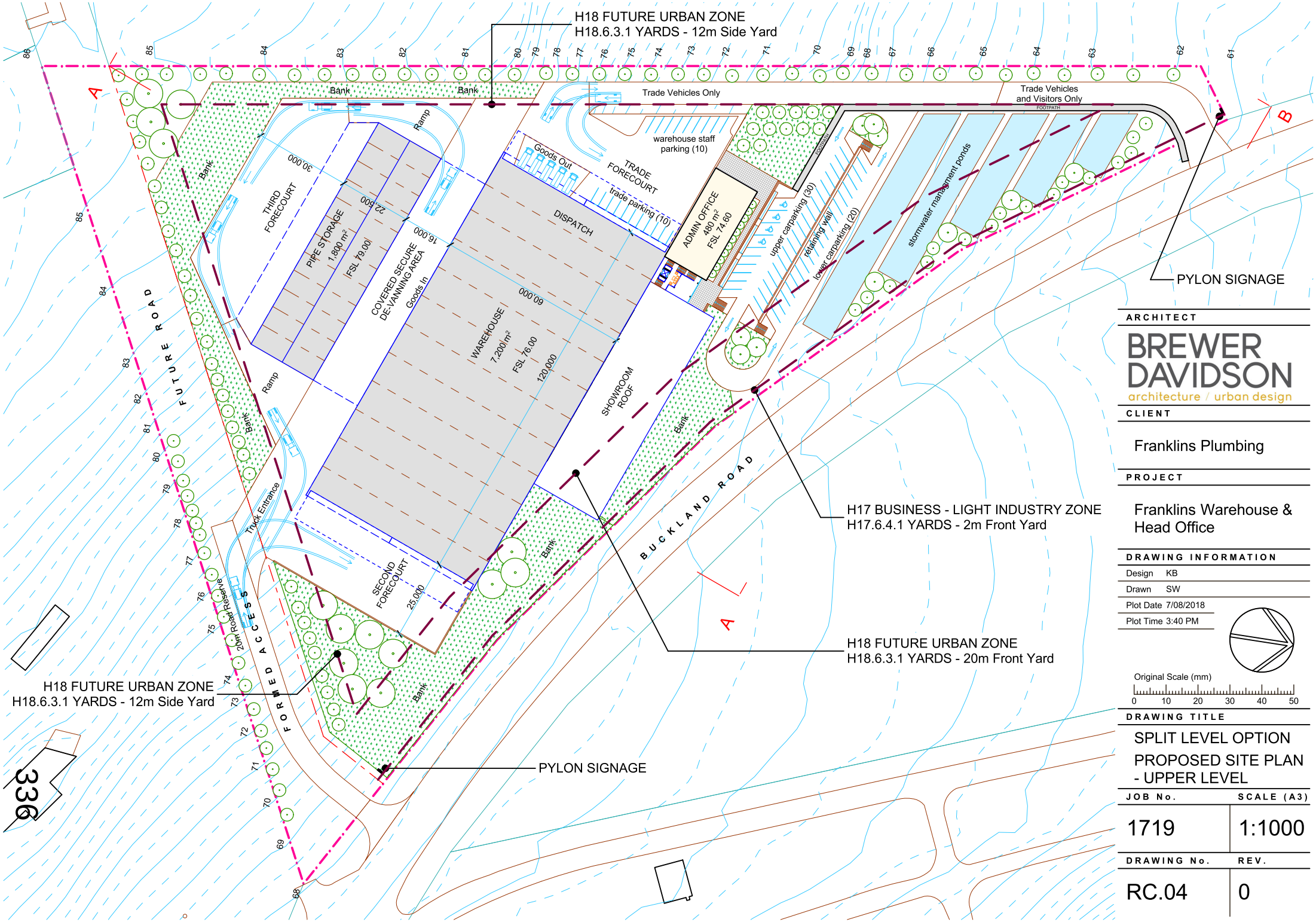
geosciences ltd ENVIRONMENTAL	Title:	Figure 1 - Site Location	Reference: J1258 Date: 15-11-2018
Level 1, 47 Clyde Road, Browns Bay, 0630 Tel: (09) 475 0222	Project name:	301 Buckland Road, Buckland	Drawn: CD Approved: COB



Title:	**Figure 2 - Identified Features**	**Reference:**	J1258
Project name:	301 Buckland Road, Buckland	**Date:**	15-11-2018
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Drawn:**	CD
		Approved:	COB

Title:	**Figure 3 - Potential HAIL**	**Reference:**	J1258
Project name:	301 Buckland Road, Buckland	**Date:**	15-11-2018
		Drawn:	CD
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	COB

APPENDIX A PROPOSED EARTHWORKS PLAN



ARCHITECT

BREWER DAVIDSON
architecture / urban design

CLIENT

Franklins Plumbing

PROJECT

Franklins Warehouse & Head Office

DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	7/08/2018
Plot Time	3:40 PM

Original Scale (mm)

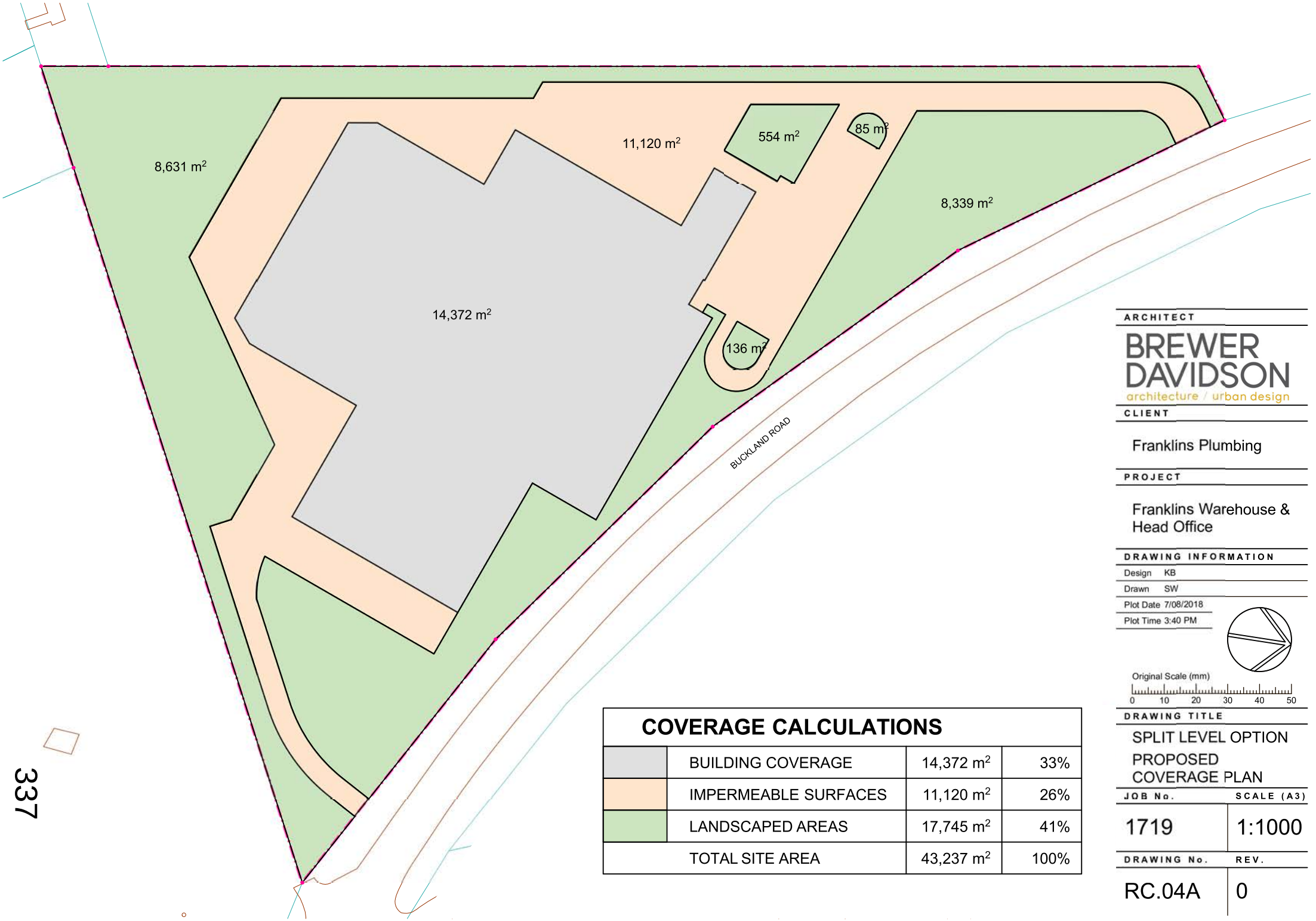
0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
PROPOSED SITE PLAN - UPPER LEVEL

JOB No.	SCALE (A3)
1719	1:1000

DRAWING No.	REV.
RC.04	0



337

COVERAGE CALCULATIONS

	BUILDING COVERAGE	14,372 m²	33%
	IMPERMEABLE SURFACES	11,120 m²	26%
	LANDSCAPED AREAS	17,745 m²	41%
	TOTAL SITE AREA	43,237 m²	100%

ARCHITECT

BREWER DAVIDSON
architecture / urban design

CLIENT

Franklins Plumbing

PROJECT

Franklins Warehouse & Head Office

DRAWING INFORMATION

Design KB
Drawn SW
Plot Date 7/08/2018
Plot Time 3:40 PM

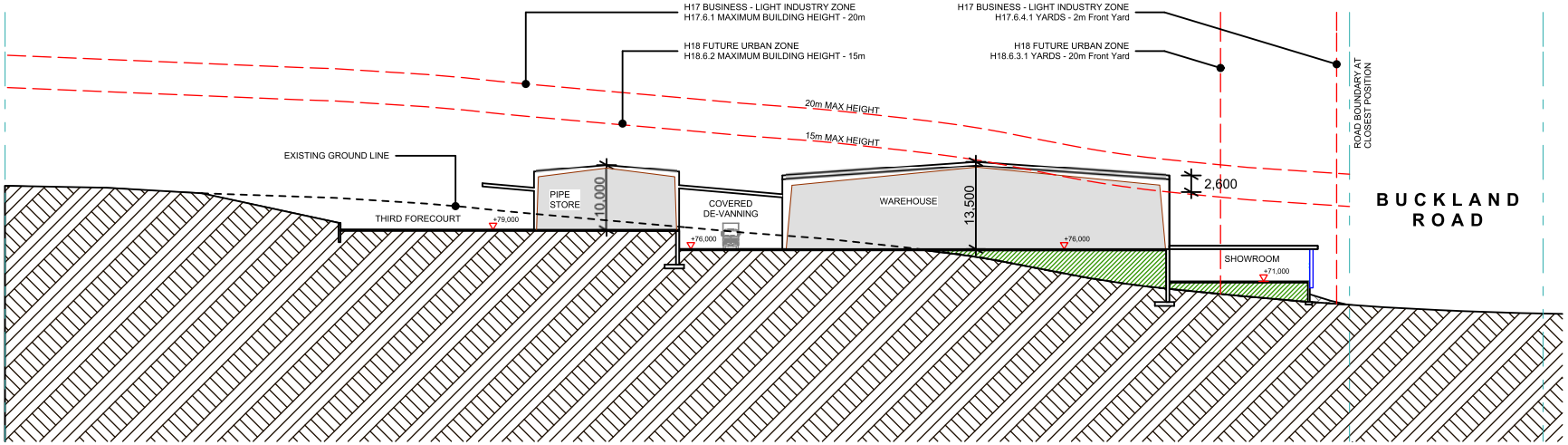
Original Scale (mm)
0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
PROPOSED
COVERAGE PLAN

JOB No.	SCALE (A3)
1719	1:1000

DRAWING No.	REV.
RC.04A	0



ARCHITECT

BREWER DAVIDSON
architecture / urban design

CLIENT

Franklins Plumbing

PROJECT

Franklins Warehouse & Head Office

DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	7/08/2018
Plot Time	3:40 PM

Original Scale (mm)

0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
SECTION A-A

JOB No.	SCALE (A3)
1719	1:750

DRAWING No.	REV.
RC.05	0

EARTHWORKS NOTES:

1. ALL WORKS TO COMPLY WITH THE RELEVANT LOCAL AUTHORITY STANDARDS.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE OPERATIONAL PRIOR TO ANY WORKS COMMENCING AND SHALL BE INSTALLED IN ACCORDANCE WITH AC GD005 'EROSION AND SEDIMENT CONTROL GUIDE FOR LAND DISTURBING ACTIVITIES'.
3. REFER TO EARTHWORKS SPECIFICATION FOR EARTHFILL REQUIREMENTS AND STANDARDS OF COMPACTION. ALL EARTHWORKS TO BE UNDERTAKEN IN ACCORDANCE WITH GEOTECHNICAL INVESTIGATION REPORT, CONTRACTOR TO VIEW THE REPORT TO INFORM THEMSELVES.
4. ALL MATERIAL FROM GULLIES DEEMED BY THE ENGINEER TO BE UNSUITABLE SHALL BE EXCAVATED.
5. TOPSOIL AND OTHER RELATIVELY DRY ORGANIC MATERIAL THAT CAN BE STRIPPED FROM STEEP AREAS/GULLIES USING EXCAVATOR/TRACTOR AND SCOOP SHALL BE CLASSIFIED AS SUBSOIL/TOPSOIL STRIPPING.
6. ALL GULLIES SHALL BE SURVEYED AFTER CLEARING OPERATIONS (PRIOR TO REMOVAL OF UNSUITABLE) AND THEN AGAIN AFTER UNSUITABLE REMOVAL FOR VOLUMES.
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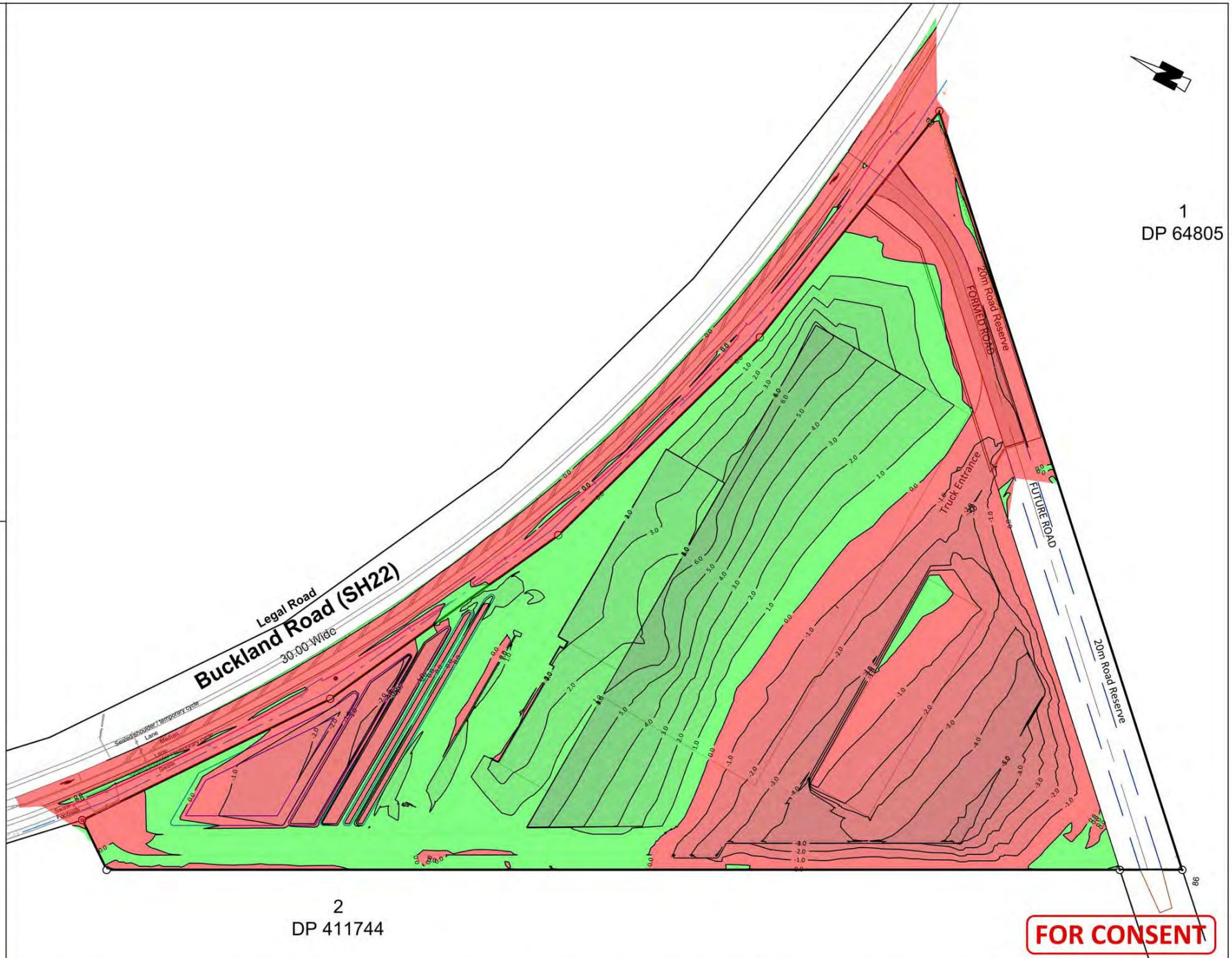
8. THE LOCATIONS OF ALL STOCKPILES ARE WHOLLY THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE LOCATED CLEAR OF ALL EARTHWORKS OPERATIONS AND AWAY FROM GEOTECHNICALLY UNSTABLE LAND. NO PAYMENT SHALL BE MADE FOR RELOCATION OF ANY STOCKPILES THAT HAVE BEEN FOUND TO HAVE BEEN PLACED IN THE INCORRECT LOCATION.
9. ALL SETOUT TO BE UNDERTAKEN BY THE CONTRACTOR.
10. IT IS THE CONTRACTORS RESPONSIBILITY FOR HEALTH & SAFETY & SECURITY ON SITE, APPROPRIATE FENCING AND SIGNAGE SHALL BE ERECTED AND MAINTAINED AT ALL TIMES TO KEEP THE GENERAL PUBLIC OFF SITE.
11. FINAL QUANTITIES AND EXTENT OF EARTHWORKS TO BE DETERMINED BY THE ENGINEER.

EARTHWORKS LEGEND:

85 — PROPOSED CONTOURS - MAJOR (1.0)

EARTHWORKS CUT-FILL TABLE				
FROM	TO	UNIT	COLOUR	RANGE VOLUME (m³)
0	1	m		42086
0	-1	m		-31785



FOR CONSENT

339

CKL
Planning | Surveying | Engineering | Environmental

Auckland Office:
A: 25 Broadway, Newmarket
P: 09 524 7029
Hamilton Office
A: 58 Church Road, Hamilton
P: 07 849 9921
Te Awamutu Office
A: 103 Market Street, Te Awamutu
P: 07 871 6144

WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

PROPOSED EARTHWORKS PLAN
CUT FILL

Issue	Description	Checked	Date
01	PRELIMINARY	GW	26.03.18
02	ISSUED FOR CONSENT	SS	30.07.18

		Date
Designed:	MJW	22.07.18
Drawn:	MJW	22.07.18
Checked:	SS	30.07.18

Scale: 1:1250 (A3 Original)

Job No: W3150
Dwg No: 210
Rev: 02

EARTHWORKS NOTES:

1. ALL WORKS TO COMPLY WITH THE RELEVANT LOCAL AUTHORITY STANDARDS.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE OPERATIONAL PRIOR TO ANY WORKS COMMENCING AND SHALL BE INSTALLED IN ACCORDANCE WITH AC GD005 'EROSION AND SEDIMENT CONTROL GUIDE FOR LAND DISTURBING ACTIVITIES'.
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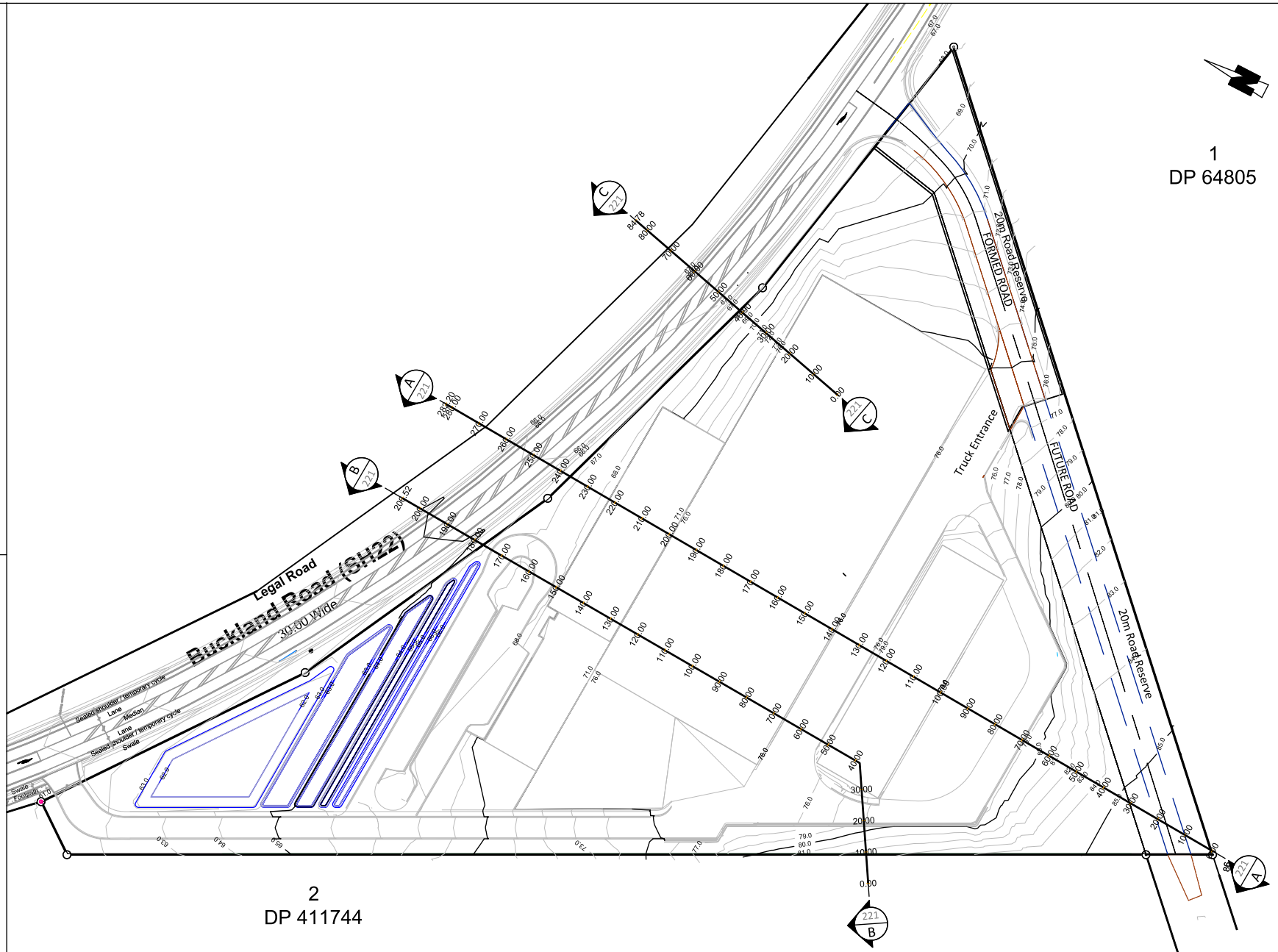
EARTHWORKS LEGEND:

85 — PROPOSED CONTOURS - MAJOR (1.0)



FOR CONSENT

CKL
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Auckland Office:
A: 25 Broadway, Newmarket
P: 09 524 7029
Hamilton Office
A: 58 Church Road, Hamilton
P: 07 849 9921
Te Awamutu Office
A: 103 Market Street, Te Awamutu
P: 07 871 6144

WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

PROPOSED EARTHWORKS
SECTION LINES
PLAN

Issue	Description	Checked	Date
01	ISSUED FOR CONSENT	SS	30.07.18

		Date
Designed:	MJW	22.07.18
Drawn:	MJW	22.07.18
Checked:	SS	30.07.18

Scale: 1:250 (A3 Original)

Job No: W3150 | Dwg No: 220 | Rev: 01

340

EARTHWORKS NOTES:

1. ALL WORKS TO COMPLY WITH THE RELEVANT LOCAL AUTHORITY STANDARDS.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE OPERATIONAL PRIOR TO ANY WORKS COMMENCING AND SHALL BE INSTALLED IN ACCORDANCE WITH AC GD005 'EROSION AND SEDIMENT CONTROL GUIDE FOR LAND DISTURBING ACTIVITIES'.
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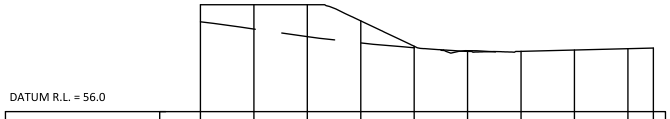
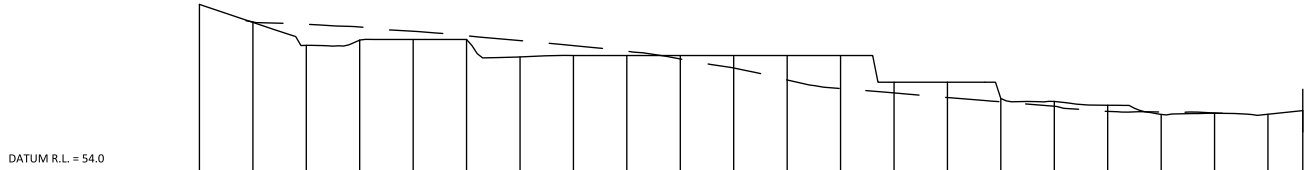


DATUM R.L. = 56.0

CHAINAGE (M)	0	10	20	30	40	50	60	70	80	84.78
CUT/FILL DEPTH	3.19	4.54	5.95	4.12	0.3	-0.12	0.0	0.0	0.0	0.0
EXISTING SURFACE LEVEL	72.81	71.46	70.05	68.87	67.95	67.4	67.28	67.53	67.78	67.9
FINISHED SURFACE LEVEL	76	76	76	72.99	68.24	67.28	67.28	67.53	67.78	67.9

EARTHWORKS LONGITUDINAL SECTION - SECTION C

HORIZONTAL SCALE 1:1000
VERTICAL SCALE 1:1000

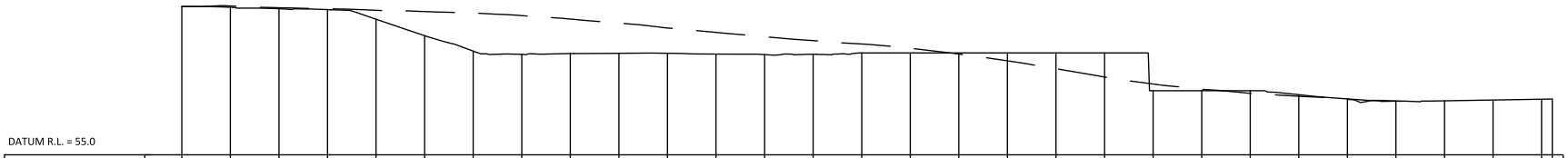


DATUM R.L. = 54.0

CHAINAGE (M)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	206.52
CUT/FILL DEPTH		-0.09	-3.96	-2.45	-1.54	-0.69	-3.05	-1.85	-0.83	0.64	2.33	4.56	6.18	2	2.85	0.63	0.91	1.16	-0.45	-0.07		
EXISTING SURFACE LEVEL		82.3	81.86	81.34	80.54	79.69	78.8	77.85	76.83	75.36	73.67	71.44	69.82	69	68.15	67.34	66.51	65.56	65.42	65.27		
FINISHED SURFACE LEVEL	85.57	82.2	77.9	78.89	79	79	75.76	76	76	76	76	76	76	71	71	67.97	67.41	66.72	64.96	65.2	65.01	65.69

EARTHWORKS LONGITUDINAL SECTION - SECTION B

HORIZONTAL SCALE 1:1000
VERTICAL SCALE 1:1000



DATUM R.L. = 55.0

CHAINAGE (M)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	282.2
CUT/FILL DEPTH	0.03	-0.27	-0.23	-0.18	-1.85	-4.96	-7.84	-7.98	-7.11	-6.2	-5.21	-4.46	-3.7	-2.8	-1.84	-0.97	0.24	1.63	3.27	4.97	-1.4	-0.3	0.53	0.33	0.09	-0.03	0.00	0.00	0.00	0.00
EXISTING SURFACE LEVEL	85.54	85.67	85.32	85.1	84.79	84.53	84.21	83.68	82.98	82.13	81.13	80.23	79.34	78.53	77.84	76.97	75.76	74.37	72.73	71.03	69.6	68.5	67.67	67.06	66.43	66.09	66.13	66.29	66.46	66.49
FINISHED SURFACE LEVEL	85.56	85.4	85.09	84.92	82.94	79.56	76.37	75.7	75.87	75.92	75.92	75.76	75.65	75.73	76	76	76	76	76	76	68.2	68.2	68.2	67.39	66.52	66.06	66.13	66.29	66.46	66.49

EARTHWORKS LONGITUDINAL SECTION - SECTION A

HORIZONTAL SCALE 1:1000
VERTICAL SCALE 1:1000

FOR CONSENT

341

CKL
Planning | Surveying | Engineering | Environmental

Auckland Office:
A: 25 Broadway, Newmarket
P: 09 524 7029
Hamilton Office
A: 58 Church Road, Hamilton
P: 07 849 9921
Te Awamutu Office
A: 103 Market Street, Te Awamutu
P: 07 871 6144

WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

PROPOSED EARTHWORKS PLAN
EARTHWORKS SECTIONS

Issue	Description	Checked	Date
01	ISSUED FOR CONSENT	SS	30.07.18

		Date
Designed:	MJW	22.07.18
Drawn:	MJW	22.07.18
Checked:	SS	30.07.18

Scale: **1:1250** (A3 Original)

Job No: **W3150** Dwg No: **221** Rev: **01**

APPENDIX B CERTIFICATE OF TITLE

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Search Copy

R.W. Muir
Registrar-General
of Land

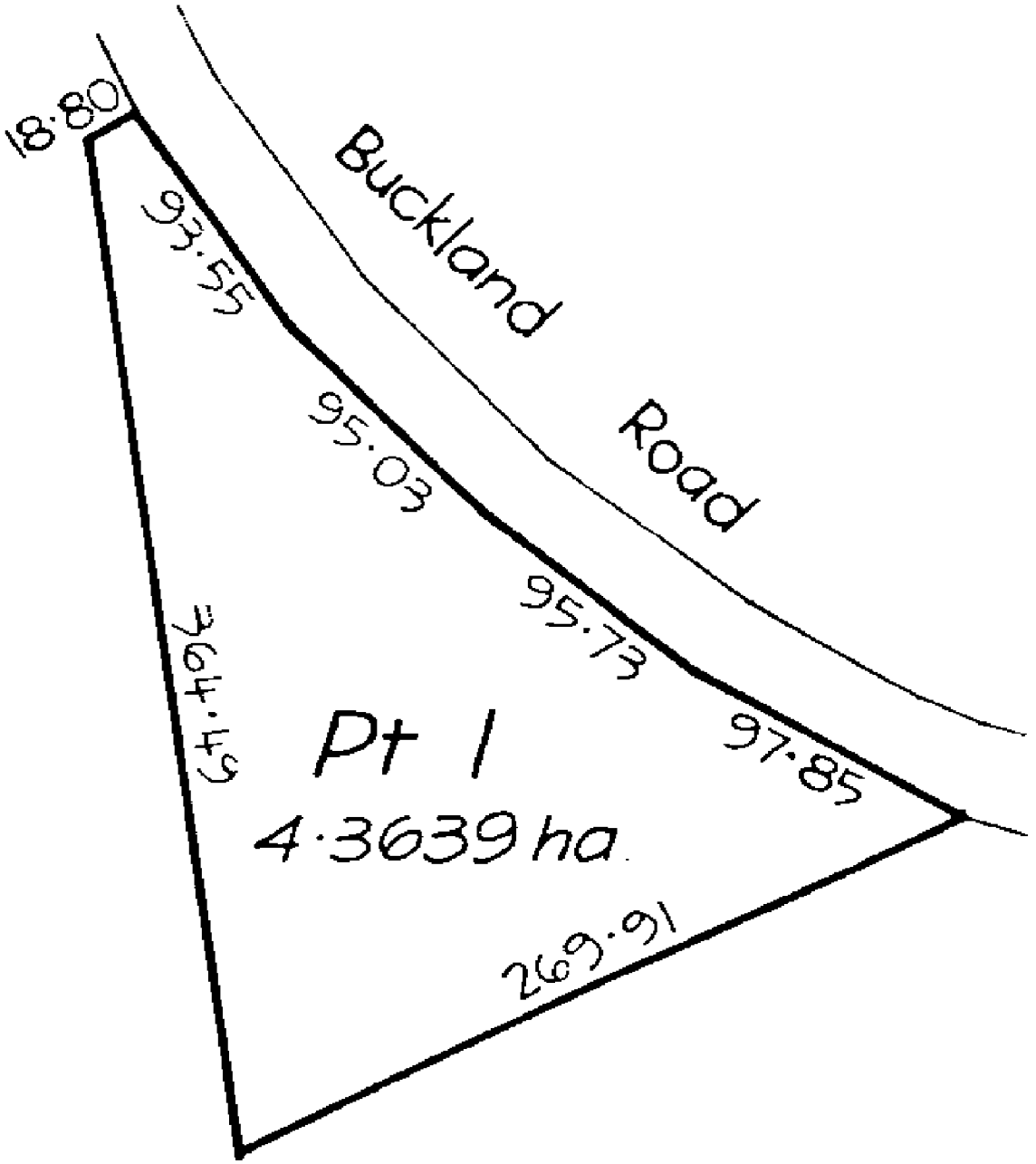
Identifier	**NA56A/559**
Land Registration District	**North Auckland**
Date Issued	22 August 1984

Prior References
NA127/194

Estate	Fee Simple
Area	4.3639 hectares more or less
Legal Description	Part Lot 1 Deposited Plan 3363

Proprietors
Peterex Properties Limited

Interests
762464.1 Compensation Certificate by The Ministry of Works and Development - 10.3.1980 at 10.36 am
10474167.3 Mortgage to ASB Bank Limited - 1.7.2016 at 3:48 pm


18.80
93.55
95.03
95.73
97.85
269.91
364.49
Buckland
Road
Pt 1
4.3639 ha

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**NA56A/559**
Land Registration District	**North Auckland**
Date Issued	22 August 1984

Prior References
NA127/194

Estate	Fee Simple
Area	4.3639 hectares more or less
Legal Description	Part Lot 1 Deposited Plan 3363

Original Proprietors
Raceway Developments Limited

Interests

762464.1 Compensation Certificate by The Ministry of Works and Development - 10.3.1980 at 10.36 am

D560806.3 Mortgage to BNZ Finance Limited - 27.11.2000 at 2.10 pm

7040458.1 Discharge of Mortgage D560806.3 - 22.9.2006 at 9:00 am

7040458.2 Mortgage to ASB Bank Limited - 22.9.2006 at 9:00 am

10441751.1 Discharge of Mortgage 7040458.2 - 30.5.2016 at 3:44 pm

10441751.2 Transfer to Yao and Hao Holdings Limited - 30.5.2016 at 3:44 pm

10441751.3 Mortgage to Westpac New Zealand Limited - 30.5.2016 at 3:44 pm

10474167.1 Discharge of Mortgage 10441751.3 - 1.7.2016 at 3:48 pm

10474167.2 Transfer to Peterex Properties Limited - 1.7.2016 at 3:48 pm

10474167.3 Mortgage to ASB Bank Limited - 1.7.2016 at 3:48 pm

References
Prior C/T 127/194

Transfer No. B.322023.4
N/C. Order No.

Land and Deeds 69

No. 56A/559

REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 22nd day of August one thousand nine hundred and eighty four under the seal of the District Land Registrar of the Land Registration District of NORTH AUCKLAND

WITNESSETH that DAVID WINSTON SPENCER and DONALD THOMAS ALEXANDER both of Pukekohe, veterinary surgeons are seised of an estate in fee simple as tenants in common in equal shares

~~is seised of an estate in fee simple~~ (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 4.3639 hectares more or less being part Lot 1 Deposited Plan 3363 being part Allotment 80 Parish of Pukekohe

DISTRICT LAND REGISTRAR NORTH AUCKLAND

Assistant Land Registrar

Interests at date of issue:

762464.1 Compensation Certificate by Ministry of Works and Development - 10.3.1980 at 10.36 o'c

B.322023.5 Mortgage to ANZ Banking Group (New Zealand) Limited - 22.8.1984 at 1.35 o'c

DISCHARGED 22 OCT 1984 A.L.R.

B.519508.1 Mortgage to King Gerrard Securities Limited - 25.3.1986 at 1.35 o'c

DISCHARGED 31 OCT 1989 A.L.R.

(B.907521.1F)

B.519508.2 Transfer of an undivided one-third share to David John Swney of Pukekohe veterinary surgeon - 25.3.1986 at 1.35 o'c

A.L.R.

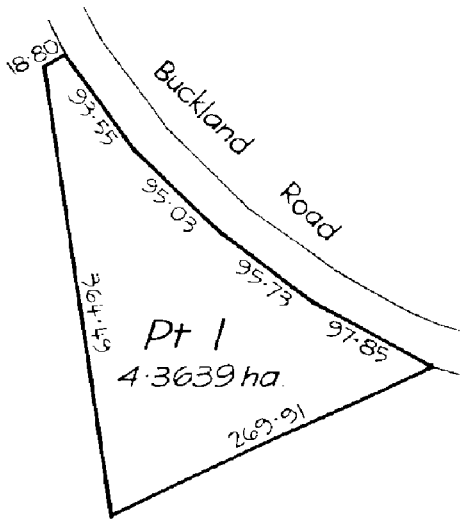
B.519508.3 Memorandum of Priority making Mortgage B.519508.1 a first mortgage and Mortgage B.322023.5 a second mortgage - 25.3.1986 at 1.35 o'c

A.L.R.

OVER.....

Measurements are Metric

PUKEKOHE BOROUGH



DP 3363
FJM Exh: A'

No. 56A/559

CERTIFICATE OF TITLE No. 56A / 559

B.522703.1 Variation of terms of Mortgage B.519508.1 - 8.4.1986 at 2.05oc

A.L.R.

B.714804.1 Variation of terms of Mortgage B.519508.1 - 7.8.1987 at 2.14 oc

A.L.R.

B.797899.1 Variation of terms of Mortgage B.519508.1 -23.3.1988 at 2.07oc

A.L.R

D229968.2 Transfer to Robert John Good and Jacqueline Susan Good

D229968.3 Mortgage to National Bank Banking Corporation

DISCHARGED 25/11/98 FOR RGL

Both 22.12.1997 at 11.08

for DLR

D284019.1 Variation of Mortgage D229968.3 23.6.1998 at 1.40

for DLR

D560806.2 Transfer to Raceway Developments Limited

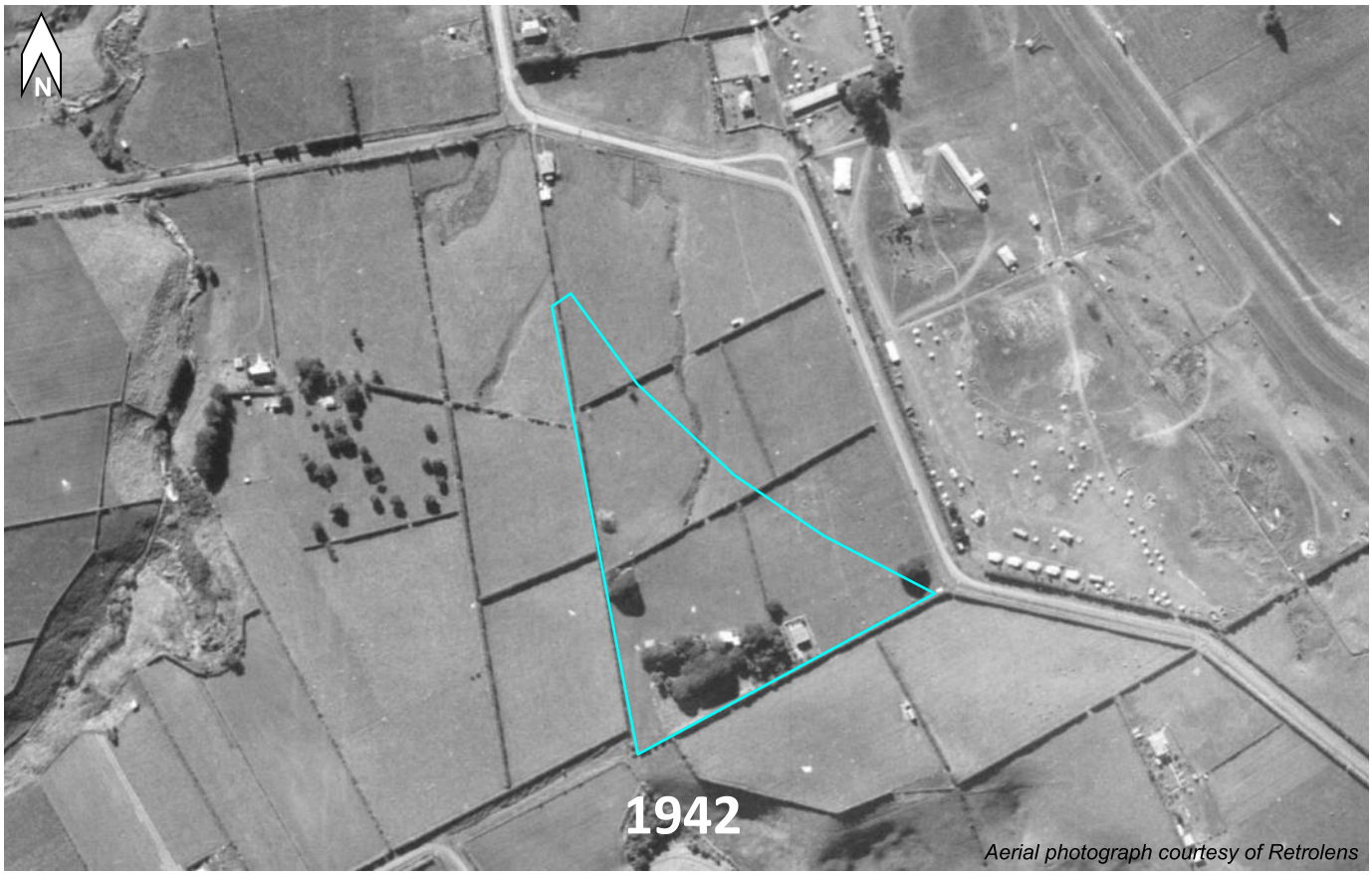
D560806.3 Mortgage to BNZ Finance Limited

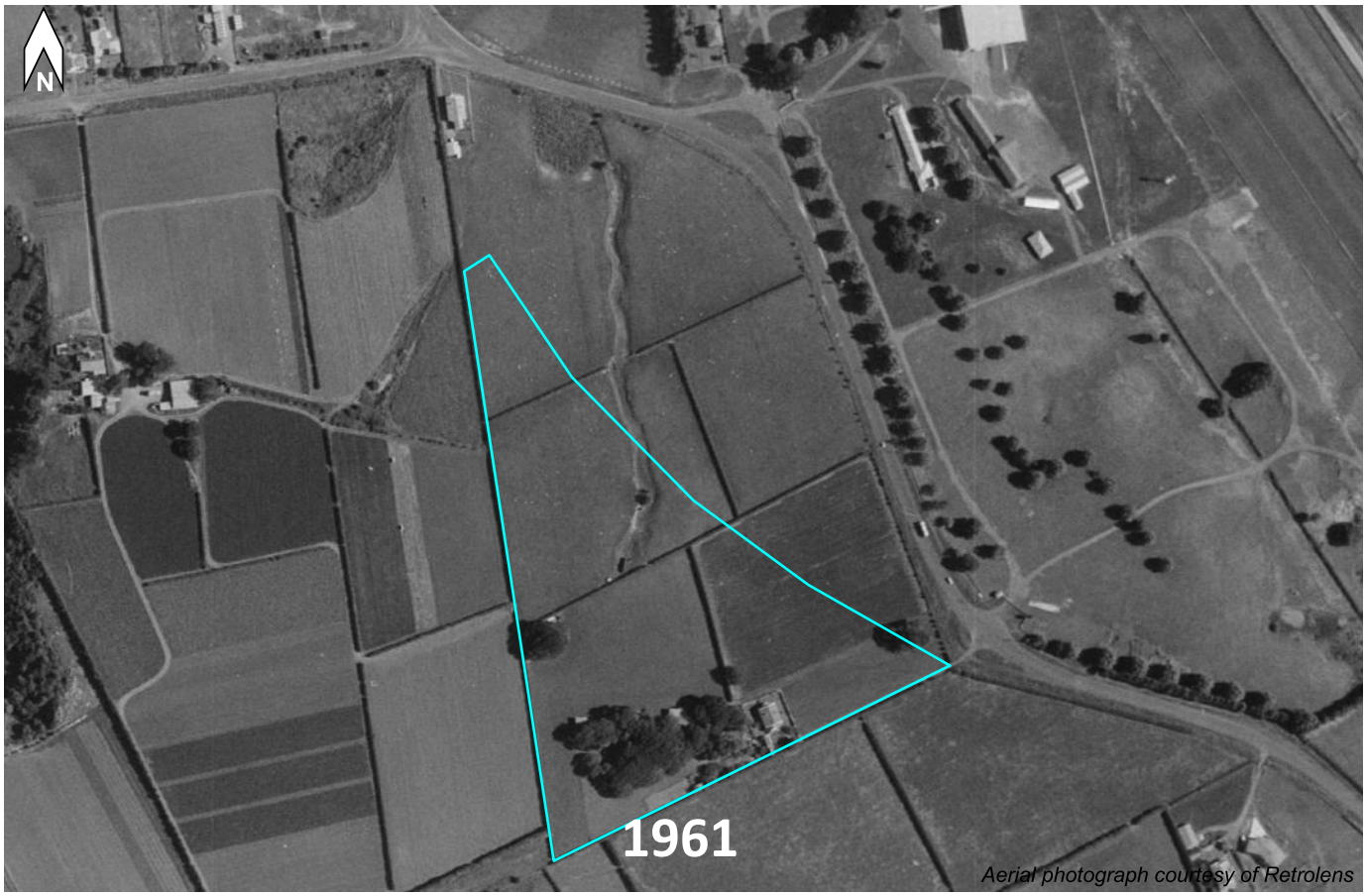
All 27.11.2000 at 2.10

for RGL

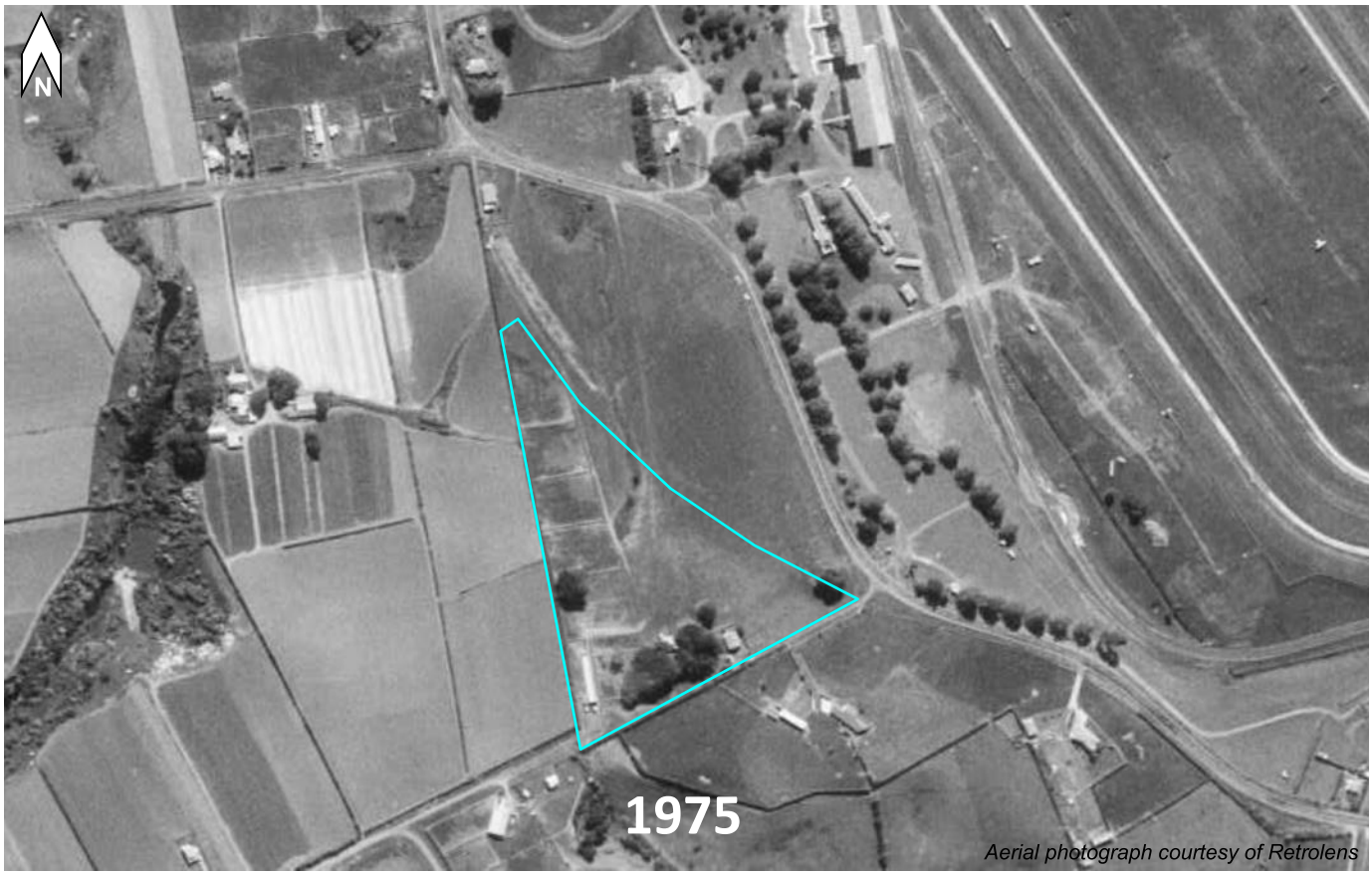
9577E—50,000/12/83MK

APPENDIX C HISTORICAL AERIAL PHOTOGRAPHS



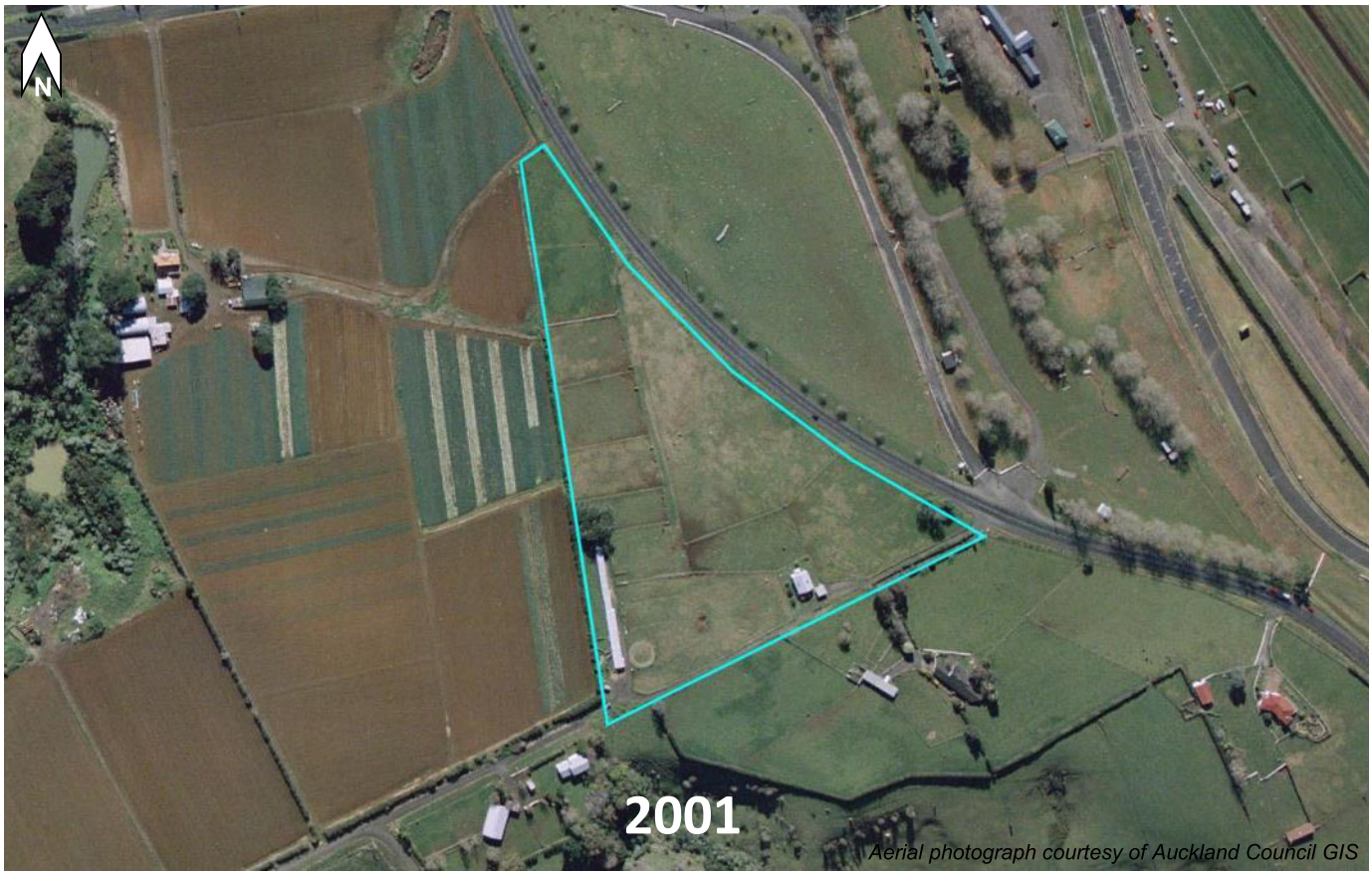


Title:	**Appendix C - Historic aerial photographs**	**Reference:**	J1258
Project name:	301 Buckland Road, Buckland	**Date:**	13-11-2018
		Drawn:	CD
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	COB

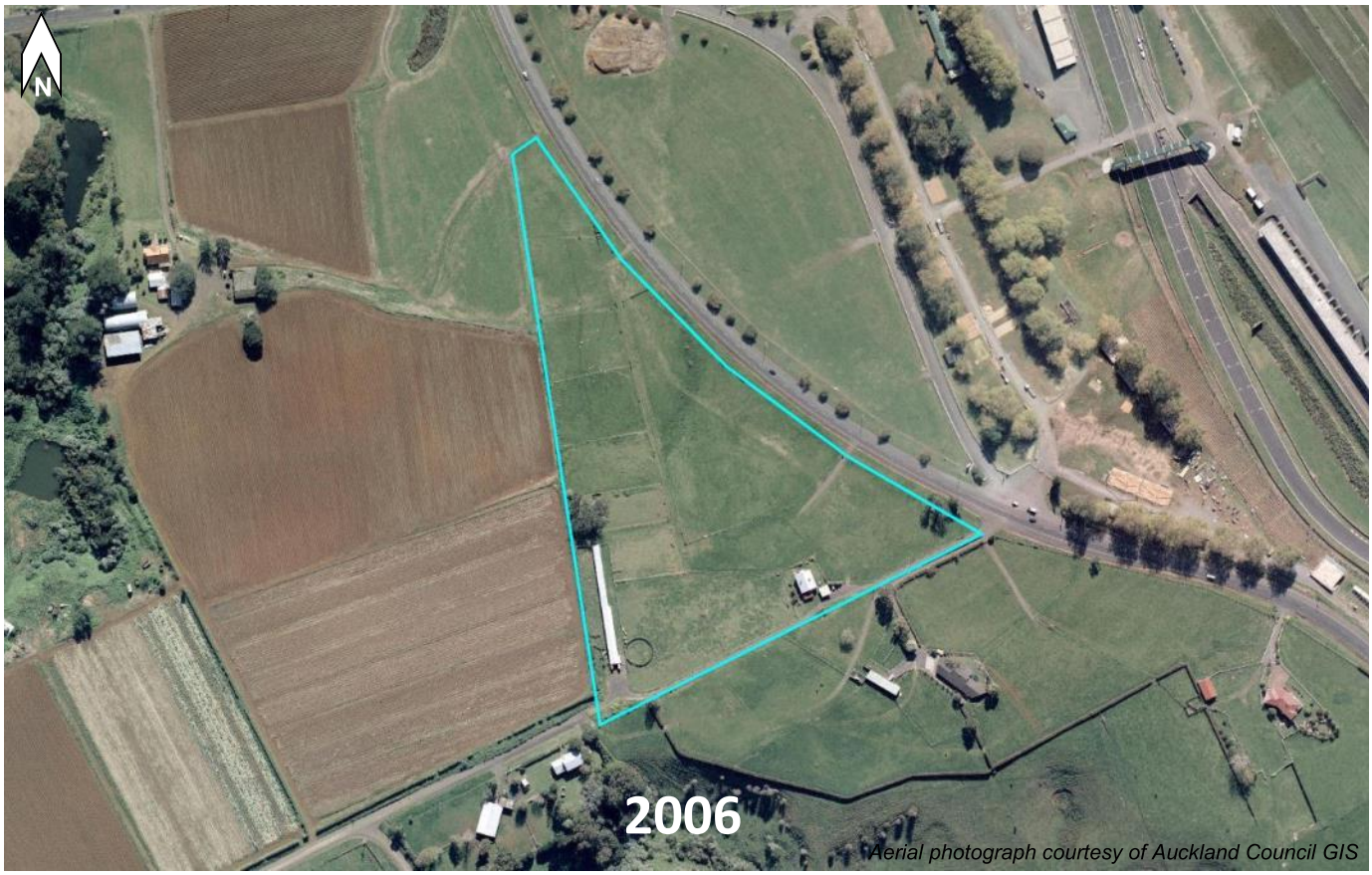


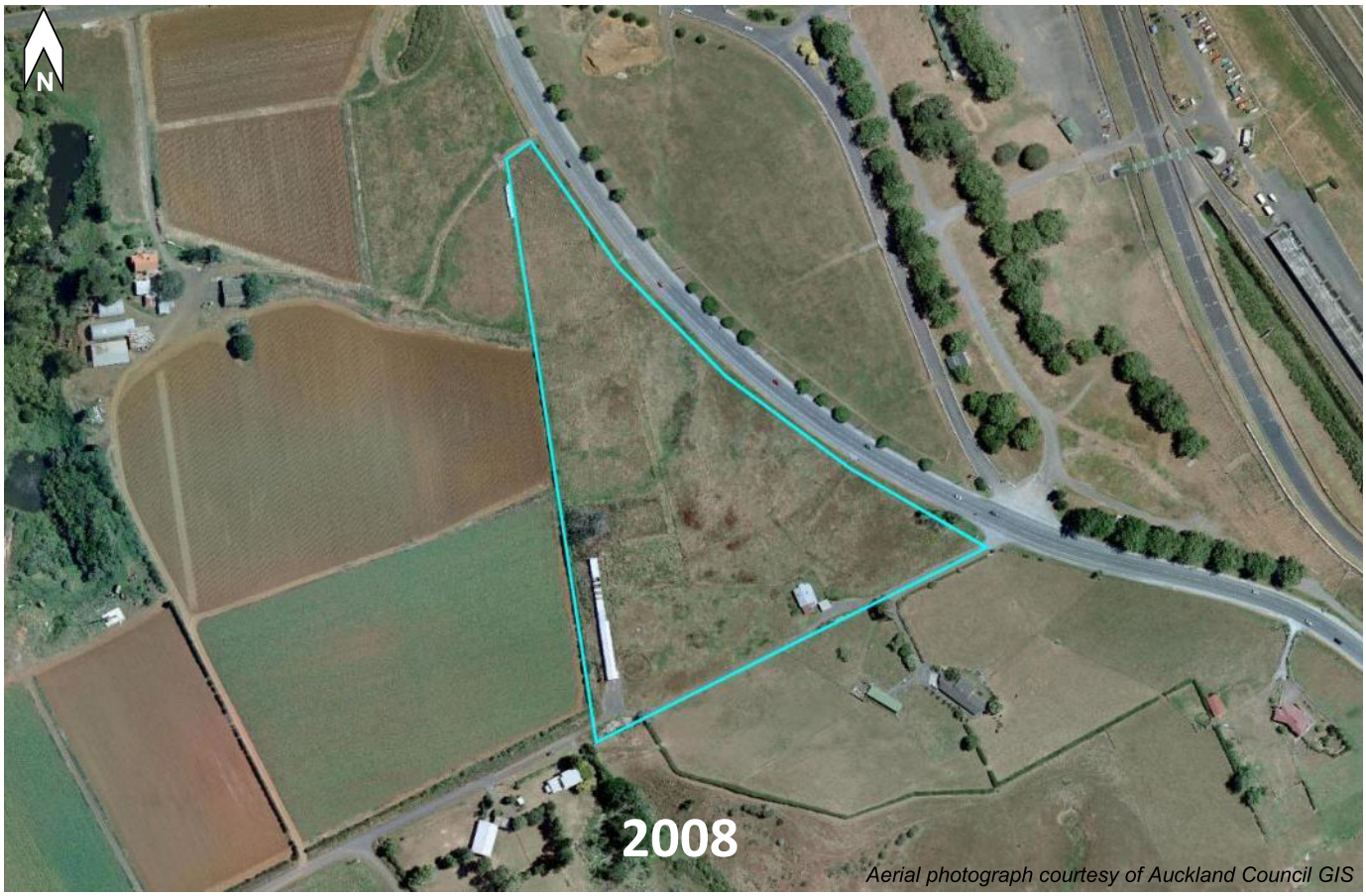
Title:	**Appendix C - Historic aerial photographs**	**Reference:**	J1258
Project name:	301 Buckland Road, Buckland	**Date:**	13-11-2018
		Drawn:	CD
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	COB

Title:	**Appendix C - Historic aerial photographs**	**Reference:**	J1258
Project name:	301 Buckland Road, Buckland	**Date:**	13-11-2018
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Drawn:**	CD
		Approved:	COB

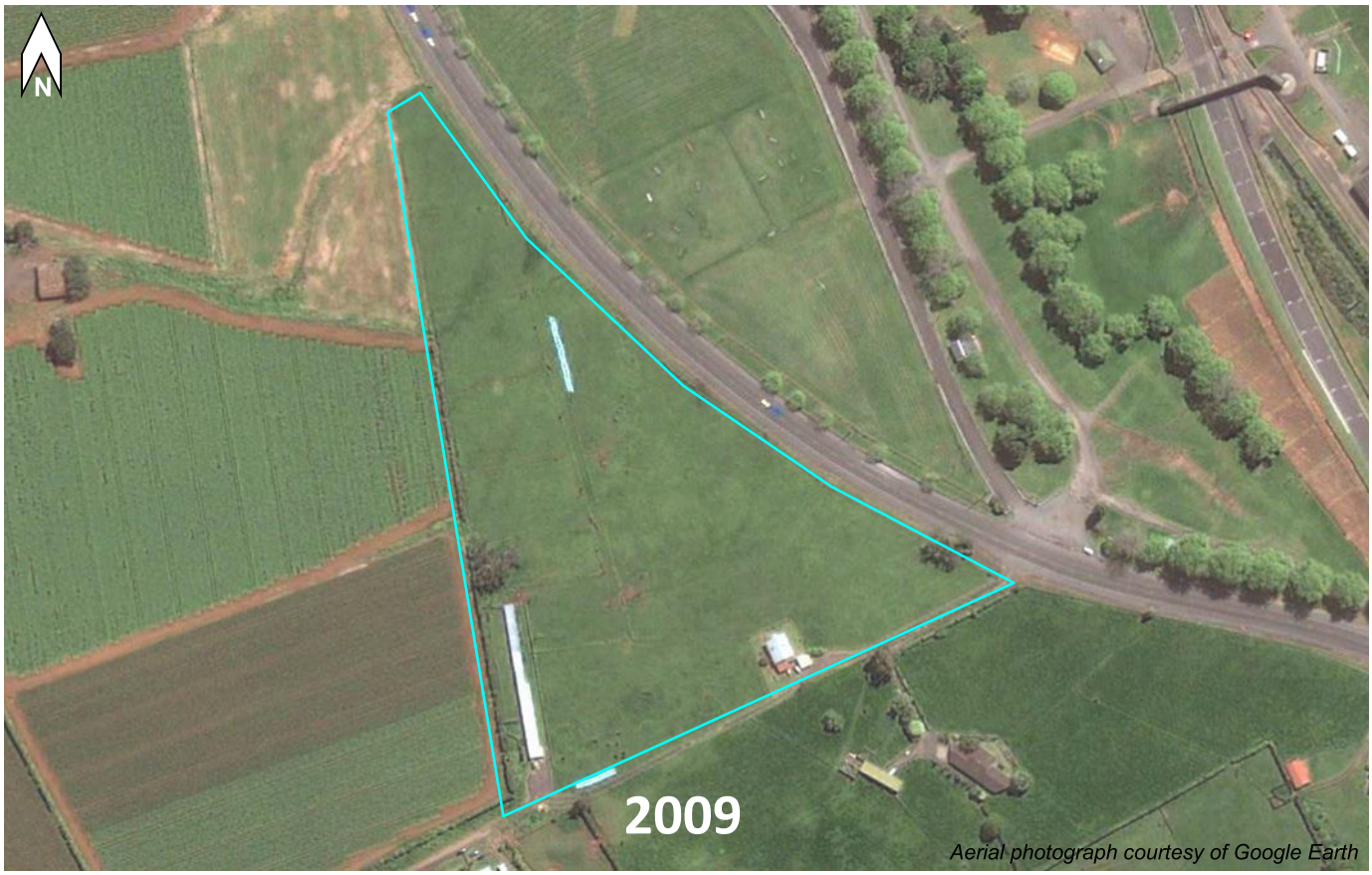


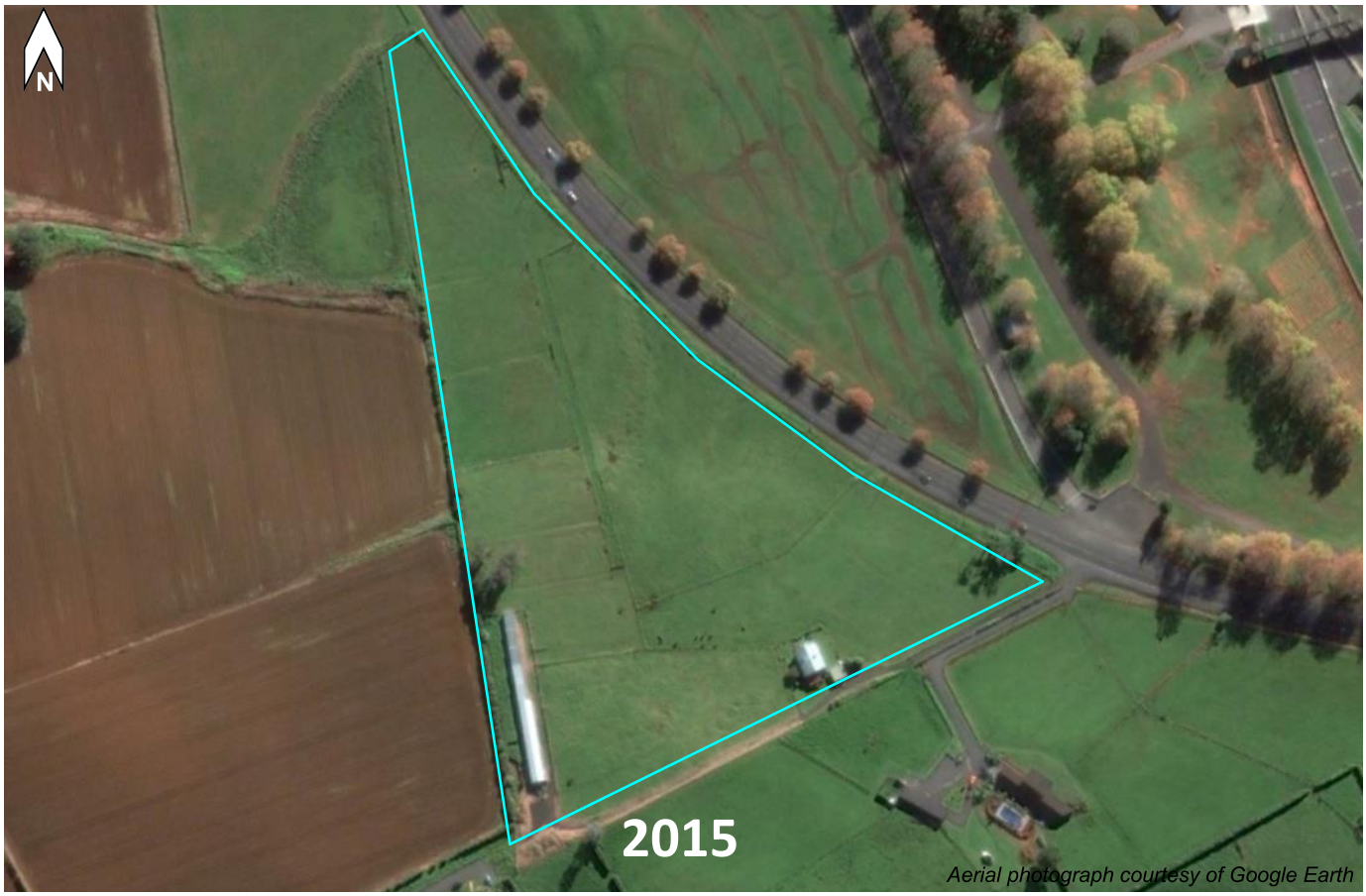
Title:	**Appendix C - Historic aerial photographs**	**Reference:**	J1258
Project name:	301 Buckland Road, Buckland	**Date:**	13-11-2018
		Drawn:	CD
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	COB





Title:	**Appendix C - Historic aerial photographs**	**Reference:**	J1258
Project name:	301 Buckland Road, Buckland	**Date:**	13-11-2018
		Drawn:	CD
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	COB





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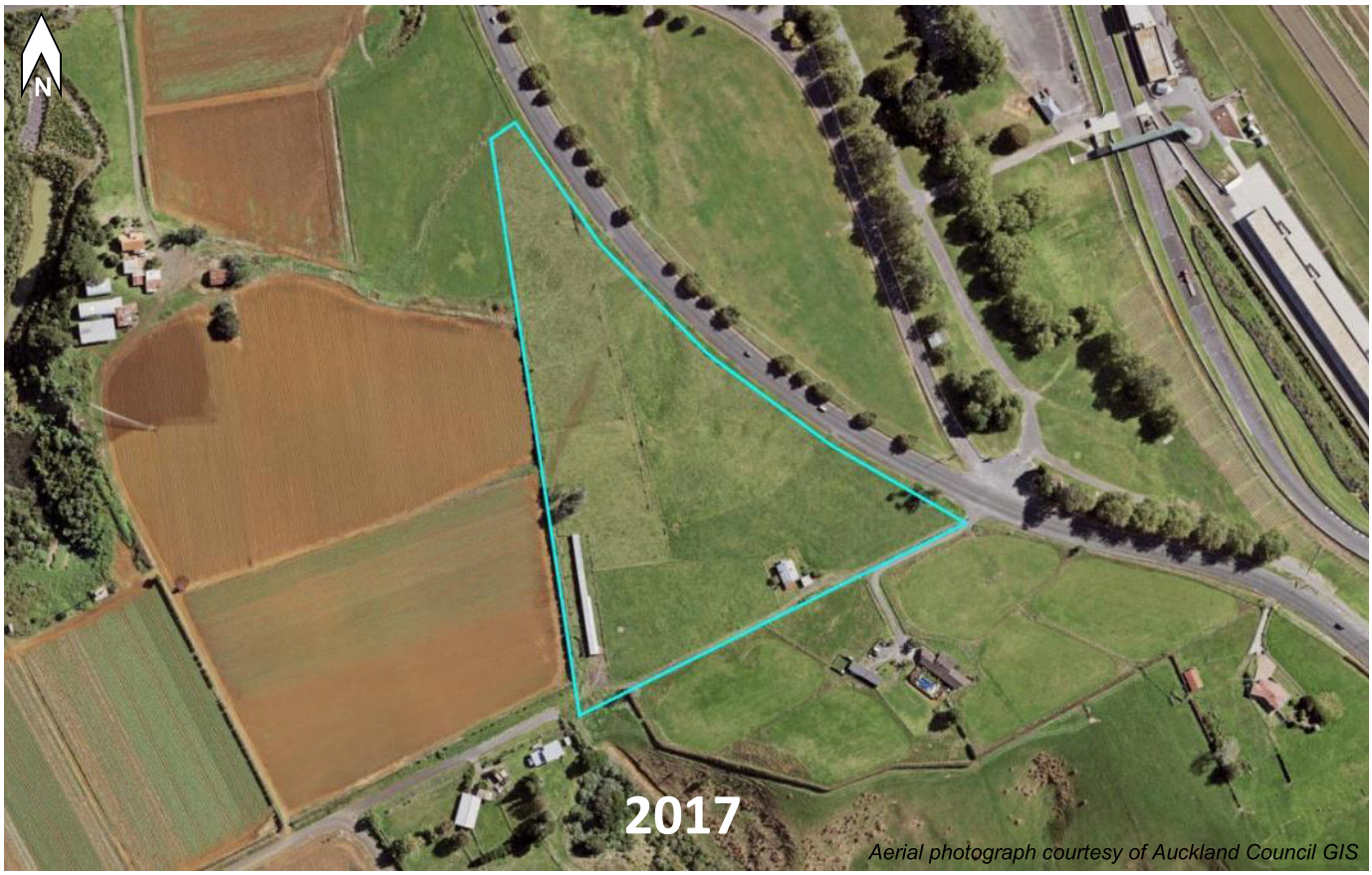
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	COB



Title:	**Appendix C - Historic aerial photographs**	**Reference:**	J1258
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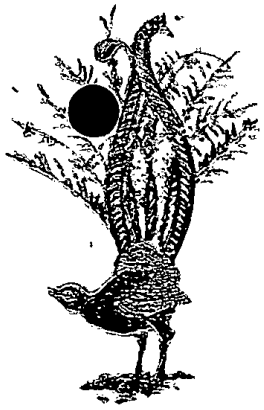
		Drawn:	CD
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	COB

APPENDIX D PROPERTY FILE EXTRACTS



file ⇒ 38706/398.02

17 December 1996.
47 Prospect Tce
Pukekohe.

2384617.

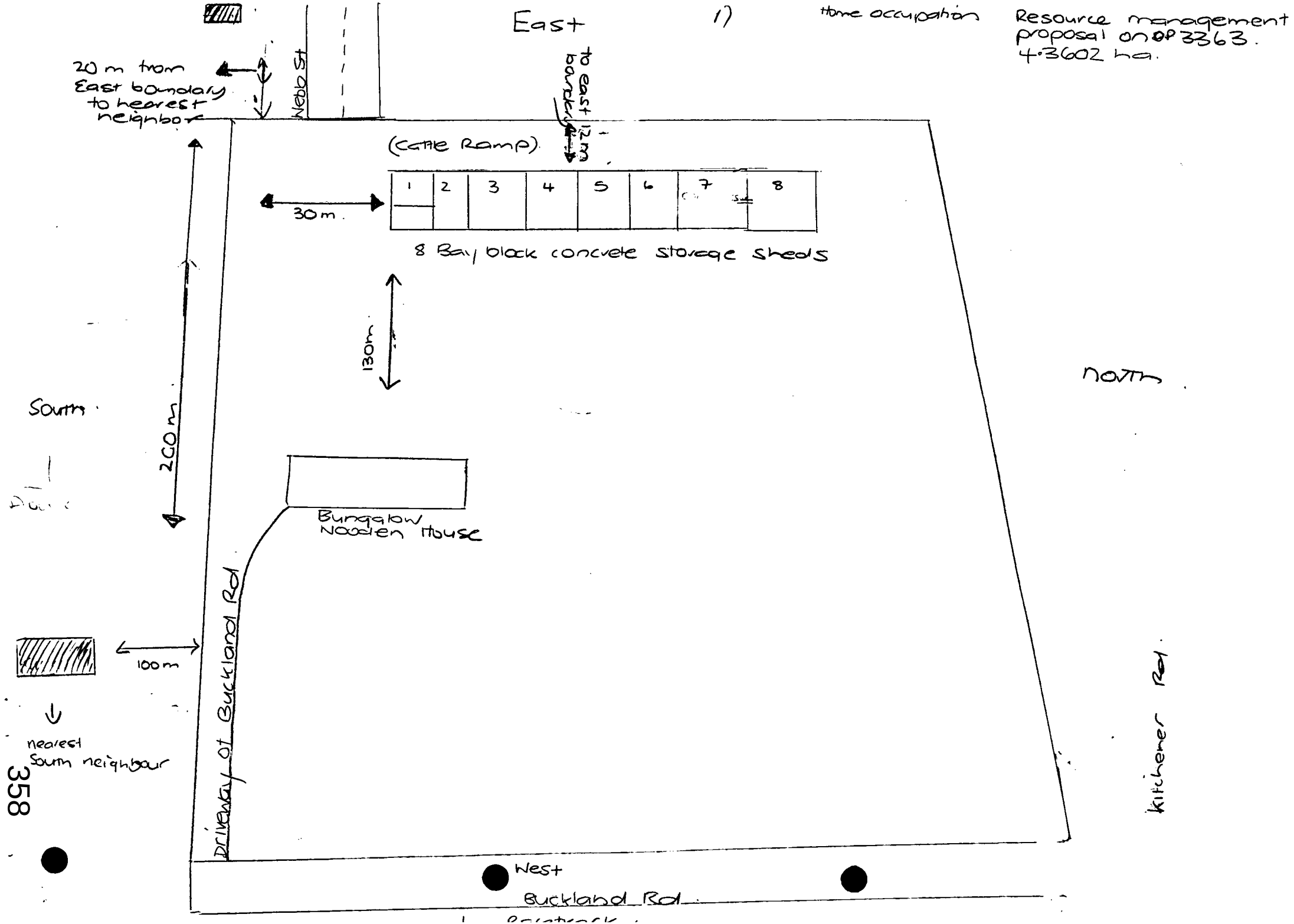
Dear Julie,

I hope these plans are sufficient to gain a urgent assessment, as Ive explained we have put an offer on this property. It should be going unconditional on the 2nd of January, depending on whether these plans meet apon your approval + Environmental officer, is too weather we sign on this property.

Could you please call me ASAP. with a answer, sorry to have to rush you, this close to Christmas

Merry Christmas
yours sincerely

Mrs Lynne Lewis


East
1)
Home occupation
Resource management proposal on DP 3363.
4·3602 ha.
20 m from East boundary to nearest neighbor
Webb St
to east boundary
12m
(Cattle Ramp)
1
2
3
4
5
6
7
8
30m
8 Bay/ block concrete storage sheds
130m
North
South
260m
Bungalow
Wooden House
Driveway of Buckland Rd
100m
nearest South neighbour
358
West
Buckland Rd
Kitchener Rd

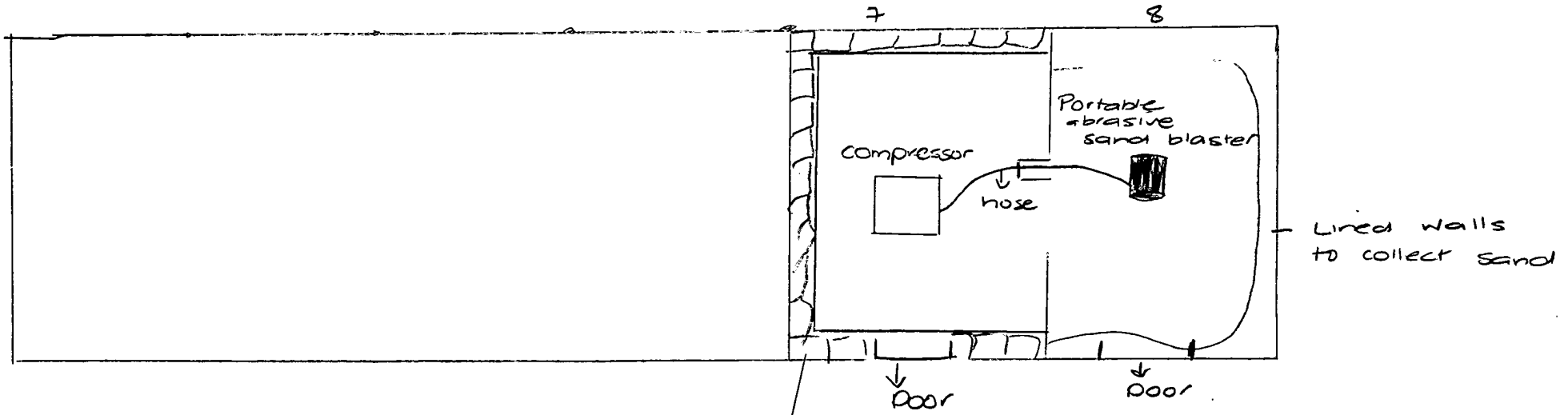
Resource Management Proposal
For Permit of Sandblasting
of Metal Objects; ie machinery

Home Occupation 2

(1)

on DP 3863.

8 Bay Concrete Block Storage Sheds

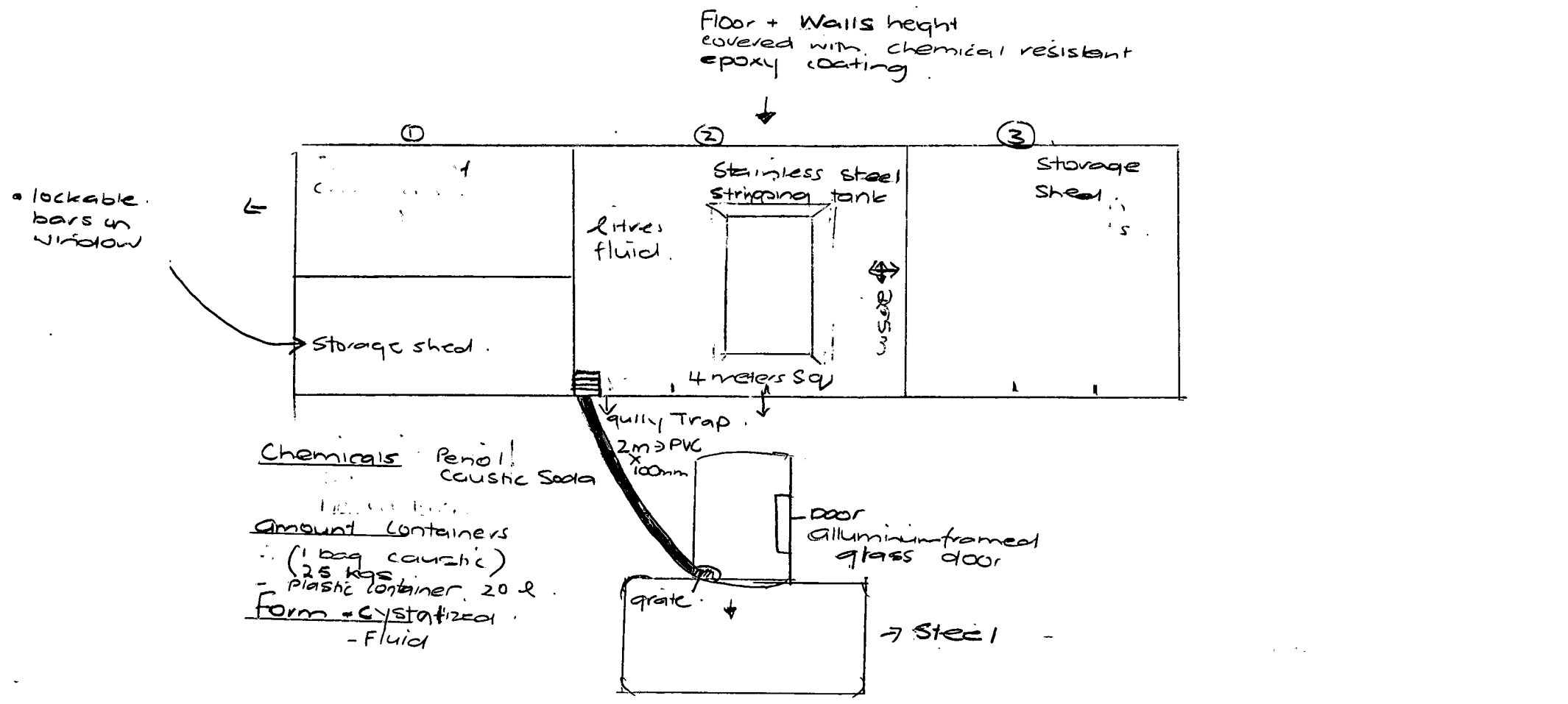


Minimizing → Environmental and Noise pollution, to neighbours and surrounding areas.

- Sound contained within 2 working spaces, at furthest end from neighbours
- Walls lined with sound proofing batts (Bradford) to limit sound conduction from working areas.
- Lined walls in no eight sheet to prevent r[illegible] of sand entering environment

359

Resource management Proposal
for Home occupation - on DP 2363.
for stripping of wooden objects
ie doors, skirting boards in Chemicals
→ caustic / penol.



- Stainless steel tank buried under ground to collect & contain water / wastes from waterblasting
- Stripping fluid in stainless steel container ∴ prevents ground contamination
- Lockable shed – prevents burglary ?
- Waste materials removed from waste management → sewage ponds onchuge by truck.

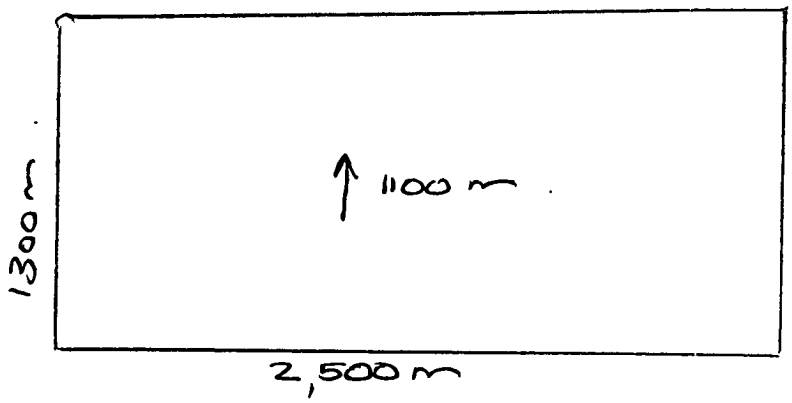
← waste pumped from ① truck to another.

360

Home occupation Resource Management - proposal DP 3363. (4)

1)

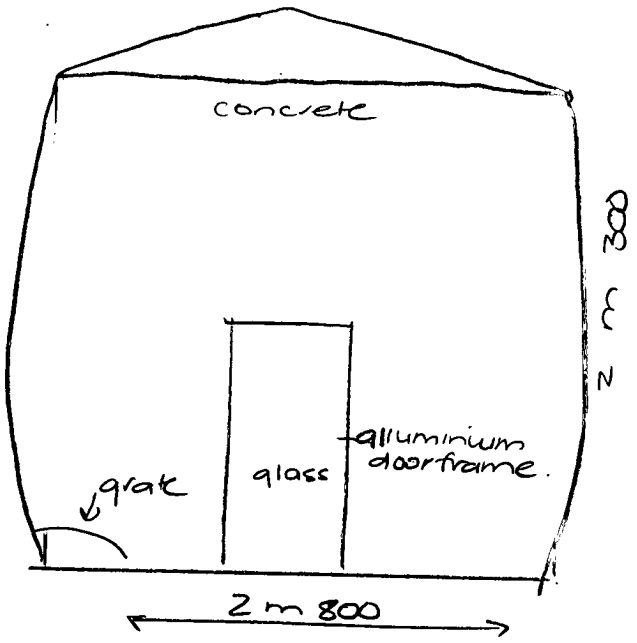
1)



Steel container

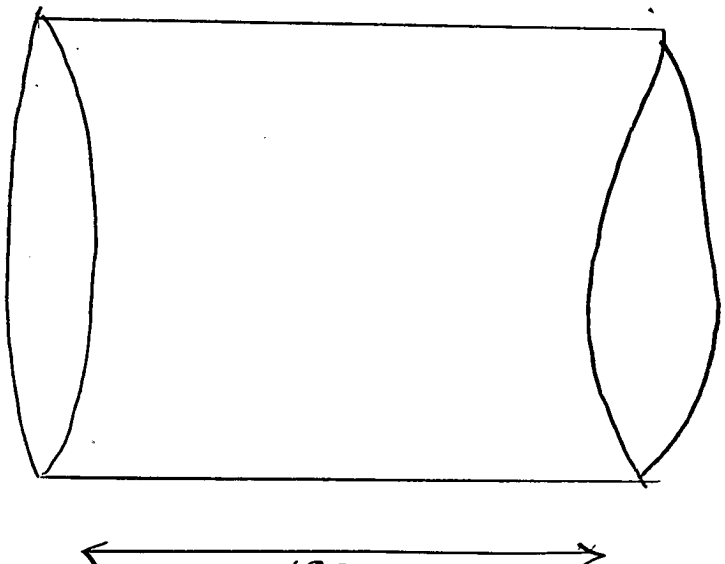
Stripping fluid within shed complex.

2)



→ Water blasting area.

3



Waste container from water of furniture

Steel.

- Effects on Rural → land. (Sandblasting.)
- Noise - would minimise effects, operation as Pg ① carried out - from hrs of 8am → 5pm.
- ↑ of Traffic would be from Webb St excess only, - We would run a Pick up + delivery service
- Sand proofing Bradford baffs would be installed

Stripping

- Contamination of soil by spillage only.
- Waterblasting would be done in a enclosed area as stated.
- a certified Waste Disposal company - ie United Waste Management would cart away. Waste. Alan Young Wastemanagement Simon Moos. NZ Ltd.
- Epoxy Resin resistant to chemicals, laid on floor + up walls, to prevent contamination.

APPENDIX E CONTAMINATED LANDUSE DATABASE SEARCH

7 November 2018

Geosciences Limited Auckland
PO Box 35366
Browns Bay
Auckland 0753

Attention: Chris Davies

Dear Chris

Site Contamination Enquiry – *301 Buckland Road, Buckland*

This letter is in response to your enquiry requesting available site contamination information for the above site. The following details are based on information available from the former Auckland Regional Council records system and information currently held by the Auckland Council Natural Resources and Specialist Input Unit. The details provided below exclude any property information held by the former district/city councils.

No pollution incident files regarding spills/contamination were found for the above site. The general catchment file and site visit file for the catchment 720 were not searched. These files contain pollution incidents where the source of pollution was not traced to a particular site, site visits where no follow-up correspondence was required and some information from archived files.

If the above site is coastal or beside a river, it is possible that historic, unconsented reclamation may have occurred. The Auckland Council Specialists Unit Coastal Team may be able to provide further information.

The records reviewed as part of this Site Contamination Enquiry search do not identify individual horticultural sites in the region. However, there is a possibility that horticultural activities may have occurred at the site. The local Auckland Council customer service centre, specific to the area of the site may be able to provide relevant information where former horticultural sites have been mapped.

If you are concerned that a historic land use (such as filling) may have caused the underlying soils to become contaminated, it is recommended that you obtain an independent environmental assessment of the site. Staff from the Auckland Council Earthworks and Contaminated Land Team can provide advice on the results of any evaluation in terms of site remediation and/or potential consent requirements.

The former Auckland Regional Council and current databases were searched for records of **closed landfills, bores, air discharge, industrial and trade process consents, contaminated site discharge consents, and environmental assessments** within approximately 200 metres of the site. No consents were identified.

The details provided are in accordance with the obligation to make information publicly available upon request. While the Auckland Council has carried out the search using its best practical endeavours, it does not warrant its completeness or accuracy and disclaims any responsibility or liability in respect of the information. If you or any other person wishes to act or to rely on this information, or make any financial commitment based upon it, it is recommended that you seek appropriate technical and/or professional advice.

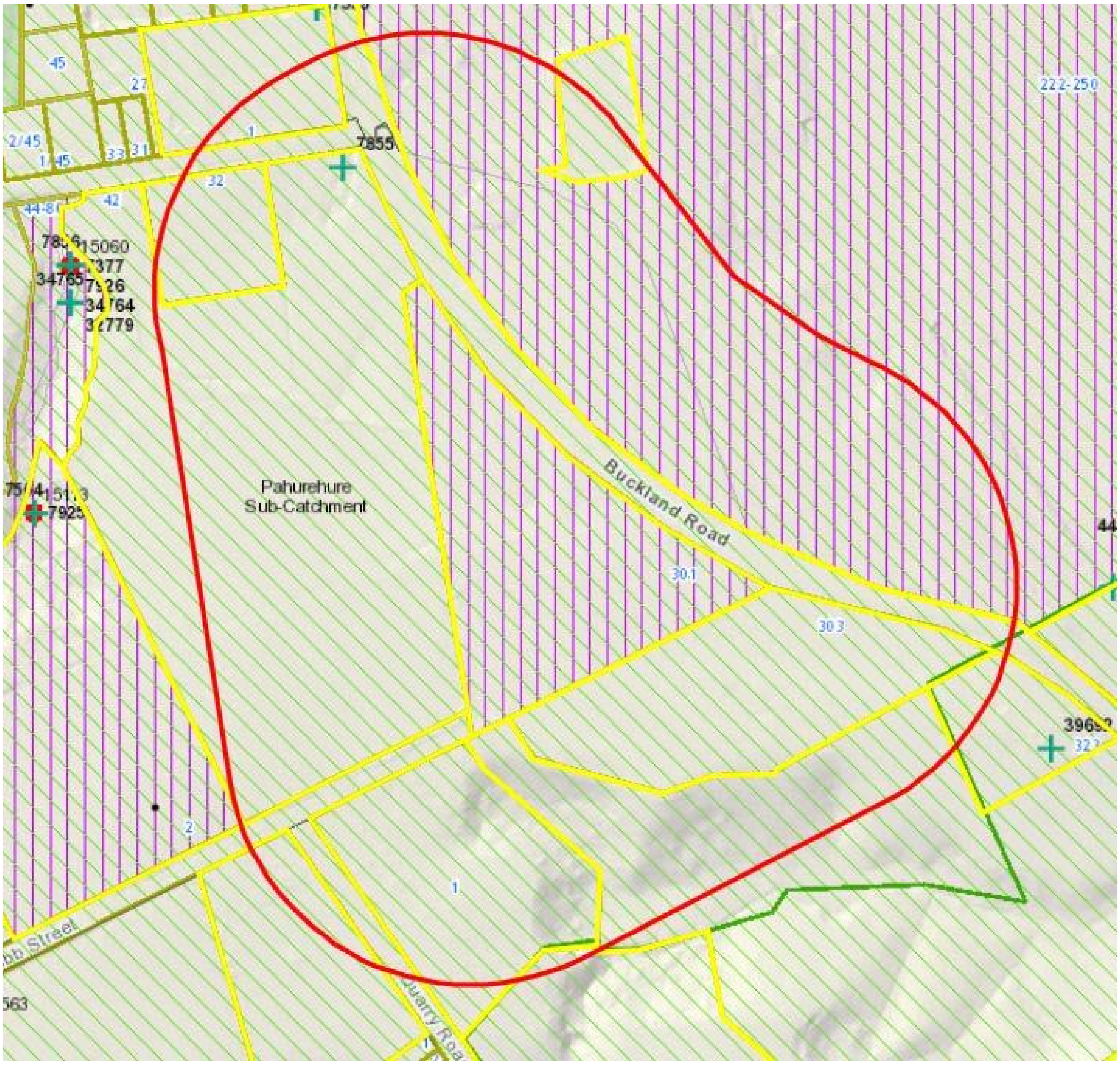
In addition, further site specific pollution incidents may be held at the area office below. It is recommended that you contact the local customer service centre of the Auckland Council, specific to the site being investigated: Ground Floor, Kotuku House, 4 Osterley Way, Manukau Central as they also may hold files with further relevant information.

I trust that this answers your query. If you wish to discuss the matter further, please contact **Andrew Kalbarczyk** on 301 0101. Should you wish to request any of the files listed above for viewing, please contact the Auckland Council Call Centre on 301 0101 and note you are requesting former Auckland Regional Council records (the records department requires three working days' notice to ensure files will be available).

Please note: the Auckland Council cost recovers officer's time for all site enquiries. A basic enquiry takes approximately 1 - 2.5 hours to search the files and databases in which information is held. As such an invoice for the time involved in this enquiry will follow shortly.

Yours sincerely

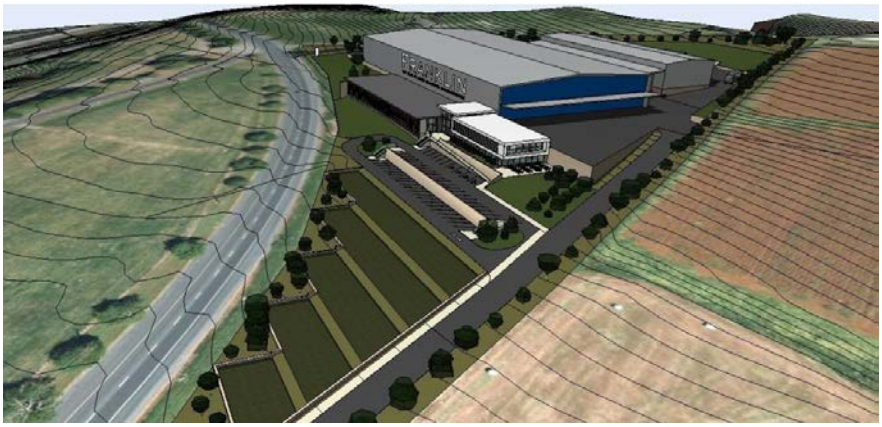
pp. SR
Jared Osman
Team Leader – Contaminated Air, Noise
Specialist Unit | Resource Consents


45
27
2/45
1/45
42
32
7855
222-250
15060
34765
34764
32779
Pahurehure
Sub-Catchment
Buckland Road
30.1
30.3
563

APPENDIX F PREVIOUS INVESTIGATIONS EXTRACTS

FRANKLIN PLUMBING AND BATHROOMWARE

PROPOSED WAREHOUSING AND DISTRIBUTION CENTRE (TRADE SUPPLIER)



301 BUCKLAND ROAD, PUKEKOHE

ASSESSMENT OF ENVIRONMENTAL EFFECTS

August 2018

4161.01

368

used within the development. The signs will not include any flashing, illumination or moving parts that could create any adverse effects on the surrounding traffic environment. The two freestanding signs will be located close to the two separate entrances but within the front yard setback for efficiency of wayfinding for oncoming traffic.

As a result, the signs will be informative, provide a visual amenity that allows display of an iconic Pukekohe Business (named after and directly associated with the locality) and in locations that is considered appropriate for this development.

6.2.6.9 POSITIVE EFFECTS

The proposal will result in several positive effects on the environment. This proposal, on land zoned Future Urban (and earmarked for rezoning as Light Industry) will establish a high quality industrial and commercial site that will be a landmark and standard for future light industry development that is envisaged within Pukekohe. This development will consequently assist in providing jobs and much needed industrial land.

The proposal will also allow Franklin to consolidate its warehousing, training, display and trade retail functions in a single purpose-built facility while remaining in Pukekohe and the Franklin locality which bares its name.

The site will be constructed to a high-quality design and fundamentally serve serval purposes and activities on site. The development will improve the vegetation and biodiversity on site by planting several different possible habitats with a mixture of native and non-native vegetation.

The development will also be effectively upgrading the surrounding wastewater system, including a wastewater gravity main, not only for the site but for future development in the area.

It is therefore considered that the positive effects of the proposal will be significant for the environment.

6.2.6.10 ENVIRONMENTAL EFFECTS SUMMARY

The above assessment of effects represents those actual and potential adverse effects on the environment arising from the proposal. Each potential adverse effect has been identified and assessed as being no more than minor on its own or in combination with other adverse effects. The positive effects of the proposal have been considered and the proposal will positively contribute to the to the provision of industrial activity in a location that currently has a critical shortage.

6.3 RELEVANT PROVISIONS OF PLANNING INSTRUMENTS – S104(1)(B)

6.3.1 NATIONAL ENVIRONMENTAL STANDARDS

There are three national environmental standards (NESs) that relate to development activity.

Assessing and Managing Contaminants in Soil to Protect Human Health

The history of the site has been reviewed and no activity that appears on the Hazardous Activities and Industries List is likely to have occurred on the site. It is therefore considered that the proposal meets the permitted activity requirements of section 8(4) of this NES.

Sources Human Drinking Water Standard

The NES for Sources Human Drinking Water Standard is not considered relevant as the site is not

Geotechnical Investigation Report

301 BUCKLAND ROAD, PUKEKOHE

For

PETEREX LIMITED

J00858 | Lander Geotechnical Consultants Limited | 23 July 2018

5 FIELDWORK

The fieldwork for this stage of the development was conducted between 22 and 24 January 2018 and comprised of the following tests in the locations indicated on the appended site plan (Figure 01).

- 9 Hand Auger Boreholes (HA) to depths up to 5.0m.
- 4 Machine Boreholes (MH) a depth of 10.5m.
- 1 Falling Head Percolation test to 2.5m.

Following completion of these works, two cross sections were measured by means of electronic level and tape measure. From this data two cross sections were generated and are appended (Figures 02 and 03).

Soil samples were recovered from our boreholes for the following subsequent laboratory testing:

- Allophane Content: HA01 (1.5-2.0m), HA05 (1.5-2.1m)
- Atterberg Limits: HA01 (1.5-2.0m), HA05 (1.5-2.1m)
- Particle Size Distribution: HA01 (1.5-2.0m), HA05 (1.5-2.1m)

A brief summary of the ground conditions and groundwater monitoring measurements are summarised in Section 6 below. Results of all in-situ soil tests, together with detailed descriptions and depths of strata encountered during the drilling of the boreholes are given in Appendix 2 and laboratory results in Appendix 3.

6 SUMMARY OF GROUND CONDITIONS

6.1 Geology

According to published GNS geology maps the site is underlain by fine grained and course grained basalt and basanite rock associated with the Kerikeri Volcanic Group of the South Auckland Volcanic Field. The rock is often mantled by significant depths of ash and tuff which weathers to an orange and brown cohesive clay, with some gravels.

6.2 Investigation Findings

Typical ground conditions are summarised on cross-sections A-A' and B-B.' Details are as follows below:

6.2.1 Topsoil

Topsoil was encountered in all boreholes to depths of between 100mm and 500mm.

6.2.2 Filling

Filling was encountered in boreholes HA05, HA06 and HA07 and P1 to depths of between 100mm and 600mm, consisting of brown and orange/brown clayey silt. This may in fact simply be disturbed ground associated with previous horticultural activities, rather than placed fill. Nevertheless, given the farm environment where the investigation was carried out, the presence of old offal pits or rubbish pits outside of our test locations can never be discounted.

6.2.3 Natural Ground

The natural subsoils investigated by our boreholes comprised of weathered ash deposits overlying weathered tuff. These soils consisted of inorganic, grey, orange/brown and red/brown, clayey silts. Shear strengths were generally between 80 and 140+kPa indicating stiff to very stiff soil.

Firm soils were observed to be underlying these soils from depths of between 4.5m and 9.0m (within the machine boreholes only).

Soil sensitivities generally ranged between 1.7 and 5.0, indicating insensitive to sensitive soils, however, some “quick” sensitivities were also recorded, meaning they are prone to near complete loss of shear strength once peak values are exceeded and could be prone to disturbance from to heavy earthworks machinery trafficking.

SPT 'N' values within the machine boreholes ranged from 1 to 19, but were generally less than 5. These values are considered to be typical of the range expected for weathered cohesive volcanic ash and tuff soils. SPT results are shown in the appended borehole records.

The firm shear strength readings within the machine boreholes may be conservatively low due to soil disturbance through the drilling process, and some soil sensitivities may be conservatively high due to drilling disturbance also.

It should be noted that HA04 did not reach target depth of 5m and was terminated upon an inferred gravelly (tuff) soil matrix at 0.5m depth. A basal penetrometer sounding here loose to medium dense materials with occasional very dense bands interlayered, and was terminated at 1.5m depth on near refusal blow counts (i.e. greater than 20 blows per 100mm).

No basalt rock was encountered over the depths drilled at the locations tested.

6.2.4 Groundwater

Standing groundwater levels of between 2.5m and 4.2m were recorded in our hand auger boreholes at the completion of our fieldwork.

Eight days following the completion of the drilling programme, water levels were measured in the machine boreholes under assumed equilibrium conditions – it should be noted that the standpipe in MH04 was damaged and no readings were able to be taken.

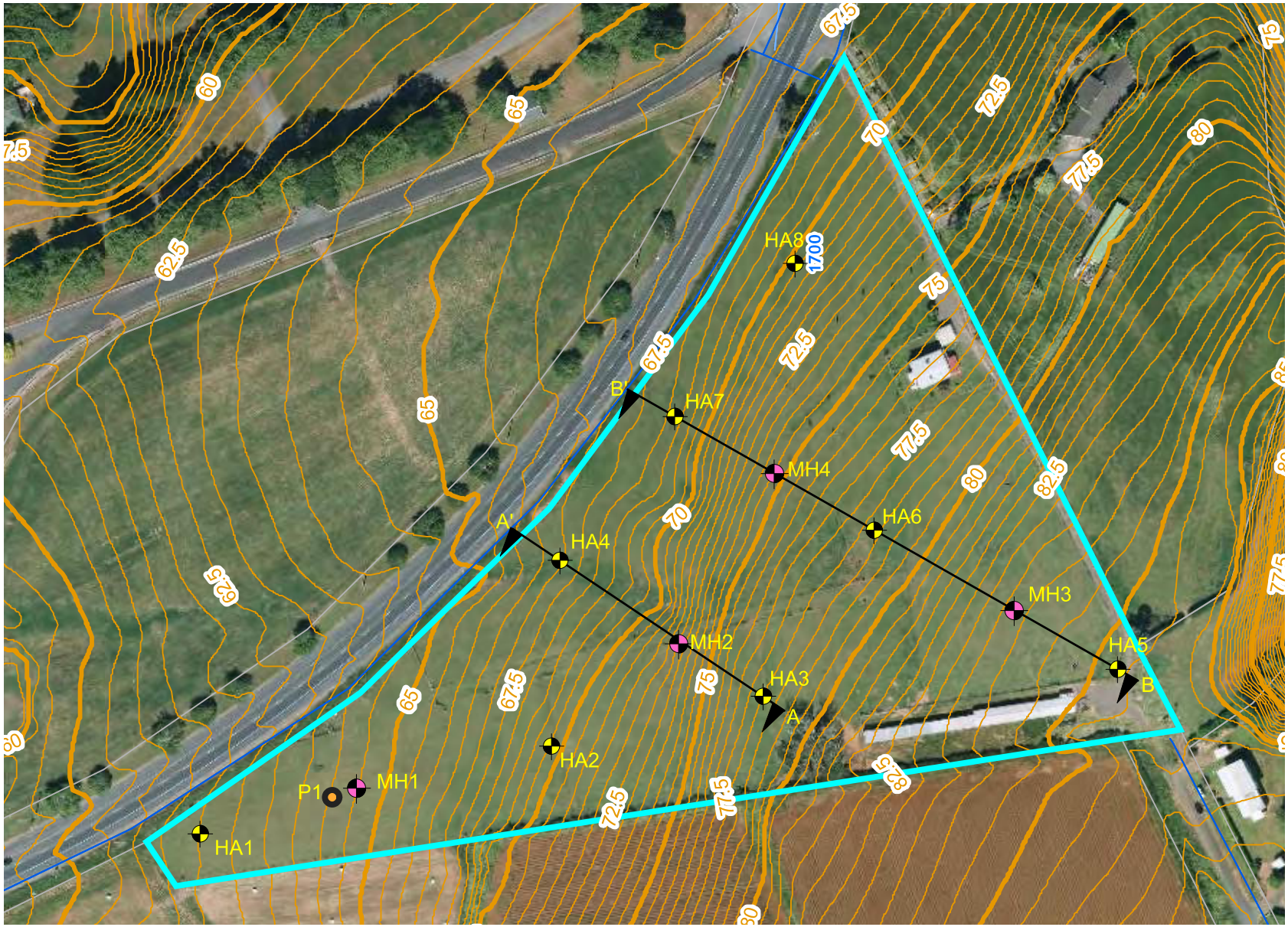
The following table summarises all results:

Table 1: Measured Groundwater Levels

Borehole No.	Depth (metres) / Date Measured
MH01	3.65m / 1.02.18
MH02	3.0m / 1.02.18
MH03	4.73m / 1.02.18
MH04	Damaged* / 1.02.18
HA01	3.7m / 22.01.18
HA02	4.2m / 22.01.18
HA03	4.1m / 22.01.18

Legend and/or Notes:

- Hand Auger Borehole
- Machine borehole
- Falling Head Percolation Test
- Cross Section



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revision	description	drawn	approved	date

0 20.0 40.0 60.0 80.0 100.0
Horizontal Scale (metres)
0 20.0 40.0 60.0 80.0 100.0
Vertical Scale (metres)

drawn	KM
approved	SGL
date	2.02.18
scale	1:1500
original size	A3

LANDER geotechnical

client: PETEREX LIMITED

project: 1700 BUCKLAND ROAD, PUKEKOHE

title: SITE PLAN

project no: J00858 figure no: 01

Template revision: 1:2000 (10/12/14)

Client : PETEREX LIMITED

Project Location : 1700 BUCKLAND ROAD, PUKEKOHE

Job Number: J00858

Auger Borehole No. HA01

Sheet 1 of 9

Vane Head:	Logged By:	Processor :	Date:
1900	LJ	LJ	22.01.18

Borehole Location: mN | mE | Ground R.L.

Description: Refer to site plan

SOIL DESCRIPTION	Depth (m)	Standing Water Level	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL, with minor rootlet inclusions					
clayey SILT, mottled orange/brown and yellow/brown. Very stiff, moist, low plasticity, moderately sensitive, with minor limonite [ASH]	0.5		188/54	3.5	Sample 1 Disturbed 0.5-1.0m
becoming yellow/brown, without limonite	1.0		154/65	2.4	
becoming moist to wet	1.5		127/38	3.3	Sample 2 Disturbed 1.5-2.0m
becoming light grey/white and yellow/brown mottled red/pink, intermixed with light grey/white, high plasticity silty clay	2.0		204/84	2.4	
becoming yellow/brown, hard, without silty clay	2.5		239+		Sample 3 Disturbed 2.5-3.0m
becoming soft to firm, wet, with minor fine to medium sand sized white clast inclusions	3.0	▽	UTP		
becoming slightly clayey SILT, mottled red/pink, yellow/brown and grey, hard, no to low plasticity, intermixed with minor grey, high plasticity silty clay	3.5		89/47	1.9	
becoming brown, loose to medium dense, no plasticity	4.0		UTP		
becoming clayey SILT, yellow/brown, stiff, saturated, low plasticity, insensitive	4.5		239+		
becoming slightly clayey SILT, brown, hard, no to low plasticity	5.0		239+		
with minor manganese oxidation	5.5				
EOB at 5.0m. Target Depth.	6.0				

LANDER geotechnical

Comments:
Groundwater encountered 3.4m.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm

Checked: Km

Topsoil | Fill | Clay | Silt | Sand | Gravel | Organic | Pumice | Sandstone | Siltstone | Limestone | Volcanic | Plutonic | No Core

Client :	PETEREX LIMITED	**Auger Borehole No.**	HA02
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 2 of 9
Job Number:	J00858	Vane Head: 1900 / Logged By: LJ / Processor : LJ / Date: 22.01.18	

Borehole Location: mN | mE | Ground R.L.
Description: Refer to site plan

SOIL DESCRIPTION	Depth (m)	Standing Water Level	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL, with minor rootlet inclusions					
clayey SILT, light grey and pink/red mottled orange/brown. Very stiff, moist, low plasticity, moderately sensitive, with minor limonite, with minor organic staining [ASH]	0.5		120/54	2.2	
becoming red/brown mottled orange/brown, without organic staining					
becoming slightly clayey SILT, light grey mottled orange/brown and red/brown, hard, no to low plasticity, sensitive, with minor light grey, high plasticity silty clay	1.0		222/56	4.0	
becoming brown, without silty clay					
becoming grey/brown					
becoming moderately sensitive	1.5		213/65	3.3	
becoming brown, moist to wet					
becoming clayey SILT, very stiff, low plasticity, with trace to minor manganese oxidation	2.0		158/75	2.1	
becoming yellow/brown, wet, low to medium plasticity, without manganese oxidation					
becoming stiff	2.5		84/40	2.1	
becoming slightly clayey SILT, brown, moist, no to low plasticity					
becoming orange/brown, hard, wet, no plasticity	3.0		239+		
	3.5		UTP		
becoming clayey SILT, yellow/brown, very stiff, wet to saturated, low to medium plasticity, moderately sensitive					
	4.0	▽	116/47	2.5	
becoming slightly clayey SILT, brown, saturated, no to low plasticity, with minor manganese oxidation					
becoming hard	4.5		239+		
	5.0		239+		
EOB at 5.0m. Target Depth.	5.5				
	6.0				

LANDER geotechnical

Comments:
Groundwater encountered 3.8m.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm
Checked: km

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	PETEREX LIMITED	**Auger Borehole No.**	HA03
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 3 of 9
Job Number:	J00858	Vane Head: 1900 / Logged By: LJ / Processor : LJ / Date: 23.01.18	

Borehole Location: mN | mE | Ground R.L.
Description: Refer to site plan

SOIL DESCRIPTION	Depth (m)	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL, with minor rootlets				
clayey SILT, orange/brown. Hard, moist, low plasticity, sensitive, with minor manganese oxidation [ASH]				
at 0.5m, without manganese oxidation	0.5	232/40	5.8	
becoming brown	1.0	239+		
becoming red/brown				
becoming very stiff, moderately sensitive	1.5	193/88	2.2	
	2.0	186/80	2.3	
	2.5	195/81	2.4	
becoming wet	3.0	195/88	2.2	
becoming stiff	3.5	97/34	2.9	
becoming very stiff	4.0 ▽	127/56	2.3	
becoming saturated, sensitive	4.5	135/29	4.7	
becoming slightly clayey SILT, black mottled red/pink, no to low plasticity, with minor manganese oxidation				
at 5.0m, becoming stiff, insensitive	5.0	83/47	1.8	
EOB at 5.0m. Target Depth.	5.5			
	6.0			

LANDER geotechnical

Comments:
Groundwater encountered 4.5m.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm
Checked: KM

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client : PETEREX LIMITED

Project Location : 1700 BUCKLAND ROAD, PUKEKOHE

Job Number: J00858

Auger Borehole No. HA04

Sheet 4 of 9

Vane Head:	Logged By:	Processor :	Date:
1900	LJ	LJ	23.01.18

Borehole Location: mN | mE | Ground R.L.

Description: Refer to site plan

SOIL DESCRIPTION

Legend	Depth (m)	Standing Water Level	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL slightly clayey SILT, yellow/brown. Loose to medium dense, moist, no plasticity, with some fine to medium gravel [TUFF]	0.5		UTP		Scala Penetrometer Test (blows/100mm) 6 17 3 3 4 2 2 2 5 18
EOB at 0.5m. Too dense to auger further. Scala penetrometer test commenced. Unable to overcore	1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0				

LANDER geotechnical

Comments:
Groundwater not encountered.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm

Checked: Km

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	PETEREX	**Auger Borehole No.**	HA05
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 5 of 9
Job Number:	J00858	Vane Head: 946 / Logged By: KM / Processor : RG / Date: 22.01.18	

Borehole Location: mN | mE | Ground R.L.

Description: Refer to site plan

SOIL DESCRIPTION	Depth (m)	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL				
clayey SILT with trace fine to medium sand, light brown, mottled orange/brown. Very stiff, moist, low plasticity [FILL]				
silty CLAY, orange/brown. Hard, moist, medium plasticity [ASH]	0.5	186+		Sample 1 Disturbed 0.5-1.2m
clayey SILT, orange/brown. Hard, moist, low plasticity	1.0	186+		
	1.5	186+		Sample 2 Disturbed 1.5-2.1m
becoming very stiff, wet, sensitive	2.0	111/22	5.0	
becoming slightly clayey SILT, orange/brown and red/brown, hard, wet	2.5	UTP		Sample 3 Disturbed 2.5-3.0m
becoming clayey SILT, orange/brown, very stiff				
becoming moderatley sensitive	3.0	168/67	2.5	
becoming red/brown	3.5	124/57	2.2	
becoming mottled black with some ash streaks	4.0	186+		
becoming stiff, without black mottling, insensitive	4.5	81/43	1.9	
at 5.0m, becoming very stiff, moderately sensitive	5.0	124/57	2.2	
EOB at 5.0m. Target Depth.	5.5			
	6.0			

LANDER geotechnical

Comments:
Groundwater not encountered.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm

Checked: KM

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	PETEREX LIMITED	**Auger Borehole No.**	HA06
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 6 of 9
Job Number:	J00858	Vane Head: 946 / Logged By: KM / Processor : RG / Date: 22.01.18	

Borehole Location:	mN	mE	Ground R.L.
	Description:	Refer to site plan	

SOIL DESCRIPTION	Depth (m)	Vane Shear(kPa) peak / residual	Soil Sensitivity
TOPSOIL			
clayey SILT, brown mottled orange/brown. Very stiff, moist, low plasticity [TUFF/FILL?]			
silty CLAY, orange/brown. Hard, moist, low plasticity [ASH]	0.5	186+	
clayey SILT with trace fine sand, orange/brown. Hard, moist, low plasticity	1.0	186+	
becoming very stiff, moderately sensitive becoming wet	1.5	184/73	2.5
	2.0	184/92	2.0
becoming orange/brown mottled red/brown			
becoming slightly clayey SILT, orange/brown, hard	2.5	UTP	
becoming clayey SILT, very stiff			
	3.0	126/57	2.2
becoming red/brown, hard			
	3.5	186+	
becoming very stiff			
	4.0	168/61	2.8
becoming red/brown mottled orange/brown, insensitive	4.5	122/70	1.7
at 5.0, becoming moderately sensitive	5.0	100/38	2.6
EOB at 5m. Target Depth.	5.5		
	6.0		

LANDER geotechnical

Comments:
Groundwater not encountered.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm

Checked: km

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	PETEREX LIMITED	**Auger Borehole No.**	HA07
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 7 of 9
Job Number:	J00858	Vane Head: 946 / Logged By: KM / Processor : LJ / Date: 22.01.18	

Borehole Location: mN | mE | Ground R.L.
Description: Refer to site plan

SOIL DESCRIPTION	Depth (m)	Standing Water Level	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL					
clayey SILT, brown mottled orange/brown. Very stiff, moist, low plasticity, sensitive, with trace fine gravel [FILL]					
at 0.3m, with occasional black and red mottles	0.5		120/28	4.3	
clayey SILT, light brown/grey streaked orange/brown. Very stiff, wet, low plasticity, sensitive [ASH]					
at 0.8m, becoming grey	1.0		183/39	4.7	
becoming wet					
becoming grey streaked orange, moderately sensitive	1.5		113/43	2.6	
	2.0		130/49	2.7	
becoming stiff	2.5	▽	70/27	2.6	
becomng hard, with trace fine to medium sand and fine pumiceous gravel			186+		
becoming slightly clayey SILT, orange/brown, no to low plasticity, without sand and gravel					
becoming orange/brown mottled red/brown, low plasticity	3.0		186+		
becoming stiff, poor sample recovery to 3.9m due to groundwater suction	3.5		57/23	2.5	
becoming red/brown, with normal sample recovery					
becoming hard	4.0		UTP		
becoming very stiff	4.5		171/62	2.8	
at 5.0m, becoming hard					
EOB at 5.0m. Target Depth.	5.0		186+		
	5.5				
	6.0				

LANDER geotechnical

Comments:
Groundwater encountered 2.7m.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm
Checked: KM

Topsoil	Sand	Sandstone	Plutonic
Fill	Gravel	Siltstone	No Core
Clay	Organic	Limestone	
Silt	Pumice	Volcanic	

Client :	PETEREX LIMITED	**Auger Borehole No.**	HA08
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 8 of 9
Job Number:	J00858	Vane Head: 1900 / Logged By: LJ / Processor : LJ / Date: 23.01.18	

Borehole Location: mN | mE | Ground R.L.
Description: Refer to site plan

SOIL DESCRIPTION	Depth (m)	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL				
clayey SILT, orange/brown. Hard, moist, low plasticity [ASH]	0.5	239+		
	1.0	239+		
becoming moderately sensitive	1.5	204/100	2.0	
becoming wet, with minor fine to coarse sand sized white clast inclusions				
becoming slightly clayey SILT, no to low plasticity, extra sensitive	2.0	204/24	8.5	
	2.5	UTP		
becoming clayey SILT, very stiff, wet, low to medium plasticity				
becoming moderately sensitive becoming brown, moist, low plasticity	3.0	170/73	2.3	
becoming hard	3.5	230/89	2.6	
intermixed with moderately thin bed of light grey, high plasticity silty clay	4.0	213/94	2.3	
becoming very stiff	4.5	158/69	2.3	
becoming orange/brown, with minor limonite silt clast inclusions				
EOB at 5.0m. Target Depth.	5.0	177/86	2.1	
	5.5			
	6.0			

LANDER geotechnical

Comments:
Groundwater not encountered.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm
Checked: KM

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	PETEREX LIMITED	**Auger Borehole No.**	P1
Project Location :	1700 BUCKLAND ROAD, PUKEKOHE		Sheet 9 of 9
Job Number:	J00858	Vane Head: 1900 / Logged By: LJ / Processor : LJ / Date: 22.01.18	

Borehole Location: mN | mE | Ground R.L.

Description: Refer to site plan

SOIL DESCRIPTION	Depth (m)	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL				
clayey SILT, brown/grey streaked black. Very stiff, moist, low plasticity, with trace fine gravel [TUFF/FILL?]				
silty CLAY, orange/brown. Very stiff, moist, medium plasticity, moderately sensitive [ASH]				
with occasional manganese oxidation	0.5	177/49	3.6	
clayey SILT, orange/brown. Very stiff, moist, low plasticity, moderately sensitive	1.0	158/54	2.9	
with minor manganese oxidation	1.5	195/84	2.3	
becoming yellow/brown and light grey mottled red/pink, insensitive, intermixed with light grey, high plasticity silty clay, without manganese oxidation	2.0	154/86	1.8	
at 2.5m, becoming moderately sensitive	2.5	177/69	2.6	
EOB at 2.5m. Target Depth.	3.0			
	3.5			
	4.0			
	4.5			
	5.0			
	5.5			
	6.0			

LANDER geotechnical

Comments:
Groundwater not encountered.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm

Checked: KM

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

APPENDIX G SITE PHOTOGRAPHS

PLATE 1: DWELLING WITH STOCKPILE ALONG FENCE ON LEFT

PLATE 2: PARTIALLY BURIED CONCRETE AND STONE IN SW CORNER

PLATE 3: PARTIALLY BURIED STOCKPILE IN SW CORNER

PLATE 4: TREES SURROUNDING PARTIALLY BURIED CONCRETE

PLATE 5: SOIL BUND AND SEDIMENT 'DAM' ON NEIGHBOURING PROPERTY

PLATE 6: LOOKING NE FROM SOIL BUND (PLATE 5) ALONG OVERLAND FLOW PATH

PLATE 7: FILL IN EX HORSE TRAINING CIRCLE WITH UNDERLYING GEOTEXTILE MATERIAL

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PLATE 9: POSSIBLE HISTORIC HORTICULTURAL FIELD

PLATE 10: LOOKING SOUTH UP-GRADIENT FROM NORTHERN CORNER OF PROPERTY

DETAILED SITE INVESTIGATION (DSI)

301 BUCKLAND ROAD, PUKEKOHE

Reference Number: REP-1258A/DSI/JAN19

PREPARED FOR: FRANKLINS PLUMBERS & BUILDERS SUPPLIES LTD, C/- SCOTT WILKINSON PLANNING

15 JANUARY 2019

Geosciences Limited
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Disclaimer

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Statement

This site investigation has been prepared in accordance with the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. It has been managed by a suitably qualified and experienced practitioner (SQEP); and reported on in accordance with the current edition of the Ministry for the *Environment's Contaminated Land Management guidelines No.1 – Reporting on Contaminated Sites in New Zealand.*

Report prepared on behalf of GSL by:	Report reviewed and authorised on behalf of GSL by:
	
Chris Davies Environmental Scientist Geosciences Ltd	Carl O'Brien General Manager Geosciences Ltd

Thank you for the opportunity to carry out this investigation. Should you have any queries regarding this report please do not hesitate to contact us on 09 475 0222.

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EXECUTIVE SUMMARY

The property at 301 Buckland Road, Pukekohe, is legally described as Pt Lot 1 DP 3363 and is approximately 4.36 Ha in size. The property has been secured for development by Franklins Plumbing and Builders Supplies Ltd, during which it is proposed to construct a commercial showroom, offices, storeroom, and warehouse. The proposed development includes significant cut-to-fill earthworks to create a three-tiered split level surface for construction of the proposed buildings. The proposal therefore involves a change in landuse from agricultural to commercial / industrial, alongside soil disturbance development activities.

Geosciences Ltd (GSL) conducted a Preliminary Site Investigation (PSI) during November 2018, during which a number of activities on the Ministry for the Environment's (MfE) Hazardous Activities and Industries List (HAIL) were identified as being more likely than not to currently or historically have occurred on the site. Items identified included persistent pesticide use associated with horticultural activities, both on the property and via migration from neighbouring fields (Items A.10 and H respectively), the presence of unverified fill material and buried rubble (Item I), and potential lead contamination from the use of lead-based paint on a dwelling located on site (Item I).

Consequently, GSL designed a conceptual site model of potential contamination, with a judgemental sampling regime used to target areas of potential contamination. Fourteen discrete soil samples and two composite soil samples were collected and analysed for the contaminants of concern related to the HAIL activities identified above. Six discrete soil samples were analysed for arsenic, copper, lead, and organochlorine pesticides (OCPs) associated with horticultural persistent pesticide use, seven discrete soil samples were analysed for a suite of heavy metals and polycyclic aromatic hydrocarbons (PAHs) associated with unverified fill material, and one composite sample was analysed for lead from lead-based paints.

Eight of the sixteen analysed samples returned concentrations below the expected naturally occurring background ranges for inorganic elements in volcanic soils in the Auckland region. Six samples returned concentrations in excess of the expected naturally occurring background ranges while two samples exceeded the Auckland Unitary Plan (Operative in Part) (AUP(OP)) permitted activity soil acceptance criteria; one of which also exceeded the National Environmental Standard (NES) *for Assessing and Managing Contaminants in Soil to Protect Human Health* (2011) Soil Contaminant Standards (SCS) for the commercial / industrial outdoor worker (unpaved) landuse.

Based on these findings, the development activities will be subject to Regulation 10 of the NES as a Restricted Discretionary Activity, requiring a Remediation Action Plan (RAP) to address the identified arsenic hotspot, and production of a site validation report following the material's removal. The development activities will also require a RAP under Regulation E30.6.2 of the AUP(OP) as a Controlled Activity to address the arsenic and lead hotspots identified. This RAP will include the site management practices necessary to ensure that the risk to human health and the environment through the mobilisation of contaminants during development earthworks is minimised.

1 INTRODUCTION

Geosciences Ltd (GSL) has prepared the following report for Scott Wilkinson Planning on behalf of Franklins Plumbers & Builders Supplies Ltd in accordance with the GSL proposal, Ref: *Pro-1634/Nov18*, dated 20 November 2018.

This report has been prepared in accordance with the Ministry for the Environment (MfE) Contaminated Land Management Guidelines (CLMG): No. 1 - *"Guidelines for Reporting on Contaminated Sites in New Zealand",* and No. 5 – *"Site Investigation and Analysis of Soils"* (References 1 and 2).

2 PROPERTY DETAILS

Location:	301 Buckland Road, Pukekohe
Legal Description:	Pt Lot 1 DP 3363
Size:	4.36 Ha
Zoning:	Future Urban Zone

3 PROPOSED CHANGE IN LANDUSE, SUBDIVISION AND DEVELOPMENT

It is proposed to develop the site through the construction of a commercial showroom, offices, storerooms, and warehouse for Franklin Plumbers and Builders Supplies Ltd. The proposed development will include significant cut-to-fill earthworks to create a three-tiered split level surface for construction of the proposed buildings. The resulting configuration will include approximately 25,492 m^2 impermeable surfaces (including buildings), and approximately 17,745 m^2 permeable landscaped surfaces.

To achieve this, approximately 31,785 m^3 of cut, and 42,086 m^3 of fill work is proposed, with approximately 10,300 m^3 of engineered cleanfill material required to be imported to create the platform below the main warehouse and pipe storage building. Where cut material is deemed unsuitable for use in construction, it will be removed from site for disposal at an appropriate facility. A copy of the proposed earthworks plan is attached in Appendix A.

The proposal therefore involves a change in landuse from agricultural to commercial / industrial, alongside soil disturbance development activities.

4 STANDARDS AND REGULATIONS

As a result of the proposed change in landuse and development outlined above, it will be necessary to address the requirements of the following applicable standards and regulations for the site.

4.1 NATIONAL ENVIRONMENTAL STANDARD (NES)

The *National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health* (NES) (Reference 3), which came into effect on 1 January 2012, ensures that land

affected by contaminants in soil is appropriately identified and assessed when soil disturbance and/or land development activities take place and, if necessary, remediated or the contaminants contained to make the land safe for human use.

Under the NES, land is considered to be actually or potentially contaminated if an activity or industry on the MfE Hazardous Activities and Industries List (HAIL) has been, is, or is more likely than not to have been, undertaken on the land. Consequently, a subdivision or development on HAIL land requires a detailed site investigation (DSI) of the piece of land to determine if there is a risk to human health as a result of the former activities.

The NES defines five standard landuse scenarios for which soil contaminant standards have been derived. The most sensitive landuse scenario which is applicable to the proposed change in landuse, subdivision and development at this site is defined by the NES as: *Commercial / industrial outdoor worker (unpaved).*

4.2 AUCKLAND UNITARY PLAN (OPERATIVE IN PART) (AUP(OP))

Section 30(1)(f) of the RMA provides the Auckland Council with a statutory duty to investigate land for the purposes of identifying and monitoring contaminated land and for the control of discharges of contaminants into or onto land or water and discharges of water into water.

The Auckland Unitary Plan (Operative in Part) (AUP(OP)), which was formally notified on 30 September 2013, is a combined regional policy statement, regional coastal plan, regional plan and district plan. Auckland Council notified an operative in part version of the plan on 15 November 2016 (Reference 4).

Chapter E.30 of the AUP(OP) deals specifically with contaminated land and maintains that Council is required to manage both the use of land containing elevated levels of contaminants and the discharge of contaminants from land containing elevated levels of contaminants. As no appeals have been lodged on Chapter E.30, the provisions of that section can be considered operative under Section 87 of the Resource Management Act 1991. For all purposes of this investigation, the relevant provisions of the AUP(OP) relating to soil contamination have legal jurisdiction and those provision have been considered where they may have an impact on the proposed development

5 DSI OBJECTIVES

The objectives of this investigation were to assess:

- the soil quality and associated risk to human health and the environment as a result of potential contamination in soil on the site as a result of former HAIL activities identified during the Preliminary Site Investigation (PSI) conducted by Geosciences Ltd (GSL), Ref: *Rep-1258/PSI/Nov18*;
- the resulting status of the activity under the NES;
- what, if any, contaminated land rules of the AUP(OP) apply to the proposed subdivision and development; and
- any further work that may be required under the NES, or the AUP(OP) as a result of the soil quality on site.

6 SCOPE OF WORKS

To achieve the objectives of the DSI, GSL has undertaken the following:

- A site visit for the purpose of collecting soil samples;
- the collection of fourteen discrete soil samples and two composite soil samples from the site;
- laboratory analysis of six discrete soil samples and one composite sample for arsenic, copper, lead, and organochlorine pesticides (OCPs), the contaminants of concern relating to potential horticultural use of persistent pesticides;
- laboratory analysis of eight discrete soil samples for a suite of heavy metals and polycyclic aromatic hydrocarbons (PAHs), the contaminants of concern relating to potential fill material;
- the analysis of one composite sample for lead, the contaminant of concern related to the historic use of lead based paint on buildings prior to the 1980s; and
- the preparation of a report in accordance with Contaminated Land Management Guideline No. 1 – Reporting on contaminated Sites in New Zealand (Ministry for the Environment, 2011) that summarises the results of the intrusive investigation and the need, if any, for any further work.

7 FORMER INVESTIGATIONS

GSL conducted a preliminary site investigation of the site in November 2018, the findings of which are summarised in the GSL report, *Rep-1258/PSI/Nov18*, as mentioned above. An excerpt of the Executive Summary and the figure delineating identified HAIL areas of that report is attached in Appendix B.

An historical investigation and site visit at that time revealed that the site is more likely than not the location of a number of current and historical HAIL activities. Activities identified included potential horticulture on an eastern portion of the property (HAIL Item A.10), migration of soil from the neighbouring horticultural fields along an overland flowpath on the western portion of the site (HAIL Item H), a number of locations of stockpiled unverified fill material (mostly a mix of soil and rubble) and buried rubble in the location of a former building (HAIL Item I), and the potential release of lead into soil from lead paint on the dwelling constructed prior to the 1940s (HAIL Item I).

8 CONCEPTUAL MODEL FOR POTENTIAL CONTAMINATION

Based on the findings of the preliminary site investigation GSL developed a conceptual model for potential contamination on site. The PSI identified a number of discrete areas affected by HAIL items across the property including:

- Potential horticultural activity, including potential migration of horticultural soil from the adjacent property across a visually distinct flow path;
- potential use of lead based paints on old structures on site; and

- non-engineered / unverified fill on site as identified by geotechnical investigation.

The bulk storage and use of persistent pesticides related to historical horticultural activities are included on the MfE HAIL under Item A.10, while the migration of potentially contaminated soil from adjacent land is encompassed by Item H of the HAIL it is noted that the potential migration of soil is a plume of sediment from adjacent horticultural land, therefore GSL considers the same contaminants of concern, being; arsenic, copper, lead, and organochlorine pesticides (OCPs).

With regards to the sediment plume noted in the PSI, the migration of soil from the adjacent property has the potential to impact the surface soil in a discrete area of the site, identified in Figure 2. The migration of soil would be expected to result in a reasonably uniform distribution of contaminants in the uppermost soil horizon. Potential horticultural activity was identified in one portion of the site during the 1960s. The primary source of potential contamination as a result of horticultural activity is through the direct sprayed application of persistent pesticides to crops, there are no structures noted which could have been the location of the bulk storage of persistent pesticides of agrichemicals. Such an application of persistent pesticides is likely to produce a uniform distribution of contaminants through the uppermost soil horizon and is unlikely to produce hotspots of contamination.

Due to the age of the dwelling on site the potential exists for lead based paints to have been used on the buildings exterior. Lead based paints have the potential to impact soil surrounding the building at times when the paint is in deteriorated condition, or at times where routine maintenance is undertaken through scraping or sanding painted surfaces with insufficient ground protection. The soil can be impacted when paint flakes or dust infiltrate the uppermost soil around the structure, and can result in a well constrained hotspot surrounding the structure. Concentrations of lead can be high in close proximity to the structure and generally attenuate rapidly with distance from the source, generally reducing to background concentrations within 3 m from the structure.

Unverified filling activities can present a wide range of potential contaminants of concern depending on the source site. The handling, stockpiling, and emplacement of unverified fill generally results in a non-uniform distribution of contaminants throughout the fill horizon / stockpile. As the source site for the fill material is not known a wide range of potential contaminants are considered, GSL identified heavy metals and polycyclic aromatic hydrocarbons as the primary contaminants of concern in order to suitably classify the identified fill material.

9 SOIL SAMPLING AND ANALYSIS

Based on the conceptual model outlined above, GSL developed a judgemental sampling regime targeting the identified HAIL areas. Six discrete soil samples were collected on the western portion of the property from the identified plume of soil that had migrated onto the site from the neighbouring horticultural fields. A composite soil sample, comprising four sub-samples, was collected from the area of potential horticulture on the eastern portion of the property.

A second composite soil sample, also comprising four sub-samples, was collected from around the house curtilage. These samples were collected using a stainless steel foot corer to a depth of 0-150 mm, with the entire contents of the core placed directly into a plastic zipper bag and thoroughly homogenized.

Four discrete soil samples were collected from the identified stockpiles of unverified fill material, while three discrete soil samples were collected from the area of buried rubble where a building had been removed. An eighth discrete soil sample was collected from an area of emplaced sandy fill material, most likely used for training horses. The eight discrete soil samples were collected using a stainless steel hand auger to a depth of approximately 150 mm below relative surface level, with sample placed directly into laboratory supplied glass jars.

Sampling equipment was decontaminated between each sample in accordance with GSL's internal quality control procedures. A brief sample description was recorded in the field at the time of sample collection. The date, sample identification number, location, and initials of sampler were noted on each sample container.

The sampling protocol followed was in accordance with the *'Contaminated Land Management Guidelines (CLMG) No. 5 – Site Investigation and Analysis of Soils"*. The soil sampling rationale that was followed is described below while the soil sample locations are shown in Figure 2, and site photographs are attached in Appendix C.

TABLE 1: SAMPLING RATIONALE

SOIL SAMPLE NO.	LOCATION	INDICATED LABORATORY ANALYSIS
SS1 – SS6	Plume of horticultural soil migrated from neighbouring fields	Arsenic, Copper, Lead, OCPs
SS7 – SS14	Emplaced / stockpiled fill material	Heavy metals, PAHs
Comp1	Potential former horticulture	Arsenic, Copper, Lead, OCPs
Comp2	Dwelling curtilage	Lead

10 LABORATORY ANALYSIS AND QUALITY CONTROL

Sample containers were placed in a box with a chain of custody form (COC) indicating the analysis to be performed. Soil samples were dispatched to Eurofins Mgt laboratories in Melbourne, Australia, for analysis of the contaminants of concern listed above.

Eurofins Mgt laboratories are accredited by the National Association of Testing Authorities (NATA), Australia for the analysis undertaken.

10.1 ACCEPTANCE CRITERIA AND RELEVANT GUIDELINES

The NES mandates fourteen soil contaminant standards (SCS) for the protection of human health for organic compounds and inorganic elements for various landuse criteria. The NES human health SCS criteria for a commercial / industrial outdoor worker (unpaved) have been applied to the proposed change in landuse, subdivision, and development.

The AUP(OP) also set permitted activity environmental discharge and soil acceptance criteria for potentially contaminated land.

Results are also compared to the background concentration ranges of inorganic elements in soils in the Auckland Region for volcanic soils.

11 ANALYTICAL RESULTS

A comparison of the analytical results with the relevant guideline criteria is provided in Table 2 below. Copies of the laboratory chain of custody document (COC) and analytical transcripts are attached in Appendix D, while a discussion of the results is provided below. No OCPs or PAHs were detected in any of the soil samples and have subsequently been omitted from the table of results.

TABLE 1: ANALYTICAL RESULTS[1]

	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc
SS1	12	-	-	75	45	-	-
SS2	12	-	-	71	57	-	-
SS3	11	-	-	65	38	-	-
SS4	11	-	-	71	39	-	-
SS5	11	-	-	71	40	-	-
SS6	12	-	-	84	45	-	-
SS7	12	ND	18	22	24	6.2	51
SS8	**130**	ND	51	81	53	13	160
SS9	11	ND	28	**110**	36	16	110
SS10	8.2	ND	22	41	**170**	13	150
SS11	**18**	ND	32	41	34	11	72
SS12	**15**	ND	24	60	47	10	120
SS13	**14**	ND	28	**140**	**150**	12	170
SS14	4.2	ND	**260**	18	17	11	59
COMP1	11	-	-	62	51	-	-
COMP2	-	-	-	-	**300**	-	-
NES [2]	70	1,300	6,300	>10,000	3,300	NL	NL
AUP(OP)[3]	100	7.5	400	325	250	105	400
Background[4]	0.4 - 12	<0.1 – 0.65	3 - 125	20 - 90	<5 - 65	4 - 320	54 – 1,160

Notes:

1. All metal concentrations measured in mg/kg.
2. National Environmental Standards (NES) for assessing and managing contaminants in soil to protect human health – *Commercial / industrial outdoor worker (unpaved).*
3. Auckland Unitary Plan (Operative in Part) – Table E30.6.1.4.1 *Permitted Activity Soil Acceptance Criteria.*
4. Auckland Regional Council Technical Publication No.153 (2001) – Table 3 *Background Concentrations of Inorganic Elements in Soils from the Auckland Region* (volcanic soils).
5. Values in **BOLD** exceed the NES criteria, values in **BOLD** exceed the AUP(OP) criteria, Values in **BOLD** exceed the Background Ranges.
6. NA = Not applicable / NL = No Limit / ND= not detected / - = not analysed.

11.1 HEAVY METALS

Half of the soil samples collected returned concentrations of contaminants of concern below the expected naturally occurring background ranges for volcanic soils in the Auckland region. Of the remaining eight samples, six returned concentrations that exceeded the expected naturally occurring background ranges.

One discrete soil sample, SS8, collected from a small stockpile of unverified material in the south-western corner of the property returned concentrations of arsenic in excess of the NES soil contaminant standard (SCS) for commercial / industrial outdoor workers (unpaved), and the AUP(OP) permitted activity soil acceptance criteria. A second sample, the composite soil sample from the dwelling curtilage (Comp2) also exceeded the AUP(OP) permitted activity soil acceptance criteria, but not the NES SCS.

11.2 ORGANOCHLORINE PESTICIDES (OCP'S)

None of the soil samples analysed returned detections of organochlorine pesticides (OCPs).

11.3 POLYCYCLIC AROMATIC HYDROCARBONS (PAHS)

None of the soil samples analysed returned detections of polycyclic aromatic hydrocarbons (PAHs).

12 CONCLUSIONS

The PSI conducted in November 2018 by GSL identified a number of locations on site where it was more likely than not that activities listed on the MfE HAIL had, or are currently occurring. This included ingress of material from the neighbouring horticultural fields, potential historical horticulture on the site itself, a number of stockpiles of unverified fill material, buried rubble, and potential lead contamination from lead-based paints in soils around an old dwelling. Consequently, GSL developed a conceptual model with judgemental soil sampling targeting the potentially contaminated areas identified.

Analysis of the soil samples revealed that:

- One discrete soil sample returned concentrations in excess of the NES SCS for commercial / industrial outdoor workers (unpaved), and the AUP(OP) permitted activity soil acceptance criteria for arsenic;
- One composite sample returned concentrations in excess of the AUP(OP) permitted activity soil acceptance criteria for lead;
- Six additional discrete soil samples returned concentrations of heavy metals in excess of the expected naturally occurring background ranges for volcanic soils in the Auckland region;
- Seven discrete soil samples and one composite soil samples returned concentrations below the expected naturally occurring background ranges for volcanic soils in the Auckland region;
- No organochlorine pesticides (OCPs) or polycyclic aromatic hydrocarbons (PAHs) were detected in any of the analysed samples.

GSL therefore conclude that previous landuses have impacted soil quality in discrete locations on the site to the extent that remediation of soils in two locations will be required.

12.1 THE NATIONAL ENVIRONMENTAL STANDARDS (NES)

Under the NES, land is considered to be actually or potentially contaminated if an activity or industry on the Hazardous Activities and Industries List (HAIL) has been, is, or is more likely than not to have been, undertaken on the land.

The presence of heavy metal concentrations which exceed the expected naturally occurring background ranges for volcanic soils of the Auckland Region will preclude the activity from being able to meet the requirements of the NES under Regulation 5(9). Furthermore, the presence of arsenic concentrations in excess of the NES SCS for commercial / industrial outdoor workers (unpaved) requires that appropriate controls and measures be in place to minimise the risk of exposure to site workers, both during and after development. As such, the development activities will be considered a Restricted Discretionary Activity under Regulation 10 of the NES, with remedial actions and site validation required prior to development commencing, in accordance with an approved Remediation Action Plan (RAP) and Site Validation Report (SVR).

12.2 THE AUCKLAND UNITARY PLAN (OPERATIVE IN PART) (AUP(OP))

Two of the soil samples analysed exceeded the AUP(OP) permitted activity soil acceptance criteria (including the sample that exceeded the NES criteria as described above). As such, the site meets the definition of *land containing elevated levels of contaminants*, and will be subject to the requirements of Regulation E30.6.2 as a Controlled Activity under the AUP(OP) Chapter E30 *Contaminated Land*. As a Controlled Activity under the AUP(OP), the development activities will require a suitable RAP to ensure that potential discharge of contaminants to the environment is minimised.

13 FURTHER WORKS REQUIRED

As a result of the findings detailed above, and to meet the requirements of the NES, and the AUP(OP), the following further works will be required:

- preparation of a suitable remediation action plan (RAP), which will have to be approved by Council prior to earthworks commencing, which will detail the extent of the contamination and the methodologies for removal of the impacted material, including the site management practices and soil disposal methods that will be employed throughout the duration of the works to reduce the potential risks to human health and the environment during the process; and;
- the collection and analysis of representative soil samples in accordance with the RAP for preparation of a site validation report, to be submitted to Auckland Council upon completion of the works.

14 REFERENCES

1. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.1: Reporting on contaminated Sites in New Zealand*. Ministry for the Environment, Wellington, New Zealand.

2. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils*. Ministry for the Environment, Wellington, New Zealand.

3. Ministry for the Environment (2012) - Users Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health. Ministry for the Environment, Wellington, New Zealand.

4. Ministry for the Environment (2011) – *Methodology for Deriving Standards for contaminants in Soil to Protect Human Health.* Ministry for the Environment, Wellington, New Zealand.

5. Auckland Council (2013) –*Auckland Unitary Plan (Operative in Part)*, Auckland, New Zealand.

6. Auckland Regional Council (2001) – *Background Concentrations of Inorganic Elements in Soils from the Auckland region (TP153*) – Auckland.

7. Edbrooke, S.W (2001) — *Geology of the Auckland Urban Area,* Institute of Geological and Nuclear Sciences Geological Map 3, Lower Hutt, New Zealand.

8. Auckland Council (2011) - *Auckland Council GEOMAPS*. http://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html

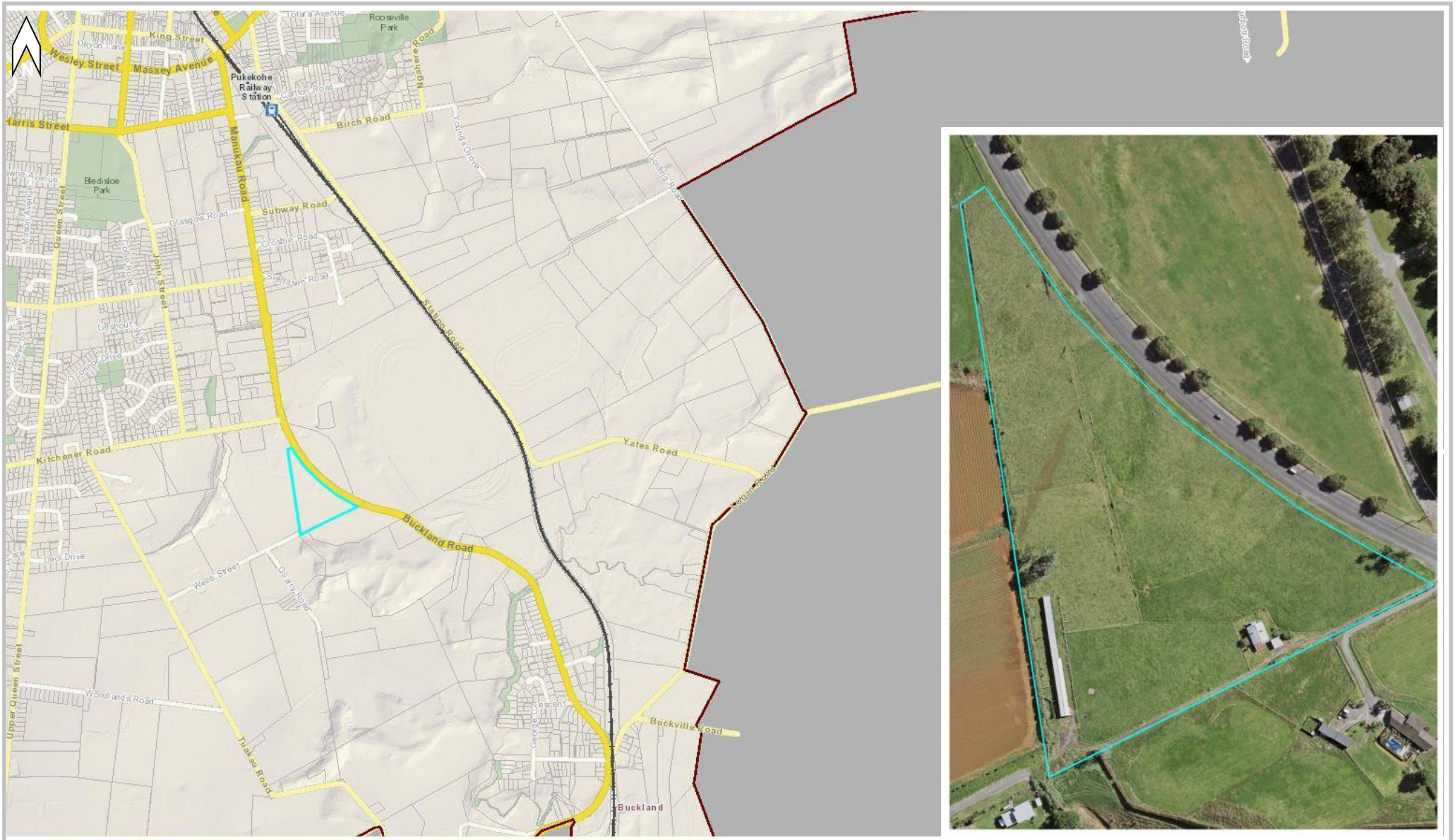
9. Ministry for the Environment (rev 2011) - *Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand.* Ministry for the Environment, Wellington, New Zealand.

15 LIMITATIONS

The conclusions and all information in this Report are given strictly in accordance with and subject to the following limitations and recommendations:

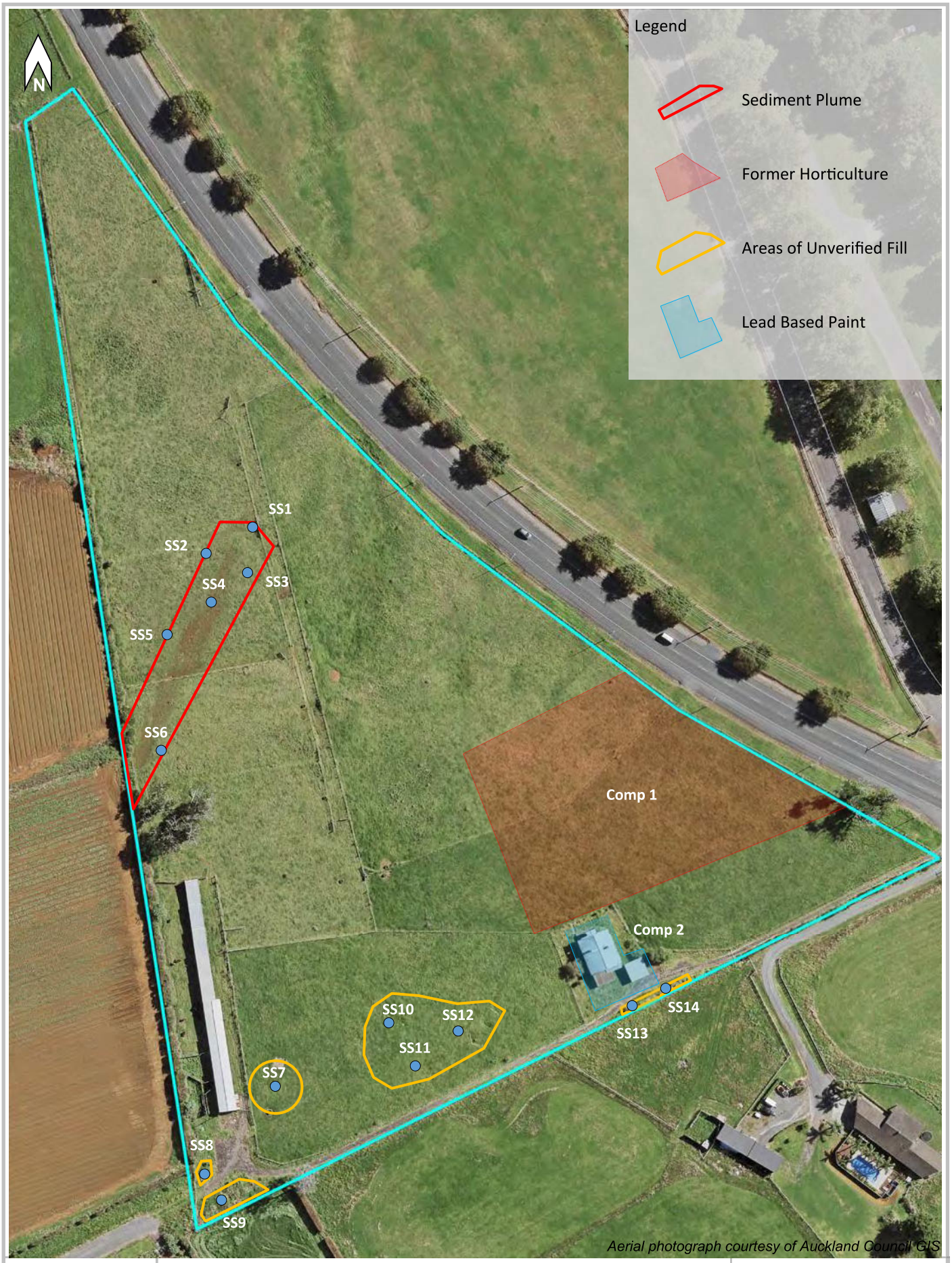
1. The assessment undertaken to form this conclusion is limited to the scope of work agreed between GSL and the client, or the client's agent as outlined in this Report. This report has been prepared for the sole benefit of the client and neither the whole nor any part of this report may be used or relied upon by any other party.
2. The investigations carried out for the purposes of the report have been undertaken, and the report has been prepared, in accordance with normal prudent practice and by reference to applicable environmental regulatory authority and industry standards, guidelines and assessment criteria in existence at the date of this report.
3. This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by GSL for use of any part of this report in any other context.
4. This Report was prepared on the dates and times as referenced in the report and is based on the conditions encountered on the site and information reviewed during the time of preparation. GSL accepts no responsibility for any changes in site conditions or in the information reviewed that have occurred after this period of time.
5. Where this report indicates that information has been provided to GSL by third parties, GSL has made no independent verification of this information except as expressly stated in the report. GSL assumes no liability for any inaccuracies in or omissions to that information.
6. Given the limited Scope of Works, GSL has only assessed the potential for contamination resulting from past and current known uses of the site.
7. Environmental studies identify actual sub-surface conditions only at those points where samples are taken and when they are taken. Actual conditions between sampling locations or differ from those inferred. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from that predicted. Nothing can be done to prevent the unanticipated and GSL does not guarantee that contamination does not exist at the site.
8. Except as otherwise specifically stated in this report, GSL makes no warranty or representation as to the presence or otherwise of asbestos and/or asbestos containing materials ("ACM") on the site. If fill has been imported on to the site at any time, or if any buildings constructed prior to 1970 have been demolished on the site or materials from such buildings disposed of on the site, the site may contain asbestos or ACM .
9. No investigations have been undertaken into any off-site conditions, or whether any adjoining sites may have been impacted by contamination or other conditions originating from this site. The conclusion set out above is based solely on the information and findings contained in this report.
10. Except as specifically stated above, GSL makes no warranty, statement or representation of any kind concerning the suitability of the site for any purpose or the permissibility of any use, development or re-development of the site.
11. The investigation and remediation of contaminated sites is a field in which legislation and interpretation of legislation is changing rapidly. Our interpretation of the investigation findings should not be taken to be that of any other party. When approval from a statutory authority is required for a project, that approval should be directly sought by the client.
12. Use, development or re-development of the site for any purpose may require planning and other approvals and, in some cases, environmental regulatory authority and accredited site auditor approvals. GSL offers no opinion as to whether the current use has any or all approvals required, is operating in accordance with any approvals, the likelihood of obtaining any approvals, or the conditions and obligations which such approvals may impose, which may include the requirement for additional environmental works.
13. GSL makes no determination or recommendation regarding a decision to provide or not to provide financing with respect to the site. The on-going use of the site and/or use of the site for any different purpose may require the owner/user to manage and/or remediate site conditions, such as contamination and other conditions, including but not limited to conditions referred to in this report.
14. Except as required by law, no third party may use or rely on, this report unless otherwise agreed by GSL in writing. Where such agreement is provided, GSL will provide a letter of reliance to the agreed third party in the form required by GSL.
15. To the extent permitted by law, GSL expressly disclaims and excludes liability for any loss, damage, cost or expenses suffered by any third party relating to or resulting from the use of, or reliance on, any information contained in this Report. GSL does not admit that any action, liability or claim may exist or be available to any third party.
16. Except as specifically stated in this section, GSL does not authorise the use of this report by any third party.

FIGURES



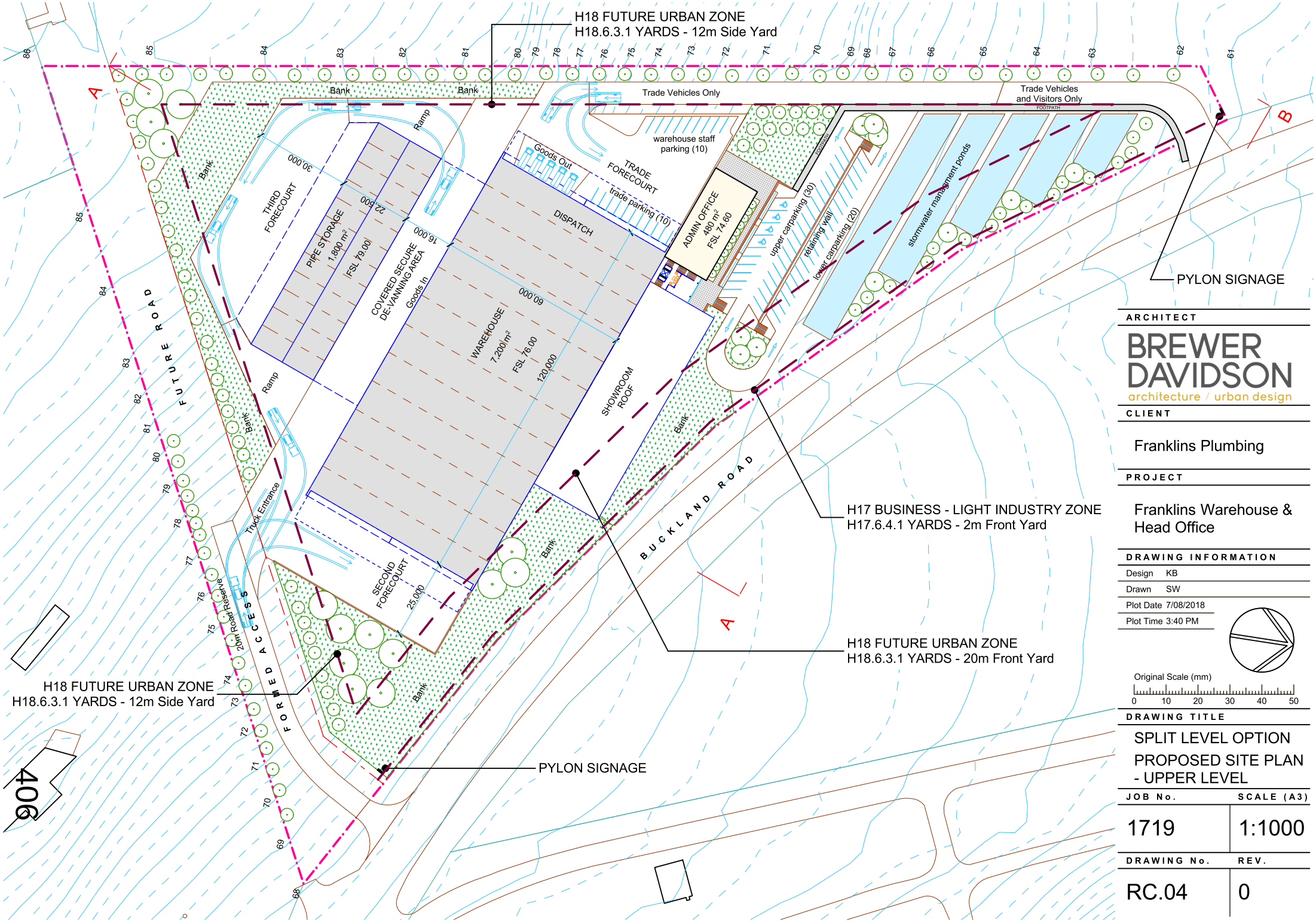
geosciences ltd ENVIRONMENTAL	Title:	Figure 1 - Site Location	Reference: J1258 Date: 15-11-2018
Level 1, 47 Clyde Road, Browns Bay, 0630 Tel: (09) 475 0222	Project name:	301 Buckland Road, Buckland	Drawn: CD Approved: COB

403



Title:	**Figure 2 - Soil Sample Locations**	**Reference:**	J1258a
Project name:	301 Buckland Road, Buckland	**Date:**	15-01-2019
		Drawn:	CD
geosciences ltd ENVIRONMENTAL	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	**Approved:**	COB

APPENDIX A PROPOSED EARTHWORKS PLAN



ARCHITECT

BREWER DAVIDSON
architecture / urban design

CLIENT

Franklins Plumbing

PROJECT

Franklins Warehouse & Head Office

DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	7/08/2018
Plot Time	3:40 PM

Original Scale (mm)
0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
PROPOSED SITE PLAN - UPPER LEVEL

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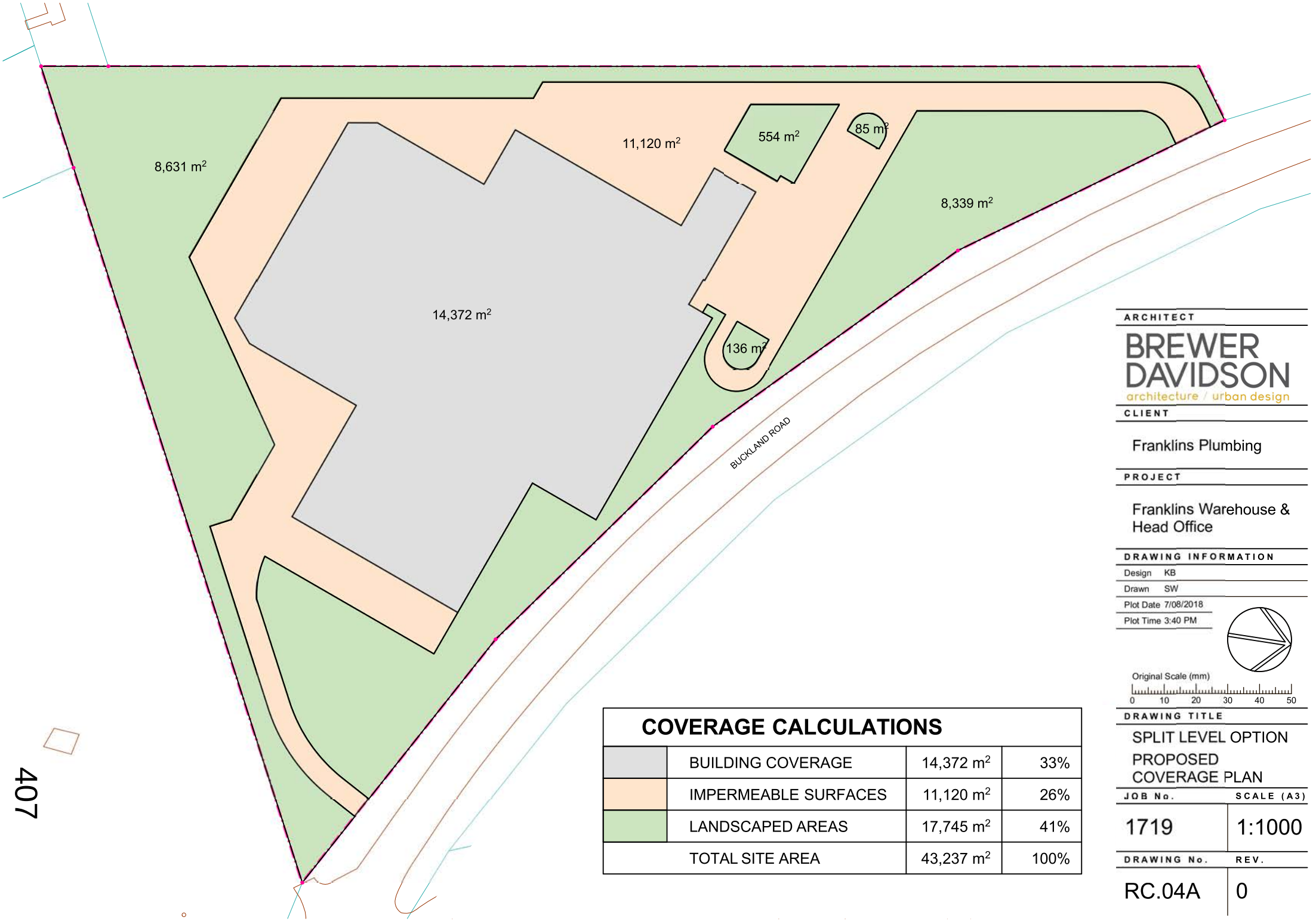
DRAWING No.	REV.
RC.04	0



COVERAGE CALCULATIONS

	BUILDING COVERAGE	14,372 m²	33%
	IMPERMEABLE SURFACES	11,120 m²	26%
	LANDSCAPED AREAS	17,745 m²	41%
	TOTAL SITE AREA	43,237 m²	100%

407

ARCHITECT

BREWER DAVIDSON
architecture / urban design

CLIENT

Franklins Plumbing

PROJECT

Franklins Warehouse & Head Office

DRAWING INFORMATION

Design KB
Drawn SW
Plot Date 7/08/2018
Plot Time 3:40 PM

Original Scale (mm)
0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
PROPOSED
COVERAGE PLAN

JOB No.	SCALE (A3)
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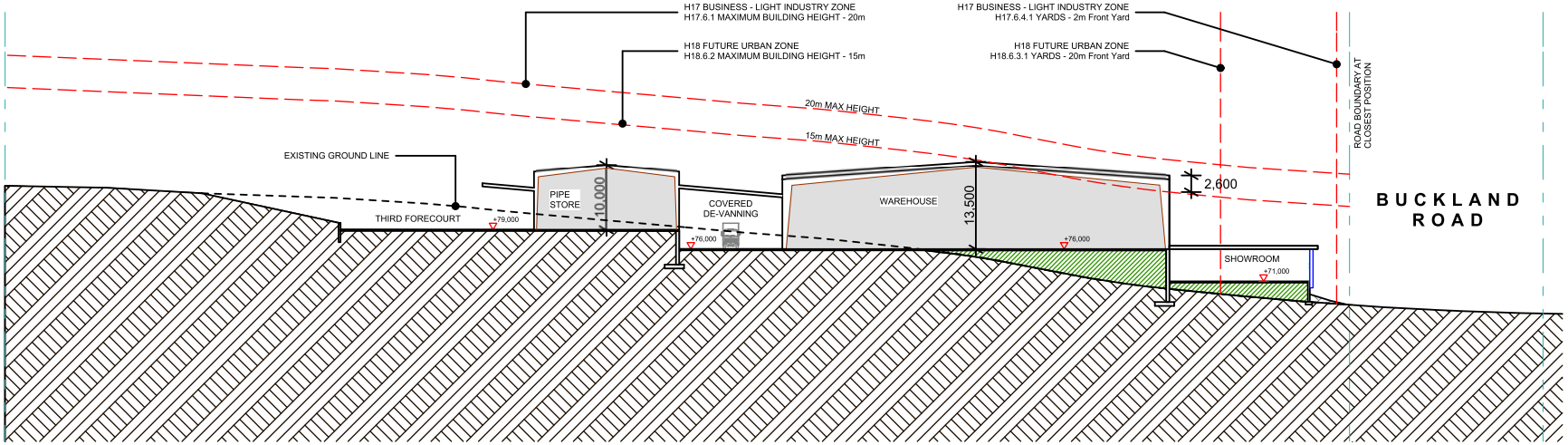
DRAWING No.	REV.
RC.04A	0



ARCHITECT

BREWER DAVIDSON
architecture / urban design

CLIENT

Franklins Plumbing

PROJECT

Franklins Warehouse & Head Office

DRAWING INFORMATION

Design	KB
Drawn	SW
Plot Date	7/08/2018
Plot Time	3:40 PM

Original Scale (mm)

0 10 20 30 40 50

DRAWING TITLE

SPLIT LEVEL OPTION
SECTION A-A

JOB No.	SCALE (A3)
1719	1:750

DRAWING No.	REV.
RC.05	0

EARTHWORKS NOTES:

1. ALL WORKS TO COMPLY WITH THE RELEVANT LOCAL AUTHORITY STANDARDS.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE OPERATIONAL PRIOR TO ANY WORKS COMMENCING AND SHALL BE INSTALLED IN ACCORDANCE WITH AC GD005 'EROSION AND SEDIMENT CONTROL GUIDE FOR LAND DISTURBING ACTIVITIES'.
3. REFER TO EARTHWORKS SPECIFICATION FOR EARTHFILL REQUIREMENTS AND STANDARDS OF COMPACTION. ALL EARTHWORKS TO BE UNDERTAKEN IN ACCORDANCE WITH GEOTECHNICAL INVESTIGATION REPORT, CONTRACTOR TO VIEW THE REPORT TO INFORM THEMSELVES.
4. ALL MATERIAL FROM GULLIES DEEMED BY THE ENGINEER TO BE UNSUITABLE SHALL BE EXCAVATED.
5. TOPSOIL AND OTHER RELATIVELY DRY ORGANIC MATERIAL THAT CAN BE STRIPPED FROM STEEP AREAS/GULLIES USING EXCAVATOR/TRACTOR AND SCOOP SHALL BE CLASSIFIED AS SUBSOIL/TOPSOIL STRIPPING.
6. ALL GULLIES SHALL BE SURVEYED AFTER CLEARING OPERATIONS (PRIOR TO REMOVAL OF UNSUITABLE) AND THEN AGAIN AFTER UNSUITABLE REMOVAL FOR VOLUMES.
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8. THE LOCATIONS OF ALL STOCKPILES ARE WHOLLY THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE LOCATED CLEAR OF ALL EARTHWORKS OPERATIONS AND AWAY FROM GEOTECHNICALLY UNSTABLE LAND. NO PAYMENT SHALL BE MADE FOR RELOCATION OF ANY STOCKPILES THAT HAVE BEEN FOUND TO HAVE BEEN PLACED IN THE INCORRECT LOCATION.
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11. FINAL QUANTITIES AND EXTENT OF EARTHWORKS TO BE DETERMINED BY THE ENGINEER.

EARTHWORKS LEGEND:

85 — PROPOSED CONTOURS - MAJOR (1.0)

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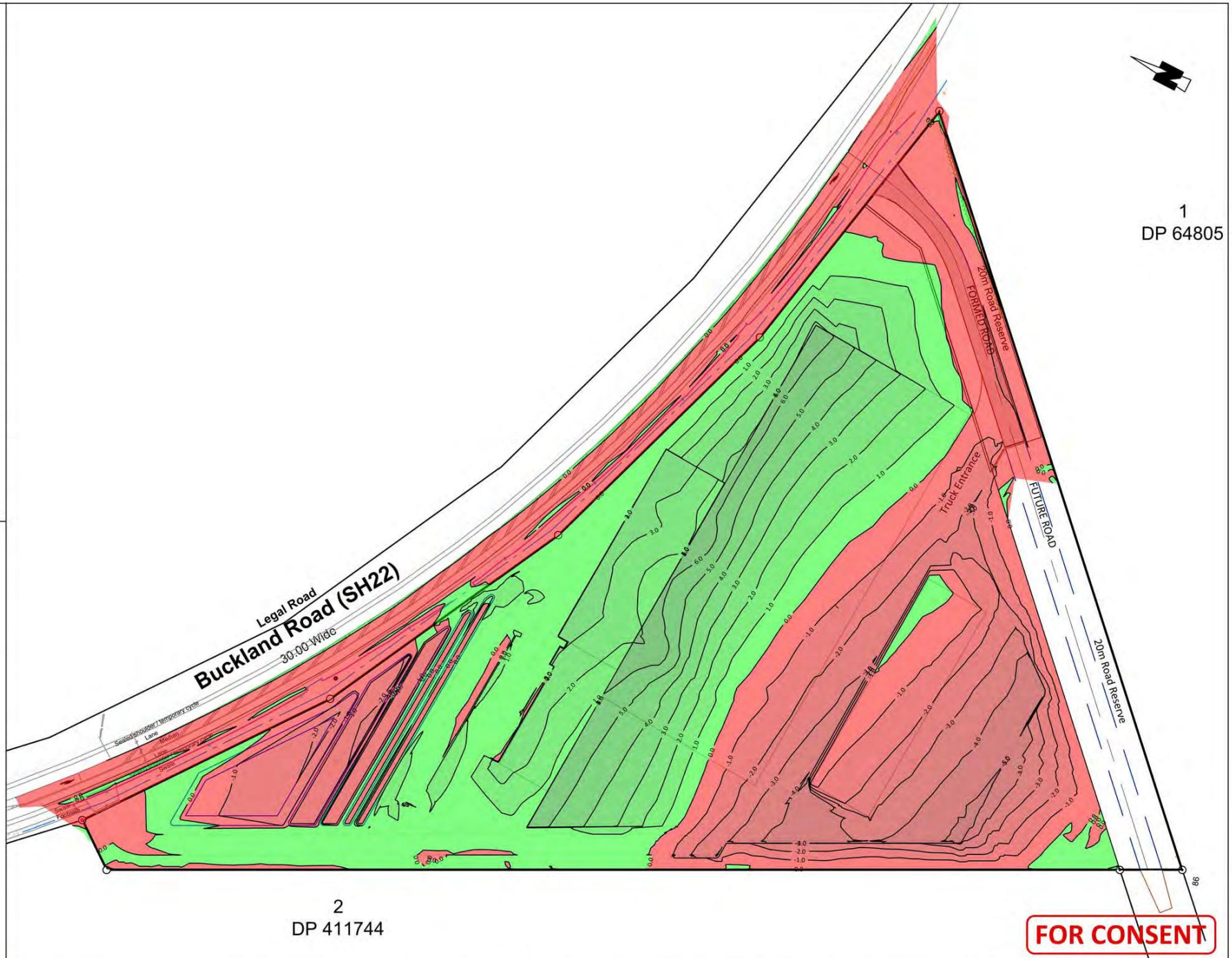
0	-1	m		-31785



1
DP 64805

2
DP 411744

FOR CONSENT

409

CKL
Planning | Surveying | Engineering | Environmental

Auckland Office:
A: 25 Broadway, Newmarket
P: 09 524 7029
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A: 58 Church Road, Hamilton
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Te Awamutu Office
A: 103 Market Street, Te Awamutu
P: 07 871 6144

WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

PROPOSED EARTHWORKS PLAN
CUT FILL

Issue	Description	Checked	Date
01	PRELIMINARY	GW	26.03.18
02	ISSUED FOR CONSENT	SS	30.07.18

		Date
Designed:	MJW	22.07.18
Drawn:	MJW	22.07.18
Checked:	SS	30.07.18

Scale: 1:1250 (A3 Original)

Job No: W3150
Dwg No: 210
Rev: 02

EARTHWORKS NOTES:

1. ALL WORKS TO COMPLY WITH THE RELEVANT LOCAL AUTHORITY STANDARDS.
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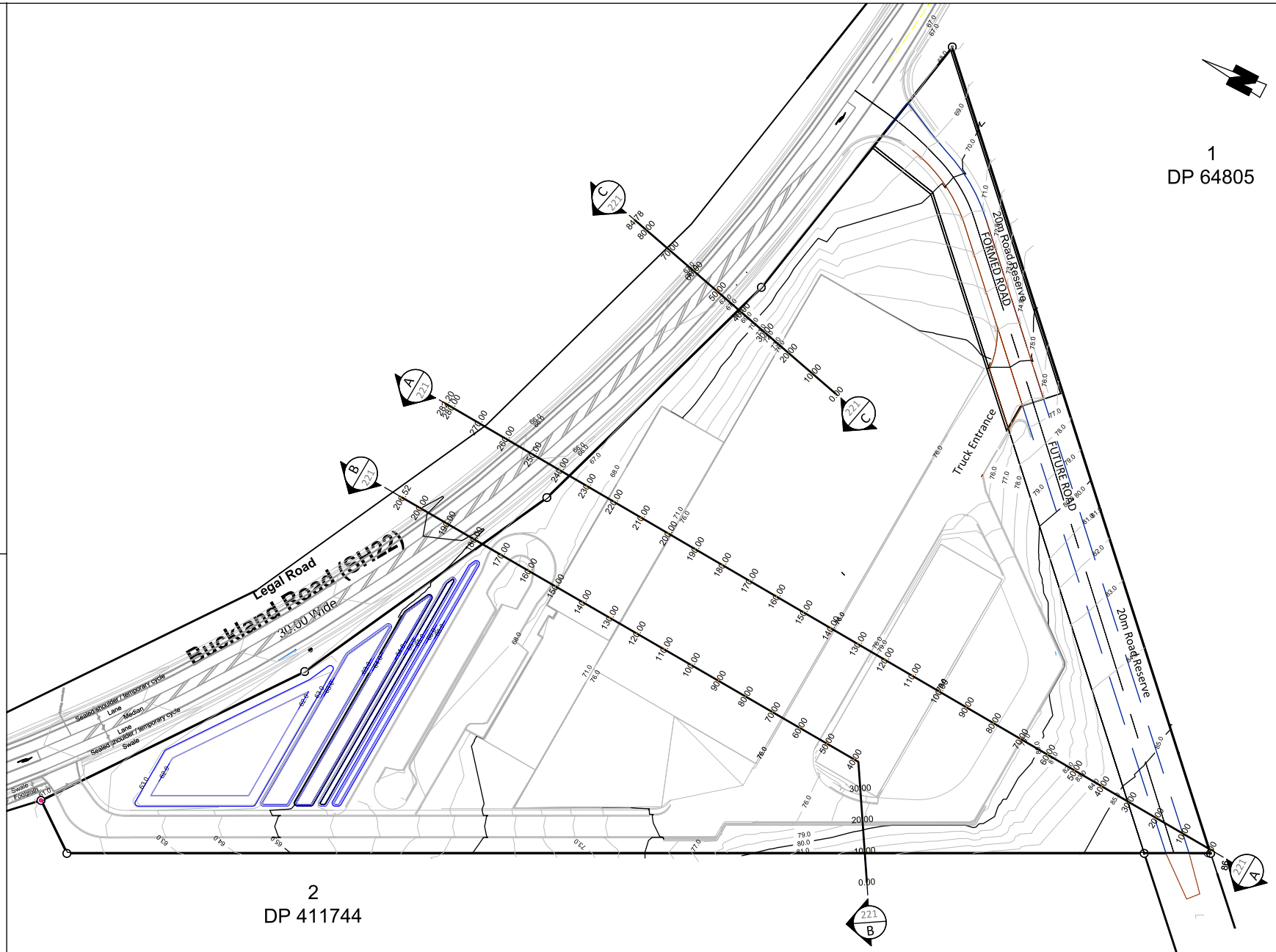
EARTHWORKS LEGEND:

85 — PROPOSED CONTOURS - MAJOR (1.0)



FOR CONSENT

410

CKL
Planning | Surveying | Engineering | Environmental

Auckland Office:
A: 25 Broadway, Newmarket
P: 09 524 7029
Hamilton Office
A: 58 Church Road, Hamilton
P: 07 849 9921
Te Awamutu Office
A: 103 Market Street, Te Awamutu
P: 07 871 6144

WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

PROPOSED EARTHWORKS
SECTION LINES
PLAN

Issue	Description	Checked	Date
01	ISSUED FOR CONSENT	SS	30.07.18

		Date
Designed:	MJW	22.07.18
Drawn:	MJW	22.07.18
Checked:	SS	30.07.18

Scale: **1:1250** (A3 Original)

Job No: **W3150** Dwg No: **220** Rev: **01**

EARTHWORKS NOTES:

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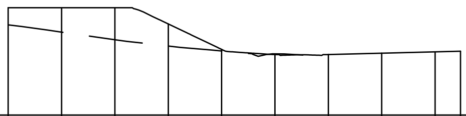
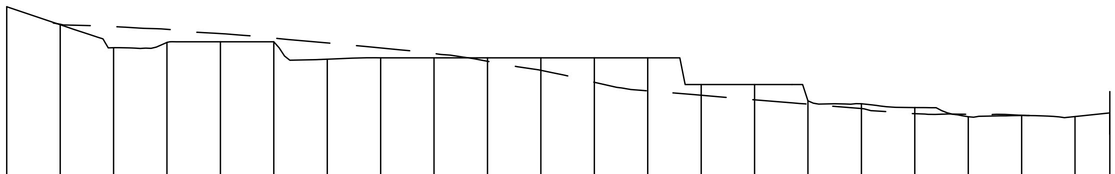


DATUM R.L. = 56.0

FINISHED SURFACE LEVEL	76	76	76	72.99	68.24	67.28	67.28	67.53	67.78	67.9
EXISTING SURFACE LEVEL	72.81	71.46	70.05	68.87	67.95	67.4	67.28	67.53	67.78	67.9
CUT/FILL DEPTH	3.19	4.54	5.95	4.12	0.3	-0.12	0.0	0.0	0.0	0.0
CHAINAGE (M)	0	10	20	30	40	50	60	70	80	84.78

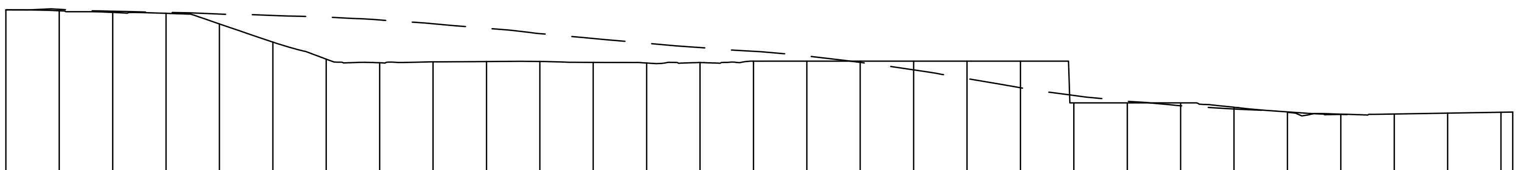
EARTHWORKS LONGITUDINAL SECTION - SECTION C
HORIZONTAL SCALE 1:1000
VERTICAL SCALE 1:1000



DATUM R.L. = 54.0

FINISHED SURFACE LEVEL	85.57	82.2	77.9	78.89	79	79	75.76	76	76	76	76	76	76	71	71	67.97	67.41	66.72	64.96	65.2	65.01	65.69
EXISTING SURFACE LEVEL		82.3	81.86	81.34	80.54	79.69	78.8	77.85	76.83	75.36	73.67	71.44	69.82	69	68.15	67.34	66.51	65.56	65.42	65.27		
CUT/FILL DEPTH		-0.09	-3.96	-2.45	-1.54	-0.69	-3.05	-1.85	-0.83	0.64	2.33	4.56	6.18	2	2.85	0.63	0.91	1.16	-0.45	-0.07		
CHAINAGE (M)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	206.52

EARTHWORKS LONGITUDINAL SECTION - SECTION B
HORIZONTAL SCALE 1:1000
VERTICAL SCALE 1:1000



DATUM R.L. = 55.0

FINISHED SURFACE LEVEL	85.56	85.4	85.09	84.92	82.94	79.56	76.37	75.7	75.87	75.92	75.92	75.76	75.65	75.73	76	76	76	76	76	76	68.2	68.2	68.2	67.39	66.52	66.06	66.13	66.29	66.46	66.49
EXISTING SURFACE LEVEL	85.54	85.67	85.32	85.1	84.79	84.53	84.21	83.68	82.98	82.13	81.13	80.23	79.34	78.53	77.84	76.97	75.76	74.37	72.73	71.03	69.6	68.5	67.67	67.06	66.43	66.09	66.13	66.29	66.46	66.49
CUT/FILL DEPTH	0.03	-0.27	-0.23	-0.18	-1.85	-4.96	-7.84	-7.98	-7.11	-6.2	-5.21	-4.46	-3.7	-2.8	-1.84	-0.97	0.24	1.63	3.27	4.97	-1.4	-0.3	0.53	0.33	0.09	-0.03	0.00	0.00	0.00	0.00
CHAINAGE (M)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	282.2

EARTHWORKS LONGITUDINAL SECTION - SECTION A
HORIZONTAL SCALE 1:1000
VERTICAL SCALE 1:1000

FOR CONSENT

CKL
Planning | Surveying | Engineering | Environmental

Auckland Office:
A: 25 Broadway, Newmarket
P: 09 524 7029
Hamilton Office
A: 58 Church Road, Hamilton
P: 07 849 9921
Te Awamutu Office
A: 103 Market Street, Te Awamutu
P: 07 871 6144

WAREHOUSE AND HEAD OFFICE
FRANKLIN PLUMBING
301 BUCKLAND ROAD, PUKEKOHE

PROPOSED EARTHWORKS PLAN
EARTHWORKS SECTIONS

Issue	Description	Checked	Date
01	ISSUED FOR CONSENT	SS	30.07.18

		Date
Designed:	MJW	22.07.18
Drawn:	MJW	22.07.18
Checked:	SS	30.07.18

Scale: 1:1250 (A3 Original)

Job No: W3150 | Dwg No: 221 | Rev: 01

APPENDIX B FORMER INVESTIGATION EXTRACTS

EXECUTIVE SUMMARY

Geosciences Ltd (GSL) has been requested by Scott Wilkinson Planning on behalf of their client, Franklins Plumbers & Builders Supplies Ltd, to conduct a Preliminary Site Investigation (PSI) of the property located at 301 Buckland Road, Buckland ("the site"). It is proposed to develop the through the removal of existing structures on site, and construction of a commercial warehouse, showroom, and office complex. The site is located on the southern edge of Pukekohe's light industrial zone, in an area where historical and current horticultural farming is common.

The PSI included a review of the property file held by Auckland Council, the available historic aerial photographs, the certificates of title, and any available previous investigations at the site. Following the desktop review, a site inspection was undertaken to confirm findings in the review. The aim of the PSI was to identify whether any activities on the Ministry for the Environment's (MfE) Hazardous Activities and Industries List (HAIL) are more likely than not to currently be, or historically have been, occurring on site.

The historic photograph investigation revealed that the property has been used for pastoral farming for the majority of its recorded history. However, possible horticultural practices (HAIL Item A.10) prior to the 1960s cannot be conclusively ruled out based on aerial photographs of the site between 1942 and 1961. Recent aerial photographs revealed the migration of sediment from the neighbouring horticultural field onto the site (HAIL Item H), confirmed by the site inspection. As the dwelling has been located on the site since before 1942, the use of lead-based paint is likely (HAIL Item I).

The review of a recent geotechnical investigation suggests that unverified fill material (HAIL Item I) may be present on site. While it is likely the fill material encountered is locally derived material disturbed by pastoral farming activities, the lack of records regarding potential filling activities warrants further investigation. This should include the areas of buried concrete and building rubble located in the pasture west of the residential dwelling, where a pre-1940 building was located before its demolition, as well as the stockpiles of material located along the southern boundary of the site.

The investigation, carried out in accordance with the MfE contaminated land management guidelines, has found evidence to suggest it is more likely than not that the site has been the location of possible historic and current HAIL activity. Consequently, the site does not meet the definition of *Land not covered* under Regulation (9) of the National Environmental Standard (NES) for Assessing and Managing Contaminants in Soil to Protect Human Health. A Detailed Site Investigation (DSI) will therefore be required to determine the activity status of the proposed development under the NES and the Auckland Unitary Plan (AUP(OP)) *Chapter E.30 Contaminated Land*.

APPENDIX C SITE PHOTOGRAPHS

PLATE 1: Arsenic impacted stockpile

PLATE 2: Area of sediment plume from adjacent property

PLATE 3: Dwelling curtilage

PLATE 4: Dwelling curtilage

APPENDIX D LABORATORY TRANSCRIPTS

CHAIN OF CUSTODY RECORD

☐ Eurofins | mgt Auckland Office — 35 O'Rorke Road, Penrose, AUCKLAND 1061, New Zealand. P: 0800 856450 (free dial). E: ScottCarroll@eurofins.co.nz ; OnurMehmet@eurofins.com.au

☐ Eurofins | mgt Wellington Office — 85 Port Road, Seaview, Lower Hutt, WELLINGTON 5011, New Zealand. P: 0800 856450 (free dial). E: ScottCarroll@eurofins.co.nz ; OnurMehmet@eurofins.com.au

☐ Eurofins | mgt Melbourne Lab — 2 Kingston Town Close, Oakleigh, VIC 3166, Australia. P: 0800 856450 (free dial). E: ScottCarroll@eurofins.co.nz ; OnurMehmet@eurofins.com.au

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Company	Geosciences Ltd	Purchase Order		Project Manager	Carl O'Brien
Address	47 Clyde Road, Browns Bay, Auckland, 0630	Eurofins | mgt Quote №		Project №	J1258a
Contact Name	Chris Davies				
Contact Phone №	09 475 0222				
Special Direction	PAGE 1/2				
Relinquished by (Signature)					
(Time / Date)	09:20	11/12/18.			

Project Name	301 Buckland Rd DSI	
Electronic Results Format	pdf, excel	
Email for Results	chris@geosciences.co.nz carl@geosciences.co.nz	
Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* (* Surcharges apply) ☑ 5 DAY (Std.) ☐ Other ( )	
Containers		Method of Shipment
		☑ Courier (# 435603) ☐ Hand Delivered ☐ Postal

№	Client Sample ID	Date	Matrix	Analysis (Note: Where metals are requested, please specify "Total" or "Filtered".) B22-NZ	M7-NZ	PAH (standard)	1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL Vial	125mL Amber Glass	Jar	Sample Comments / DG Hazard Warning
1	SS1	10/12/2018	SOIL	X									Y	
2	SS2	10/12/2018	SOIL	X									Y	
3	SS3	10/12/2018	SOIL	X									Y	
4	SS4	10/12/2018	SOIL	X									Y	
5	SS5	10/12/2018	SOIL	X									Y	
6	SS6	10/12/2018	SOIL	X									Y	
7	SS7	10/12/2018	SOIL		X	X							Y	
8	SS8	10/12/2018	SOIL		X	X							Y	
9	SS9	10/12/2018	SOIL		X	X							Y	
10	SS10	10/12/2018	SOIL		X	X							Y	
11	SS11	10/12/2018	SOIL		X	X							Y	
12	SS12	10/12/2018	SOIL		X	X							Y	

Laboratory Use Only										
Received By	MANSI	✓ AUCK | WELL | MELB	Date	11/12/18	Time	11:30AM	Signature		Temperature	
Received By		AUCK | WELL | MELB	Date	__/__/__	Time	__:__	Signature		Report №	632269

CHAIN OF CUSTODY RECORD

☐ Eurofins | mgt Auckland Office — 35 O'Rorke Road, Penrose, AUCKLAND 1061, New Zealand. P: 0800 856450 (free dial). E: ScottCarroll@eurofins.co.nz; OnurMehmet@eurofins.com.au

☐ Eurofins | mgt Wellington Office — 85 Port Road, Seaview, Lower Hutt, WELLINGTON 5011, New Zealand. P: 0800 856450 (free dial). E: ScottCarroll@eurofins.co.nz; OnurMehmet@eurofins.com.au

☐ Eurofins | mgt Melbourne Lab — 2 Kingston Town Close, Oakleigh, VIC 3166, Australia. P: 0800 856450 (free dial). E: ScottCarroll@eurofins.co.nz; OnurMehmet@eurofins.com.au

Company	Geosciences Ltd	Purchase Order		Project Manager	Carl O'Brien
Address	47 Clyde Road, Browns Bay, Auckland, 0630	Eurofins | mgt Quote №		Project №	J1258a
Contact Name	Chris Davies				
Contact Phone №	09 475 0222				
Special Direction	PAGE 2/2				
Relinquished by (Signature)					
(Time / Date)	9:20	10/12/18			

Project Name	301 Buckland Rd DSI	
Electronic Results Format	pdf, excel	
Email for Results	chris@geosciences.co.nz carl@geosciences.co.nz	
Turn Around Requirements	☐ 1 DAY* ☐ 2 DAY* ☐ 3 DAY* (* Surcharges apply) ☑ 5 DAY (Std.) ☐ Other ( )	

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Analysis (Note: Where metals are requested, please specify "Total" or "Filtered".)

№	Client Sample ID	Date	Matrix	M7-NZ	PAH (standard)	B22-NZ	Lead (Pb)	Containers: 1L Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mLVial	125mL Amber Glass	Jar	Sample Comments / DG Hazard Warning
1	SS13	10/12/2018	SOIL	X	X									✓	
2	SS14	10/12/2018	SOIL	X	X									✓	
3	COMP1	10/12/2018	SOIL			X								✓	
4	COMP2	10/12/2018	SOIL				X							✓	
5															
6															
7															
8															
9															
10															
11															
12															

Method of Shipment: ☑ Courier (# 435603) ☐ Hand Delivered ☐ Postal

Laboratory Use Only										
	Received By		AUCK | WELL | MELB	Date	___/___/___	Time	___:___	Signature	Temperature
	Received By		AUCK | WELL | MELB	Date	___/___/___	Time	___:___	Signature	Report №

Geosciences Ltd
First Floor, 47 Clyde Road
Browns Bay
Auckland NZ 0630

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Chris Davies**

Report **632269-S**
Project name 301 BUCKLAND RD DS1
Project ID J1258A
Received Date Dec 11, 2018

Client Sample ID			**SS1**	**SS2**	**SS3**	**SS4**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**K18-De12629**	**K18-De12630**	**K18-De12631**	**K18-De12632**
Date Sampled			**Dec 10, 2018**	**Dec 10, 2018**	**Dec 10, 2018**	**Dec 10, 2018**
Test/Reference	LOR	Unit				
Organochlorine Pesticides (NZ MfE)						
2.4'-DDD	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
2.4'-DDE	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
2.4'-DDT	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
4.4'-DDD	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
4.4'-DDE	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
4.4'-DDT	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
a-BHC	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
b-BHC	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Chlordanes - Total	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
cis-Chlordane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
d-BHC	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Dieldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan I	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan II	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan sulphate	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin aldehyde	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin ketone	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
g-BHC (Lindane)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor epoxide	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Methoxychlor	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
trans-Chlordane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Dibutylchlorendate (surr.)	1	%	109	100	98	120
Tetrachloro-m-xylene (surr.)	1	%	83	86	88	105
Heavy Metals						
Arsenic	2	mg/kg	12	12	11	11
Copper	5	mg/kg	75	71	65	71
Lead	5	mg/kg	45	57	38	39
% Moisture	1	%	26	27	27	30

Client Sample ID			SS5	SS6	SS7	SS8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			K18-De12633	K18-De12634	K18-De12635	K18-De12636
Date Sampled			Dec 10, 2018	Dec 10, 2018	Dec 10, 2018	Dec 10, 2018
Test/Reference	LOR	Unit				
Organochlorine Pesticides (NZ MfE)						
2.4'-DDD	0.01	mg/kg	< 0.01	< 0.01	-	-
2.4'-DDE	0.01	mg/kg	< 0.01	< 0.01	-	-
2.4'-DDT	0.01	mg/kg	< 0.01	< 0.01	-	-
4.4'-DDD	0.01	mg/kg	< 0.01	< 0.01	-	-
4.4'-DDE	0.01	mg/kg	< 0.01	< 0.01	-	-
4.4'-DDT	0.01	mg/kg	< 0.01	< 0.01	-	-
a-BHC	0.01	mg/kg	< 0.01	< 0.01	-	-
Aldrin	0.01	mg/kg	< 0.01	< 0.01	-	-
b-BHC	0.01	mg/kg	< 0.01	< 0.01	-	-
Chlordanes - Total	0.01	mg/kg	< 0.01	< 0.01	-	-
cis-Chlordane	0.01	mg/kg	< 0.01	< 0.01	-	-
d-BHC	0.01	mg/kg	< 0.01	< 0.01	-	-
Dieldrin	0.01	mg/kg	< 0.01	< 0.01	-	-
Endosulfan I	0.01	mg/kg	< 0.01	< 0.01	-	-
Endosulfan II	0.01	mg/kg	< 0.01	< 0.01	-	-
Endosulfan sulphate	0.01	mg/kg	< 0.01	< 0.01	-	-
Endrin	0.01	mg/kg	< 0.01	< 0.01	-	-
Endrin aldehyde	0.01	mg/kg	< 0.01	< 0.01	-	-
Endrin ketone	0.01	mg/kg	< 0.01	< 0.01	-	-
g-BHC (Lindane)	0.01	mg/kg	< 0.01	< 0.01	-	-
Heptachlor	0.01	mg/kg	< 0.01	< 0.01	-	-
Heptachlor epoxide	0.01	mg/kg	< 0.01	< 0.01	-	-
Hexachlorobenzene	0.01	mg/kg	< 0.01	< 0.01	-	-
Methoxychlor	0.01	mg/kg	< 0.01	< 0.01	-	-
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	-	-
trans-Chlordane	0.01	mg/kg	< 0.01	< 0.01	-	-
Dibutylchlorendate (surr.)	1	%	111	127	-	-
Tetrachloro-m-xylene (surr.)	1	%	90	88	-	-
Polycyclic Aromatic Hydrocarbons (NZ MfE)						
Acenaphthene	0.03	mg/kg	-	-	< 0.03	< 0.03
Acenaphthylene	0.03	mg/kg	-	-	< 0.03	< 0.03
Anthracene	0.03	mg/kg	-	-	< 0.03	< 0.03
Benz(a)anthracene	0.03	mg/kg	-	-	< 0.03	< 0.03
Benzo(a)pyrene	0.03	mg/kg	-	-	< 0.03	< 0.03
Benzo(a)pyrene TEQ (lower bound)*	0.03	mg/kg	-	-	< 0.03	< 0.03
Benzo(a)pyrene TEQ (medium bound)*	0.03	mg/kg	-	-	0.04	0.04
Benzo(a)pyrene TEQ (upper bound)*	0.03	mg/kg	-	-	0.08	0.08
Benzo(b&j)fluoranthene[N07]	0.03	mg/kg	-	-	< 0.03	< 0.03
Benzo(g.h.i)perylene	0.03	mg/kg	-	-	< 0.03	< 0.03
Benzo(k)fluoranthene	0.03	mg/kg	-	-	< 0.03	< 0.03
Chrysene	0.03	mg/kg	-	-	< 0.03	< 0.03
Dibenz(a.h)anthracene	0.03	mg/kg	-	-	< 0.03	< 0.03
Fluoranthene	0.03	mg/kg	-	-	< 0.03	< 0.03
Fluorene	0.03	mg/kg	-	-	< 0.03	< 0.03
Indeno(1.2.3-cd)pyrene	0.03	mg/kg	-	-	< 0.03	< 0.03
Naphthalene	0.1	mg/kg	-	-	< 0.1	< 0.1
Phenanthrene	0.03	mg/kg	-	-	< 0.03	< 0.03
Pyrene	0.03	mg/kg	-	-	< 0.03	< 0.03
p-Terphenyl-d14 (surr.)	1	%	-	-	82	73
2-Fluorobiphenyl (surr.)	1	%	-	-	103	111

Client Sample ID			SS5	SS6	SS7	SS8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			K18-De12633	K18-De12634	K18-De12635	K18-De12636
Date Sampled			Dec 10, 2018	Dec 10, 2018	Dec 10, 2018	Dec 10, 2018
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	11	12	-	-
Copper	5	mg/kg	71	84	-	-
Lead	5	mg/kg	40	45	-	-
Metals M7 (NZ MfE)						
Arsenic	2	mg/kg	-	-	12	130
Cadmium	0.4	mg/kg	-	-	< 0.4	< 0.4
Chromium	5	mg/kg	-	-	18	51
Copper	5	mg/kg	-	-	22	81
Lead	5	mg/kg	-	-	24	53
Nickel	5	mg/kg	-	-	6.2	13
Zinc	5	mg/kg	-	-	51	160
% Moisture	1	%	30	29	25	26

Client Sample ID			SS9	SS10	SS11	SS12
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			K18-De12637	K18-De12638	K18-De12639	K18-De12640
Date Sampled			Dec 10, 2018	Dec 10, 2018	Dec 10, 2018	Dec 10, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons (NZ MfE)						
Acenaphthene	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benz(a)anthracene	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene TEQ (lower bound)*	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene TEQ (medium bound)*	0.03	mg/kg	0.04	0.04	0.04	0.04
Benzo(a)pyrene TEQ (upper bound)*	0.03	mg/kg	0.08	0.08	0.08	0.08
Benzo(b&j)fluoranthene[N07]	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g.h.i)perylene	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(k)fluoranthene	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Chrysene	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Dibenz(a.h)anthracene	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1.2.3-cd)pyrene	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Naphthalene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
Pyrene	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03
p-Terphenyl-d14 (surr.)	1	%	77	138	142	72
2-Fluorobiphenyl (surr.)	1	%	104	114	106	56
Metals M7 (NZ MfE)						
Arsenic	2	mg/kg	11	8.2	18	15
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	28	22	32	24
Copper	5	mg/kg	110	41	41	60
Lead	5	mg/kg	36	170	34	47
Nickel	5	mg/kg	16	13	11	10
Zinc	5	mg/kg	110	150	72	120

Client Sample ID			SS9	SS10	SS11	SS12
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			K18-De12637	K18-De12638	K18-De12639	K18-De12640
Date Sampled			Dec 10, 2018	Dec 10, 2018	Dec 10, 2018	Dec 10, 2018
Test/Reference	LOR	Unit				
% Moisture	1	%	24	25	27	33

Client Sample ID			SS13	SS14	COMP1	COMP2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			K18-De12641	K18-De12642	K18-De12643	K18-De12644
Date Sampled			Dec 10, 2018	Dec 10, 2018	Dec 10, 2018	Dec 10, 2018
Test/Reference	LOR	Unit				
Organochlorine Pesticides (NZ MfE)						
2.4'-DDD	0.01	mg/kg	-	-	< 0.01	-
2.4'-DDE	0.01	mg/kg	-	-	< 0.01	-
2.4'-DDT	0.01	mg/kg	-	-	< 0.01	-
4.4'-DDD	0.01	mg/kg	-	-	< 0.01	-
4.4'-DDE	0.01	mg/kg	-	-	< 0.01	-
4.4'-DDT	0.01	mg/kg	-	-	< 0.01	-
a-BHC	0.01	mg/kg	-	-	< 0.01	-
Aldrin	0.01	mg/kg	-	-	< 0.01	-
b-BHC	0.01	mg/kg	-	-	< 0.01	-
Chlordanes - Total	0.01	mg/kg	-	-	< 0.01	-
cis-Chlordane	0.01	mg/kg	-	-	< 0.01	-
d-BHC	0.01	mg/kg	-	-	< 0.01	-
Dieldrin	0.01	mg/kg	-	-	< 0.01	-
Endosulfan I	0.01	mg/kg	-	-	< 0.01	-
Endosulfan II	0.01	mg/kg	-	-	< 0.01	-
Endosulfan sulphate	0.01	mg/kg	-	-	< 0.01	-
Endrin	0.01	mg/kg	-	-	< 0.01	-
Endrin aldehyde	0.01	mg/kg	-	-	< 0.01	-
Endrin ketone	0.01	mg/kg	-	-	< 0.01	-
g-BHC (Lindane)	0.01	mg/kg	-	-	< 0.01	-
Heptachlor	0.01	mg/kg	-	-	< 0.01	-
Heptachlor epoxide	0.01	mg/kg	-	-	< 0.01	-
Hexachlorobenzene	0.01	mg/kg	-	-	< 0.01	-
Methoxychlor	0.01	mg/kg	-	-	< 0.01	-
Toxaphene	0.1	mg/kg	-	-	< 0.1	-
trans-Chlordane	0.01	mg/kg	-	-	< 0.01	-
Dibutylchlorendate (surr.)	1	%	-	-	82	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	72	-
Polycyclic Aromatic Hydrocarbons (NZ MfE)						
Acenaphthene	0.03	mg/kg	< 0.03	< 0.03	-	-
Acenaphthylene	0.03	mg/kg	< 0.03	< 0.03	-	-
Anthracene	0.03	mg/kg	< 0.03	< 0.03	-	-
Benz(a)anthracene	0.03	mg/kg	< 0.03	< 0.03	-	-
Benzo(a)pyrene	0.03	mg/kg	< 0.03	< 0.03	-	-
Benzo(a)pyrene TEQ (lower bound)*	0.03	mg/kg	< 0.03	< 0.03	-	-
Benzo(a)pyrene TEQ (medium bound)*	0.03	mg/kg	0.04	0.04	-	-
Benzo(a)pyrene TEQ (upper bound)*	0.03	mg/kg	0.08	0.08	-	-
Benzo(b&j)fluoranthene[N07]	0.03	mg/kg	< 0.03	< 0.03	-	-
Benzo(g.h.i)perylene	0.03	mg/kg	< 0.03	< 0.03	-	-
Benzo(k)fluoranthene	0.03	mg/kg	< 0.03	< 0.03	-	-

Client Sample ID			SS13	SS14	COMP1	COMP2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			K18-De12641	K18-De12642	K18-De12643	K18-De12644
Date Sampled			Dec 10, 2018	Dec 10, 2018	Dec 10, 2018	Dec 10, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons (NZ MfE)						
Chrysene	0.03	mg/kg	< 0.03	< 0.03	-	-
Dibenz(a.h)anthracene	0.03	mg/kg	< 0.03	< 0.03	-	-
Fluoranthene	0.03	mg/kg	< 0.03	< 0.03	-	-
Fluorene	0.03	mg/kg	< 0.03	< 0.03	-	-
Indeno(1.2.3-cd)pyrene	0.03	mg/kg	< 0.03	< 0.03	-	-
Naphthalene	0.1	mg/kg	< 0.1	< 0.1	-	-
Phenanthrene	0.03	mg/kg	< 0.03	< 0.03	-	-
Pyrene	0.03	mg/kg	< 0.03	< 0.03	-	-
p-Terphenyl-d14 (surr.)	1	%	75	72	-	-
2-Fluorobiphenyl (surr.)	1	%	59	52	-	-
Heavy Metals						
Arsenic	2	mg/kg	-	-	11	-
Copper	5	mg/kg	-	-	62	-
Lead	5	mg/kg	-	-	51	300
Metals M7 (NZ MfE)						
Arsenic	2	mg/kg	14	4.2	-	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	-	-
Chromium	5	mg/kg	28	260	-	-
Copper	5	mg/kg	140	18	-	-
Lead	5	mg/kg	150	17	-	-
Nickel	5	mg/kg	12	11	-	-
Zinc	5	mg/kg	170	59	-	-
% Moisture	1	%	28	12	31	33

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B22-NZ: OCP, Metals (As,Cu,Pb) (NZ MfE)			
Organochlorine Pesticides (NZ MfE)	Melbourne	Dec 17, 2018	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Heavy Metals	Melbourne	Dec 18, 2018	180 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Metals M7 (NZ MfE)	Melbourne	Dec 18, 2018	6 Months
- Method: USEPA 6010/6020 Heavy Metals			
Polycyclic Aromatic Hydrocarbons (NZ MfE)	Melbourne	Dec 17, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
% Moisture	Melbourne	Dec 11, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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Site # 23736

Company Name: Geosciences Ltd
Address: First Floor, 47 Clyde Road
Browns Bay
Auckland NZ 0630

Project Name: 301 BUCKLAND RD DS1
Project ID: J1258A

Order No.:
Report #: 632269
Phone: 0011 64 9 4760 454
Fax:

Received: Dec 11, 2018 11:30 AM
Due: Dec 18, 2018
Priority: 5 Day
Contact Name: Chris Davies

Eurofins | mgt Analytical Services Manager : Swati Shahaney

Sample Detail						Lead	Moisture Set	Metals M7 (NZ MfE)	Polycyclic Aromatic Hydrocarbons (NZ MfE)	Eurofins | mgt Suite B22-NZ: OCP, Metals (As,Cu,Pb) (NZ MfE)
Auckland Laboratory - IANZ#										
Christchurch Laboratory - IANZ#1290										
Eurofins Australia Laboratory						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	SS1	Dec 10, 2018		Soil	K18-De12629		X			X
2	SS2	Dec 10, 2018		Soil	K18-De12630		X			X
3	SS3	Dec 10, 2018		Soil	K18-De12631		X			X
4	SS4	Dec 10, 2018		Soil	K18-De12632		X			X
5	SS5	Dec 10, 2018		Soil	K18-De12633		X			X
6	SS6	Dec 10, 2018		Soil	K18-De12634		X			X
7	SS7	Dec 10, 2018		Soil	K18-De12635		X	X	X	
8	SS8	Dec 10, 2018		Soil	K18-De12636		X	X	X	
9	SS9	Dec 10, 2018		Soil	K18-De12637		X	X	X	
10	SS10	Dec 10, 2018		Soil	K18-De12638		X	X	X	

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Sample Detail						Lead	Moisture Set	Metals M7 (NZ MfE)	Polycyclic Aromatic Hydrocarbons (NZ MfE)	Eurofins | mgt Suite B22-NZ: OCP, Metals (As,Cu,Pb) (NZ MfE)
Auckland Laboratory - IANZ#										
Christchurch Laboratory - IANZ#1290										
Eurofins Australia Laboratory						X	X	X	X	X
External Laboratory										
11	SS11	Dec 10, 2018		Soil	K18-De12639		X	X	X	
12	SS12	Dec 10, 2018		Soil	K18-De12640		X	X	X	
13	SS13	Dec 10, 2018		Soil	K18-De12641		X	X	X	
14	SS14	Dec 10, 2018		Soil	K18-De12642		X	X	X	
15	COMP1	Dec 10, 2018		Soil	K18-De12643		X			X
16	COMP2	Dec 10, 2018		Soil	K18-De12644	X	X			
Test Counts						1	16	8	8	7

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

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Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Organochlorine Pesticides (NZ MfE)							
2.4'-DDD	mg/kg	< 0.01			0.01	Pass	
2.4'-DDE	mg/kg	< 0.01			0.01	Pass	
2.4'-DDT	mg/kg	< 0.01			0.01	Pass	
4.4'-DDD	mg/kg	< 0.01			0.01	Pass	
4.4'-DDE	mg/kg	< 0.01			0.01	Pass	
4.4'-DDT	mg/kg	< 0.01			0.01	Pass	
a-BHC	mg/kg	< 0.01			0.01	Pass	
Aldrin	mg/kg	< 0.01			0.01	Pass	
b-BHC	mg/kg	< 0.01			0.01	Pass	
Chlordanes - Total	mg/kg	< 0.01			0.01	Pass	
cis-Chlordane	mg/kg	< 0.01			0.01	Pass	
d-BHC	mg/kg	< 0.01			0.01	Pass	
Dieldrin	mg/kg	< 0.01			0.01	Pass	
Endosulfan I	mg/kg	< 0.01			0.01	Pass	
Endosulfan II	mg/kg	< 0.01			0.01	Pass	
Endosulfan sulphate	mg/kg	< 0.01			0.01	Pass	
Endrin	mg/kg	< 0.01			0.01	Pass	
Endrin aldehyde	mg/kg	< 0.01			0.01	Pass	
Endrin ketone	mg/kg	< 0.01			0.01	Pass	
g-BHC (Lindane)	mg/kg	< 0.01			0.01	Pass	
Heptachlor	mg/kg	< 0.01			0.01	Pass	
Heptachlor epoxide	mg/kg	< 0.01			0.01	Pass	
Hexachlorobenzene	mg/kg	< 0.01			0.01	Pass	
Methoxychlor	mg/kg	< 0.01			0.01	Pass	
Toxaphene	mg/kg	< 0.1			0.1	Pass	
trans-Chlordane	mg/kg	< 0.01			0.01	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons (NZ MfE)							
Acenaphthene	mg/kg	< 0.03			0.03	Pass	
Acenaphthylene	mg/kg	< 0.03			0.03	Pass	
Anthracene	mg/kg	< 0.03			0.03	Pass	
Benz(a)anthracene	mg/kg	< 0.03			0.03	Pass	
Benzo(a)pyrene	mg/kg	< 0.03			0.03	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.03			0.03	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.03			0.03	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.03			0.03	Pass	
Chrysene	mg/kg	< 0.03			0.03	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.03			0.03	Pass	
Fluoranthene	mg/kg	< 0.03			0.03	Pass	
Fluorene	mg/kg	< 0.03			0.03	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.03			0.03	Pass	
Naphthalene	mg/kg	< 0.1			0.1	Pass	
Phenanthrene	mg/kg	< 0.03			0.03	Pass	
Pyrene	mg/kg	< 0.03			0.03	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Metals M7 (NZ MfE)							
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Organochlorine Pesticides (NZ MfE)							
2.4'-DDD	%	117			70-130	Pass	
2.4'-DDE	%	114			70-130	Pass	
2.4'-DDT	%	92			70-130	Pass	
4.4'-DDD	%	117			70-130	Pass	
4.4'-DDE	%	113			70-130	Pass	
4.4'-DDT	%	78			70-130	Pass	
a-BHC	%	98			70-130	Pass	
Aldrin	%	90			70-130	Pass	
b-BHC	%	99			70-130	Pass	
Chlordanes - Total	%	116			70-130	Pass	
cis-Chlordane	%	114			70-130	Pass	
d-BHC	%	113			70-130	Pass	
Dieldrin	%	100			70-130	Pass	
Endosulfan I	%	101			70-130	Pass	
Endosulfan II	%	105			70-130	Pass	
Endosulfan sulphate	%	73			70-130	Pass	
Endrin	%	87			70-130	Pass	
Endrin aldehyde	%	78			70-130	Pass	
Endrin ketone	%	125			70-130	Pass	
g-BHC (Lindane)	%	81			70-130	Pass	
Heptachlor	%	88			70-130	Pass	
Heptachlor epoxide	%	105			70-130	Pass	
Hexachlorobenzene	%	107			70-130	Pass	
Methoxychlor	%	80			70-130	Pass	
trans-Chlordane	%	118			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons (NZ MfE)							
Acenaphthene	%	84			70-130	Pass	
Acenaphthylene	%	80			70-130	Pass	
Anthracene	%	109			70-130	Pass	
Benz(a)anthracene	%	104			70-130	Pass	
Benzo(a)pyrene	%	77			70-130	Pass	
Benzo(b&j)fluoranthene	%	98			70-130	Pass	
Benzo(g.h.i)perylene	%	82			70-130	Pass	
Benzo(k)fluoranthene	%	106			70-130	Pass	
Chrysene	%	88			70-130	Pass	
Dibenz(a.h)anthracene	%	72			70-130	Pass	
Fluoranthene	%	109			70-130	Pass	
Fluorene	%	89			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	78			70-130	Pass	
Naphthalene	%	81			70-130	Pass	
Phenanthrene	%	98			70-130	Pass	
Pyrene	%	81			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	100			80-120	Pass	
Copper	%	103			80-120	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead			%	103			80-120	Pass	
LCS - % Recovery									
Metals M7 (NZ MfE)									
Cadmium			%	102			80-120	Pass	
Chromium			%	107			80-120	Pass	
Nickel			%	99			80-120	Pass	
Zinc			%	98			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	K18-De12637	CP	%	102			75-125	Pass	
Copper	K18-De12637	CP	%	103			75-125	Pass	
Lead	K18-De12637	CP	%	101			75-125	Pass	
Spike - % Recovery									
Metals M7 (NZ MfE)				Result 1					
Cadmium	K18-De12637	CP	%	103			75-125	Pass	
Chromium	K18-De12637	CP	%	107			75-125	Pass	
Nickel	K18-De12637	CP	%	101			75-125	Pass	
Zinc	K18-De12637	CP	%	123			75-125	Pass	
Spike - % Recovery									
Organochlorine Pesticides (NZ MfE)				Result 1					
2.4'-DDD	K18-De07179	NCP	%	122			70-130	Pass	
2.4'-DDE	K18-De07179	NCP	%	118			70-130	Pass	
2.4'-DDT	K18-De07179	NCP	%	89			70-130	Pass	
4.4'-DDD	K18-De07179	NCP	%	126			70-130	Pass	
4.4'-DDE	K18-De07179	NCP	%	125			70-130	Pass	
4.4'-DDT	K18-De07179	NCP	%	88			70-130	Pass	
a-BHC	K18-De07179	NCP	%	82			70-130	Pass	
Aldrin	K18-De07179	NCP	%	88			70-130	Pass	
b-BHC	K18-De07179	NCP	%	97			70-130	Pass	
Chlordanes - Total	K18-De07179	NCP	%	106			70-130	Pass	
cis-Chlordane	K18-De07179	NCP	%	102			70-130	Pass	
d-BHC	K18-De07179	NCP	%	98			70-130	Pass	
Dieldrin	K18-De07179	NCP	%	100			70-130	Pass	
Endosulfan I	K18-De07179	NCP	%	111			70-130	Pass	
Endosulfan II	K18-De07179	NCP	%	116			70-130	Pass	
Endosulfan sulphate	K18-De07179	NCP	%	122			70-130	Pass	
Endrin	K18-De07179	NCP	%	124			70-130	Pass	
Endrin aldehyde	K18-De07179	NCP	%	122			70-130	Pass	
Endrin ketone	K18-De07179	NCP	%	127			70-130	Pass	
g-BHC (Lindane)	K18-De07179	NCP	%	84			70-130	Pass	
Heptachlor	K18-De07179	NCP	%	78			70-130	Pass	
Heptachlor epoxide	K18-De07179	NCP	%	102			70-130	Pass	
Hexachlorobenzene	K18-De07179	NCP	%	102			70-130	Pass	
Methoxychlor	K18-De07179	NCP	%	90			70-130	Pass	
trans-Chlordane	K18-De07179	NCP	%	109			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons (NZ MfE)				Result 1					
Acenaphthene	K18-De12640	CP	%	109			70-130	Pass	
Acenaphthylene	K18-De12640	CP	%	109			70-130	Pass	
Anthracene	K18-De12640	CP	%	123			70-130	Pass	
Benz(a)anthracene	K18-De12640	CP	%	117			70-130	Pass	
Benzo(a)pyrene	K18-De12640	CP	%	89			70-130	Pass	
Benzo(b&j)fluoranthene	K18-De12640	CP	%	98			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(g.h.i)perylene	K18-De12640	CP	%	80			70-130	Pass	
Benzo(k)fluoranthene	K18-De12640	CP	%	97			70-130	Pass	
Chrysene	K18-De12640	CP	%	101			70-130	Pass	
Dibenz(a.h)anthracene	K18-De12640	CP	%	87			70-130	Pass	
Fluoranthene	K18-De12640	CP	%	112			70-130	Pass	
Fluorene	K18-De12640	CP	%	110			70-130	Pass	
Indeno(1.2.3-cd)pyrene	K18-De12640	CP	%	79			70-130	Pass	
Naphthalene	K18-De12640	CP	%	109			70-130	Pass	
Phenanthrene	K18-De12640	CP	%	124			70-130	Pass	
Pyrene	K18-De12640	CP	%	106			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	K18-De12633	CP	%	30	32	6.0	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons (NZ MfE)				Result 1	Result 2	RPD			
Acenaphthene	K18-De12603	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Acenaphthylene	K18-De12603	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Anthracene	K18-De12603	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benz(a)anthracene	K18-De12603	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benzo(a)pyrene	K18-De12603	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benzo(b&j)fluoranthene	K18-De12603	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benzo(g.h.i)perylene	K18-De12603	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benzo(k)fluoranthene	K18-De12603	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Chrysene	K18-De12603	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Dibenz(a.h)anthracene	K18-De12603	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Fluoranthene	K18-De12603	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Fluorene	K18-De12603	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	K18-De12603	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Naphthalene	K18-De12603	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Phenanthrene	K18-De12603	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Pyrene	K18-De12603	NCP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	K18-De12636	CP	mg/kg	130	120	6.0	30%	Pass	
Copper	K18-De12636	CP	mg/kg	81	82	2.0	30%	Pass	
Lead	K18-De12636	CP	mg/kg	53	56	6.0	30%	Pass	
Duplicate									
Metals M7 (NZ MfE)				Result 1	Result 2	RPD			
Cadmium	K18-De12636	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	K18-De12636	CP	mg/kg	51	55	7.0	30%	Pass	
Nickel	K18-De12636	CP	mg/kg	13	14	5.0	30%	Pass	
Zinc	K18-De12636	CP	mg/kg	160	160	2.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	K18-De12637	CP	mg/kg	11	11	<1	30%	Pass	
Copper	K18-De12637	CP	mg/kg	110	110	6.0	30%	Pass	
Lead	K18-De12637	CP	mg/kg	36	37	3.0	30%	Pass	
Duplicate									
Metals M7 (NZ MfE)				Result 1	Result 2	RPD			
Cadmium	K18-De12637	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	K18-De12637	CP	mg/kg	28	29	2.0	30%	Pass	
Nickel	K18-De12637	CP	mg/kg	16	17	4.0	30%	Pass	
Zinc	K18-De12637	CP	mg/kg	110	110	3.0	30%	Pass	

Duplicate									
Organochlorine Pesticides (NZ MfE)				Result 1	Result 2	RPD			
2.4'-DDD	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
2.4'-DDE	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
2.4'-DDT	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
4.4'-DDD	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
4.4'-DDE	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
4.4'-DDT	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
a-BHC	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Aldrin	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
b-BHC	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Chlordanes - Total	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
cis-Chlordane	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
d-BHC	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Dieldrin	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Endosulfan I	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Endosulfan II	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Endosulfan sulphate	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Endrin	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Endrin aldehyde	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Endrin ketone	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
g-BHC (Lindane)	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Heptachlor	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Heptachlor epoxide	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Hexachlorobenzene	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Methoxychlor	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
trans-Chlordane	M18-De16886	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	K18-De12643	CP	%	31	31	<1	30%	Pass	

Comments

Eurofins | mgt accreditation number 1261, corporate site 1254 and 14271 is currently in progress of a controlled transition to a new custom built location at 6 Monterey Road, Dandenong South, Victoria 3175. All results on this report denoted as being performed by Eurofins | mgt 2-5 Kingston Town Close, Oakleigh Victoria 3166 corporate site 1254, will have been performed on either Oakleigh or new Dandenong South site.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Swati Shahaney	Analytical Services Manager
Chris Bennett	Senior Analyst-Metal (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Preliminary Site Investigation

303 Buckland Road,
Buckland, Pukekohe

Client:

Pukekohe Limited

Date of report:

29 September 2020

Report reference:

111010820

Prepared by:

Kelly Deihl, Principal Scientist

Version Control:

Date	Version	Reason
29 September 2020	1	To protect human health in relation to elevated contaminant levels in soil

Contents

Figures

Executive Summary

The applicant, Pukekohe Limited, proposes to develop the land at 303 Buckland Road, Pukekohe, being Lot 1 DP 64805 (please see **Appendix 1** for Certificate of Title). The land is zoned future urban, however, no proposal has been created at this time and as such, this investigation has been requested to determine the suitability of the land for any future development.

We have considered the future development of this land in the context of Regulations 5(4), 5(5) and 5(6) of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES), being soil disturbance, subdivision and change in land use, respectively. These are all activities to which the standard applies where an activity that can be found on the Ministry for the Environment Hazardous Activities and Industries List (HAIL) has occurred, is occurring, or is likely to have occurred.

Environmental Management Solutions Ltd (EMS) was engaged to undertake a Preliminary Site Investigation to determine whether the land has been, is likely to have been, or is being, adversely affected by land use activities that can be found on the Ministry for the Environment Hazardous Activities and Industries List (HAIL) and accordingly, whether undertaking any proposed future development is likely to pose a risk to human health.

A review of historic aerial photography, coupled with a site history interview have confirmed that the site has historically been used for low intensity pastoral grazing for sheep, cattle and horses. The property remains in pastoral grazing with a concrete block and iron constructed stable building and a brick and concrete residential dwelling located in the centre of the site. An accessway connects these to Buckland Road in the north. The current owner, Jason Woodyard, has confirmed that no superphosphate fertiliser had been applied to the land, and no chemicals have been used or stored on the property, nor are there any farm dump or fuel storage areas.

A Contaminated Sites Enquiry was prepared by the Contamination, Air and Noise Team at Auckland Council on the 2nd of September 2020 (please see **Appendix 2** for full report). The report stated that no information suggesting that this site has been subject to a HAIL activity was held within Council records. However it was identified that due to the age of the stables, (building permit issued in 1971) and also the dwelling, the potential for Asbestos Containing Material and lead paint to have been used within construction would need to be considered. The stables are of block and iron construction surrounded by metal to the north and are in very good condition (refer Image 1 below). As such, these are not considered to meet the classification of a HAIL activity. The dwelling is constructed of brick and concrete plaster over brick, with a tile roof. Buildings at this stage are to be retained through any future development, however, should development require removal of buildings then an Asbestos Demolition Survey is to be be carried out by a suitably licensed asbestos removal practitioner prior to removal and any recommendations of this report shall be followed by the developer.

This Preliminary Site Investigation did not verify any HAIL activities on this land and concludes that soils on the site are highly unlikely to have been adversely affected by past land use activities. In the absence of a HAIL activity, it is considered that the NES does not apply to any future proposal.

1 Introduction

1.1 Background

The applicant, Pukekohe Limited, proposes to develop the land at 303 Buckland Road, Pukekohe, being Lot 1 DP 64805 (please see **Appendix 1** for Certificate of Title). The property is primarily pastoral grazing land but also contains a stable building constructed of iron and concrete block and a residential dwelling constructed of brick and concrete. There is a swimming pool located to the south-west of the dwelling.

A review of historic aerial photography and a site history interview determined that the site has historically been used for low intensity pastoral grazing for sheep, cattle and horses. The current owner, Jason Woodyard confirmed that no superphosphate fertiliser had been applied to the land, and no chemicals were stored or used on the property. No farm dumps or fuel storage have occurred on this property.

1.2 Objectives and Scope of Work

Environmental Management Solutions Ltd (EMS) was engaged by Pukekohe Limited to undertake a Preliminary Site Investigation for future site development, to determine whether the land at 303 Buckland Road, Pukekohe, has been, is likely to have been, or is being, adversely affected by land use activities that can be found on the Ministry for the Environment Hazardous Activities and Industries List (HAIL) and accordingly, whether undertaking any future development of the land is likely to pose a risk to human health.

This report will provide a comprehensive account of site history and identify sources of contaminants on the land, if any. The report will also provide advice surrounding NES requirements for future development of the lots, if applicable.

Scope of work included:

- Reviewing all available historical aerial photography for the site (dating back to 1942)
- Reviewing all available Auckland Council records for the site
- Reviewing Certificate(s) of Title
- Landowner Interview
- Site walkover
- Report preparation summarising findings

1.3 Report Preparation

This report has been prepared in general accordance with the requirements of the current edition of the Ministry for the Environment Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand.

The person certifying this report is a qualified environmental scientist with over 14 years' experience working in the field of contaminated land investigation, remediation and management. She holds a Bachelor's Degree in Science from the University of Auckland (2004) and specialises in the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations

2011 (NES). She spent two terms as an elected member of the WasteMINZ National Contaminated Land Sector Group Steering Committee, was a member of the NES Working Group, a member of the reference group selected for the review of the Ministry for the Environment Contaminated Land Management Guideline No. 5. And sat on the focus group in Wellington that was responsible for the NES reforms, yet to be implemented. She is a member of the Australasian Land and Groundwater Association (ALGA) and WasteMINZ. In addition, she holds contracts with, and undertakes review work for, Waipa and Waikato District Councils. These are both long standing and on-going contracts.

2 Site Information

2.1 Site Identification

Street Address	303 Buckland Road, Buckland
Legal Description	Lot 1 DP 64805 CFR:
CFR	NA 21A/288
Site Owner	Pukekohe Limited
Site Area (ha)	3.5038 ha
Zoning	Future Urban Zone

Location of the site is presented in Figure 1 and Figure 2 below. Please refer to **Appendix 1** for Certificate of Title.

Figure 1: Location of site

Image courtesy of Google Maps 2020

Figure 2: Aerial photograph of site

Image courtesy of Auckland Council GeoMaps 2020

2.2 Site Condition

The topography of the site is gently sloping towards the north east. A residential dwelling constructed of brick and concrete is located in the centre of the site and an accessway connects it with Buckland Road in the north east. There is also a fibreglass swimming pool located to the south-west of the dwelling. A stable building constructed of iron with a concrete foundation is located to the west of the residential dwelling. The remainder of the land is currently pastoral land used for low intensity grazing for sheep, cattle and horses.

2.3 Geology

The published geology for the area indicates that the majority of the site is underlain by Quaternary basalt of the Kerikeri Group, consisting of basalt lava, scoria cones, volcanic breccia, ash, lapilli and lithic tuff. The eastern tip of the site is underlain by a localised deposit of Late Quaternary alluvium and colluvium.

2.4 Hydrogeology

An overland flow path runs from the centre of the site to Buckland Road in the north east (see Figure 3 below). Surface water flow is expected to be via sheet flow in a south west to north east direction off the site. No groundwater bores exist on site.

Figure 3: Site contours

Image courtesy of Auckland Council 2020.

3 Site History

3.1 Historical Aerial Photography Review

Date	Aerial Image	Observations	Image courtesy
1942		Site appears pastoral with a small building in the centre of the site. The property is bounded by large hedges.	Retrolens 2020.
1961		Site appears as it did in 1942, however the structure in the centre of the site appears to have been removed. The surrounding land appears to be pastoral.	Retrolens 2020.
1975		Two structures have been constructed in the location of the existing dwelling and stables. An accessway connects these with the road in the north east. The remainder of the land appears to be pastoral.	Retrolens 2020.

1978		Site appears generally as it did in 1975.	Retrolens 2020.
1981		Site appears generally as it did in 1978.	Retrolens 2020.
1988		Site remains pastoral land. Structures still present in the centre of the site. The majority of the surrounding land is pastoral.	Retrolens 2020.
2001		Structures remain apparent in the centre of the site. The majority of the site appears to be pastoral.	Auckland Council GeoMaps 2020.

2006		Site remains pastoral as it did in 2001. No change to the structures on the site.	Auckland Council GeoMaps 2020.
2008		Site appears as it did in 2006.	Auckland Council GeoMaps 2020.
2011		Site appears as it did in 2008.	Auckland Council GeoMaps 2020.
2017		The majority of the site appears to be pastoral. Structures still present in the centre of the site. A swimming pool is apparent to the south-west of the dwelling.	Auckland Council GeoMaps 2020.

3.2 Auckland Council Records

Contaminated Sites Inquiry:

A Contaminated Sites Inquiry was prepared by the Contamination, Air and Noise Team at Auckland Council on the 2nd of September 2020 (please see **Appendix 2** for full report). The report stated that no information suggesting that this site has been subject to a HAIL activity was held within Council records. However it was identified that due to the age of the stables, (building permit issued in 1971) and also the dwelling, the potential for Asbestos Containing Material and lead paint to have been used within construction would need to be considered. The stables are of block and iron construction in good condition, with metalled drive to the north/north east, and the dwelling is brick and concrete over block. Neither are considered through this assessment to be considered HAIL activities and are at this stage, to be retained through any future development. However, should future development require the removal of buildings then an Asbestos Demolition Survey should be carried out by a suitably licensed asbestos removal practitioner prior to removal and any recommendations of this report shall be followed by the developer.

Please see **Appendix 2** for full Contaminated Sites Inquiry.

Property Files:

Building Permits			
Permit #	**Date**	**Applicant**	**Description of works**
-	1922	James Ready	New dwelling (currently on neighbouring property)
-	1971	R & M Townsend	Build new residence (concrete/Brick & tile)
C49358	1971	R & M Townsend	Construct stables and barn
#14524	11 Dec 2013	Andrew & Wendy Johnston	Installation of inground fibreglass swimming pool
BCO10287256	2019	Jason & Michelle Woodyard	Installation of a solid fuel heater to manufacturer's specifications

Certificate of Title:

1975- Property was purchased by Andrew and Wendy Johnston.

2019- Property purchased by Pukekohe Limited.

There are no other restrictions or limitations on the Certificates of Title.

Please see **Appendix 1** for Certificates of Title.

No other records of note were found on Council records or on the Certificate of Title.

3.3 Landowner Interview

An interview with Jason Woodyard, the current owner, was conducted by Kelly Deihl of Environmental Management Solutions. He confirmed that the land has always been used for low intensity pastoral grazing. The stable building on site was constructed in 1971 from iron and concrete block (refer image below). Mr Woodyard confirmed that his family reside in the dwelling. The dwelling is constructed of brick and concrete over block and stands on a concrete foundation. Mr Woodyard was not aware of any fuel or chemical storage or farm dumps on the property.

Image 1: Stable block

4 Site Characterisation Summary

4.1 Potential for Contamination

This investigation has verified no HAIL activities on this property.

Council records indicated the potential for Asbestos Containing Material and leaded paint to have been used within the buildings on site. The buildings are of block and iron construction and brick with concrete over block construction. Both are in good condition. It is considered that neither meet the criteria of a HAIL activity.

5 Regulatory Assessment

Under the provisions the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES) soil disturbance, subdivision and a change in land use are activities to which the standard applies where an activity that can be found on the Ministry for the Environment Hazardous Activities and Industries List (HAIL) has, is likely to have, or is, occurring on a site and because of this, undertaking the proposed activity is reasonably likely to harm human health.

The potential for Asbestos Containing Material to have been used within the construction of the dwelling and stable building was identified, however these structures are of brick and block construction, respectively and are to be retained through this development. Any future development of these will require an Asbestos Demolition Survey to be carried out by a suitably licensed asbestos contractor, prior to removal.

Regulation 8(4) of the NES sets out the permitted activity standards for subdividing or changing the use of a piece of land, therefore an assessment against this regulation is relevant and is set out below:

8(4) Subdividing land or changing the use of the piece of land is a permitted activity while the following requirements are met:	*Comments:*
(a) A preliminary site investigation of the land or piece of the land must exist:	Refer to this PSI prepared by Environmental Management Solutions.
(b) The report on the preliminary site investigation must state that it is highly unlikely that there will be a risk to human health if the activity is done to the piece of land:	This PSI did not verify any HAIL activities on this land and confirmed that soils on the site are highly unlikely to have been adversely affected by past land use activities. In the absence of a HAIL activity, the NES therefore does not apply to this proposal.
(c) The report must be accompanied by a relevant site plan to which the report is referenced:	While no surveying associated with this proposed land use has been carried out to date (therefore no site plan showing proposed lot layout is available at the time of this report completion), this PSI has considered the development of the entire site and an aerial plan of the property has been provided. It is noted that the existing buildings on the site are to be retained with it being recommended that any future development of these buildings will require an Asbestos Demolition Survey.
(d) The consent authority must have the report and the plan.	This report will be sent into Auckland Council as part of any future application for development on the site for review.

6 Conclusions

This Preliminary Site Investigation did not verify any HAIL activities on this land and confirmed that the soils on site are highly unlikely to have been adversely affected by past land use activities. In the absence of a HAIL activity, the NES does not apply to any future development of this land.

Should removal of buildings be proposed in the future, then prior to removal, an Asbestos Demolition Survey shall be prepared by a suitably licensed asbestos contractor and recommendations of this survey shall be followed by the developer.

Disclaimer:

This report has been prepared for the benefit of the client with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose without our prior review and agreement.

Findings and recommendations contained within this report are based on a review of existing information and the writer of the report takes no responsibility for any inaccuracies in information supplied by a third party.

Report prepared by:

Samantha van Ryn

Environmental Scientist

Report certified by:

Kelly Deihl

Principal Scientist

Appendix 1: Certificate of Title

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Search Copy

entifier	NA21A/288
nd Registration District	North Auckland
te Issued	14 June 1971

ior References
A193/252

tate	Fee Simple
rea	3.5038 hectares more or less
gal Description	Lot 1 Deposited Plan 64805

oprietors
ames James Johnston and Wendy Patricia Johnston

terests

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

REGISTRAR-GENERAL OF LAND NEW ZEALAND

R.W. Muir
Registrar-General
of Land

Auckland Council

BCO10287256

BUILDING CONSENT

Identifier	**NA21A/288**
Land Registration District	**North Auckland**
Date Issued	14 June 1971

Prior References
NA197/252

Estate	Fee Simple
Area	3.5038 hectares more or less
Legal Description	Lot 1 Deposited Plan 64805

Registered Owners
Pukekohe Limited

Interests
11393567.3 Mortgage to ASB Bank Limited - 2.4.2019 at 3:41 pm

Appendix 2: Auckland Council Contaminated Sites Enquiry

Auckland Council

2 September 2020

Environmental Management Solutions Ltd
143 Bollard Road
TUAKAU 2121

Attention: Samantha Van Ryn

Dear Samantha

Site Contamination Enquiry – *303 Buckland Road, Buckland*

This letter is in response to your enquiry requesting available site contamination information within Auckland Council records for the above site. Please note this report does not constitute a site investigation report; such reports are required to be prepared by a (third-party) Suitably Qualified and Experienced Practitioner.

The following details are based on information available to the Contamination, Air & Noise Team in the Resource Consent Department. The details provided may be from former regional council information, as well as property information held by the former district/city councils. For completeness the relevant property file should also be requested to obtain all historical records and reports via 09 3010101 or online at:

https://www.aucklandcouncil.govt.nz/buying-property/order-property-report/Pages/order-property-file.aspx.

1. Hazardous Activities and Industries List (HAIL) Information

This list published by the Ministry for the Environment (MfE) comprises activities and industries that are considered likely to cause land contamination as a result of hazardous substance use, storage, and/or disposal.

There is no information held within our records to suggest this site has been subject to HAIL activities.

However, due to the age of the stables (permit issued in 1971) and therefore possibly the age of the dwelling, the potential for asbestos and/or lead paint may need to be considered.

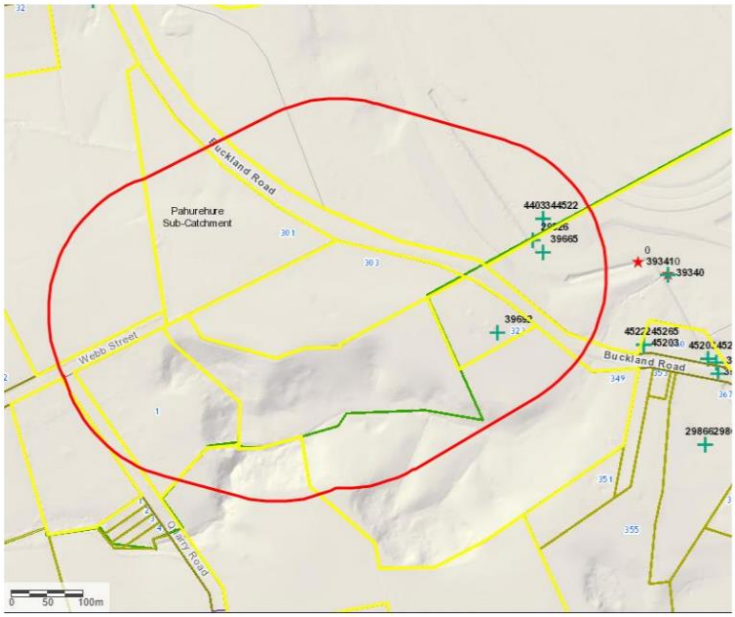
Please note:

- *If you are demolishing any building that may have asbestos containing materials (ACM) in it, you have obligations under the Health and Safety at Work (Abestos) Regulations 2016 for the management and removal of asbestos, including the need to engage a Competent Asbestos Surveyor to confirm the presence or absence of any ACM.*
- *Paints used on external parts of properties up until the mid-1970's routinely contained lead, a poison and a persistent environmental pollutant. You are advised to ensure that soils affected by old, peeling or flaking paint are assessed in relation to the proposed use of the property, including high risk use by young children.*

2. Consents and Incidents Information (200m radius of the selected site)

The Council database was searched for records of the following activities within approximately 200 metres of the site:

- Pollution Incidents (including air discharges, oil or diesel spills)
- Bores
- Contaminated site and air discharges, and industrial trade process consents
- Closed Landfills
- Air quality permitted activities



Legend:

All Consents
All Applications
All Permitted Activities
All Bores
Closed Landfill (Auckland Council owned)
Closed Landfill (Privately owned)

Relevant details of any consents are appended to this letter (Attachment A). Please refer to the column titled 'Property Address' on the spreadsheet to aid in identifying corresponding data on the map.

While the Auckland Council has carried out the above search using its best practical endeavours, it does not warrant its completeness or accuracy and disclaims any responsibility or liability in respect of the information. If you or any other person wishes to act or to rely on this information, or make any financial commitment based upon it, it is recommended that you seek appropriate technical and/or professional advice.

If you wish to clarify anything in this letter that relates to this site, please contact contaminatedsites@aucklandcouncil.govt.nz. Any follow up requests for information on other sites must go through the online order process.

Should you wish to request any of the files referenced above and/or listed in the attached spreadsheet for viewing, please contact the Auckland Council Call Centre on 301 0101 and note you are requesting former Auckland Regional Council records (the records department requires three working days' notice to ensure the files will be available).

Please note Auckland Council cost recovers officer's time for all site enquiries. As such an invoice for $128 for the time involved in this enquiry will follow shortly.

Yours Sincerely,

Contamination, Air and Noise Team
Specialist Unit | Resource Consents
Auckland Council

Preliminary Site Investigation Report

Site:

301 & 303 Buckland Road,

Pukekohe

Client:

Peterex Properties Ltd and Pukekohe Limited

c/- Scott Wilkinson Planning

Date of report:

04th October 2021

Report reference:

137010721

Prepared and certified by:

Kelly Deihl, Principal Scientist

Contents

Executive Summary

The owners of 301 Buckland Road, Pukekohe (Peterex Properties Limited) and 303 Buckland Road, Pukekohe (Pukekohe Limited) propose a private plan change (pursuant to Part 2 of the First Schedule of the Resource Management Act 1991) to change the zoning of both sites from Future Urban Zone to Business – General Business Zone (BGBZ) under the Auckland Unitary Plan – Operative in Part (AUP). Both parcels of land have been subject to previous contaminated land investigations.

Environmental Management Solutions Ltd (EMS) have considered the future development of this land in the context of the Auckland Unitary Plan and under Regulations 5(4) and 5(6) of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES), being soil disturbance and change in land use, respectively. These are activities to which the standard applies where an activity that can be found on the Ministry for the Environment Hazardous Activities and Industries List (HAIL) has occurred, is occurring, or is likely to have occurred. These activities relate to land uses that store, use or dispose of contaminants and because of this, can, but do not necessarily, lead to site contamination.

The land at 301 Buckland Road, Pukekohe was subject to a Preliminary Site Investigation (PSI) prepared by Geosciences Ltd in November 2018. This PSI identified that the site was predominantly pastoral historically but did also identify the potential for several activities that can be found on the Ministry for the Environment Hazardous Activities and Industries List to have occurred. HAIL activities identified included HAIL A10 due to the potential for horticultural activities to have occurred on the south eastern portion of the property between 1942 and 1960, although historical aerial photography was inconclusive; HAIL H in relation to the potential migration of contaminants from neighboring market gardens and HAIL I in relation to uncertified fill stockpiled on the site and in the vicinity of a former building footprint, and due to the potential for lead based paint to have leached into the soil immediately surrounding an existing villa on the site. Subsequently, Geosciences undertook a Detailed Site Investigation in January 2019 to determine if these activities had adversely affected soils on the site. Of the sixteen soil samples collected on the site in relation to these identified land uses, only one sample breached the NES Soil Contaminant Standards for a commercial land use scenario and this sample was collected from imported soil (~10m^3) stockpiled on the site. This soil will be removed to landfill in accordance with an approved Remedial Action Plan. In addition, a composite sample collected from the area directly adjoining the villa on site exceeded permitted activity (PA) soil acceptance criteria for Lead as set out in Table E30.6.1.4.1 of the Auckland Unitary Plan (AUP) but did not exceed NES Soil Contaminant Standards for a commercial land use. Levels detected were not significantly above the AUP PA criteria. Contamination of this nature is generally shallow, being limited to surface soils, and localized to within a 3m halo surrounding the building footprint. On this basis, it is considered that dilution through mixing of surface soils in this location to reduce levels below AUP thresholds is a viable option for contaminant reduction, noting that soils already meet NES Soil Contaminant Standards for the intended land use. Alternatively, a low volume of surface soils

surrounding the villa could also be removed off-site to landfill. Validation will occur post-remediation on the site.

EMS was engaged to undertake a Preliminary Site Investigation of the land at 303 Buckland Road, Pukekohe in September 2020 to determine whether the land has been, is likely to have been, or is being, adversely affected by land use activities that can be found on the Ministry for the Environment Hazardous Activities and Industries List (HAIL) and accordingly, whether undertaking any proposed future development is likely to pose a risk to human health. A review of historic aerial photography and property records, coupled with a site history interview confirmed that the site has historically always been used for low intensity pastoral grazing for sheep, cattle and horses. The property remains in pastoral grazing with a concrete block and iron constructed stable building and a brick and concrete residential dwelling located in the center of the site. An accessway connects these to Buckland Road in the north. No superphosphate fertiliser has been applied to the land in conjunction with this land use, no chemicals have been used or stored on the property, nor were any burn piles, farm dumps or fuel storage areas located on the site. The Preliminary Site Investigation did not verify any HAIL activities on the land at 303 Buckland Road, Pukekohe and concluded that soils on the site are highly unlikely to have been adversely affected by past land use activities. In the absence of a HAIL activity, it was considered that the NES does not apply to any future proposal on this site.

Overall, it is considered that both properties are suitable for the intended plan change and change of use. There are no contamination issues identified within any report prepared, that would pose any major constraints on, or inhibit, this proposal.

1 Introduction

1.1 Background

The applicants propose a private plan change (pursuant to Part 2 of the First Schedule of the Resource Management Act 1991) to change the zoning of the sites at 301 Buckland Road, Pukekohe (Pt lot 1, DP 3363) and 303 Buckland Road, Pukekohe (Lot 1, DP 64805) from Future Urban Zone to Business – General Business Zone (BGBZ) under the Auckland Unitary Plan – Operative in Part (AUP). Both parcels of land have been subject to previous contaminated land investigations. Please refer to **Appendix 1** for a copy of the Records of Title.

The sites are located at the boundary of the current light industrial area off Manukau Road and directly opposite Pukekohe Park race track.

301 Buckland Road

This site was originally part of a larger holding that encompassed land across the road, which is now part of Pukekohe Park Racetrack. A native timber constructed dwelling is situated on the southern boundary and has been present prior to 1942. This dwelling will be demolished to accommodate the proposed development. The site is currently leased for low intensity pastoral grazing of livestock and horses.

The land at 301 Buckland Road, Pukekohe was subject to a Preliminary Site Investigation (PSI) prepared by Geosciences Ltd in November 2018. This PSI identified that the site was predominantly pastoral historically but did also identify the potential for several activities that can be found on the Ministry for the Environment Hazardous Activities and Industries List to have occurred. A copy of this PSI report is provided as **Attachment 1**.

As a result, Geosciences Ltd undertook a Detailed Site Investigation in January 2019 to determine if these activities had adversely affected soils on the site. Of the sixteen soil samples collected on the site in relation to these identified land uses, only one sample breached the NES Soil Contaminant Standards for a commercial land use scenario and this sample was collected from imported soil (~10m^3) stockpiled on the site. This soil will be removed to landfill in accordance with an approved Remedial Action Plan.

In addition, a composite sample collected from the area directly adjoining the villa on site exceeded permitted activity (PA) soil acceptance criteria for Lead as set out in Table E30.6.1.4.1 of the Auckland Unitary Plan (AUP) but did not exceed NES Soil Contaminant Standards for a commercial land use. Levels detected were not significantly above the AUP permitted activity criteria. Contamination of this nature is generally shallow, being limited to surface soils, and localized to within a 3m halo surrounding the building footprint. On this basis, it is considered that dilution through mixing of

surface soils in this location to reduce levels below AUP thresholds is a viable option for contaminant reduction, noting that soils already meet NES Soil Contaminant Standards for the intended land use. A copy of this DSI report is provided as **Attachment 2**.

303 Buckland Road

The site was part of a larger holding that was subdivided off in 1971 to create the current lot. A dwelling and stables were built in 1971 and are still present with the addition of a swimming pool in 2013 to the west of the dwelling.

EMS was engaged to undertake a Preliminary Site Investigation of the land at 303 Buckland Road, Pukekohe in September 2020. A review of historic aerial photography and property records, coupled with a site history interview confirmed that the site has historically always been used for low intensity pastoral grazing for sheep, cattle and horses. The Preliminary Site Investigation did not verify any HAIL activities on the land at 303 Buckland Road, Pukekohe and concluded that soils on the site are highly unlikely to have been adversely affected by past land use activities. In the absence of a HAIL activity, it was considered that the NES does not apply to any future proposal on this site. A copy of this PSI report is provided as **Attachment 3**.

1.2 Objectives of the Investigation and Scope of Work

Environmental Management Solutions Ltd (EMS) was engaged by Scott Wilkinson Planning (on behalf of the applicants) to consider the future development of this land in the context of the Auckland Unitary Plan and under Regulations 5(4) and 5(6) of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES), being soil disturbance and change in land use respectively.

This report will provide a comprehensive account of site history and identify sources and levels of contaminants on the land, if any. The report will also provide advice surrounding NES requirements for future development of this site, if applicable.

The scope of work included:

- Reviewing available historical aerial photography for the site (dating back to 1942)
- Reviewing all available Auckland Council records for the site
- Reviewing Records of Title
- Reviewing Auckland Council Resource Users Group records to ensure there are no pollution incidents on record for the site
- Reviewing Auckland Council Selected Land Use Register records
- Landowner interview
- Site walkover
- Report preparation summarizing findings

1.3 Report Preparation

This report has been prepared in general accordance with the requirements of the current edition of the Ministry for the Environment Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand.

The person undertaking this investigation, preparing and certifying this report is a qualified environmental scientist with over 15 years' experience working in the field of contaminated land investigation, remediation and management. She holds a Bachelor's Degree in Science from Auckland University (2004) and specialises in the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS). She spent two terms as an elected member of the WasteMINZ National Contaminated Land Sector Group Steering Committee, was a member of the NES Working Group, a member of the reference group selected for the review of the Ministry for the Environment Contaminated Land Management Guideline No. 5. and sat on the focus group in Wellington that was responsible for the NESCS reforms, yet to be implemented. She is a member of the Australasian Land and Groundwater Association (ALGA) and WasteMINZ. In addition, she holds contracts with, and undertakes review work for, Waipa and Waikato District Councils. These are both long standing and on-going contracts.

The person undertaking this investigation and certifying this report is a suitably qualified and experienced practitioner as defined in the User's Guide for the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES).

2 Site Description

2.1 Site Identification

Table 1: Site Identification

Street Address	**301 Buckland Road, Pukekohe**
Legal Description	Pt Lot 1, DP 3363 – NA56A/559
Site Owner	Peterex Properties Ltd
Site Area (ha)	4.3639 ha
AUP Zoning	Future Urban Zone

Street Address	**303 Buckland Road, Pukekohe**
Legal Description	Lot 1, DP 64805 – NA21A/288
Site Owner	Pukekohe Limited
Site Area (ha)	3.5038 ha
AUP Zoning	Future Urban Zone

Location of the sites and aerial photographs are presented in Figure 1 and 2 below. Please refer to **Appendix 1** for a copy of the Records of Title and to **Appendix 2** for a copy of the Site Plans.

Figure 1: Location of Site

Image courtesy of Google Maps 2018

301 Buckland Road, Pukekohe

303 Buckland Road, Pukekohe

Figure 2: Aerial Photographs of Sites

Image courtesy of Auckland Council GIS Maps 2021

2.2 Site Condition and Surrounding Environment

The sites remain in vacant pastoral use with the exception of an existing residential dwelling on each site and stable buildings. The site at 301 Buckland Road has a moderate slope south east to north west and 303 Buckland Road slopes gently towards the north east. No surface water features were identified on the sites.

The sites have previously been visited during the preparation of the Preliminary Site Investigation reports and remain as they were during those investigations. Additional site visits could not be undertaken due to Covid restrictions at this time, however, existing PSI, DSI and RAP reports have been reviewed, all historic and recent aerials have been assessed and a comprehensive interview regarding land uses has been conducted. It is very clear that the development area has and continues to remain in low intensity pastoral use. The writer of this report feels confident that visiting the sites on this occasion is not necessary to certify this report and has done so accordingly.

The surrounding land uses include market gardening to the west, Pukekohe Park race track to the east and low intensity pastoral to the south.

2.3 Geology

2.3.1 Published Geology

The published geology for the area indicates that the majority of the site is underlain by Quaternary basalt of the Kerikeri Group, consisting of basalt lava, scoria cones, volcanic breccia, ash, lapilli and lithic tuff. The eastern tip of the site is underlain by a localised deposit of Late Quaternary alluvium and colluvium.

Geology for the area indicates the site is underlain by basalt lava of the South Auckland Volcanic Field (Edbrooke, SW, 2001).

2.3.2 Site Geological Information

A Geotechnical Investigation Report was completed by Lander Geotechnical, dated 23 July 2018, reference *J000858* for the site at 301 Buckland Road (for a copy of this report, please see **Attachment 4**). This investigation encountered fill material in four boreholes to depths of between 100mm and 600mm, consisting of brown and orange/brown clayey silt. The investigation was unable to determine whether this was placed fill or locally derived material disturbed from historic farming activities on the site, noting that the description of fill was consistent with natural material on site. In addition, minor gravel inclusions were encountered in two boreholes near Buckland Road. This material was considered and screened within the Geosciences Detailed Site Investigation report.

2.4 Hydrogeology and Hydrology

301 Buckland Road

An overland flow path is identified on the centre of the site to Buckland Road, in the north east (see *Figure 3* below). Surface water flow is expected to be via sheet flow in a south west to north east direction off the site. No groundwater bores exist on site.

Figure 3 Hydrology Map – 301 Buckland Road

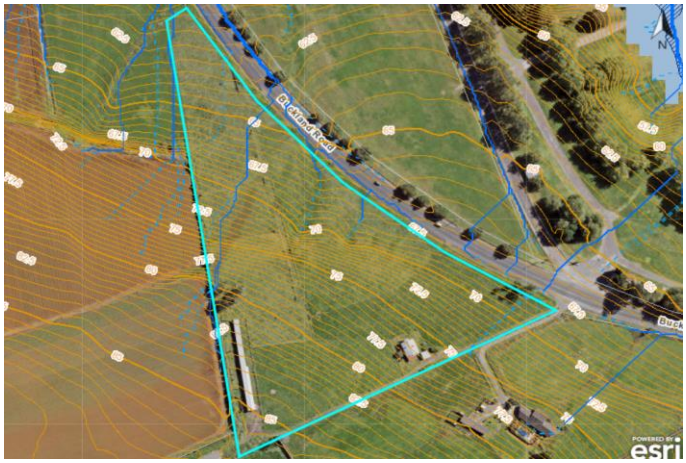


Image courtesy of Auckland Council GIS Maps

303 Buckland Road

An overland flow path is identified as running from the centre of the site to Buckland Road in the north east (see *Figure 4* below). Surface water flow is expected to be via sheet flow in a south west to north east direction off the site. No groundwater bores exist on site.

Figure 4 Hydrology Map – 303 Buckland Road

Image courtesy of Auckland Council GIS Maps

It is noted that the Geotechnical Investigation Report completed by Lander Geotechnical (dated 23 July 2018, reference *J000858*) for the site at 301 Buckland Road confirmed standing groundwater levels of between 2.5m and 4.2m were recorded in hand auger boreholes. Machine boreholes recorded groundwater levels of between 3.0m and 4.73m.

3 Site History

3.1 Site Ownership and Uses

301 Buckland Road

1905 – Owner James O'Connor, Farmer – part of a larger holding situated on both sides of Buckland Road

1909 – Transferred to James Reidy, Farmer

1968 – Transfer to W. Reidy and G. Flynn

1965 – Transfer half of holding to Franklin Racing Club

1984 – Transfer to D. W Spencer and D. T Alexander

1986 – Transfer 1/3 share to D. J Swney

1997 – Transfer to R. J and J. S Good

2000 – Transfer to Raceway Development Limited

30.5.2016 – Transfer to Yao and Hao Holdings Ltd

1.7.2016 – Transfer to Peterex Properties (current owner)

303 Buckland Road

The site was part of a larger holding owned by James Reidy prior to 1922, which was then subdivided into 2 properties in 1971.

1911 – Owned by Joseph & Isabella Harper - Farmers

1925 - Transferred to Messers Martin & Hollis – Farmers

1954 – Transferred to K J Biddick

1956 – Transfer to W & G Pulman

1965 – Transfer to R & M Townsend

1971 - Transfer to Dundee Farm Ltd

2010 – Purchased by Andrew & Wendy Johnston

2019 – Property purchased by Pukekohe Limited (current owner)

3.2 Council Records

3.2.1 Unitary Authority

301 Buckland Road, Pukekohe

Contaminated land Report:
Jared Osmon from the Contamination, Air and Noise team of Auckland Council prepared a Contaminated Land report dated 7th of November 2018. This report was considered in the PSI undertaken by Geosciences Ltd in November 2018 and stated that no information was held on their records to suggest this site has been subject to HAIL activities. Please see **Appendix 3** for copy of this Contaminated Land report.

Since the time that this report was prepared, Geosciences have undertaken both and Preliminary Site Investigation (PSI) and a Detailed Site Investigation (DSI) (in January 2019) to determine if the HAIL A10, HAIL H and HAIL I activities identified by the PSI had adversely affected soils on the site. The DSI report was prepared in order to support a resource consent application for the construction and operation of a warehouse and distribution centre for a Trade Supplier (refer BUN6033 3645). While this resource consent was granted in September 2019, it has not been given effect to, noting that the applicant is proceeding with a private plan change at this time. The DSI outlined remedial actions required in relation to a small (~10m^3) stockpile of arsenic impacted soil on the site that required remediation in accordance with an approved Remedial Action Plan, also provided to support the application.

In light of this additional information, a new Site Contamination Enquiry report was requested from Auckland Council, this report is also provided in Appendix 3.

The Site Contamination Enquiry report dated 27th September 2021 identified unverified HAIL A10 associated with former market gardening activities on the site and unverified HAIL G5 associated with Uncertified fill on the site, referred to under HAIL I in the Geosciences Detailed Site Investigation. Both HAIL activities have been addressed in the previous Geosciences Detailed Site Investigation.

Building Permits:

Permit #	Date	Applicant	Description of works
No permit	Pre-1942		Native timber constructed villa.
D69052	1969	D F Cameron	Shed. Building permit references corrugated iron roof and fibrolite or weatherboard walls.
Receipt number 17402	1969	D F Cameron	Construct stables and barn. No description of materials.
BUN60333645 (LUC60325312,SUB60333646 and DIS60340705)	2019	Franklin Plumbing & Bathroomware	Resource consent to construct and operate a purpose-built warehouse and distribution centre for a Trade Supplier. Not yet given effect to.

303 Buckland Road

Contaminated land Report:

The Contamination, Air and Noise team of Auckland Council prepared a Contaminated Land report on the 20th of September 2020. This report stated that no information was held on their records to suggest this site has been subject to HAIL activities. A copy of this report is provided in **Appendix 3**.

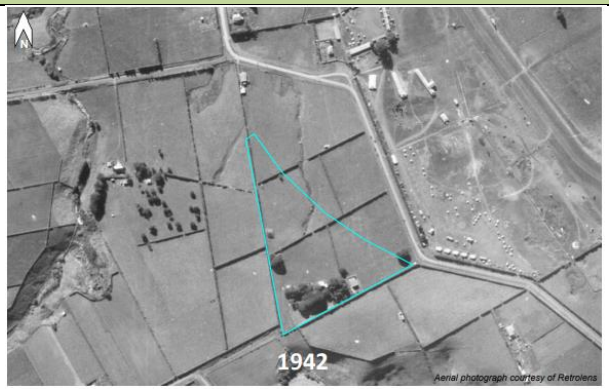
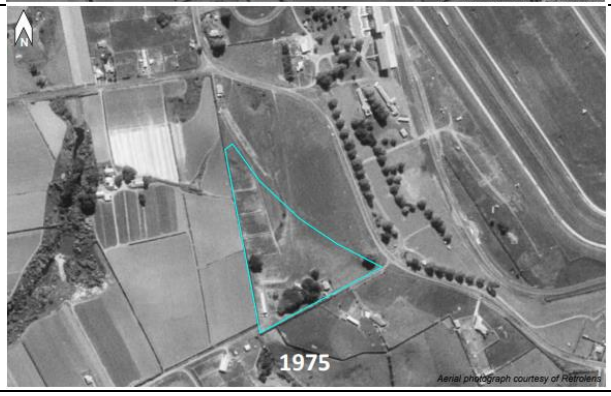
Building Permits:

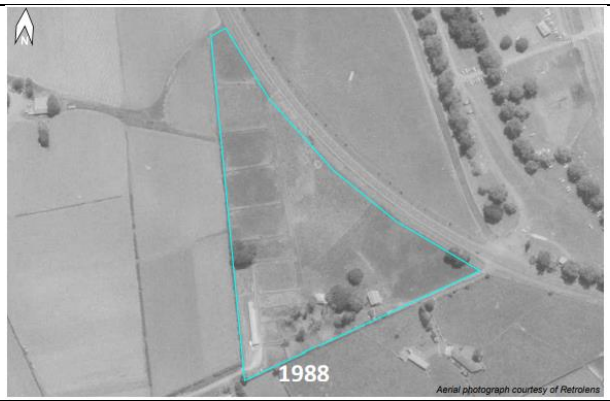
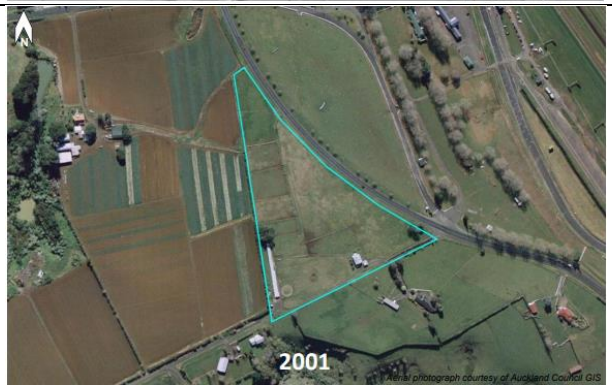
Permit #	Date	Applicant	Description of works
-	1971	R & M Townsend	Build new residence (concrete/brick & tile)
C49358	1971	R & M Townsend	Construct stables and barn (concrete block and iron)
#14524	2013	Andrew & Wendy Johnston	Installation of in-ground fibreglass swimming pool
BCO10287256	2019	Jason & Michelle Woodyard	Installation of a solid fuel heater
BUN60368560 (LUC60368561 and BYX70018718)	2021	Pukekohe Limited	Resource consent approval authorising the use of up to 4,320m^2 of site (within the northern portion of the site) for an industrial service storage yard for a 10-year period. Installation of one freestanding sign. Not yet given effect to.

No other records of note were identified on council records.

Please refer to **Appendix 4** for a copy of the relevant supporting documents from Council records as identified above.

3.3 Historical Aerial Photography Review

301 Buckland Road			
Date	Aerial Image	Observations	Image courtesy
1942		This is the earlier photograph of the site, when it formed part of a larger property encompassing what is now part of the Pukekohe Park on the eastern side of Buckland Road. The fields on site are in a larger configuration with shelterbelts defining their boundaries and livestock identifiable in the south eastern field. The residential dwelling currently on site is already present in this image as well as shed like structures located under the trees to the west of the house. A gully runs from south to north across the central field. The surrounding land contains a mix of pasture and horticulture to the north, south, and west, and the Pukekohe Park raceway to the east.	Retrolens.
1961		The site appears in the same configuration as the 1942 image. However, the neighbouring fields to the west are being used for horticulture. The south eastern field on the site has a different appearance to the other fields, but it is not clear whether it is being used for horticulture or whether the grass has been mechanically cut as feed for the grazing livestock.	Retrolens.
1975		The 1975 aerial image is of very low quality but appears to be very similar to the 1978 image. By 1975, the stables in the south western corner of the site have been constructed, and the large field configuration across the site removed. Smaller paddocks containing livestock are clearly visible across the site in the 1978 image. It appears that the northern end of the site is being	Retrolens.

1978		prepared for the new road layout of Buckland Road.	Retrolens.
1981		By 1981 construction on Buckland Road has been completed, defining the current property boundary.	Retrolens.
1988		The quality of the 1988 image is relatively low, and as such no significant differences with the 1981 image were noted.	Retrolens.
2001		The first colour image of the site, the 2001 image shows changes to the south western section of the site. The shed and trees west of the house have been removed to form a large paddock while the stables have been extended to include livestock pens on the northern end. The garage and shed adjacent to the house have also been removed, and a carport installed. The small pens in front of the stables have been removed and replaced with a training circle for horses. The rest of the site remains unchanged.	Auckland Council GeoMaps.

2003		No significant changes are visible since 2001.	Retrolens.
2006		No significant changes are visible since 2003.	Auckland Council GeoMaps.
2008		The site appears disused in the 2008 image, with the fields fallow, no livestock visible, and the livestock sheds appearing in apparent disrepair.	Auckland Council GeoMaps.
2009		By 2009 the site appears to be once again used for pasture while wrapped bales are visible in the northern and southern paddocks, along with livestock. The horse training circle appears to have been grassed over.	Google Earth.

2015		No significant changes are noted since the 2009 image.	Google Earth.
2017		A band of material can clearly be seen extending from the corner of the southern horticultural field on the neighbouring property in a north easterly direction along an overland flow path on the site. This material is clearly visible in the Auckland Council aerial photograph, and two satellite images from Google Earth in April 2017 demonstrating sedimentation runoff from the neighbouring property.	Auckland Council GeoMaps
2018		The plume of material visible in the 2017 image is no longer visible in the 2018 satellite image from Google Earth. The site appears otherwise unchanged.	Google Earth.

2021		Site remains unchanged since the 2018 image.	Google Earth.

303 Buckland Road			
Date	Aerial Image	Observations	Image courtesy
1942		Site appears pastoral with no structures evident except a small building in the centre of the site. The property is bounded by large hedges.	Retrolens 2020.
1961		Site appears as it did in 1942, however the structure in the centre of the site appears to have been removed. The surrounding land appears to be pastoral.	Retrolens 2020.

1975		Two structures have been constructed in the location of the existing dwelling and stables. An accessway connects these with the road in the north east. The remainder of the land appears to be pastoral.	Retrolens 2020.
1978		Site appears generally as it did in 1975.	Retrolens 2020.
1981		Site appears generally as it did in 1978.	Retrolens 2020.
1988		Site remains pastoral land. Structures still present in the centre of the site. The majority of the surrounding land is pastoral.	Retrolens 2020.

2001		Structures remain apparent in the centre of the site. The majority of the site appears to be pastoral.	Auckland Council GeoMaps 2020.
2006		Site remains pastoral as it did in 2001.	Auckland Council GeoMaps 2020.
2008		Site appears as it did in 2006.	Auckland Council GeoMaps 2020.
2011		Site appears as it did in 2008.	Auckland Council GeoMaps 2020.

2017		The majority of the site appears to be pastoral Structures still present in the centre of the site.	Auckland Council GeoMaps 2020.
2021		Site remains unchanged since 2017 image.	Google Maps 2021

3.4 Landowner Interview

301 Buckland Road

An interview was conducted with Steve Smith director of Peterex Properties in September 2021. He confirmed that they purchased the property in 2016 and that the land was at the time, and has continued to remain in, low intensity pastoral grazing. Steve was not aware of any fuel or chemical storage on the property. He advised that all potentially contaminating activities had been identified and investigated by Geosciences in their 2019 Preliminary and Detailed Site Investigations of the property, but that he was not aware of any particular activities that would have led to site contamination. He said that the site stables were of concrete block construction with wooden doors. They currently lease the land to a tenant who runs a few head of stock on the property.

303 Buckland Road

An interview with Jason Woodyard, the current owner, was conducted by Kelly Deihl of EMS. Mr Woodyard confirmed that the land has always been used for low intensity pastoral grazing. The stable building on site was constructed in 1971 from iron sheets with a concrete foundation. Mr Woodyard confirmed that his family reside in the dwelling. The dwelling is of brick and plaster construction and stands on a concrete foundation also. Mr Woodyard was not aware of any fuel storage chemical storage or landfilling activities on the property.

4 Site Characterisation

4.1 Potential for Contamination

HAIL Activity	Contaminants of Concern	Comments
HAIL A10: Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glass houses or spray sheds.	Heavy Metals and Organochlorine Pesticides (OCPs) within surface soils (0-15cm) associated with historic horticultural activities undertaken on the site between 1942 and 1960.	It was apparent from historical aerial photographs that the site had been used for horticultural activities historically.
HAIL H: Any land that has been subject to the migration of hazardous substances from adjacent land in sufficient quantity that it could be a risk to human health or the environment.	Heavy Metals and Organochlorine Pesticides (OCPs) within surface soils (0-15cm) associated with historic market gardening activities undertaken on adjoining sites to the west.	It was apparent from historical aerial photographs that the sites adjoining the western boundary had been used for market gardening activities historically.
HAIL I: Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment.	Heavy Metals and polycyclic aromatic hydrocarbons (PAH's) which relates to the uncertified fill stockpile located on the site at 301 Buckland Road, Pukekohe. Also, the potential for release of lead from the use of leaded paint on aged buildings.	Imported soil (~10m^3) stockpiled on the site to be removed to landfill in accordance with an approved Remedial Action Plan. Aged buildings on the site, and formerly on the site, may have released lead into surrounding soils from the use of leaded paint.

4.2 Preliminary Conceptual Site Model

Potential Source	Contaminants of Concern	Potential Pathway	Potential Receptors	Comments
HAIL A10: Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glass houses or spray sheds.	Heavy Metals and Organochlorine Pesticides (OCPs) within surface soils (0-15cm) associated with historic horticultural activities undertaken on the site.	Dermal absorption of contaminants, inhalation of contaminated dust, consumption of produce grown in contaminated soil.	Humans working or residing on the land, earthworks contractors.	**PATHWAY INCOMPLETE.** ALL CONTAMINANT CONCENTRATIONS MEET RELEVANT SOIL CONTAMINANT STANDARDS AND CLEANFILL ACCEPTANCE CRITERIA.
HAIL H: Any land that has been subject to the migration of hazardous substances from adjacent land in sufficient quantity that it could be a risk to human health or the environment.	Heavy Metals and Organochlorine Pesticides (OCPs) within surface soils (0-15cm) associated with historic market gardening activities undertaken on adjoining sites to the west.	Dermal absorption of contaminants, inhalation of contaminated dust, consumption of produce grown in contaminated soil.	Humans working or residing on the land, earthworks contractors.	**PATHWAY INCOMPLETE.** ALL CONTAMINANT CONCENTRATIONS MEET RELEVANT SOIL CONTAMINANT STANDARDS AND CLEANFILL ACCEPTANCE CRITERIA.
HAIL I: Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment.	Heavy Metals and polycyclic aromatic hydrocarbons (PAH's) - uncertified fill stockpile located on the site at 301 Buckland Road, Pukekohe. Lead - from the use of leaded paint on aged buildings.	Dermal absorption of contaminants, inhalation of contaminated dust, consumption of produce grown in contaminated soil. Ingestion is the primary pathway for exposure for lead. Approximately 10-70% is absorbed by the body (~50% in children and ~10% for adults). Inhalation is the second major pathway of lead	Humans working or residing on the land, earthworks contractors.	**PATHWAY COMPLETE.** Imported soil (~10m^3) stockpiled on the site will require removal to landfill in accordance with the approved Remedial Action Plan. Lead concentrations surrounding villa at 301 Buckland Road, Buckland meet the relevant NES soil contaminant standard, however, dilution through mixing of surface

		exposure; however, unlike ingestion, almost all inhaled lead is absorbed into the body. Dermal lead absorption is not found to be a significant route of exposure[1], noting the predominant form of lead is inorganic.		soils in the 3m halo around the villa may be required to meet AUP PA criteria.

5 Regulatory Assessment

Consideration of the future development of this land in the context of the Auckland Unitary Plan and under Regulations 5(4) and 5(6) of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES), being soil disturbance and change in land use respectively, has been undertaken.

Geosciences Ltd undertook a Detailed Site Investigation in January 2019 to determine if the HAIL activities identified by the PSI in November 2018 (undertaken by Geosciences Ltd) had adversely affected soils on the site at 301 Buckland Road, Pukekohe. These activities included HAIL A10 due to the potential for horticultural activities to have occurred on the south eastern portion of the property between 1942 and 1960, although historical aerial photography was inconclusive; HAIL H in relation to the potential migration of contaminants from neighboring market gardens and HAIL I in relation to uncertified fill stockpiled on the site and in the vicinity of a former building footprint, and due to the potential for lead based paint to have leached into the soil immediately surrounding an existing villa on the site.

Of the sixteen soil samples collected on the site in relation to these identified land uses, only one sample breached the NES Soil Contaminant Standards for Arsenic under a commercial land use scenario and this sample was collected from imported soil (~10m^3) stockpiled on the site. This soil will be removed to landfill in accordance with an approved Remedial Action Plan. In addition, a composite sample collected from the area directly adjoining the villa on site exceeded permitted activity (PA) soil acceptance criteria for Lead as set out in Table E30.6.1.4.1 of the Auckland Unitary Plan (AUP) but did not exceed NES Soil Contaminant Standards for a commercial land use. Levels detected were not significantly above the AUP PA criteria. Contamination of this nature is generally

[1] *World Health Organisation and Pan American Health Organisation, 2021*

shallow, being limited to surface soils, and localized to within a 3m halo surrounding the building footprint. Dilution through mixing of surface soils in this location to reduce levels below AUP thresholds is a viable option for contaminant reduction as is the removal of a low volume of surface soils surrounding the villa off-site to landfill. Validation will occur post-remediation on the site.

The Preliminary Site Investigation did not verify any HAIL activities on the land at 303 Buckland Road, Pukekohe and concluded that soils on the site are highly unlikely to have been adversely affected by past land use activities. In the absence of a HAIL activity, it was considered that the NES does not apply to any future development on this site.

6 Conclusions

Overall, it is considered that both properties are suitable for the intended plan change and change of use. There are no contamination issues identified within any report prepared, that would pose any major constraints on, or inhibit, this proposal.

Any future development or removal of existing structures containing ACM will require an Asbestos Demolition Survey, prepared by, and are to be removed by, a suitably licensed asbestos contractor.

Disclaimer:

This report has been prepared for the benefit of the client with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose without our prior review and agreement.

Findings and recommendations contained within this report are based on a review of existing information and the writer of the report takes no responsibility for any inaccuracies in information supplied by a third party.

Report prepared and certified by:

Kelly Deihl

Principal Scientist

Appendix 1: Records of Title

REGISTER

(Form B.

NEW ZEALAND.

Reference: Vol. 110, folio 145
Transfer No. 36310

Register-book Vol. 127, folio 194

127/194

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

This Certificate, dated the eighth day of June, one thousand nine hundred and five, under the hand and seal of the District Land Registrar of the Land Registration District of Auckland, witnesseth that James O'Connor of Pukekohe in the Provincial District of Auckland farmer is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or indorsed hereon; subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon, bordered green, be the several admeasurements a little more or less, that is to say: All that parcel of land containing twenty two (22) acres one (1) rood and five (5) perches more or less being Lot [illegible] on a plan deposited in the Land Registry Office at Auckland under No. 3363 which said piece of land is part of allotment 24 (twenty four) and 8 (eight) in the Parish of Pukekohe

Edwin Bamford
District Land Registrar

PLAN 100207 LODGED
4·8·83

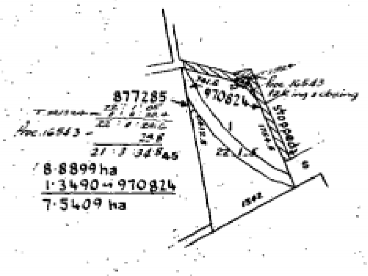
Transfer no. 149361 James O'Connor to James Reidy of Pukekohe Farmer produced the 5th March 1909 at 2.21 p.m.
H Holloway
Asst. Dr Regr.

Mortgage no. 153665 James Reidy to James O'Connor produced [illegible] March 1909 [illegible]
DISCHARGE 137138
H Holloway
Asst Dr Regr

Transfer No 221324 James Reidy to the Mayor Councillors and Burgesses of the Borough of Pukekohe of part of within land coloured red on plan hereon for a public street produced 2.5.21 at 11.35
[illegible]
1915

Mortgage 251566 of James Reidy to the Bank of New Zealand produced 9-9-1935 at 11.4 [illegible] 10.10.1938 at 10 am
DISCHARGE

Proclamation 16543 proclaiming part Lot 1 Plan 3363 as street. Entered 23-12-1938 at 2-12 pm.
[illegible]
A.L.R.



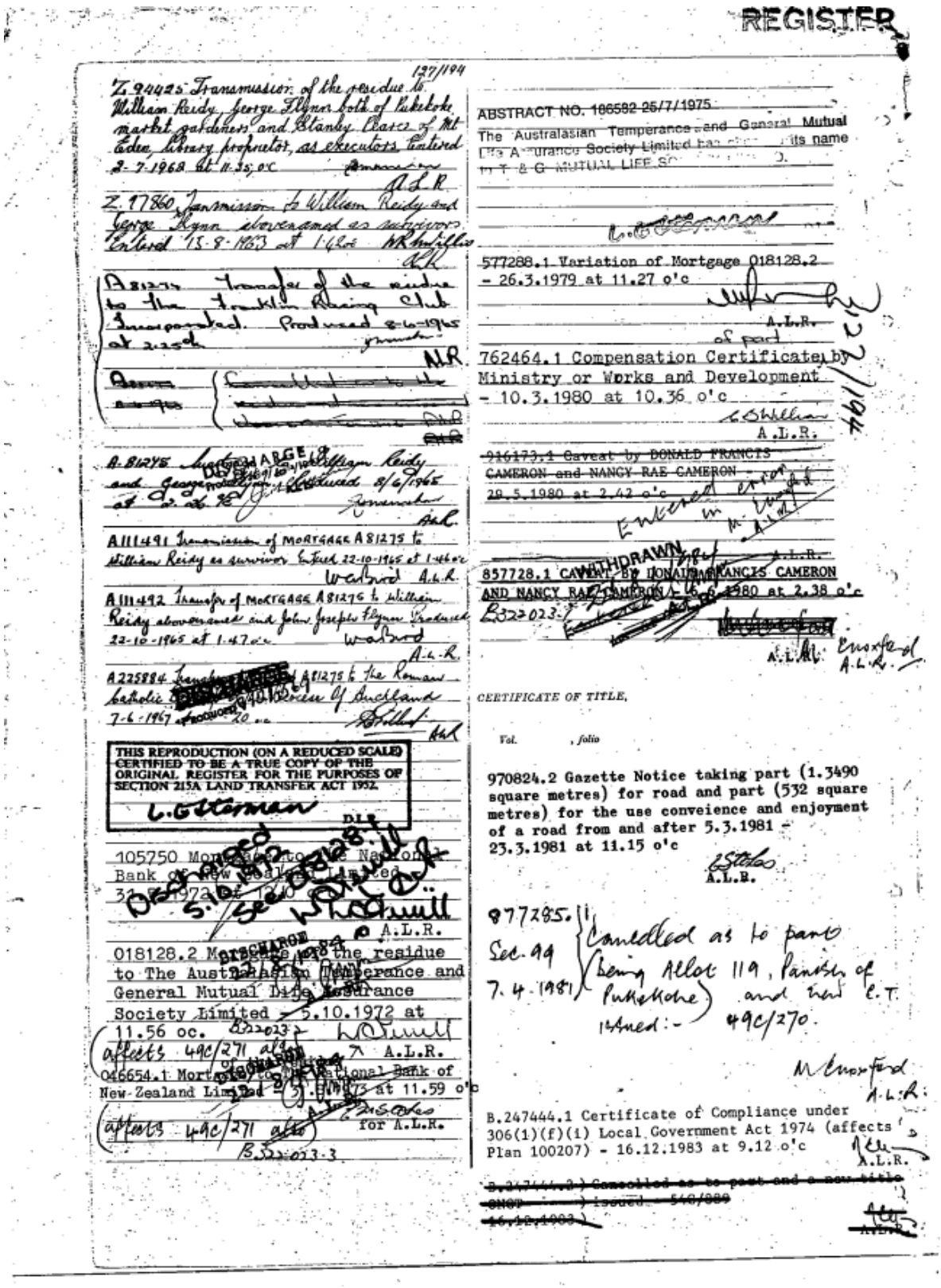
Scale _ 10 Chains to 1 inch.
E.R.F.

METRIC AREA IS 9·0169 ha
9·0169 ha

NETT EQUIVALENT METRIC AREA IS 8·8899 ha
8·8899 ha

OVER

(over)



REGISTER

Z.94425 Transmission of the residue to William Reidy, George Flynn both of Pukekohe market gardeners and Stanley Peace of Mt Eden, library proprietor, as executors. Entered 2-7-1968 at 11.35 o'c

A.L.R.

Z.97860 Transmission to William Reidy and George Flynn abovenamed as survivors. Entered 15-8-1968 at 1.46 o'c

A.L.R.

A81275 Transfer of the residue to the Franklin Racing Club Incorporated. Produced 2-6-1965 at 2.25 o'c

A.L.R.

A81276 Mortgage to William Reidy and George Flynn abovenamed. Produced 2/6/1965 at 2.26 o'c

A.L.R.

A111491 Transmission of MORTGAGE A81275 to William Reidy as survivor. Entered 22-10-1965 at 1.46 o'c

A.L.R.

A111492 Transfer of MORTGAGE A81276 to William Reidy abovenamed and John Joseph Flynn. Produced 22-10-1965 at 1.47 o'c

A.L.R.

A225884 Transfer of A81275 to The Roman Catholic [illegible] Corporation of Auckland. Produced 7-6-1967 at 2.20 o'c

A.L.R.

THIS REPRODUCTION (ON A REDUCED SCALE) CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL REGISTER FOR THE PURPOSES OF SECTION 215A LAND TRANSFER ACT 1952.

L.G. Ottoman DLR

105750 Mortgage to the National Bank of New Zealand Limited 30-5-1972 at 12.00 o'c

A.L.R.

018128.2 Mortgage of the residue to The Australasian Temperance and General Mutual Life Assurance Society Limited - 5.10.1972 at 11.56 oc. B322023.2

affects 49C/271 also

A.L.R.

046654.1 Mortgage to The National Bank of New Zealand Limited - 5.3.1973 at 11.59 o'c

affects 49C/271 also

for A.L.R.

B322023.3

ABSTRACT NO. 106582 25/7/1975

The Australasian Temperance and General Mutual [illegible] its name to T & G MUTUAL LIFE SO[illegible].

577288.1 Variation of Mortgage 018128.2 - 26.3.1979 at 11.27 o'c

A.L.R.

of part

762464.1 Compensation Certificate by Ministry or Works and Development - 10.3.1980 at 10.36 o'c

A.L.R.

916173.1 Caveat by DONALD FRANCIS CAMERON and NANCY RAE CAMERON - 28.5.1980 at 2.42 o'c

Entered in wrong [illegible]

A.L.R.

857728.1 CAVEAT BY DONALD FRANCIS CAMERON AND NANCY RAE CAMERON - 6.6.1980 at 2.38 o'c

WITHDRAWN

B322023.4

A.L.R. Encroached A.L.R.

CERTIFICATE OF TITLE,

Vol. , folio

970824.2 Gazette Notice taking part (1.3490 square metres) for road and part (532 square metres) for the use conveience and enjoyment of a road from and after 5.3.1981 - 23.3.1981 at 11.15 o'c

A.L.R.

877285.1 Sec.99 7.4.1981 Cancelled as to part (Being Allot 119, Parish of Pukekohe) and part C.T. 49C/270. Issued:-

M Encroached A.L.R.

B.247444.1 Certificate of Compliance under 306(1)(f)(i) Local Government Act 1974 (affects Plan 100207) - 16.12.1983 at 9.12 o'c

A.L.R.

~~B.247444.2 Cancelled as to part and a new title ONGP [illegible] issued 548/289 16.12.1983~~

B247444.2)
O.N.C.T.) Cancelled as to part in terms of lot
16/12/1983)2 Plan 100207 and a new title issued-
~~56D/240~~ 54C/889.

A.L.R.

B.322023.4 Transfer of the residue to
David Winston Spencer and Donald Thomas
Alexander both of Pukekohe, veterinary
surgeons as tenants in common in equal
shares - 22.8.1984 at 1.35 o'c
Cancelled and new C.T. issued: 56A/559

A.L.R.

CANCELLED
DUPLICATE DESTROYED

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General of Land

Identifier	**NA56A/559**
Land Registration District	**North Auckland**
Date Issued	22 August 1984

Prior References
NA127/194

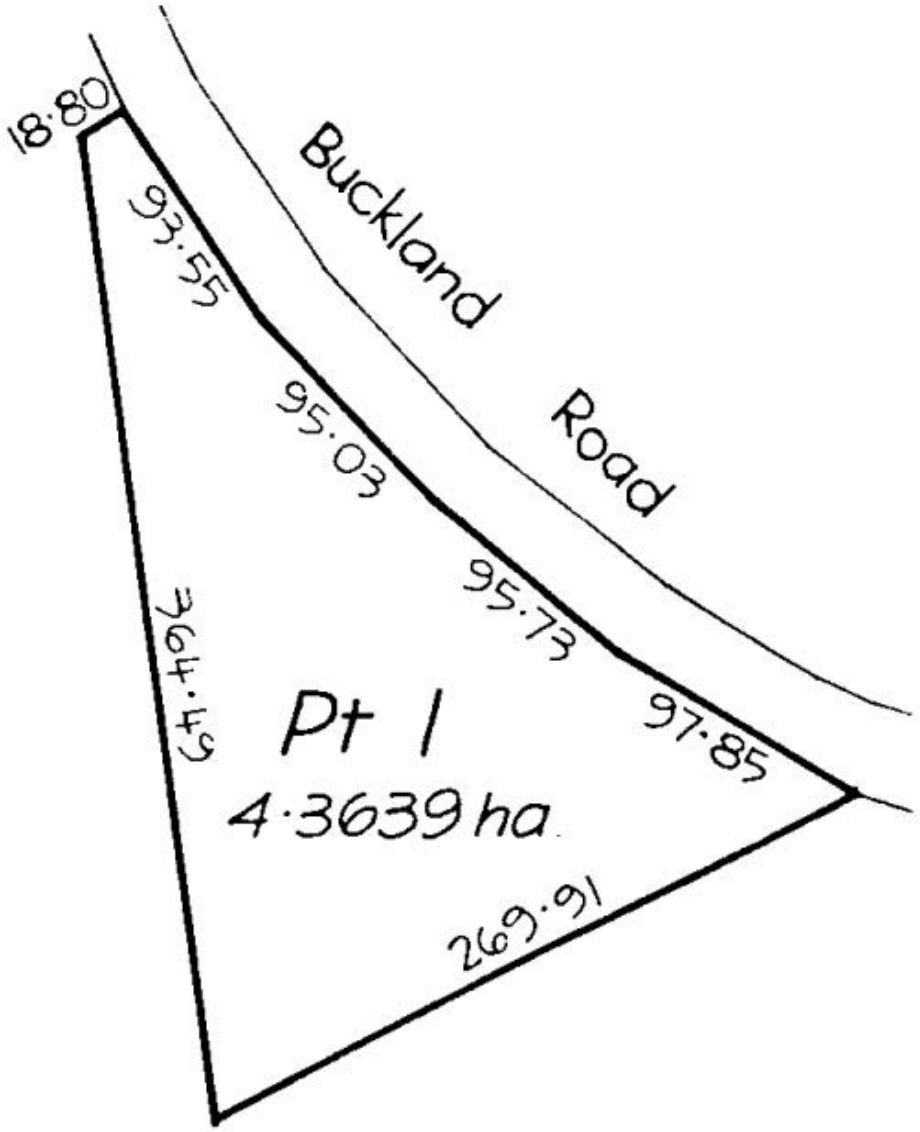
Estate	Fee Simple
Area	4.3639 hectares more or less
Legal Description	Part Lot 1 Deposited Plan 3363
Registered Owners	

Peterex Properties Limited

Interests

762464.1 Compensation Certificate by The Ministry of Works and Development - 10.3.1980 at 10.36 am

Identifier **NA56A/559**



REGISTER

[Form B.

NEW ZEALAND.

Reference: Vol. 124, folio 173
Transfer No. 83161
Vol 128 folio 147

Register-book, Vol. 197, folio 252

197/252

Amalgamation

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

This Certificate, dated the *Eleventh* day of *September*, one thousand nine hundred and *eleven*, under the hand and seal of the District Land Registrar of the Land Registration District of *Auckland*, Witnesseth that *Joseph Harper of Auckland in the provincial district of Auckland Farmer and Isabella Harper his wife are seized as tenants in common in equal shares*

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or indorsed hereon, subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon bordered *green*, be the several admeasurements a little more or less, that is to say: All that parcel of land containing *Twenty (20) acres and seventeen and one half (17½) perches more or less being part of the land on a plan deposited in the Land Registry office at Auckland under No 4427 and part of Lot No 5 (five) on plan deposited as aforesaid under No 3363 which said parcel of land is portion of allotments Nos 24 (twenty four) 46 (forty six) and 80 (eighty) of the parish of Pukekohe*

District Land Registrar

Mortgage No 13784 Joseph Harper and Isabella Harper to The New Zealand Government Advances Office Superintendent produced [illegible] 1911 at 2.15 p.m. of part of within

DISCHARGED Produced

Dis Land Regr

Transfer No 128954 Isabella Harper and Joseph Harper to Francis Bartlett Reed of Waiuku, Farmer, produced the 14th February 1922 at 11.00 a.m.

Chas L Harvey
Asst Land Reg

Transmission No 2339 of above land to William Bland [illegible] of Waiuku farmer and William Ernest Hillis of Auckland agent. Produced 1/12/25 at 11.50 am

[illegible]
Dist L R

Transfer 198409 William Bland [illegible] and William Ernest Hillis to the said William Ernest Hillis and Ruth Grace Reed of Waiuku widow, produced 1/12/25 at 11.51 am

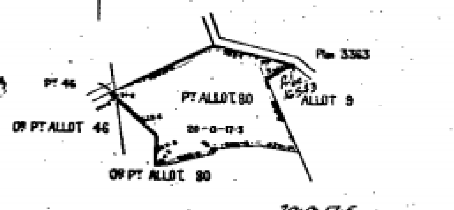
[illegible]
Dist L R

Transfer No 219700 William Ernest Hillis and Ruth Grace Reed to the said Ruth Grace Reed and Ernest John Williams of Waiuku Farmer produced 4/5/27 at 10.55 am

[illegible]
Asst L Regr

METRIC AREA IS 8·1379 ha

8·1379 ha



20·0·17·5
7·5 – Roc.16543
20·0·10

Scale 10 Chains to an inch

OVER

4749
1441

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REGISTER

197/252

Transmission K 73483 to [illegible] King and Alexander [illegible] both of Pukekohe [illegible] as executors – Entered [illegible] at [illegible]
[illegible] A.R.

Transfer 547346 the registered proprietors to [illegible] Biddick of Pukekohe, farmer. Produced 10/9/1954 at 10.15 o'c
[illegible] A.R.

Mortgage 422217 [illegible] Biddick to [illegible] [illegible] in equal [illegible] Produced 10/9/1955 at 10.20 o'c
DISCHARGE
[illegible]

Mortgage 406176 [illegible] Biddick to [illegible] of New Zealand Produced [illegible] 12.1954 at 12.20 o'c
DISCHARGE
[illegible] A.R.

Transfer 675567 to Robert William Pulman of Pukekohe trainer and Gwennyth Mary Pulman his wife. Produced 5.7.1956 at 3 o'c
[illegible] A.R.

Mortgage 446740 to Albert Charles Pulman Produced 17.10.1957 at 10.57 o'c
DISCHARGE [illegible] 1965
[illegible] A.L.R

Proclamation 16543 proclaiming part lot 5 Plan 3363 as street – Entered 23-12-1958 at 2-12 o/c
[illegible] L.R.

Variation of Terms of Mortgage 446740
Produced 19/8/1959 at 10-40 o'clock
[illegible] A.L.R.

Variation of Terms of Mortgage 446740
Produced 31/8/1960 at 11.13 o'clock.
[illegible] A.L.R.

Variation of Terms of Mortgage 446740
Produced 25/5/1962, at 10.35 o'clock.
[illegible] A.L.R.

Variation of Terms of Mortgage 446740
Produced 26/9/1963 at 12.3 o'clock.
[illegible] A.L.R.

A.96400. Transfer of the residue to James [illegible] Townsend, of Pukekohe Farmer, and Ethel [illegible] Townsend, his wife, as tenants in common in equal shares. Produced 12.8.1965 at 11.20 o'c
[illegible] A.L.R.

A.96401. Mortgage of [illegible] to Robert William Pulman [illegible] Gwennyth Mary Pulman. Produced 12.8.1965 at 11.22 o'c
DISCHARGE
[illegible] A.L.R.

A132978 Mortgage of Mortgage A96501 to Edna May [illegible] Alfred Melville [illegible] 15.12.1965 at 1.35 o'c
DISCHARGE
[illegible] A.L.R.

A559836 CANCELLED AND CERTIFICATE OF TITLE ISSUED VOL. 21A FOL. 288
14/6/1971
Lot 1 D.P. 64805
[illegible] A.L.R. 4849.

A559837 Transfer of the residue to Dundee Farm Limited and new C.T. issued. 14.6.1971 at 11.20 o'c.

21A/289
[illegible] A.L.R.

— Cancelled —

CERTIFICATE OF TITLE.

Vol. , folio

THIS REPRODUCTION (ON A REDUCED SCALE) CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL REGISTER FOR THE PURPOSES OF SECTION 215A LAND TRANSFER ACT 1952.
L. Otterman
D.L.R.

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

REGISTRAR-GENERAL OF LAND NEW ZEALAND

R.W. Muir
Registrar-General
of Land

Auckland Council

BCO10287256
BUILDING CONSENT

Identifier	**NA21A/288**
Land Registration District	**North Auckland**
Date Issued	14 June 1971

Prior References
NA197/252

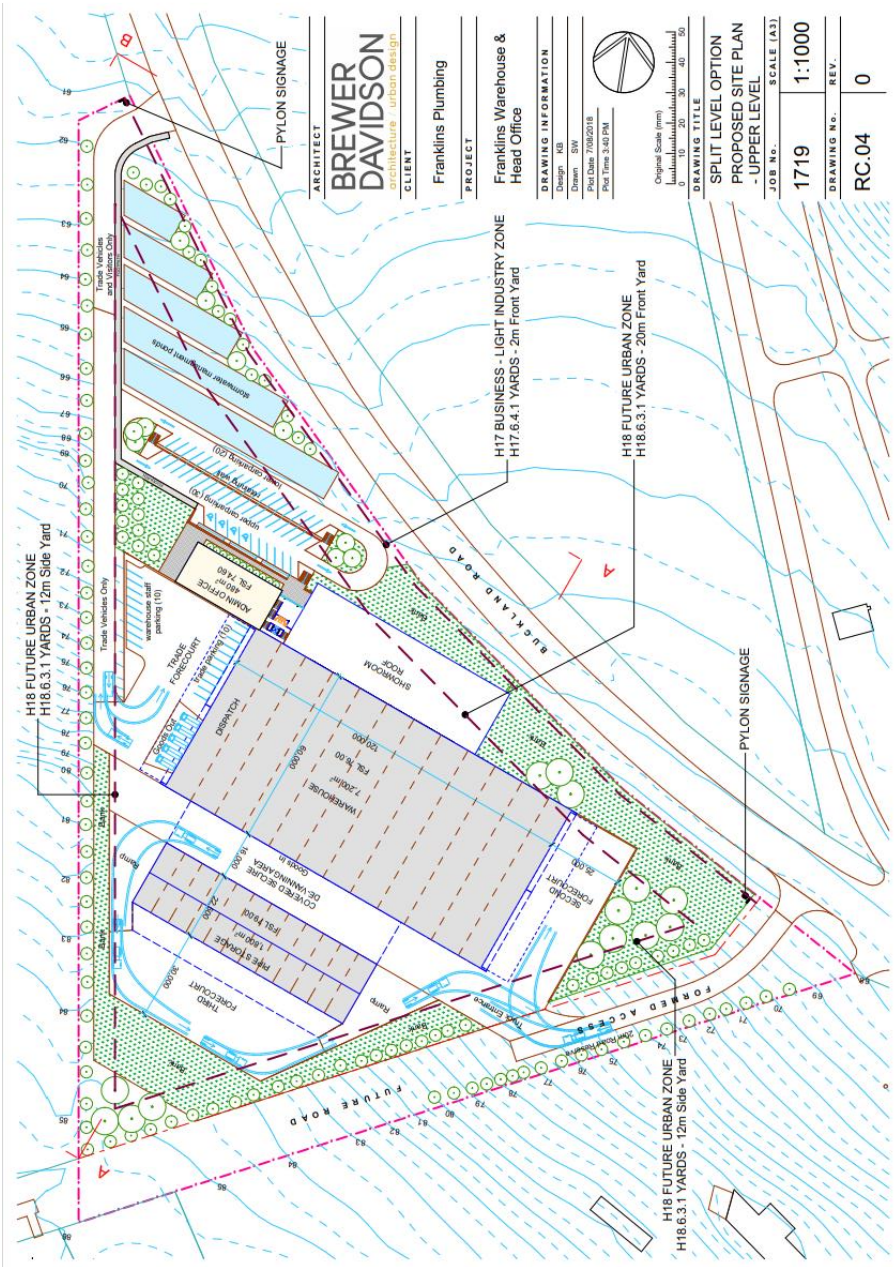
Estate	Fee Simple
Area	3.5038 hectares more or less
Legal Description	Lot 1 Deposited Plan 64805

Registered Owners
Pukekohe Limited

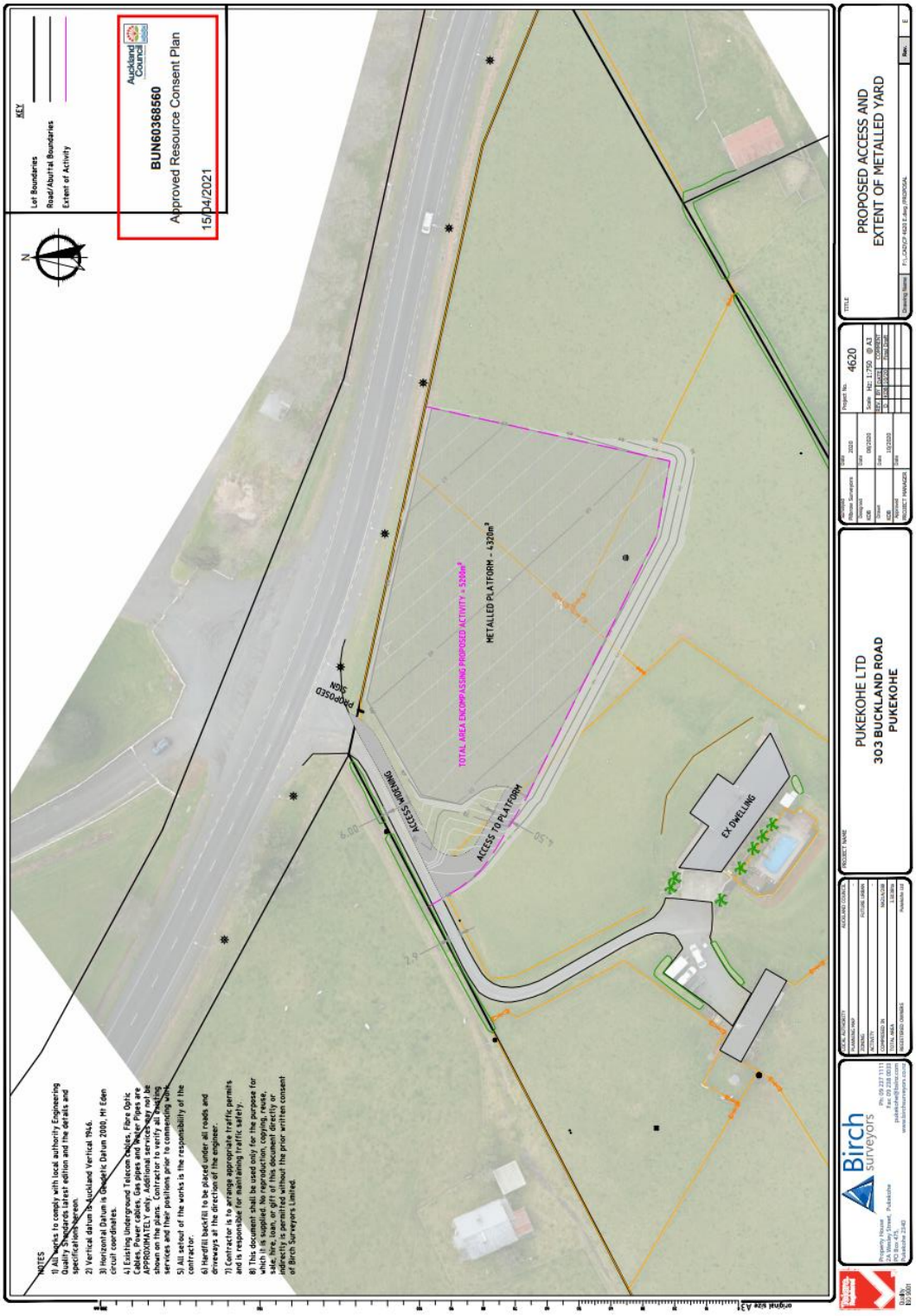
Interests
11393567.3 Mortgage to ASB Bank Limited - 2.4.2019 at 3:41 pm

Appendix 2: Site Plan

301 Buckland Road



303 Buckland Road



Appendix 3: Contaminated Land Reports

Auckland Council

7 November 2018

Geosciences Limited Auckland
PO Box 35366
Browns Bay
Auckland 0753

Attention: Chris Davies

Dear Chris

Site Contamination Enquiry – *301 Buckland Road, Buckland*

This letter is in response to your enquiry requesting available site contamination information for the above site. The following details are based on information available from the former Auckland Regional Council records system and information currently held by the Auckland Council Natural Resources and Specialist Input Unit. The details provided below exclude any property information held by the former district/city councils.

No pollution incident files regarding spills/contamination were found for the above site. The general catchment file and site visit file for the catchment 720 were not searched. These files contain pollution incidents where the source of pollution was not traced to a particular site, site visits where no follow-up correspondence was required and some information from archived files.

If the above site is coastal or beside a river, it is possible that historic, unconsented reclamation may have occurred. The Auckland Council Specialists Unit Coastal Team may be able to provide further information.

The records reviewed as part of this Site Contamination Enquiry search do not identify individual horticultural sites in the region. However, there is a possibility that horticultural activities may have occurred at the site. The local Auckland Council customer service centre, specific to the area of the site may be able to provide relevant information where former horticultural sites have been mapped.

If you are concerned that a historic land use (such as filling) may have caused the underlying soils to become contaminated, it is recommended that you obtain an independent environmental assessment of the site. Staff from the Auckland Council Earthworks and Contaminated Land Team can provide advice on the results of any evaluation in terms of site remediation and/or potential consent requirements.

The former Auckland Regional Council and current databases were searched for records of **closed landfills, bores, air discharge, industrial and trade process consents, contaminated site discharge consents, and environmental assessments** within approximately 200 metres of the site. No consents were identified.

The details provided are in accordance with the obligation to make information publicly available upon request. While the Auckland Council has carried out the search using its best practical endeavours, it does not warrant its completeness or accuracy and disclaims any responsibility or liability in respect of the information. If you or any other person wishes to act or to rely on this information, or make any financial commitment based upon it, it is recommended that you seek appropriate technical and/or professional advice.

In addition, further site specific pollution incidents may be held at the area office below. It is recommended that you contact the local customer service centre of the Auckland Council, specific to the site being investigated: Ground Floor, Kotuku House, 4 Osterley Way, Manukau Central as they also may hold files with further relevant information.

I trust that this answers your query. If you wish to discuss the matter further, please contact **Andrew Kalbarczyk** on 301 0101. Should you wish to request any of the files listed above for viewing, please contact the Auckland Council Call Centre on 301 0101 and note you are requesting former Auckland Regional Council records (the records department requires three working days' notice to ensure files will be available).

Please note: the Auckland Council cost recovers officer's time for all site enquiries. A basic enquiry takes approximately 1 - 2.5 hours to search the files and databases in which information is held. As such an invoice for the time involved in this enquiry will follow shortly.

Yours sincerely

pp. SR
Jared Osman
Team Leader – Contaminated Air, Noise
Specialist Unit | Resource Consents

Auckland Council

2 September 2020

Environmental Management Solutions Ltd
143 Bollard Road
TUAKAU 2121

Attention: Samantha Van Ryn

Dear Samantha

Site Contamination Enquiry – *303 Buckland Road, Buckland*

This letter is in response to your enquiry requesting available site contamination information within Auckland Council records for the above site. Please note this report does not constitute a site investigation report; such reports are required to be prepared by a (third-party) Suitably Qualified and Experienced Practitioner.

The following details are based on information available to the Contamination, Air & Noise Team in the Resource Consent Department. The details provided may be from former regional council information, as well as property information held by the former district/city councils. For completeness the relevant property file should also be requested to obtain all historical records and reports via 09 3010101 or online at:

https://www.aucklandcouncil.govt.nz/buying-property/order-property-report/Pages/order-property-file.aspx.

1. Hazardous Activities and Industries List (HAIL) Information

This list published by the Ministry for the Environment (MfE) comprises activities and industries that are considered likely to cause land contamination as a result of hazardous substance use, storage, and/or disposal.

There is no information held within our records to suggest this site has been subject to HAIL activities.

However, due to the age of the stables (permit issued in 1971) and therefore possibly the age of the dwelling, the potential for asbestos and/or lead paint may need to be considered.

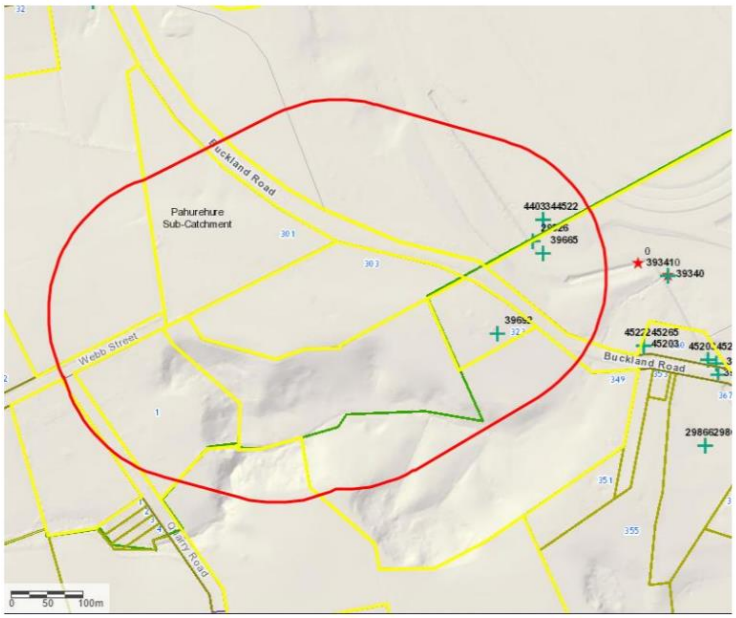
Please note:

- *If you are demolishing any building that may have asbestos containing materials (ACM) in it, you have obligations under the Health and Safety at Work (Abestos) Regulations 2016 for the management and removal of asbestos, including the need to engage a Competent Asbestos Surveyor to confirm the presence or absence of any ACM.*
- *Paints used on external parts of properties up until the mid-1970's routinely contained lead, a poison and a persistent environmental pollutant. You are advised to ensure that soils affected by old, peeling or flaking paint are assessed in relation to the proposed use of the property, including high risk use by young children.*

2. Consents and Incidents Information (200m radius of the selected site)

The Council database was searched for records of the following activities within approximately 200 metres of the site:

- Pollution Incidents (including air discharges, oil or diesel spills)
- Bores
- Contaminated site and air discharges, and industrial trade process consents
- Closed Landfills
- Air quality permitted activities



Legend:

All Consents
All Applications
All Permitted Activities
All Bores
Closed Landfill (Auckland Council owned)
Closed Landfill (Privately owned)

Relevant details of any consents are appended to this letter (Attachment A). Please refer to the column titled 'Property Address' on the spreadsheet to aid in identifying corresponding data on the map.

While the Auckland Council has carried out the above search using its best practical endeavours, it does not warrant its completeness or accuracy and disclaims any responsibility or liability in respect of the information. If you or any other person wishes to act or to rely on this information, or make any financial commitment based upon it, it is recommended that you seek appropriate technical and/or professional advice.

If you wish to clarify anything in this letter that relates to this site, please contact contaminatedsites@aucklandcouncil.govt.nz. Any follow up requests for information on other sites must go through the online order process.

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Auckland Council

27 September 2021

Environmental Management Solutions
143 Bollard Road
TUAKAU 2121

Attention: Kelly Deihl

Dear Kelly

Site Contamination Enquiry – ***301 Buckland Road, Buckland***

This letter is in response to your enquiry requesting available site contamination information within Auckland Council records for the above site. Please note this report does not constitute a site investigation report; such reports are required to be prepared by a (third-party) Suitably Qualified and Experienced Practitioner.

The following details are based on information available to the Contamination, Air & Noise Team in the Resource Consent Department. The details provided may be from former regional council information, as well as property information held by the former district/city councils. For completeness the relevant property file should also be requested to obtain all historical records and reports via 09 3010101 or online at:

https://www.aucklandcouncil.govt.nz/buying-property/order-property-report/Pages/order-property-file.aspx.

1. Hazardous Activities and Industries List (HAIL) Information

This list published by the Ministry for the Environment (MfE) comprises activities and industries that are considered likely to cause land contamination as a result of hazardous substance use, storage, and/or disposal.

Council's records indicate this site has possibly been subject to the following activities that fall within the HAIL:

- HAIL Item (A.10) – Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glasshouses, or spray sheds.
- HAIL Item (G.5) – Waste disposal to land (excluding where biosolids have been used as soil conditioners) – Uncertified fill

Council's records indicate the site 301 Buckland Road, Buckland, has been subject to historical horticultural activity, placement of uncertified fill, buried rubble associated with a former building, and historical use of lead-based paint.

Sampling was undertaken on site in 2019 which showed concentrations of arsenic in uncertified fill to the west of the dwelling in exceedance of the NES:CS and AUP(OP) guidelines. Concentrations of lead were identified above AUP(OP) criteria in the halo of the dwelling. Heavy metals were present above background in areas of uncertified fill along the southern boundary. The site was to be remediated as part of the development.

Please note:

- *If you are demolishing any building that may have asbestos containing materials (ACM) in it, you have obligations under the Health and Safety at Work (Asbestos) Regulations 2016 for the management and removal of asbestos, including the need to engage a Competent Asbestos Surveyor to confirm the presence or absence of any ACM.*

- *Paints used on external parts of properties up until the mid-1970's routinely contained lead, a poison and a persistent environmental pollutant. You are advised to ensure that soils affected by old, peeling or flaking paint are assessed in relation to the proposed use of the property, including high risk use by young children.*

2. Consents and Incidents Information (200m radius of the selected site)

The Council database was searched for records of the following activities within approximately 200 metres of the site:

- Pollution Incidents (including air discharges, oil or diesel spills)
- Bores
- Contaminated site and air discharges, and industrial trade process consents
- Closed Landfills
- Air quality permitted activities

No relevant records were identified.

While the Auckland Council has carried out the above search using its best practical endeavours, it does not warrant its completeness or accuracy and disclaims any responsibility or liability in respect of the information. If you or any other person wishes to act or to rely on this information, or make any financial commitment based upon it, it is recommended that you seek appropriate technical and/or professional advice.

If you wish to clarify anything in this letter that relates to this site, please contact contaminatedsites@aucklandcouncil.govt.nz. Any follow up requests for information on other sites must go through the online order process.

Should you wish to request any of the files referenced above and/or listed in the attached spreadsheet for viewing, please contact the Auckland Council Call Centre on 301 0101 and note you are requesting former Auckland Regional Council records (the records department requires three working days' notice to ensure the files will be available).

Please note Auckland Council cost recovers officer's time for all site enquiries. As such an invoice for $128 for the time involved in this enquiry will follow shortly.

Yours Sincerely,

Contamination, Air and Noise Team
Specialist Unit | Resource Consents
Auckland Council

Appendix 4: Supporting Council Documents

301 Buckland Road

PUKEKOHE BOROUGH COUNCIL

Application for Building Permit

For Office Use
Application No. .....
Permit No. .....
Date of Permit .....

The BOROUGH ENGINEER,
PUKEKOHE BOROUGH COUNCIL.

Date 23-6-1969.

Sir,
I hereby apply for permission to Erect Garages. (Nature of work)
at Wells St. (House No. and Street) for R. Cameron (Owner)

according to locality plan and detailed plans, elevations, cross-sections and specifications of building deposited herewith, in duplicate.

Particulars of Land:

No. on Valuation Roll 388/598 Lot No. Pt 1
Section No. ..... D.P. No. 8466

Length of Boundaries:

Front ..... Back .....
Sides ..... Area .....

Particulars of Building:

Foundations ..... Walls .....
Roof ..... Floor .....
Area of ground floor 24.00 sq. ft. Area of outbuildings ..... sq. ft.

Estimated Value:

		Fees
Building	$	
Plumbing	$	
Drainage	$ 200.	2
TOTAL	$ 8 c c 00	10.
Water Connection	$	
Footpath Deposit	$	
TOTAL	$	12

Proposed purposes for which every part of building is to be used or occupied (describing separately each part intended for use or occupation for a separate purpose) .....

Nature of ground on which building is to be placed and of the adjacent strata .....

Yours faithfully,

Per R J Cameron Owner.
F Dean Builder.
25 Queen St. Pukekohe N.Z.
(Builder's Address)

For Schedule of Fees See Back

FOR OFFICE USE ONLY	Receipt No.	Date		Receipt No.	Date
Building	17402	23-6-69	Water Connection		
Plumbing & Drainage	17402	23-6-69	Footpath Deposit		

PBC 301/500/4/69

PUKEKOHE BOROUGH COUNCIL

Application for Building Permit

For Office Use
Application No. ....
Permit No. D069052
Date of Permit 24.12.69

The BOROUGH ENGINEER,
PUKEKOHE BOROUGH COUNCIL.

Date 19

Sir,

I hereby apply for permission to a 14x10 shed
(Nature of work)

at Webb Rd (House No. and Street) for MR. D. F. Camron. (Owner)

209 Pukekohe

according to locality plan and detailed plans, elevations, cross-sections and specifications of building deposited herewith, in duplicate.

Particulars of Land:

No. on Valuation Roll 388/623 Lot No. 1
Section No. .... D.P. No. 8466

Length of Boundaries:

Front .... Back ....
Sides .... Area ....

Particulars of Building:

Foundations (8x8+8' Walls 7/8 Zhu.
Roof Corr. iron Floor T S 4x1.
Area of ground floor .... sq. ft. Area of outbuildings 140 sq. ft.

Estimated Value:

		Fees
Building	£	
Plumbing	£	
Drainage	£	
TOTAL	$300	2
Water Connection		£
Footpath Deposit		£
TOTAL		$2

Proposed purposes for which every part of building is to be used or occupied (describing separately each part intended for use or occupation for a separate purpose) Private

Nature of ground on which building is to be placed and of the adjacent strata ....

Yours faithfully,

Per H. L. THOMPSON LTD
(SOUTH PACIFIC BUILDERS 1967) Owner.
P.O. Box 16 Builder.
Papakura
(Builder's Address)

For Schedule of Fees See Back PH. 87555

FOR OFFICE USE ONLY	Receipt No.	Date		Receipt No.	Date
Building	23081	24-12-69	Water Connection		
Plumbing & Drainage			Footpath Deposit		

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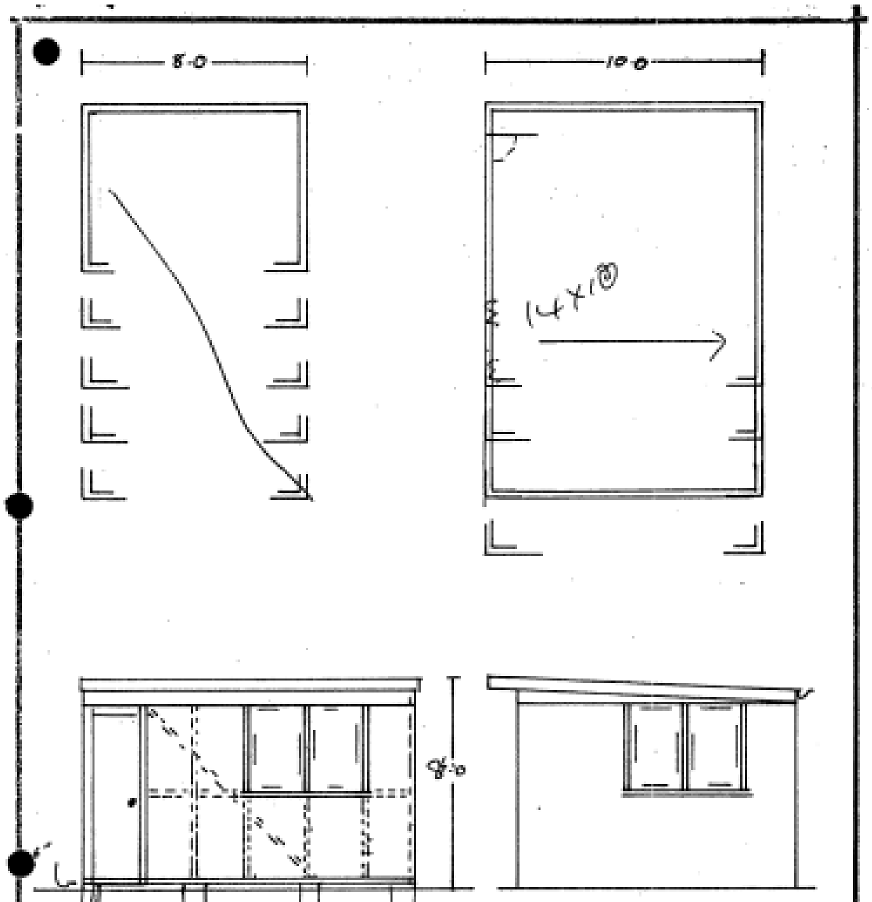


Floor 4x3 Bearer 4x2 Joist 18" C. 4x1 T. & G. Floor

-ELEVATIONS-

-SPECIFICATIONS-

Blocks	-	18 x 8 x 8 @ 6-6" Max crs
Framing	-	3"x2" Studs @ 2'-0" crs
		1 row nogs Treated Timbers
Bracing	-	3 x 2 Solid also 6x1 dragon Ties
Rafters	-	4 x 2 - 8 ft Sheds 6x2 - 10 ft Shed @ 3-0 crs
Purlins	-	3 x 2 3-0 crs
Roof	-	Corr Galv Iron
Walls	-	3/16 Fibrolite
	or	Metal Weatherboards
Spouting & down pipe		

Proposed Shed for MR D. F Camm
at Webb St Pukekohe

— South Pacific Builders — Papakura —

Decision on an application for resource consents under the Resource Management Act 1991

Auckland Council

Discretionary activity

Application numbers:	BUN60333645 (LUC60325312, SUB60333646, and DIS60340705)
Applicant:	Franklin Plumbing and Bathroomware
Site address:	301 Buckland Road, Pukekohe
Legal description:	Pt Lot 1 DP 3363
Site area:	4.3602 ha
Auckland Unitary Plan (Operative in part)	
Zoning and precinct:	Future Urban Zone
Overlays, controls, special features, designations, etc:	Natural Resources: High-Use Aquifer Management Areas Overlay [rp] - Pukekohe Kaawa Aquifer Natural Resources: High-Use Aquifer Management Areas Overlay [rp] - Pukekohe Central Volcanic Natural Resources: Quality-Sensitive Aquifer Management Areas Overlay [rp] - Franklin Volcanic Aquifer

Proposal:

To construct and operate a purpose-built warehouse and distribution centre for a Trade Supplier at 301 Buckland Road, Pukekohe.

The resource consents required are:

Land use consents (s9) – LUC60325312

Auckland Unitary Plan (Operative in part)

Regional Land Use

Chapter E11 – Land Disturbance (Regional)

- Earthworks over an area greater than 2,500m² are proposed, where the land has a slope equal to or great than 10 degrees, and the subject site is outside the Sediment Control Area. Consent is therefore required as a **restricted discretionary activity** in accordance with E11.4.1 (A8).

District land use

Chapter E12 – Land Disturbance (District)

- Earthworks of a volume of approximately 31,785m³ of cut and approximately 42,086m³ of fill across approximately 4.36ha are proposed and consent is therefore

required in accordance with E12.4.1 as **restricted discretionary activities** for earthworks greater than 2,500m^2 (A6) and 2,500m^3 (A10).

Chapter E23 – Signs

- Comprehensive development signage is proposed in association with the development. Consent is therefore required as a **restricted discretionary activity** in accordance in E23.4.1. (A53)

Chapter E27 – Infrastructure

- The proposal involves accessory parking and access that does not meet the following parking and access standards and is a **restricted discretionary activity** under rule E27.4.1(A2).
  - The southern vehicle crossing is 12m, infringing the 7m maximum pursuant to E27.6.4.3.2 (T156); and
  - As the proposal involves a new vehicle crossing for a change of activity, in accordance with E27.6.4.1 (2) and (3), Vehicle Access Restrictions apply and vehicle crossings must not be constructed or used to provide vehicle access across that part of a site boundary which access an arterial road.

Chapter E36 – Natural hazards and flooding

- The proposal involves the diversion of overland flow paths, as such consent is required for a **restricted discretionary activity** in accordance with E36.4.1 (A41);
- The proposed building is located within an overland flow, as such consent is required for a **restricted discretionary activity** in accordance with E36.4.1 (A42);

Chapter H18 – Future Urban Zone

- The proposed activity meets the AUP:OP definition for a Trade Supplier. As Trade Suppliers are not specifically provided for within the Future Urban Zone, in accordance with C1.7, consent is required as a **discretionary activity**.
- New buildings in the Future Urban Zone require consent for the same activity status as the land use activity that the new building is designed to accommodate. As such, consent is required as a **discretionary activity** in accordance with H18.4.1 (A2);
- The new building infringes the following standards of H18.6 and is a **restricted discretionary activity** under rule C.1.9(2):
  - The maximum building height standard (H18.6.2) of 15m is infringed by a maximum of 2.6m; and
  - The yard standard (H18.6.3) is infringed with respect to the 20m front yard, but a maximum of 16m.

National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health ("NES:CS")

- A detailed site investigation has been provided, and the soil contamination exceeds the applicable standard in the regulations for arsenic concentrations. Consent is required as a **restricted discretionary activity** in accordance with regulation 10 of the NES:CS.

Subdivision Consent (s11) – SUB60333646

Auckland Unitary Plan – Operative in Part (AUP OP)

- The proposal includes the subdivision of the site to provide for the vesting of land to form an extension to Webb Street. Within the Future Urban Zone, subdivision for road realignment requires consent as a **discretionary activity** in accordance with E39.4.3 (A28).

Discharge permits (s15) – DIS60340705

Auckland Unitary Plan – Operative in Part (AUP OP)

Regional Land Use

Chapter E8 – Stormwater Discharge and Diversion

- Impervious surfaces of approximately 2.1ha are proposed. Impervious surfaces of greater than 5,000m^2 require consent as a **discretionary activity** in accordance with E8.4.1 (A10).

Chapter E9 – Stormwater quality - High contaminant generating car parks and high use roads

- The proposal includes the construction of a carpark and accessways of approximately 9,600m2, which are defined as a "high contaminant generating car park". As the high contaminant generating car park will be greater than 5,000m^2 consent is required as a **controlled activity** in accordance with E9.4.1 (A6).

Decision

I have read the application, supporting documents, and the report and recommendations on the application for resource consents. I am satisfied that I have adequate information to consider the matters required by the Resource Management Act 1991 (RMA) and make a decision under delegated authority on the application.

Acting under delegated authority, under sections 104, 104B, 105, 106 and 107 and Part 2 of the RMA, the resource consents is **GRANTED**.

303 Buckland Road

PUKEKOHE BOROUGH COUNCIL

Application for Building Permit

For Office Use
Application No. .....
Permit No. .....
Date of Permit .....

The BOROUGH ENGINEER,
PUKEKOHE BOROUGH COUNCIL.

Date 26 January 1971

Sir,

I hereby apply for permission to build New Residence (Nature of work)

at Pukekohe (House No. and Street) for Mr Mrs R & M Townsend (Owner)

according to locality plan and detailed plans, elevations, cross-sections and specifications of building deposited herewith, in duplicate.

Particulars of Land:

No. on Valuation Roll 288/599 Lot No. Pt 80

Section No. ..... D.P. No. .....

Length of Boundaries:

Front ..... Back .....

Sides ..... Area .....

Particulars of Building:

Foundations Reinforced Concrete Walls ext/Stone and Brick

Roof Monier Tile Floor Concrete

Area of ground floor 2670 sq. ft. Area of outbuildings --- sq. ft.

Estimated Value:

Building £ 26,050-10

Plumbing £ 1114-80

Drainage £ 380-00

TOTAL £27545-00

Fees £1-00 (Levy)
$172-00
$8 10-00
4 5-00
£100 50 $98.00

Water Connection £ in

Footpath Deposit £ N A

TOTAL £

Proposed purposes for which every part of building is to be used or occupied (describing separately each part intended for use or occupation for a separate purpose) Private Residence

Nature of ground on which building is to be placed and of the adjacent strata .....

Yours faithfully,

Per J E Udy

~~Owner.~~

UDY & PETERS LTD. Builder.

10 Dominion Rd Pukekohe

(Builder's Address)

For Schedule of Fees See Back

FOR OFFICE USE ONLY	Receipt No.	Date		Receipt No.	Date
Building	32498	28-1-71	Water Connection		
Plumbing & Drainage	"		Footpath Deposit		

PUKEKOHE BOROUGH COUNCIL

Application for Building Permit

For Office Use
Application No. .....
Permit No. C04938
Date of Permit 6-4-71

The BOROUGH ENGINEER,
PUKEKOHE BOROUGH COUNCIL.

Date 30 March 1971

Sir,

I hereby apply for permission to Erect Stables & Barn (Nature of work)

at Buckland Rd - Pukekohe (House No. and Street) for E.M. & J.R. Townsend (Owner)

according to locality plan and detailed plans, elevations, cross-sections and specifications of building deposited herewith, in duplicate.

Particulars of Land:

No. on Valuation Roll ..... Lot No. .....

Section No. ..... D.P. No. .....

Length of Boundaries:

Front ..... Back .....

Sides ..... Area .....

Particulars of Building:

Foundations Concrete (Reinforced) Walls 8" Concrete Blocks

Roof Corr Iron Floor Concrete & Subsoil

Area of ground floor 1040 sq. ft. OA Area of outbuildings — sq. ft.

Estimated Value:

		Fees
Building	$3,200-00	$16-00
Plumbing	£	
Drainage	£	
TOTAL	$3,200-00 Bld Levy	2-00
	Water Connection £	—
	Footpath Deposit £	—
	TOTAL	$18-00

Proposed purposes for which every part of building is to be used or occupied (describing separately each part intended for use or occupation for a separate purpose) Hay Barn, Horse Trailer Port, etc for private horse housing.

Nature of ground on which building is to be placed and of the adjacent strata .....

Yours faithfully,

Per G E Udy
Owner.
UDY & PETERS LTD.
Builder.
10 Dominion Rd Tuakau
(Builder's Address)

For Schedule of Fees See Back

FOR OFFICE USE ONLY	Receipt No.	Date		Receipt No.	Date
Building	33289	1-4-71	Water Connection		
Plumbing & Drainage			Footpath Deposit		

Decision on an Application for a Resource Consent under the Resource Management Act 1991

Auckland Council

Application Number:	R/LUC/2013/5017
Applicant's Name:	Andrew Johnston
Site Address:	1702 Buckland Road, Pukekohe
Legal Description:	Lot 1 DP 64805
Proposal:	Earthworks exceeding 1.5m depth to install a swimming pool
Activity Status:	Restricted Discretionary activity

Resource consent is required for the following reasons:

Auckland Council District Plan (Franklin Section)

- As the proposed earthworks with depth of cut up to 2m exceeds the maximum 1.5m depth of cut set out in Rule 15.5.2.3 for the Rural zone, the proposal must be assessed under Rule 15.5.2 (ii) as a Restricted Discretionary Activity.

Overall the application is a **Restricted Discretionary activity**

Acting under delegated authority, under sections 104, 104C, this application is **GRANTED**.

Reasons for decision

Under section 113 of the RMA the reasons for this decision are:

- In terms of section 104(1)(a) of the Resource Management Act 1991 the proposal has been considered in terms of the matters to which Council has restricted its discretion under Rule 15.5.2 and is considered to have less than minor effects.
- The proposal is a Permitted Activity pursuant to the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health as there is no concern of contamination of the location of the proposed earthworks.
- In terms of section 104(1)(b) of the Resource Management Act 1991, the proposal is consistent with the relevant policy statements and plans or proposed plans, including the relevant objectives, policies and assessment criteria of the Auckland Council District Plan (Franklin Section). In addition, in terms of Section 86A(2) of the Resource Management Act, the proposal is not in conflict with the Objectives and Policies of the Proposed Auckland Unitary Plan (PAUP) as they relate to activities in the Future Urban zone.
- The proposal is consistent with Part 2 of the RMA as there will be less than minor effects on the surrounding environment and the proposed earthworks will provide for the site to be utilised as intended by the District Plan.

From: Tommy Lai
To: Stephen Havill; "jasonwoodyard@hotmail.com"
Subject: BUN60368560 Advice of Decision - 303 Buckland Road, Pukekohe
Date: Thursday, 15 April 2021 10:19:00 AM
Attachments: BUN60368560 Approved Plans.pdf
BUN60368560 Decision.pdf

Morning Stephen and Jason
Trust you are well, please find the attached resource consent decision referenced BUN60368560 for 303 Buckland Road, Pukekohe.

Resource consent application – Advice of decision

Application number(s):	BUN60368560 (Council Reference) LUC60368561 (s9 land use consent) BYX70018719 (signage bylaw exemption)
Applicant:	Pukekohe Limited
Address:	303 Buckland Road, Pukekohe
Proposed activity(s):	To authorise the use of up to 4,320m2 of the land at 303 Buckland Road, Pukekohe (including construction and upgrade of access) as an industrial service storage yard for a period of 10 years. To install a free standing sign measuring 2.3m x 1.2m installed on a 1m support structure (3.3m total height) adjacent to the entrance of the site is proposed.

Following an assessment of your application under the Resource Management Act 1991 (the RMA), a decision has been made to **grant** your application, subject to conditions of consent.

Please take the time to read and understand the conditions of consent. Council officers will undertake inspections of your project to check compliance with this resource consent. For your reference, a copy of the decision is attached. It outlines the basis for the decision and the conditions.

If you disagree with the decision, or parts of it, you can lodge an objection with us within 15 working days of receiving this decision. You can find further information about how to make an objection on our website at www.aucklandcouncil.govt.nz (select "Consents, building and renovation projects", then "Resource consents", then "Receive our decision on your resource consent application" and finally "Resource consent appeals and objections").

You can also file an appeal with the Environment Court within 15 working days of receiving this decision.

Information on the appeal process can be found on the Environment Court website https://www.environmentcourt.govt.nz/.

Ngā Mihi | Kind regards

Tommy Lai | Team Leader – Resource Consents South (Pukekohe)
DDI: 021 719 596
Level 3, Kotuku House, 4 Osterley Way, Manukau Central
Visit our website: www.aucklandcouncil.govt.nz

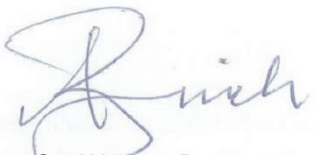
Wastewater and Water Supply Report

On behalf of:

Buckland Road Plan Change

301 & 303 Buckland Road
Pukekohe

10 November 2021
BSL Ref: 5275
Revision B

REPORT PREPARED BY	REPORT REVIEWED BY	REPORT AUTHORISED BY
		
KELLY BOSGRA REGISTERED PROFESSIONAL SURVEYOR	SIR WILLIAM BIRCH REGISTERED PROFESSIONAL SURVEYOR	SIR WILLIAM BIRCH DATE: 28 OCTOBER 2021

BIRCH SURVEYORS LTD

Property House

2A Wesley Street, Pukekohe

PO Box 475, Pukekohe 2340, New Zealand

Telephone: 64 9 237 1111 Facsimile: 64 9 238 0033

Website: www.birchsurveyors.co.nz Email: Pukekohe@BSLnz.com

CONTENTS

APPENDICES

1 INTRODUCTION

1.1 PROJECT

The report comprises a Wastewater and Water Supply Assessment in support of the Buckland Road Road Plan Change.

1.2 LEGAL DESCRIPTION

The site is approximately 7.85ha of land located just south of Pukekohe comprised in 2 separate properties owned by Peterex Properties Ltd (Pt Lot 1 DP 3363 being the northern title) and Pukekohe Ltd (Lot 1 DP 64805 being the southern title).

1.3 SITE DESCRIPTION

The boundaries of the site are described as being the defined by Buckland Road to the east, the rural-urban boundary to the west and a gully system to the south.

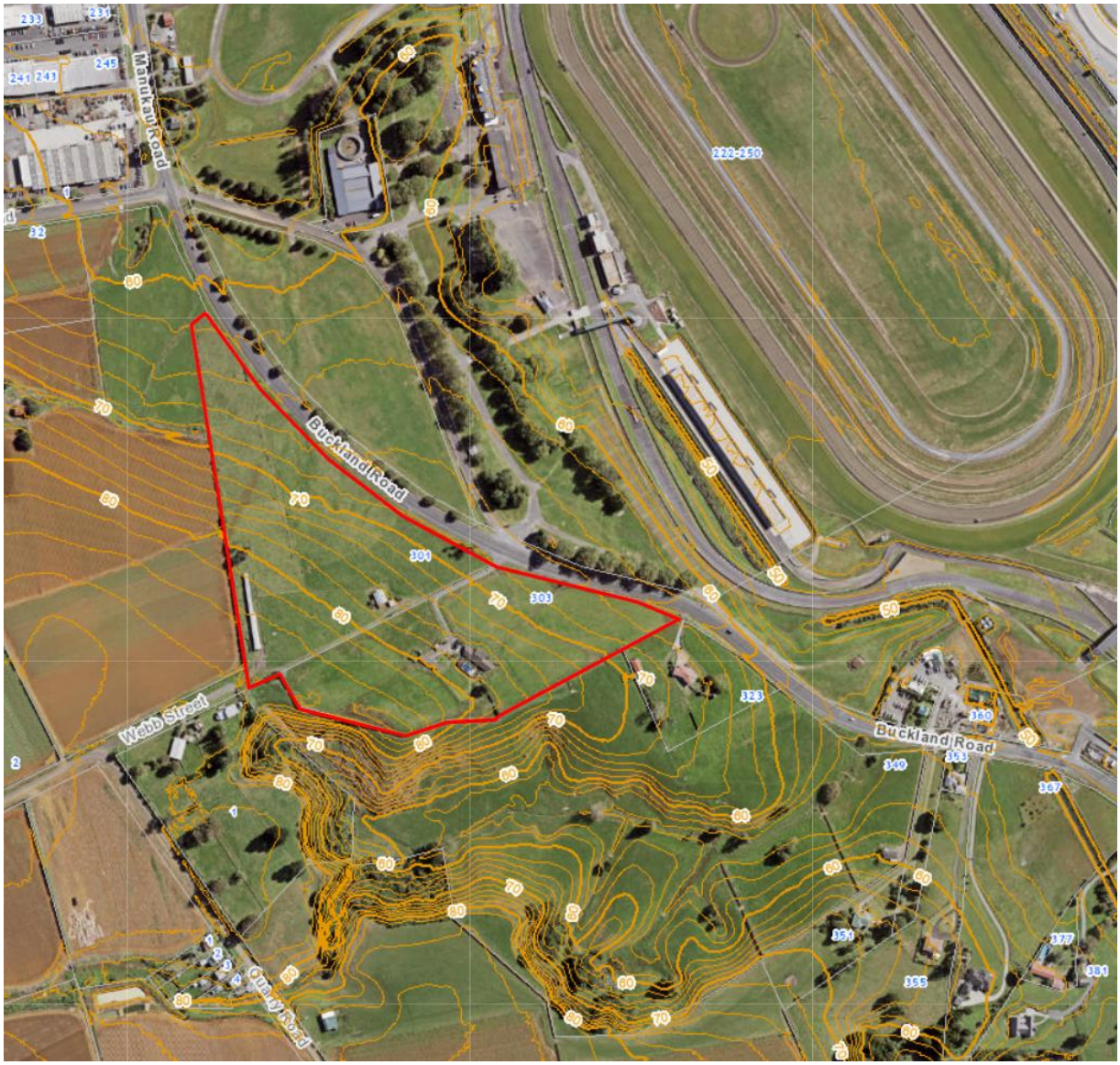


Figure 1: The plan change site in red. (Source: Birch Surveyors)

The site has a moderate contour, from south-west to north-east, sloping to Buckland Road.

2 WASTEWATER RETICULATION

2.1 EXISTING NETWORK

The existing wastewater reticulation network servicing the Pukekohe area is predominantly a series of gravity flow piped systems which carry wastewater to three pump stations within the area, as represented in Figure 2 below.

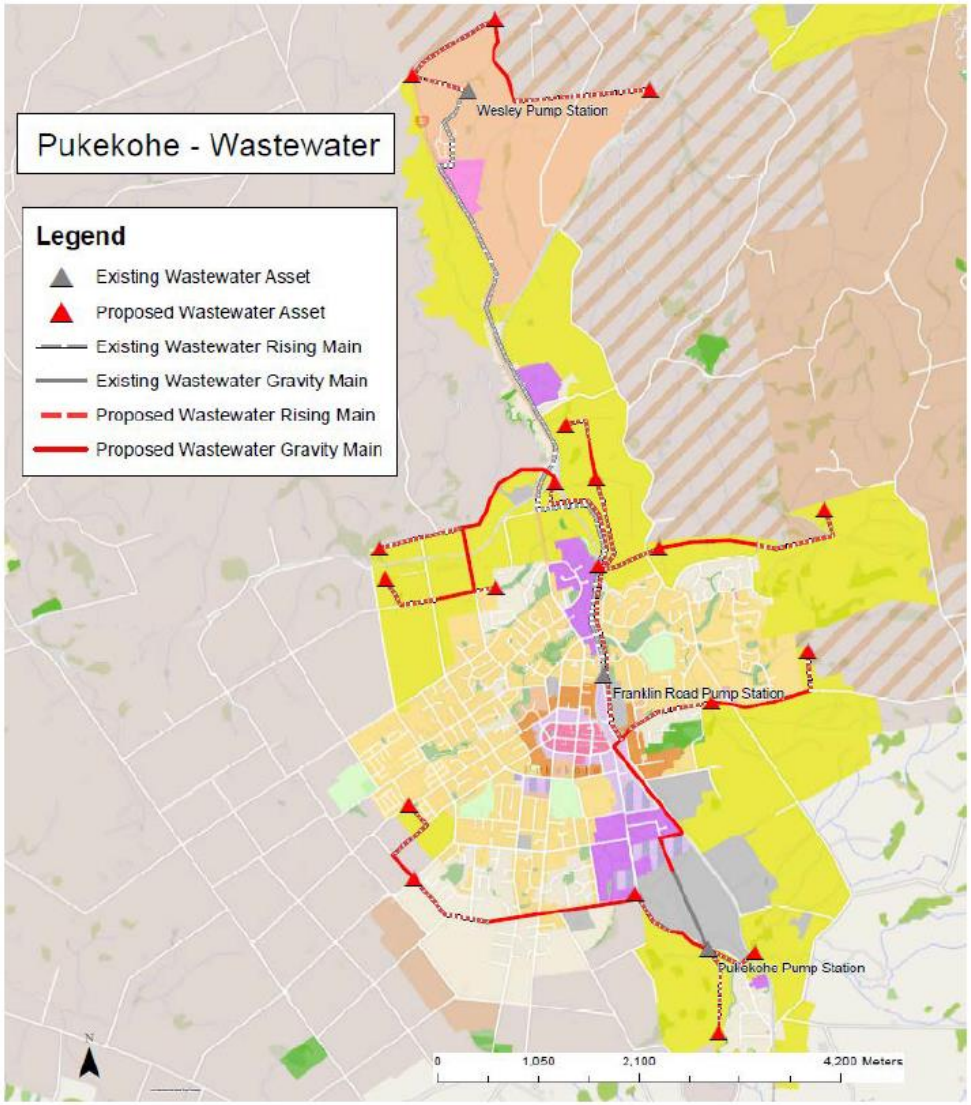


Figure 2: Indicative Pukekohe/Paerata Servicing Plan

Sewage collected via the Wesley Pump Station and Franklin stations are transferred to the Pukekohe Transmission Pump station, which is then conveyed via a 7km trunk main to the Pukekohe wastewater Treatment Plant located on Parker Lane where it is treated and ultimately discharges into the Waikato River.

2.2 EXISTING WASTEWATER NETWORK CAPACITY ASSESSMENT.

A Technical report prepared by Watercare, was submitted to council for the Pukekohe/Paerata Structure plan and included in Appendix C. Within the report Watercare has undertaken a wastewater network capacity assessment of Pukekohe's existing infrastructure and state that the

recently constructed Pukekohe Pump station can accommodate the ultimate future wet weather flows from Pukekohe/Paerata structure plan, which includes the area associated with this Private Plan Change, with the site being just west of the Pukekohe Pump station and within the Future Urban zone.

2.3 PROPOSED DEVELOPMENT.

The Private Plan Change for the proposed development relates to a 7.86ha area currently zoned Future Urban under the operative Auckland Unitary Plan with a proposed Business - Light Industry zone under the Pukekohe Paerata Structure Plan. The proposed development would involve changes to the current zoning to Business – General Business. Indicative layout and connectivity plans showing the proposed zone are included in Appendix A.

A network capacity assessment was undertaken for the proposed development, with the calculations included in Appendix B. and has been assessed in accordance with the Watercare Code of Practice for Land Development. The proposed Average Daily Weather Flow (ADWF), Peak Dry Weather Flows (PDWF) and Peak Wet Weather Flows (PWWF) calculation, have been tailored to accommodate for both the parameters and areas represented in Tables 3 and 4 below.

Dry industry activity type	***Routine Peak Daily Discharge*** *Litres per square metre per day ($L/m^2/d$)* *(See Note 5)*	***Design wastewater peaking factors***	
		Peaking factor: Self-Cleansing Design Flow *(Normal PDWF)*	***Peaking factor: Peak Design Flow*** *(PWWF or Exceptional PDWF)* *(See Note 6)*
Light water users, or up to 2 storeys (Note 1)	*4.5*	*5.0 x (Routine Instantaneous Peak Discharge)*	*6.7 x (Routine Peak Daily Discharge)*
Medium water users, or 2 to 5 storeys (Note 2)	*6.0*		
Heavy water users, or 5 to 10 storeys (Note 3)	*11.0*		
Very heavy water users (Note 4)	*> 11.0 Specific design required*	*Specific design required*	*Specific design required*
Unknown and site area >10ha, <100ha	*1 L/s/ha (complete land area)*	*2.0*	*6.7*
Site area >100ha	*Refer to transmission design standards*	-	-

Table 3: Design dry Industry wastewater flow allowance and peaking factors (Source: Watercare COP)

PLAN CHANGE ZONE	**AREA (ha)**
Business – General Business (Plan Change)	7.8600
Business Light Industrial (Downstream Catchment)	11.3900
Total	**19.2500**

Table 4: Proposed Plan Change wastewater catchment zone areas

The estimated ADWF, PDWF and PWWF for the plan change area is summarised in Table 5 and calculations have been included within Appendix B.

Flow Type	ADWF (l/s)	PDWF (l/s)	PWWF (l/s)
Business – General Business (Plan Change area)	5.5	27.5	36.9
Business – Light Industrial (Downstream catchment)	5.9	29.5	39.5
Ultimate Development Flows	11.4	57.0	76.4

Table 5: Estimated Wastewater Flows

2.4 WASTEWATER RETICULATION OPTIONS

Based on our analysis of Pukekohe's existing wastewater infrastructure and the scope of the proposed plan change area, a gravity connection can be made to the existing reticulation and is identified as the Best Practicable Option, as there is no additional maintenance requirements beyond the pipe reticulation. Please see also the indicative layout plan included within Appendix A.

2.4.1 GRAVITY NETWORK TO EXISTING INFRASTRUCTURE

A new gravity network can service the Plan Change area. This can be accomplished by designing and constructing a traditional underground piped network from an appropriate point on the existing infrastructure. This option would be the most preferable as it provide a network connection and will not incur additional maintenance costs associated with Pump Stations etc.

2.5 WASTEWATER CONNECTION POINT

Further to the preferred scenario, this Plan Change can connect to Pukekohe's existing wastewater infrastructure via a gravity line to the existing 525mm Wastewater Line approaching the Pukekohe Pump Station (GIS ID 760539), as shown in Figure 7 below.

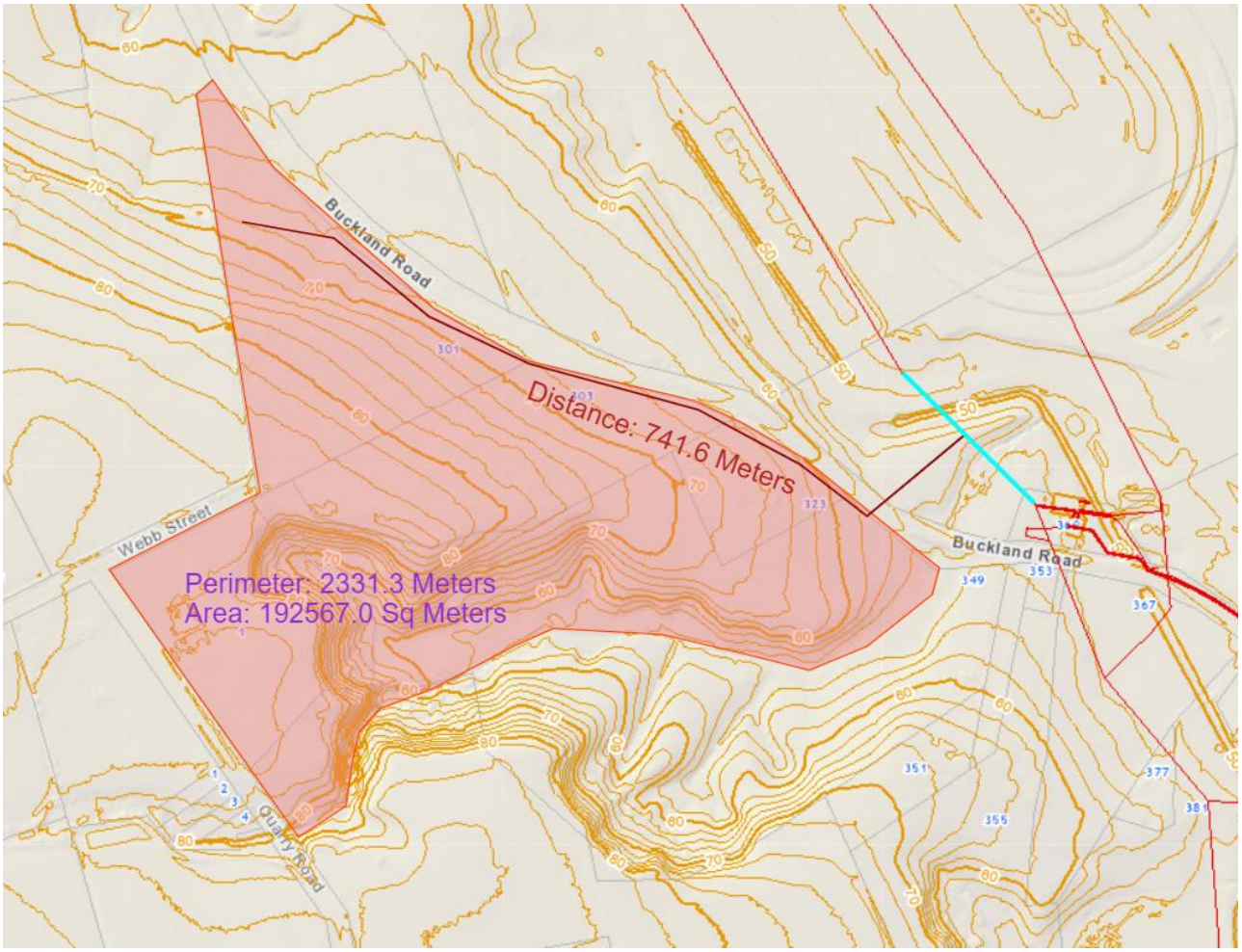


Figure 6: Wastewater connection manhole

This connection point is within the Pukekohe Park Raceway and immediately upstream of the Pukekohe Transmission Pump Station.

2.5.1 THE PUKEKOHE TRANSMISSION PUMP STATION

As per the findings of the Technical Report, prepared by Watercare (Appendix C), the Pukekohe Transmission Pump station, is located at 360 Buckland Road, which is located approximately 400m to the east of the proposed development. This has been designed and built to accommodate the ultimate future wet weather flows from the Future Urban Zone, including the Pukekohe/Paerata structure plan within which the Plan Change is located.

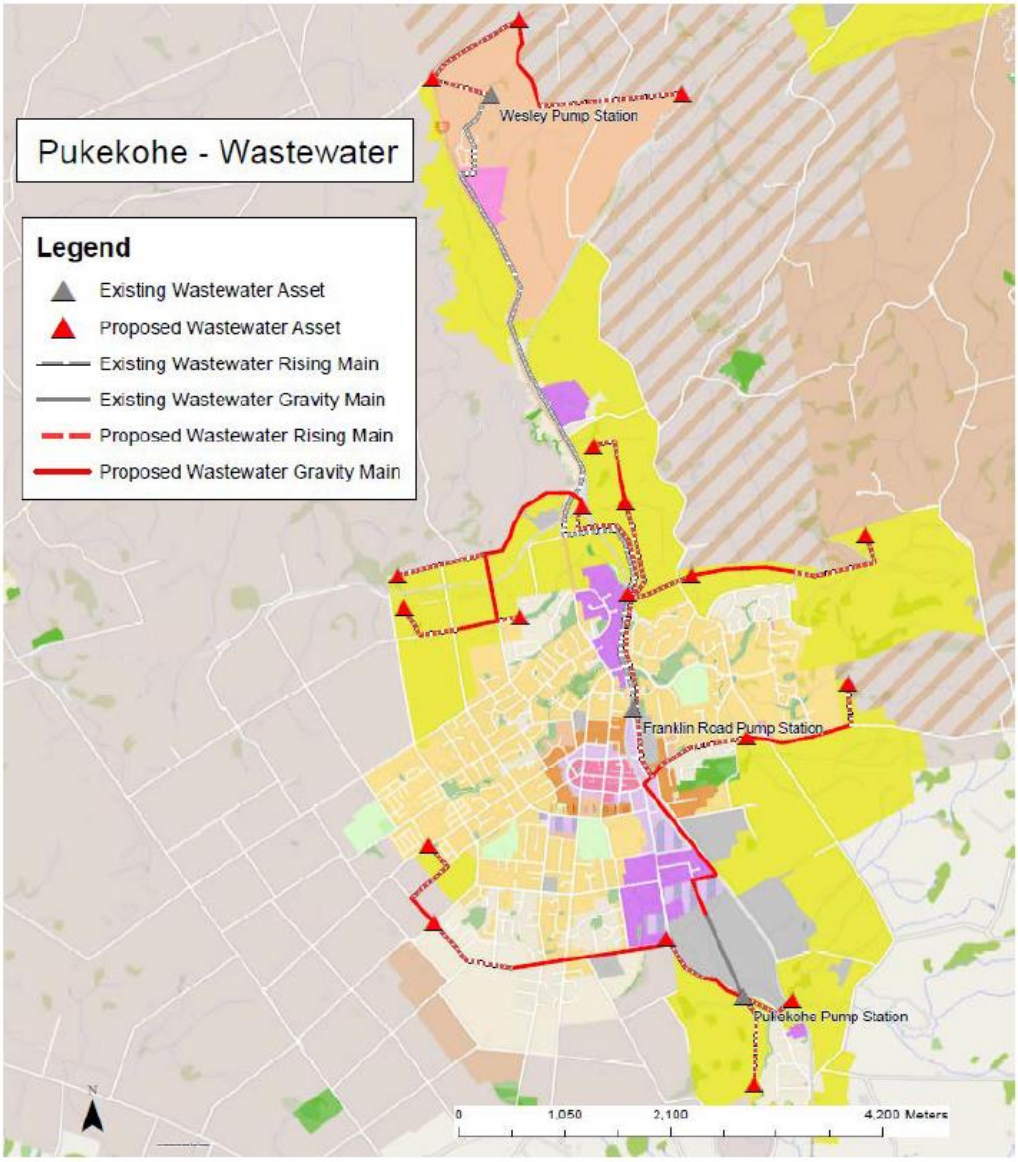


Figure 7 Pukekohe Paerata Structure Plan Wastewater Assets (Source Structure Plan)

The existing contours and levels indicate that a Gravity Connection can be made from the existing infrastructure to service the proposed plan change, and this is the preferred method.

Concept Wastewater reticulations Plan have been drafted and included in Appendix A of this Report. The design has been detailed below and should be read together with the Wastewater reticulation plans.

2.5.2 LAYOUT

An indicative layout for the wastewater reticulation is shown in Figure 9 and included in Appendix A

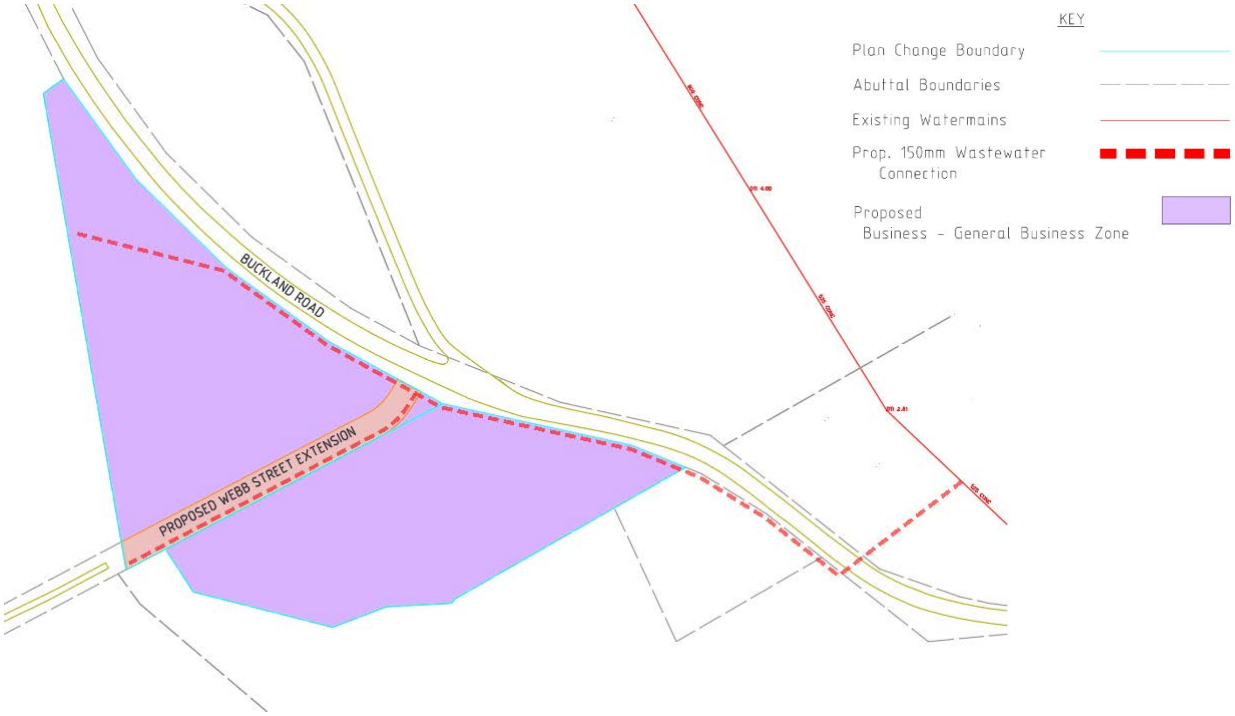


Figure 8 - Indicative Plan Change Wastewater Layout

The final layout and pipe sizes will be confirmed upon future subdivision and will be completed in compliance with the Watercare Code of Practice for Land Development. All new pipelines pipes collecting and conveying wastewater flows will need to consider the upstream and downstream catchments and be sized accordingly to meet the anticipated development yield.

The wastewater connection to the existing infrastructure is proposed to terminate at a new Manhole over the existing 525mm wastewater line near the Pukekohe pump station, located at 360 Buckland Road. This is shown by the long section plan included in Appendix B. The line connecting the Plan Change to the existing Manhole is proposed to be a 225mm Pipe at a grade of 2%. The flow calculations anticipate that this pipe will flow at 75% flow depth during PWWF of 76 l/s.

2.5.3 CURRENT OWNERSHIP LAND

Where the proposed wastewater reticulation layout crosses adjoining properties, neighbour approval forms will be required to be obtained. This includes Auckland Transport and Pukekohe Park. We do not anticipate any issues with either party, and have undertaken preliminary discussions with Pukekohe Park and have positive responses from them regarding the proposed connection.

We understand that Pukekohe Park are currently contemplating a similar request to have some of its lane rezoned to Business – General Business Zone

2.6 SUMMARY

In summary,

The plan change area can be serviced by a gravity wastewater system.

The PWWF flow for the plan change area and upper catchment area is 76l/s.

The design can meet the standards required by Watercare's Code of Practice for Land Development.

The existing Pukekohe Transmission Pump Station can accommodate the additional flows created by this Plan Change.

2.7 FUNDING PROPOSAL

The extension of new wastewater infrastructure for the proposed development will be funded by the developers and the new infrastructure and assets will be vested to Auckland Council.

3 WATER SUPPLY RETICULATION

3.1 EXISTING WATER SUPPLY NETWORK

The current Water Supply system involves pumping Treated Water from the Waikato 1 Watermain to a number of Water Reservoirs in Pukekohe, these include Kitchener Road, Anzac Ave and Rooseville Park, the former being the closest reservoir or bulk supply. Kitchener Road has a supply elevation of RL 106m (Watercare), and with the other reservoirs, delivers water to Pukekohe Area.

The Plan Change Area contains two existing dwellings and both are connected to the public water supply via water meters. The existing Water Supply along Buckland Road is a 150mm fire main on one side of the road linking Pukekohe with Buckland, and a 100mm/80mm main on the other side, extending from Buckland to the southern boundary of the proposed plan change area.

There is also a low-pressure trickle feed along Webb Street west servicing the existing rural zoned land. We do not anticipate and alterations to this part of the network.

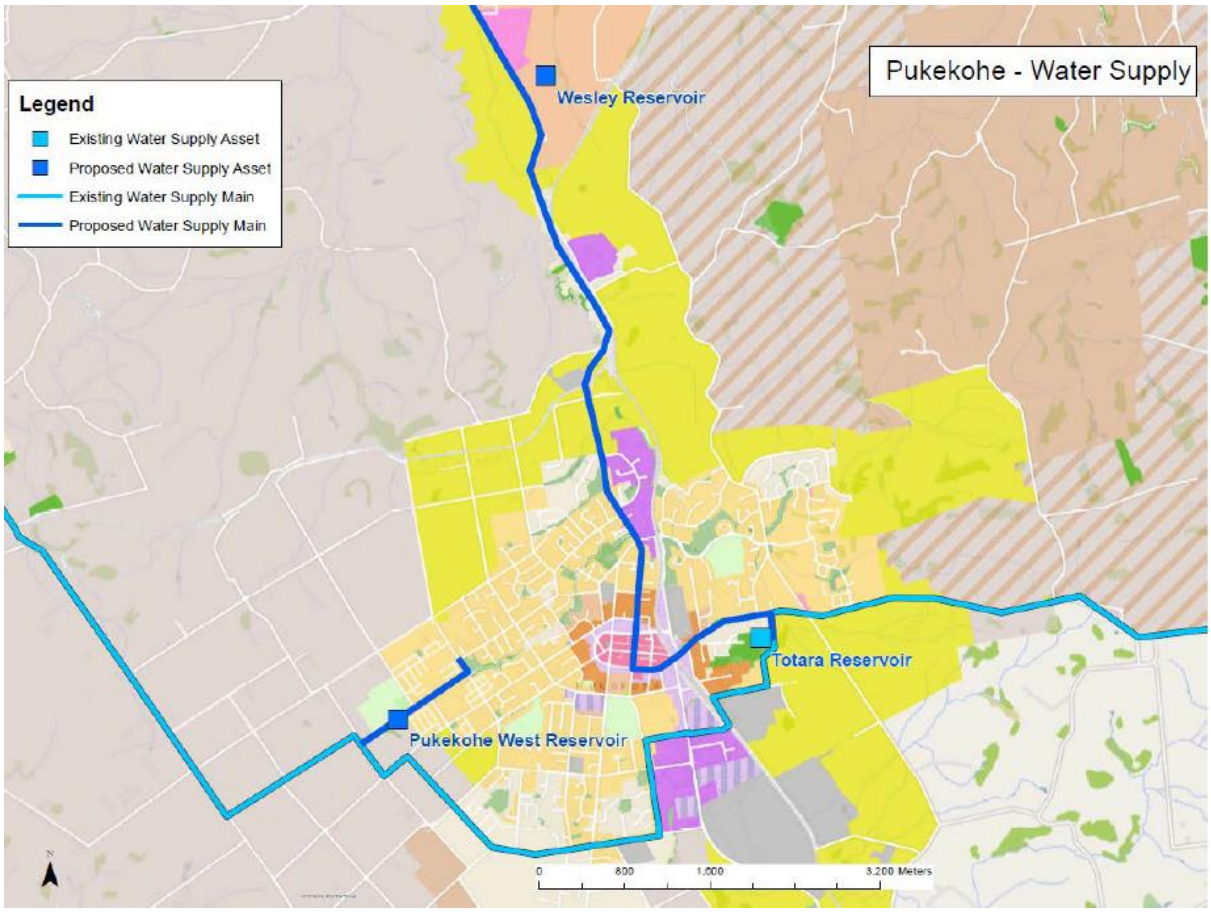


Figure 9 - Indicative Paerata/Pukekohe Servicing Plan (Source Auckland Council)

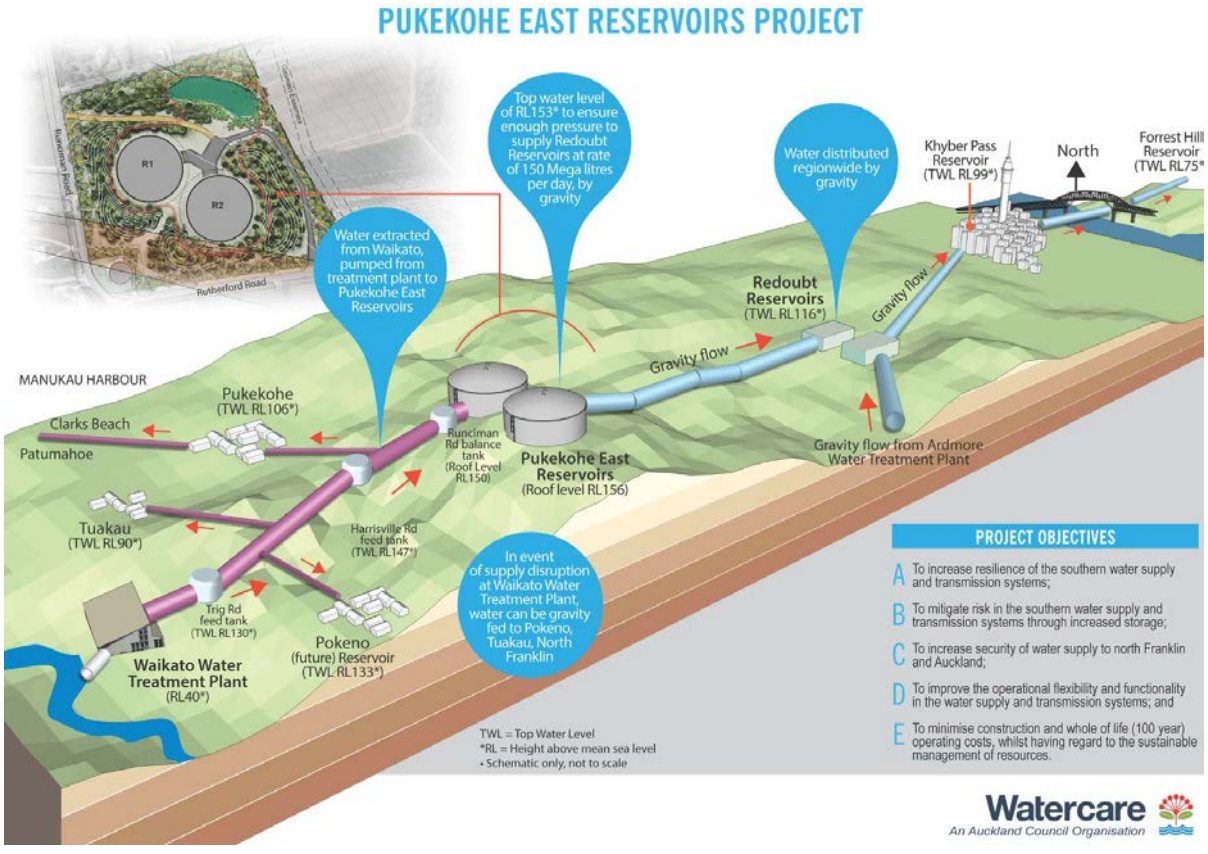
3.2 EXISTING INFRASTRUCTURE UPGRADE WORKS

WaterCare guidelines require a minimum level of service to every property, supply at least 25l/s flow at a minimum pressure of 250 kPa or 25m head.

Our understanding is the existing wider local water supply network has issues of varying pressures high head losses, high velocities, high water age estimates and general supply concerns. Watercare is currently undertaking water supply improvement works to increase security of water supply to cater for the growth of Pukekohe and Paerata including capacity to service the Future Urban Zone, within which this proposed Plan Change is located. Recently completed works include upgrades to the Kitchener Road Reservoir and current works being undertaken include the Pukekohe East Reservoirs Project.

Future water supply improvements and projects:

- New local reservoir to service the Paerata area, to be connected into the existing infrastructure.
- A new transmission service reservoir and boost pump station to service the growth in western Pukekohe, to be connected into the existing Pukekohe 1 transmission watermain.
- Pukekohe East Reservoirs (Runciman Road) is under the construction. Refer to the screenshot below:



- Longer term, a new transmission watermain will be constructed from Drury and connected into Totara Reservoir.

These improvements will improve the resilience and security of the Water Supply for the southern region, best described as being the historic Franklin District.

3.3 Proposed Development

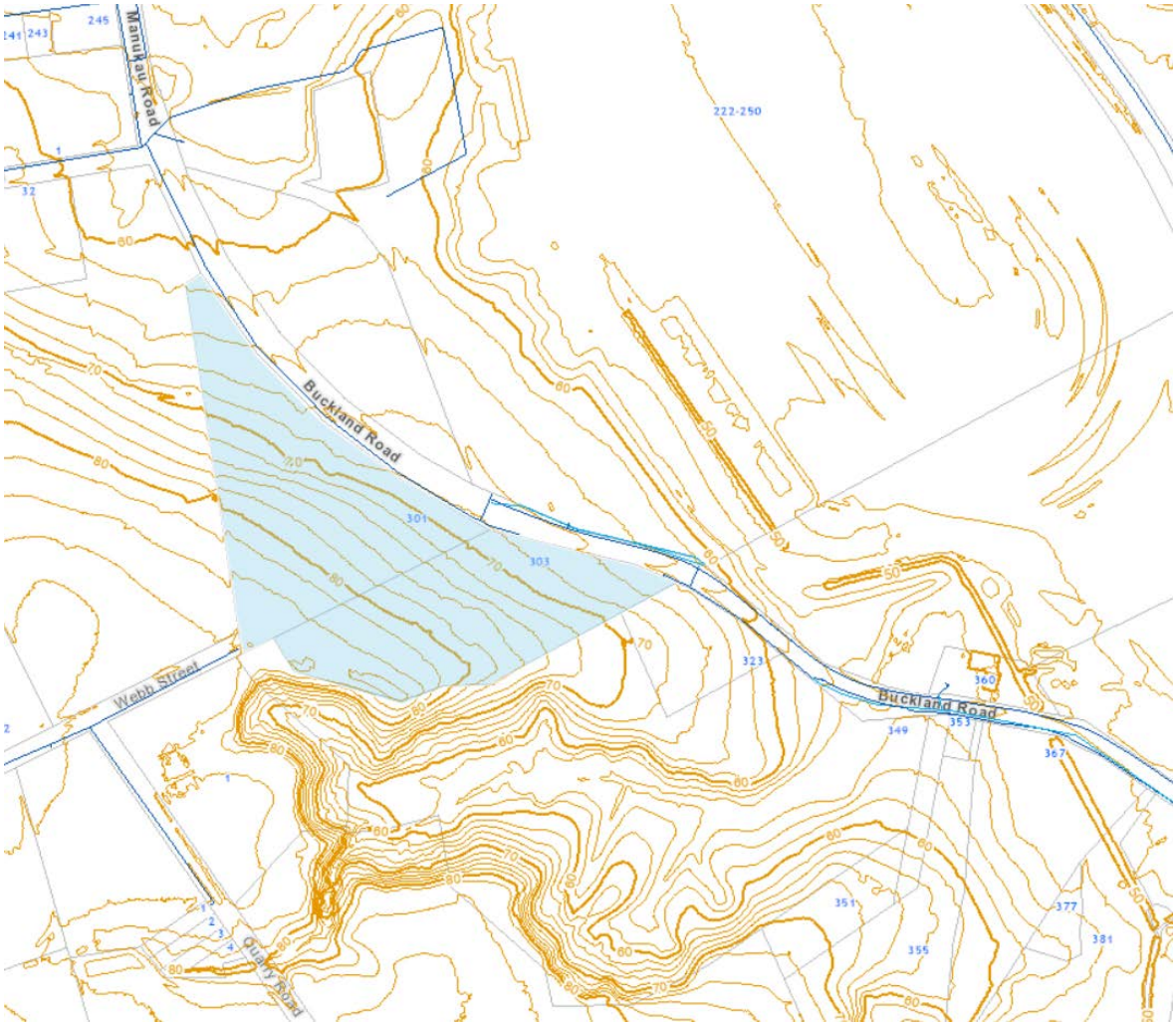
The proposed plan change area encompasses an area of 7.86ha which is currently zoned as Future Urban. The proposed development would involve the private zone change which will create a live zone of 7.86ha General Business Zone ready for development.

3.4 Proposed Water Supply Services

The proposed water supply networks must be able to service both peak demand and firefighting scenarios. According to Watercare Water Code of Practice and SNZ PAS 4509, the minimum flow is 25L/s for residential area and the minimum residual pressures during fire flow is 100kPa.

WaterCare guidelines require a minimum level of service to every property, supply at least 25l/s flow at a minimum pressure of 250 kPa or 25m head.

The proposed plan change has direct road frontage onto Buckland Road, and can connect to the existing Public Water Supply along the frontage of the site. There is an existing 150mm Water Main along Buckland Road between Buckland and Pukekohe, with a secondary main of 80mm/100mm installed on the other side from Buckland to the southern end of the site.



Watercare Empirical pipe sizing tables identify that the existing 150mm Water Supply Pipe can service up to 160 Residential Lots or 23ha General / Light Industrial land. Our understanding is the existing local water supply network is adequate for the current level of development as there is approximately 110 Residential lots connected to the existing water supply from Pukekohe, not accounting for any supply from the existing bore within Buckland. This water supply capacity can be proportionally allocated to 110 Residential lots and 7.36ha General / Light Industrial land being the area of the site available for development less area required for on-site Stormwater Treatment.

Table 6.2 – Empirical guide for principal main sizing

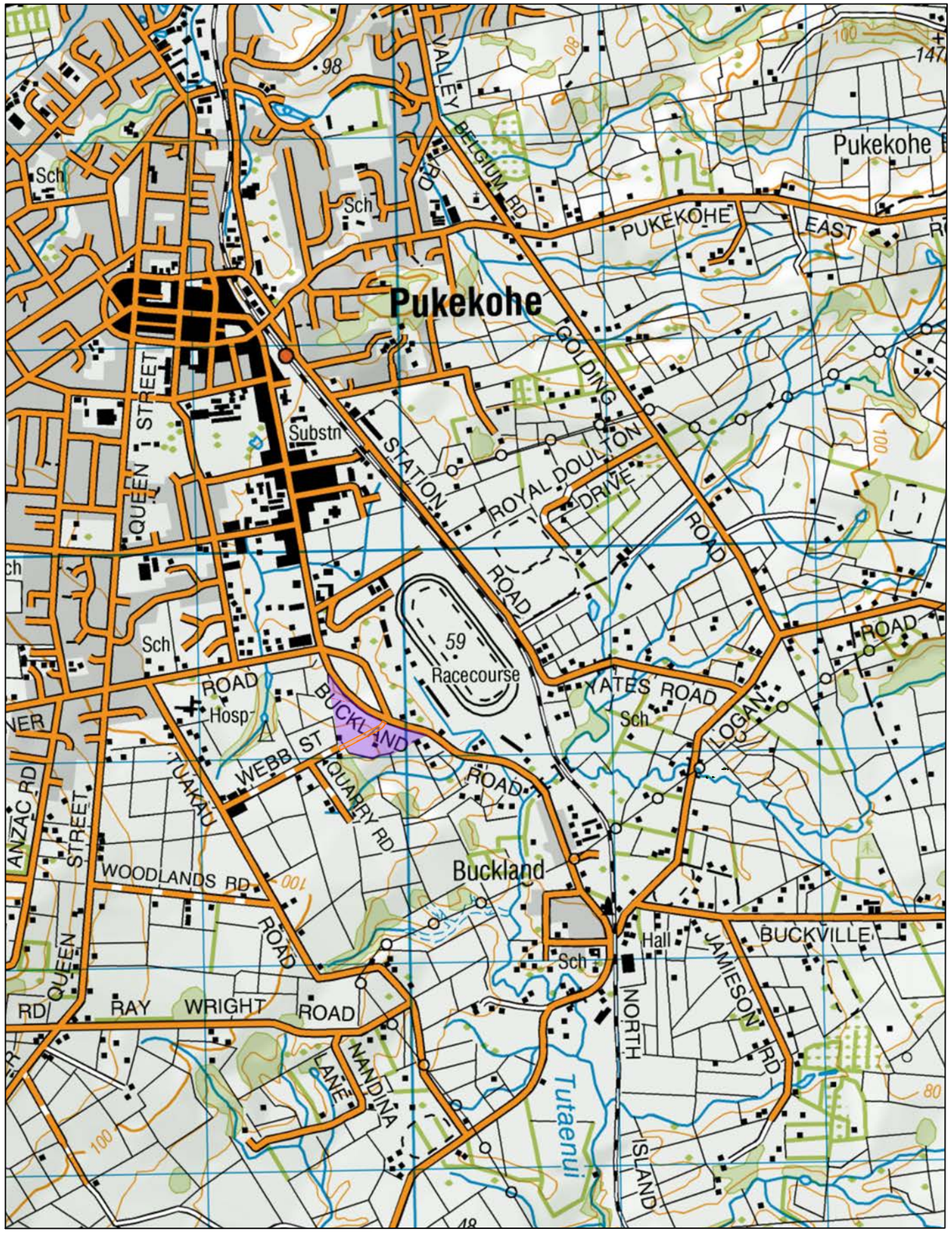
Nominal *Internal diameter*	Capacity of main (single direction feed only)			
	Residential (lots)	Rural Residential (lots)	General/light industrial (ha)	High usage industrial (ha)
100	40	10	–	–
150	160	125	23	–
200	400	290	52	10
225	550	370	66	18
250	650	470	84	24

While this simple calculation indicates that there is likely to be water supply capacity, we recognise that upon site development, further water pressure test will be required and that localised network upgrades are anticipated, and are likely to consist of completing the secondary main across the site frontage to ensure adequate water supply for the peak demand as well as completing any internal reticulation along future roads.

3.5 FUNDING PROPOSAL

The extension of any required water supply infrastructure for the proposed development will be funded by developers and the new infrastructure and assets will be vested to Auckland Council. Opportunities also exist to work collaboratively with WaterCare to upsize the proposed mains, and Future Proofing the infrastructure with investment from WaterCare, allowing for ultimate development of the Pukekohe Paerata Structure Plan area.

APPENDIX A
WASTEWATER PLAN SET:
INDICATIVE WASTEWATER PLANS



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Birch Planning Surveying Engineering
LAND DEVELOPMENT CONSULTANTS
2A Wesley Street
Pukekohe 2120
PO Box 475
Pukekohe 2340
Ph: 09 237 1111
pukekohe@bslnz.com
www.birchsurveyors.co.nz

LOCAL AUTHORITY	AUCKLAND COUNCIL
PLANNING MAP	-
ZONING	FUTURE URBAN
ACTIVITY	-
COMPRISED IN	NA56A/559 & NA21A/288
TOTAL AREA	7.8677ha
REGISTERED OWNERS	Peterex Properties Ltd & Pukekohe Ltd

PROJECT NAME

BUCKLAND ROAD PLAN CHANGE

301 & 303 BUCKLAND ROAD
PUKEKOHE

Surveyed -	Date -	Project No.	5275
Designed KDB	Date 10/2021	Scale	Hz: 1:2500 @ A3
Drawn KDB	Date 10/2021		
Approved PROJECT MANAGER	Date		

REV.	BY	DATE	COMMENT
A	KDB	10/21	For Release

TITLE

LOCATION PLAN

Drawing Name	F:\..CAD\CP 5275 B.dwg /Locality Plan	523	Rev. B

I/We confirm that this proposal has been examined by me/us and agree to the use and reproduction of this plan for the purpose of obtaining a resource consent

.....
Applicants Approval

Approved for submission by: .....
Birch Surveyors Ltd

KEY

Plan Change Boundary

Abuttal Boundaries

Existing Watermains

Prop. 150mm Wastewater Connection

Proposed Business - General Business Zone

NOTES:

1) Areas and measurements are approximate only and subject to final survey
2) Roads shown are legal
3) Datum is arbitrary and subject to final survey
4) This document shall be used only for the purpose for which it is supplied. No reproduction, copying, reuse, sale, hire, loan or gift of this document directly or indirectly is permitted without the prior written consent of Birch Surveyors Ltd
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KITCHENER ROAD

BUCKLAND ROAD

PROPOSED WEBB STREET EXTENSION

WEBB STREET

QUARRY RD

600 CONC

DTI 2.95

600 CONC

900 CONC

DTI 4.23

900 CONC

DTI 4.00

525 CONC

DTI 2.31

525 CONC

900 CONC

PUKEKOHE WASTEWATER PUMP STATION

DTI 3.40

900 CONC

900 CONC

900 CONC

500 CONC

150 PVC-U

150 PVC-U

600 CONC (Rising)

225 PVC-U

650 MS (Rising)

525 CONC

original size A3

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www.birchsurveyors.co.nz

LOCAL AUTHORITY	AUCKLAND COUNCIL
PLANNING MAP	-
ZONING	FUTURE URBAN
ACTIVITY	-
COMPRISED IN	NA56A/559 & NA21A/288
TOTAL AREA	7.8677ha
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PROJECT NAME

BUCKLAND ROAD PLAN CHANGE
301 & 303 BUCKLAND ROAD
PUKEKOHE

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Drawn KDB	Date 10/2021		
Approved PROJECT MANAGER	Date		

REV.	BY	DATE	COMMENT
A	KDB	10/21	For Release

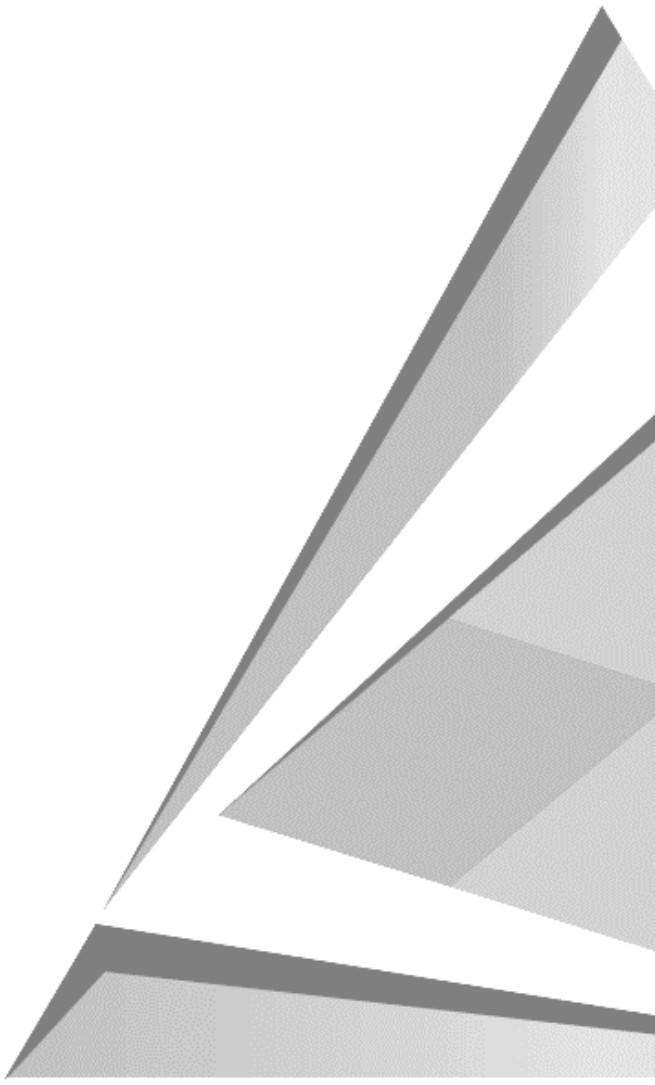
TITLE

PROPOSED WASTEWATER SUPPLY

Drawing Name	F:\..CAD\CP 5275 B.dwg /Wastewater Supply	Rev.	B

524

APPENDIX B
WASTEWATER CALCULATIONS



2a Wesley Street
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Pukekohe 2340

BIRCH SURVEYORS LTD
Land Surveyors | Resource Consultants | Planners

ph: 09 237 1111
fax 09 238 0033

WASTEWATER CALCULATIONS

Business Zone - Mixed Use

	Plan Change	Future Development
A=	78600 m²	0 m²
Jobs =	291	0

Business Zone - Light Industrial

	Plan Change	Future Development
A=	0 m²	113900 m²
Jobs =	0	421

Business Zone - Plan Change

Mixed Use Business (m²)	78600	RPDD (l/m²/d)=	6
		ADWF (l/s) =	5.46
PDWF=	5		
PWWF=	6.7		
Peak Dry Weather Design Flow (l/s) =			27.29
Peak Wet Weather Design Flow (l/s)=			36.57

Business Zone - Ultimate Development

Mixed Use Business (m²)	78600	RPDD (l/m²/d)=	6
		ADWF (l/s) =	5.46
Light Industrial (m²)	113900	RPDD (l/m²/d)=	4.5
		ADWF (l/s) =	5.93
PDWF=	5		
PWWF=	6.7		
Peak Dry Weather Design Flow (l/s) =			56.95
Peak Wet Weather Design Flow (l/s)=			76.32

2a Wesley Street
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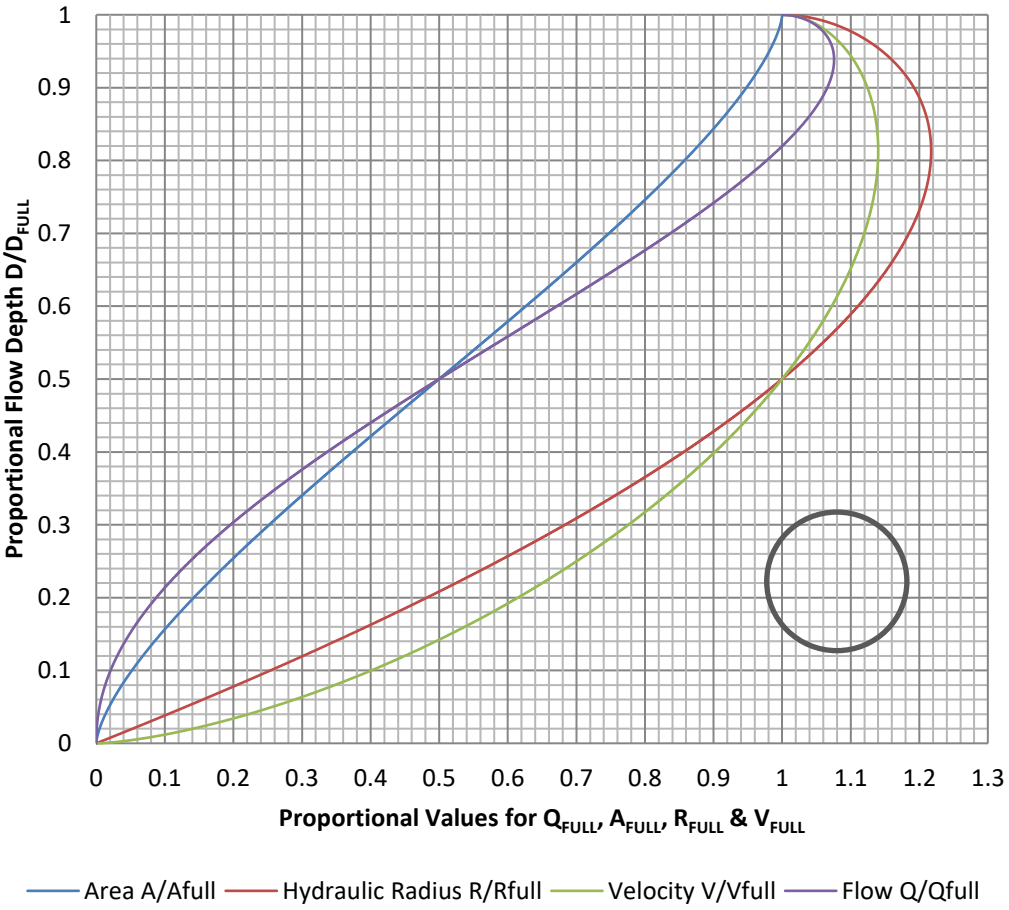
Pukekohe 2340

ph: 09 237 1111
fax 09 238 0033

Buckland Road to Ex. Wastewater Line - Minimum Gradient

Enter Pipe Diameter:	250	mm
Enter Pipe Grade:	1 : 80	
Select Pipe Material:	MDPE	n = 0.013
Maximum Flow in Pipe:	84.52	l/s
Full Flow in Pipe:	78.58	l/s
Velocity at Full Flow in Pipe:	1.60	m/s
Enter Catchment Flowrate:	78	l/s
Depth of Flow in Pipe:	203	mm
Velocity of Flow in Pipe:	1.82	m/s

Hydraulic Elements of Circular Pipes



The flow depth and velocities are calculated to the maximum flow, not full pipe flow. This will calculate the maximum flow velocity for any flow rate, giving a small margin of error for flow depths greater than 91%.

APPENDIX C
WATERCARE TECHNICAL REPORT FOR PUKEKOHE/PAERATA STRUCTURE PLAN

Water and Wastewater Servicing Plan

Draft Pukekohe/Paerata Structure Plan

Prepared by Chris Allen, Watercare Services Limited

Auckland Council
Te Kaunihera o Tāmaki Makaurau

Table of Contents

1 Executive Summary

This report confirms that the anticipated development yield from the draft structure plan can be serviced for water and wastewater. This report sets out the water and wastewater plan for servicing the structure plan area. It is based on an anticipated yield from the structure plan area of around 12,500 dwellings, in addition to the existing live zoned residential land in Paerata and any intensification of the existing urban area. Watercare is investing in trunk water and wastewater networks to service the existing live zoned developments underway, allowing to bring forward the structure planning of the future urban zoned land.

1.1.1 Water

Watercare provides both bulk and local water and wastewater services to the Pukekohe/Paerata area. Some of these assets are reaching the limits of their ability to provide water services to a growing community.

There are existing issues within the Pukekohe water network, which expected growth within the structure plan area will exacerbate.

Trunk and local network pipelines providing water to the draft structure plan area are being designed to meet the proposed yield. Watercare will undertake trunk upgrades and work with developers to upgrade water assets to service the structure plan area as required. Water pipelines will follow roading alignments and be constructed in conjunction with the roads, as part of individual development proposals. All new pipelines will consider the future development potential when being designed and constructed.

Trunk and local network pipelines providing water to the draft structure plan area will be designed to meet the anticipated yield. All new pipelines will consider the upstream and downstream development potential when being designed and constructed.

1.1.2 Wastewater

The existing network has limited capacity to accommodate additional flows. Watercare will undertake upgrades in the existing wastewater network to accommodate the anticipated yield. The Pukekohe transmission pump station and the pipe between Pukekohe and the wastewater treatment plant have capacity for the expected growth, and will be upgraded as required to meet additional growth expectations.

Trunk and local network pipelines collecting and conveying wastewater from the structure plan areas are being sized to meet the anticipated development yield. Watercare will undertake trunk upgrades and work with developers to upgrade wastewater assets to service the structure plan area as required. Local wastewater pipes will be constructed in alignment with individual development proposals. All new pipelines will consider the upstream and downstream development potential when being designed and constructed.

2 Introduction

2.1 Purpose and scope of the report

This report sets out the water and wastewater servicing plan for the Pukekohe/Paerata Structure Plan Area. It is a supporting document that forms part of the draft structure plan information.

2.2 Study Area

The study area for the draft Pukekohe/Paerata Structure Plan is the Future Urban zone around Pukekohe/Paerata and the live zoned land in northern Paerata. It comprises around 1,300ha of land. The study area is shown coloured yellow Figure 1 below. The anticipated dwelling yield for the structure plan area is around 12,500 dwellings. The live zoned land at Paerata adds another 4,500 dwellings, the live zoned land at Belmont adds 720 dwellings and there will likely be intensification of the existing urban area.

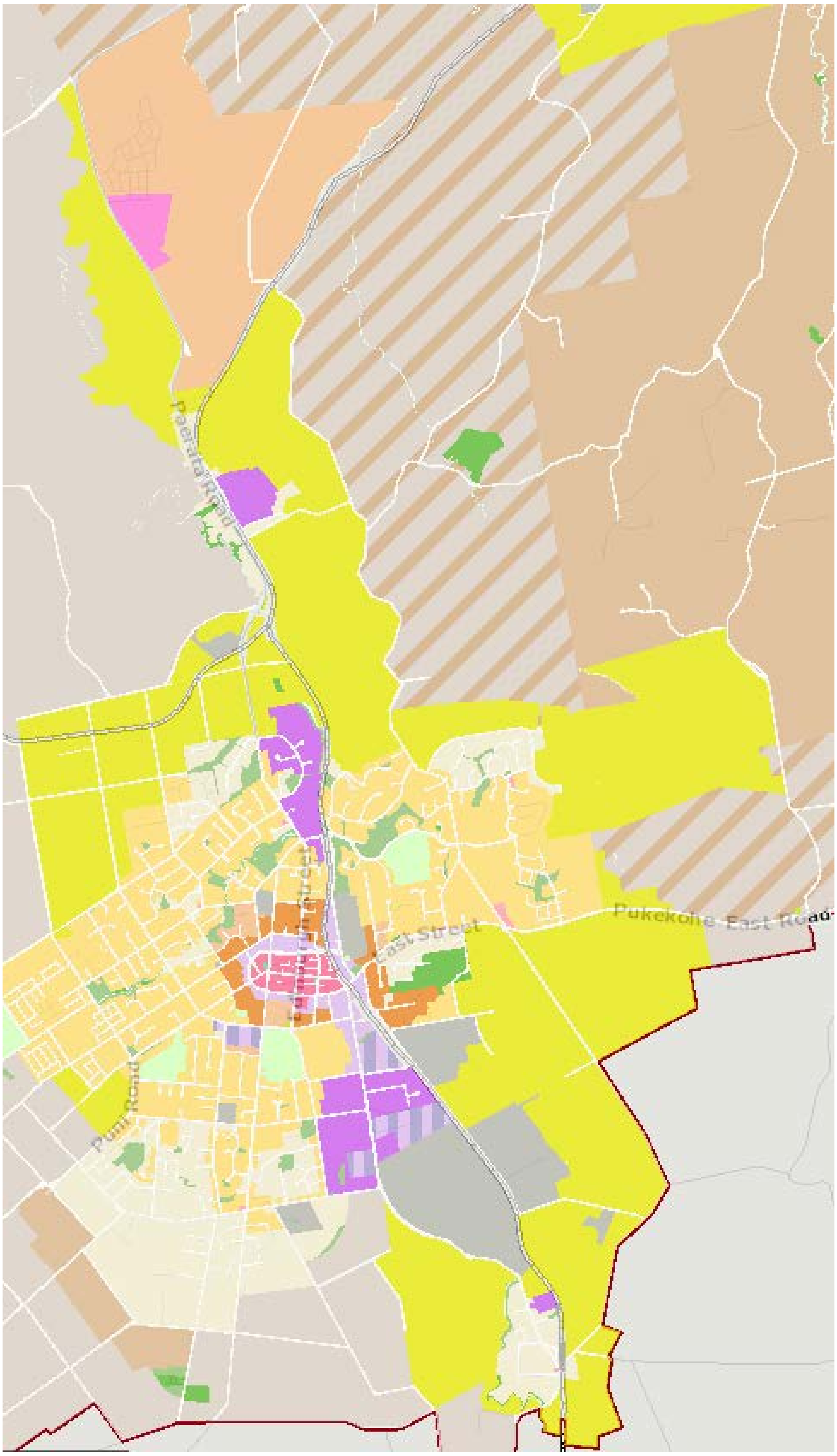


Figure 1: Pukekohe/Paerata structure plan study area (coloured yellow)

3 Existing environment

3.1 Description of study area

There is existing network infrastructure in place to provide both water and wastewater services to the existing urban area in Pukekohe/Paerata. There are currently no constructed assets in the draft structure plan area, although services are being constructed by developers as development occurs. The existing Paerata development has constructed both water and wastewater services, connected to the urban Pukekohe network, to provide these services.

3.1.1 Water

Water is abstracted from the Waikato River and treated at the Waikato water treatment plant. Treated water is then transferred through the Waikato 1 watermain to the Redoubt Road reservoir complex servicing wider Auckland. Pukekohe 1 watermain connected from the Waikato 1 runs along Pukekohe East Road into Pukekohe. This watermain feeds storage reservoirs at Totara Avenue and Kitchener Road reservoirs. The Kitchener Road pump station supplies the Anzac reservoir. The Anzac Road pump station then supplies the Hill Reservoir also on Anzac Road. These reservoirs supply the local networks servicing the individual customers.

In addition to the transmission mains, there are also hundreds of kilometres of smaller diameter pipes in each street, servicing individual customers.

3.1.2 Wastewater

The existing Pukekohe/Paerata wastewater network is predominantly a gravity system, but also includes a number of pump stations, and has limited capacity for population growth. The wastewater network collects wastewater from Pukekohe/Paerata, transferring it to the Pukekohe wastewater treatment plant via the recently constructed Pukekohe transmission pump station at the Pukekohe Raceway. The Pukekohe plant also collects and treats flows from Pokeno and Tuakau as well. Highly treated wastewater is then discharged back into the Waikato River. The treatment plant has recently been granted a 35 year discharge consent by the Waikato Regional Council.

The length of trunk main to the plant is around 7km overall, the majority of which is in the Waikato region. There are also hundreds of kilometres of smaller diameter pipes in each suburb and street, servicing individual customers.

The existing network has capacity during dry weather, but is significantly influenced by wet weather events as rain enters the wastewater network eroding capacity. There is limited capacity to accept additional growth in the existing network. The recently constructed Pukekohe transmission pump station has been constructed to accommodate ultimate future flows from Pukekohe/Paerata, and has capacity for the flows from the structure plan

area, as well as the lived zoned undeveloped land and forecast intensification within the existing urban area.

4 Draft Pukekohe/Paerata Structure Plan

4.1 Overview of draft Pukekohe/Paerata Structure Plan

The draft Pukekohe/Paerata Structure Plan 2019 shows the arrangement of various land uses (residential, business, and parks) and infrastructure. It also shows how these areas connect to adjacent urban areas and wider infrastructure networks. Important cultural values, natural features and heritage values are also addressed.

With the development of the residential zonings shown on the draft Pukekohe/Paerata - Structure Plan 2019, the population of Pukekohe-Paerata could roughly double to a total population of approximately 65,750. The proposed residential zonings will add capacity for around 12,500 new dwellings in the structure plan area. Live zoned land at Paerata adds a further 4,500 dwellings, the live zoned land at Belmont adds 720 dwellings and there will be some intensification within the existing urban area. The draft Pukekohe/Paerata Structure Plan 2019 is also estimated to provide for 5,000 new jobs. These estimates are based on current development feasibility and exclude areas that may not be developable because of constraints.

4.2 Assessment of the Draft Pukekohe/Paerata Structure Plan

4.2.1 Draft Structure Plan Development Yield

The development yield anticipated by the draft structure plan can be serviced for water and wastewater. The above ground assets are generally minimal. Land requirements for these assets vary depending on the population connected to them, and can range from approximately one standard lot size up to four or five standard lots sizes. These lots are created as part of development proposals as required, or located on publicly owned land where appropriate. The land is transferred to Watercare as part of the development, but is not normally designated.

4.2.2 Water

The existing water services to Pukekohe/Paerata will remain operational. There is some capacity to accept additional growth, however these assets are reaching the limits of their ability to provide a water service to a growing community.

There are existing issues within the Pukekohe water network, including low pressure areas, high pressure areas, high headlosses, high velocities, high water age estimates and security of supply concerns. Watercare has recently completed an investigation of the issues and has started an improvement programme. Expected growth within the structure plan area will exacerbate these issues, however infrastructure required to service the expected growth will also offer opportunities for solutions.

To service the full development of the Paerata area a new local service reservoir will be required. It will connect into the existing infrastructure. To service the growth in western Pukekohe a new transmission service reservoir and boost pump station are required. These will be connected to the existing Pukekohe 1 transmission watermain.

Longer term, to give security of supply to Pukekohe a new transmission watermain will be constructed from Drury also connected to the Totara Road reservoir. This main is not required to facilitate growth. It provides source resilience to the community, and will be constructed as necessary to minimise outage risks.

The Runciman Reservoirs are under construction currently. Generally these balancing tanks do not service the structure plan area. The reservoir does however provide resilience to the Pukekohe and Paerata water supply. Under emergency conditions water can be fed to the reservoir from the Drury pump station to the north, and service can be maintained for Pukekohe and Paerata through these reservoirs.

Trunk and local network pipelines providing water to the draft structure plan area are being designed to meet the anticipated yield. Watercare will undertake trunk upgrades and work with developers to upgrade water assets to service the structure plan area as required. As much as practical, water pipelines will follow roading alignments as this is preferred for consenting and access during construction, maintenance and renewal. All new pipelines will consider the future development potential when being designed and constructed. The

majority of these assets will be constructed by developers in conjunction with their development proposals.

The map that shows an indicative servicing plan for transmission water infrastructure in the draft structure plan area is below. As noted above, the majority of the water assets will be constructed by developers as part of their development proposals.

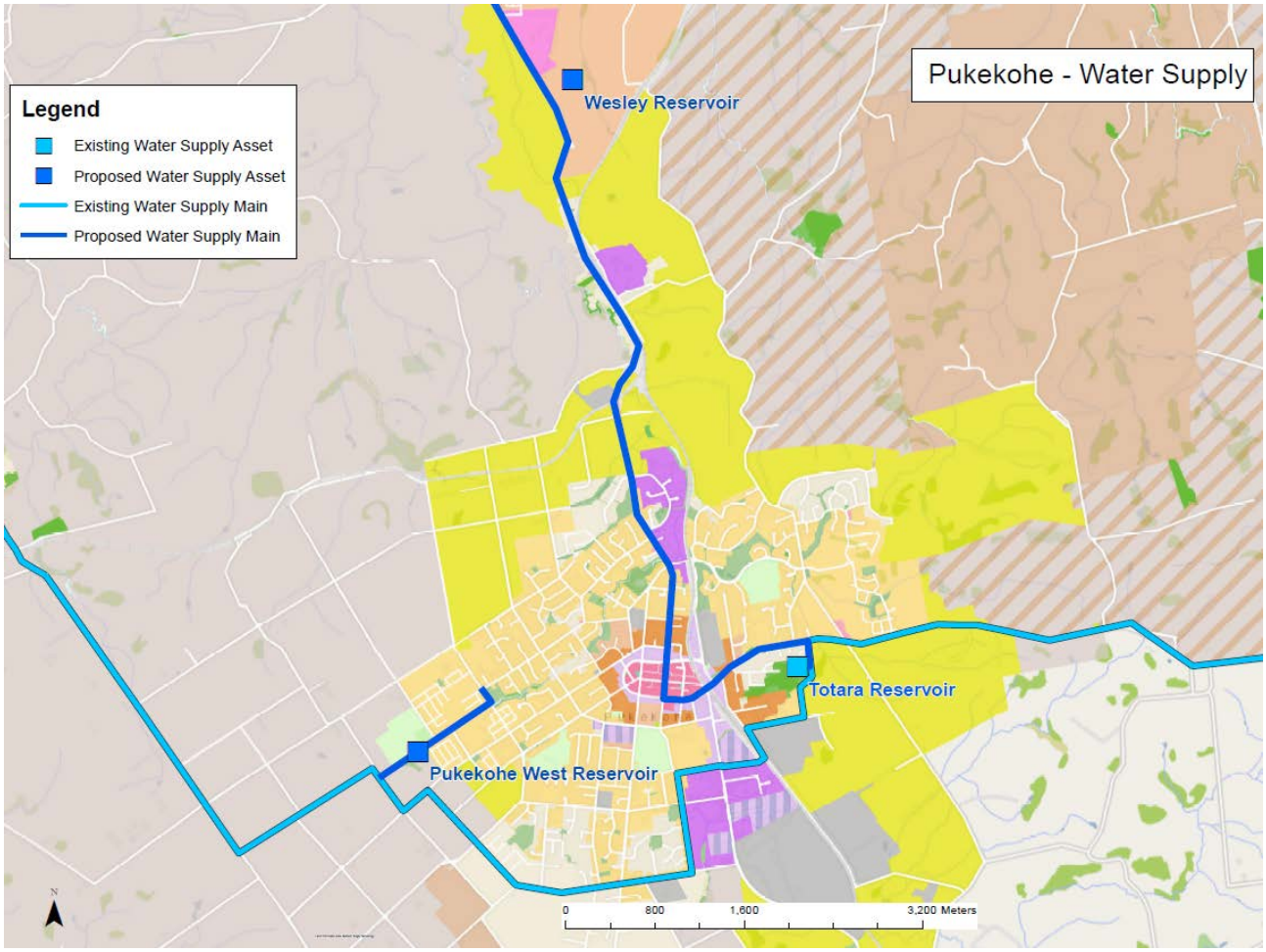


Figure 2: Indicative Pukekohe/Paerata Water Servicing Plan

4.2.3 Wastewater

The northern, north western and north eastern portion of the Pukekohe/Paerata draft structure plan population will connect to the existing wastewater network immediately to the north of the Raceway. A transmission new pump station will be required in the area around Isabella Drive. This new pump station will collect the flows from the northern portion of the structure plan area and transfer the flows to new networks connecting back into the existing network immediately upstream of the Raceway, and then into the existing Pukekohe transmission pump station. The pump station itself and the pipe to the treatment plant have capacity for the expected growth, and will be upgraded as required into the future to accommodate growth outside of the 30 year structure plan timeframes. The

required infrastructure will be staged to meet development, starting with the new transmission pump station near Isobella Drive.

The existing network has limited capacity to accommodate additional flows. A study of the wastewater network is currently underway, to identify the operational and asset options at a more detailed level. Options to provide additional capacity will include operational measures including inflow and infiltration programmes and real time control of the existing pump stations, as well as capital measures upgrading and augmenting the existing network with new infrastructure.

The south eastern portion of the area will connect more directly to the Pukekohe transmission pump station, with most of the wastewater infrastructure constructed by developers, working with Watercare around servicing, as part of their development proposals.

The south western area is likely to require new assets augmenting the existing network. These assets will be constructed by developers and connect into the Pukekohe transmission pump station.

The draft structure plan area will have gravity collector sewers in all catchments, supported by a number of pump stations where required. These assets will be constructed by developers in conjunction with their development proposals.

Trunk and local network pipelines collecting and conveying wastewater from the structure plan areas are being sized to meet the anticipated development yield. While gravity wastewater networks are heavily influenced by local topography, as much as practical pipelines will follow roading alignments as this is preferred for consenting and access during construction, maintenance and renewal. All new pipelines will consider the upstream and downstream development potential when being designed and constructed. Watercare will undertake trunk upgrades and work with developers to upgrade wastewater assets to service the structure plan area as required.

The map that shows an indicative servicing plan for wastewater infrastructure in the draft structure plan area is below. This includes assets expected to be constructed by Watercare, as well as assets servicing the local catchments, expected to be constructed by developers.

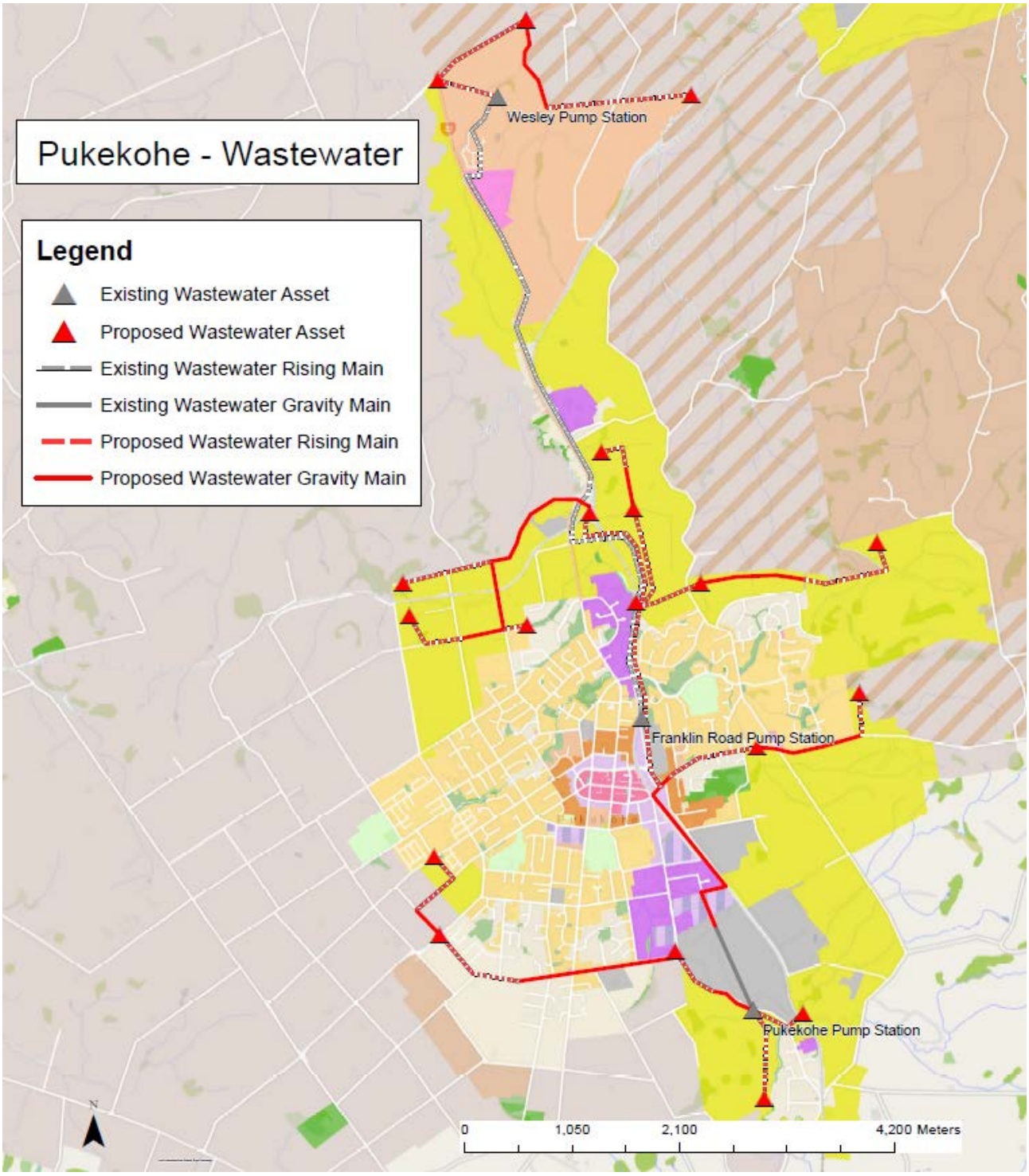


Figure 3: Indicative Pukekohe/Paerata Wastewater Servicing Plan

4.2.4 National Policy Statement/s

4.2.4.1 National Policy Statement on Urban Development Capacity 2016 (NPS-UDC)

Auckland is defined as high growth area (by MFE guidance), and accordingly there are a number of objectives which must be implemented to give effect to the NPS-UDC. In particular, Objective OD1 of the NPS-UDC requires the integration of urban growth and

infrastructure. Objective D1 is delivered in part by Policy A3 which applies to any urban environment that is expected to experience growth.

> *Policy A3: When making planning decisions that affect the way and the rate at which development capacity is provided, decision-makers shall provide for the social, economic, cultural and environmental wellbeing of people and communities and future generations, whilst having particular regard to:*
>
> *a) Providing for choices that will meet the needs of people and communities and future generations for a range of dwelling types and locations, working environments and places to locate businesses;*
>
> *b) Promoting the efficient use of urban land and development infrastructure and other infrastructure; and*
>
> *c) Limiting as much as possible adverse impacts on the competitive operation of land and development markets.*

The key messages from the NPS-UDC is to provide a range of housing choice, efficient use of land and infrastructure and provide for current and future people and communities.

4.2.4.2 National Policy Statement for Freshwater Management 2014

The National Policy Statement for Freshwater Management (Freshwater NPS) provides direction for the council on the management of freshwater. The council must give effect to the Freshwater NPS through the provisions of AUPOP – notably through RPS B7.4 and the Auckland-wide provisions. Some of these provisions are relevant to structure planning.

Wastewater

> (10) Manage the adverse effects of wastewater discharges to freshwater and coastal water by all of the following:
>
> > (a) ensuring that new development is supported by wastewater infrastructure with sufficient capacity to serve the development;
> >
> > (b) progressively reducing existing network overflows and associated adverse effects by all of the following:
> >
> > > (i) making receiving environments that are sensitive to the adverse effects of wastewater discharges a priority;
> > >
> > > (ii) adopting the best practicable option for preventing or minimising the adverse effects of discharges from wastewater networks including works to reduce overflow frequencies and volumes;
> > >
> > > (iii) ensuring plans are in place for the effective operation and maintenance of the wastewater network and to minimise dry weather overflow discharges;

(iv) ensuring processes are in place to mitigate the adverse effects of overflows on public health and safety and the environment where the overflows occur;

(c) adopting the best practicable option for minimising the adverse effects of discharges from wastewater treatment plants; and

(d) ensuring on-site wastewater systems avoid significant adverse effects on freshwater and coastal water.

Freshwater and geothermal water quantity, allocation and use

(11) Promote the efficient allocation of freshwater and geothermal water by all of the following:

(a) establishing clear limits for water allocation;

(b) avoiding over-allocation of water, including phasing out any existing overallocation;

(c) safeguarding spring flows, surface waterbody base flows, ecosystem processes, life-supporting capacity, the recharge of adjacent aquifers, and geothermal temperature and amenity; and

(d) providing for the reasonable requirements of domestic and municipal water supplies.

(12) Promote the efficient use of freshwater and geothermal water.

(13) Promote the taking of groundwater rather than the taking of water from rivers and streams in areas where groundwater is available for allocation.

(14) Enable the harvesting and storage of freshwater and rainwater to meet increasing demand for water and to manage water scarcity conditions, including those made worse by climate change.

4.2.5 Auckland Plan 2050 (2018)

The Auckland Plan 2050 (“Auckland Plan”) is a long-term spatial plan to ensure Auckland grows in a way that will meet the opportunities and challenges of the future.

The Development Strategy in this plan and 30-year Infrastructure Strategy address the prioritisation, sequencing and funding of essential infrastructure. This includes requirements under the National Policy Statement on Urban Development Capacity to provide sufficient feasible development capacity in the medium and long term.

Within the Auckland Plan, Pukekohe/Paerata structure plan area is defined as a satellite town functioning as the major rural node in the south of Auckland. It provides a range of services to the surrounding rural areas. Significant future employment growth is anticipated alongside residential growth.

The Auckland Plan is a critical document in future Resource Management Act 1991 processes in Auckland. It will be a key driver of future plan changes to Unitary Plan, including Council-initiated and private plan changes to "live zone" future urban areas. It will also be relevant for the assessment of future resource consent applications. The Auckland Plan has close links with the Future Urban Land Supply Strategy. The strategy informs the greenfield element of the Auckland Plan Development Strategy which makes up a portion of the overall growth anticipated over the next 30 years. The FULSS sets out sequencing for the release of development ready land (large future urban areas).

4.2.6 Future Urban Land Supply Strategy

The purpose of the Future Urban Land Supply Strategy (FULSS 2017) is to identify the sequencing and timing of future urban land for development over a 30-year timeframe. This is to integrate supply of greenfield land for development and provision of infrastructure. The proposed sequencing of development ready future urban zoned land in Pukekohe/Paerata is as follows:

- Paerata (Wesley) (live zoned now)
- Paerata (remainder) (Decade One 1st half 2018-2022)
- Pukekohe (Decade One 2nd half 2023-2027)

This strategy also addresses the council's obligations under The NPS-UDC which requires the council to ensure there is greater focus on enabling urban development and that there is sufficient capacity for housing and businesses. As noted in section 4.1.1, NPS-UDC requires the integration of urban growth and infrastructure.

4.2.7 The Auckland Unitary Plan (Operative in Part) (2016)

Regional Policy Statement

The Regional Policy Statement (RPS) is part of the AUPOP. It sets out the overall strategic framework for Auckland. Sections B1 to B10 of the RPS all have varying degrees of relevance to structure planning.

Of particular relevance is Section B3 – Infrastructure, which sets outs objectives and policies relating to infrastructure. Policy 5 for example, requires that Infrastructure planning and land use planning are integrated to service growth efficiently. Policy 6 requires that Infrastructure is protected from reverse sensitivity effects caused by incompatible subdivision, use and development.

B3. - Infrastructure, transport and energy

B3.2.1. Objectives

(1) Infrastructure is resilient, efficient and effective.

(2) The benefits of infrastructure are recognised, including:

(a) providing essential services for the functioning of communities, businesses and industries within and beyond Auckland;

(b) enabling economic growth;

(c) contributing to the economy of Auckland and New Zealand;

(d) providing for public health, safety and the well-being of people and communities;

(e) protecting the quality of the natural environment; and

(f) enabling interaction and communication, including national and international links for trade and tourism.

(3) Development, operation, maintenance, and upgrading of infrastructure is enabled, while managing adverse effects on:

(a) the quality of the environment and, in particular, natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage and special character;

(b) the health and safety of communities and amenity values.

(4) The functional and operational needs of infrastructure are recognised.

(5) Infrastructure planning and land use planning are integrated to service growth efficiently.

(6) Infrastructure is protected from reverse sensitivity effects caused by incompatible subdivision, use and development.

(7) The national significance of the National Grid is recognised and provided for and it's effective development, operation, maintenance and upgrading are enabled.

(8) The adverse effects of infrastructure are avoided, remedied or mitigated

In terms of RPS relevant objectives, it is noted that:

- The proposed Water and Wastewater Servicing plan generally integrates land use and infrastructure to service future growth of the Pukekohe/Paerata Structure Plan area efficiently
- The Plan will provide essential services for the functioning of communities, businesses and industries within and beyond Pukekohe/Paerata;
- Proposed water and wastewater infrastructure is protected from reverse sensitivity effects caused by incompatible future subdivision, use and development.

District Plan

Chapter E26 of the Auckland-Wide provisions sets out District Level objectives, policies and rules relating to infrastructure. These provisions provide a framework for the development, operation, use, maintenance, repair, upgrading and removal of infrastructure.

The plan recognises that Infrastructure is critical to the social, economic, and cultural well-being of people and communities and the quality of the environment. This means that in some circumstances other activities and development need to be managed in a way that does not impede the operation of infrastructure.

The plan also acknowledges that as well as benefits infrastructure can have a range of adverse effects on the environment, visual amenity of an area, and public health and safety. The sensitivity of adjacent activities, particularly residential, to these effects can lead to complaints and ultimately constraints on the operation of infrastructure. Managing these reverse sensitivity effects is essential.

E26. Infrastructure

E26.2.1. Objectives [rp/dp]

(1) The benefits of infrastructure are recognised.

(2) The value of investment in infrastructure is recognised.

(3) Safe, efficient and secure infrastructure is enabled, to service the needs of existing and authorised proposed subdivision, use and development.

(4) Development, operation, maintenance, repair, replacement, renewal, upgrading and removal of infrastructure is enabled.

(5) The resilience of infrastructure is improved and continuity of service is enabled.

(6) Infrastructure is appropriately protected from incompatible subdivision, use and development, and reverse sensitivity effects.

(9) The adverse effects of infrastructure are avoided, remedied or mitigated

In relation to the relevant District level Infrastructure provisions,:

- The proposed water and wastewater plan will enable the safe, efficient and secure infrastructure to service the needs of existing and authorised proposed subdivision, use and development in Pukekohe/Paerata
- The proposed water and wastewater plan will provide for resilient infrastructure in the Structure Plan area as improved and continuity of service is enabled.

5 Conclusion

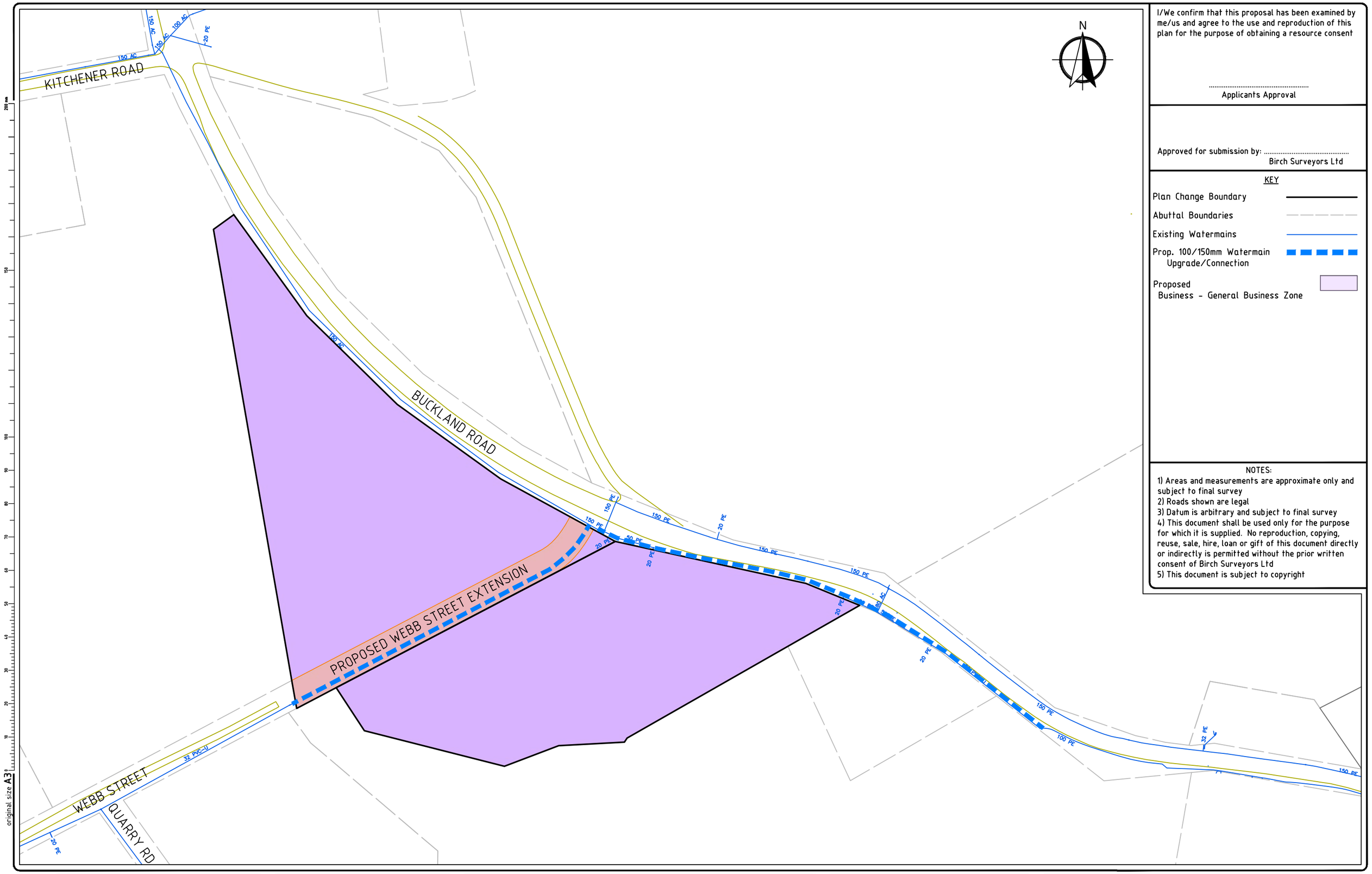
Overall it is considered that the yield from the draft structure plan, as well as the live zoned undeveloped land and intensification in the existing urban area, can be serviced for water and wastewater.

Future water connections to existing transmission networks are required to service this structure plan area. Watercare is engaging with the current developers to consider the shorter term infrastructure needs. A water servicing blue print has been developed to support longer term growth aspirations. Trunk and local network pipelines providing water to the draft structure plan area will be designed to meet the anticipated development yield.

Wastewater will be connected to the existing Pukekohe transmission pump station, and conveyed to the Pukekohe wastewater treatment plant. The Pukekohe transmission pump station and associated downstream infrastructure has recently been constructed, sized to service expected ultimate growth. The Pukekohe wastewater treatment plant has recently had a new discharge consent granted and the upgrade process is underway to meet required growth and consent requirements. Trunk and local network pipelines collecting and conveying wastewater from the draft structure plan area will be sized to meet the anticipated development yield.

The majority of the water and wastewater assets for the structure plan area will be constructed by developers, in discussion with Watercare, to service their developments.

APPENDIX D
WATER SUPPLY PLAN SET
INDICATIVE WATER SUPPLY PLAN



I/We confirm that this proposal has been examined by me/us and agree to the use and reproduction of this plan for the purpose of obtaining a resource consent

.....
Applicants Approval

Approved for submission by: .....
Birch Surveyors Ltd

KEY

Plan Change Boundary

Abuttal Boundaries

Existing Watermains

Prop. 100/150mm Watermain Upgrade/Connection

Proposed Business - General Business Zone

NOTES:

1) Areas and measurements are approximate only and subject to final survey
2) Roads shown are legal
3) Datum is arbitrary and subject to final survey
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pukekohe@bslnz.com
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LOCAL AUTHORITY	AUCKLAND COUNCIL
PLANNING MAP	-
ZONING	FUTURE URBAN
ACTIVITY	-
COMPRISED IN	NA56A/559 & NA21A/288
TOTAL AREA	7.8677ha
REGISTERED OWNERS	Peterex Properties Ltd & Pukekohe Ltd

PROJECT NAME

BUCKLAND ROAD PLAN CHANGE
301 & 303 BUCKLAND ROAD
PUKEKOHE

Surveyed -	Date -	Project No.	5275
Designed KDB	Date 10/2021	Scale	Hz: 1:2500 @ A3
Drawn KDB	Date 10/2021		
Approved PROJECT MANAGER	Date		

REV.	BY	DATE	COMMENT
A	KDB	10/21	For Release

TITLE

PROPOSED WATER SUPPLY

Drawing Name	F:\..CAD\CP 5275 B.dwg /Water Supply	549	Rev. B

STORMWATER REPORT

On behalf of:

BUCKLAND ROAD PLAN CHANGE.

301 & 303 Buckland Road
Pukekohe

16 DECEMBER 2021
BSL REF: 5275
REVISION B

REPORT PREPARED BY	REPORT REVIEWED BY	REPORT AUTHORISED BY
		
KELLY BOSGRA REGISTERED PROFESSIONAL SURVEYOR	SIR WILLIAM BIRCH REGISTERED PROFESSIONAL SURVEYOR	SIR WILLIAM BIRCH

DATE: 16 DECEMBER 2021

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CONTENTS

APPENDICES

1 INTRODUCTION

1.1 PROJECT

The report comprises a Stormwater Assessment to support a proposed plan change at 301 & 303 Buckland Road, Pukekohe. This site is currently zoned "Future Urban" under the operative Auckland Unitary Plan with a proposed Business - Light Industry zone under the Pukekohe Paerata Structure Plan. The proposed plan change seeks to change the current zoning to "Business – General Business" to allow development for commercial and retail activities at the site. Indicative layout and connectivity plans are included in Appendix A.

1.2 LEGAL DESCRIPTION

The legal description of the Land parcels are as follows-

Appellation: Pt Lot 1 DP 3363 & Lot 1 DP 64805

Title Reference: CFR's NA56A/559 & NA21A/288

Plan Change Area: 7.85Ha

1.3 SITE DESCRIPTION

The site is located just South of the intersections of Manukau, Kitchener & Buckland Roads. and has multiple access points to Buckland Road. It is bordered by existing Rural areas to the west, Buckland Road to the East and Future Urban zoned properties to the south.

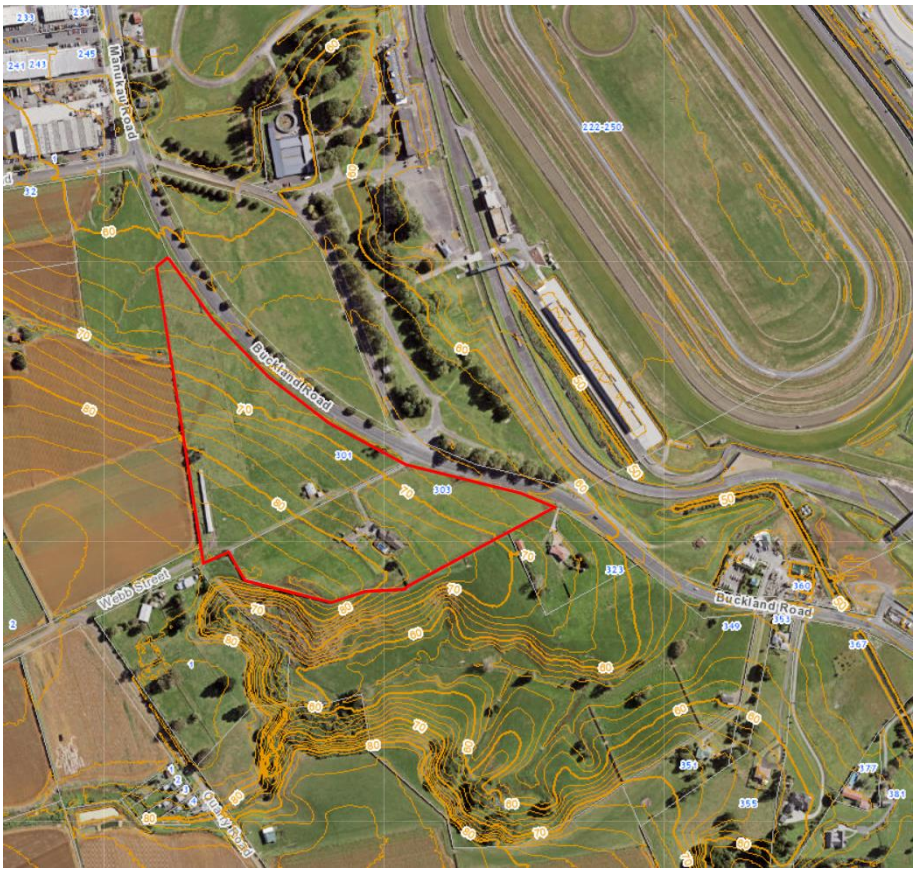


Figure 1: The plan change site in red. (Source: Birch Surveyors)

The site has a moderate contour, from south-west to north-east, sloping to Buckland Road. There are no public network connections, and surface water is generally via sheet flow to the road drains and is conveyed either north or south via existing drains to discharge into the Tutaenui Stream which flows into the Whakapipi Stream, into the Waikato River and eventually to the Tasman Sea.

There are no existing hydrological features within the site, however historic aerials show there was a shallow gully that was filled when SH22 was deviated to its current position. This is now identified as an overland flowpath on Auckland Council GIS.

The site contains a dwelling on each property and also contains a number of accessory farm related buildings having access from both Buckland Road & Webb Street. The Site is currently in Grass and is being grazed.

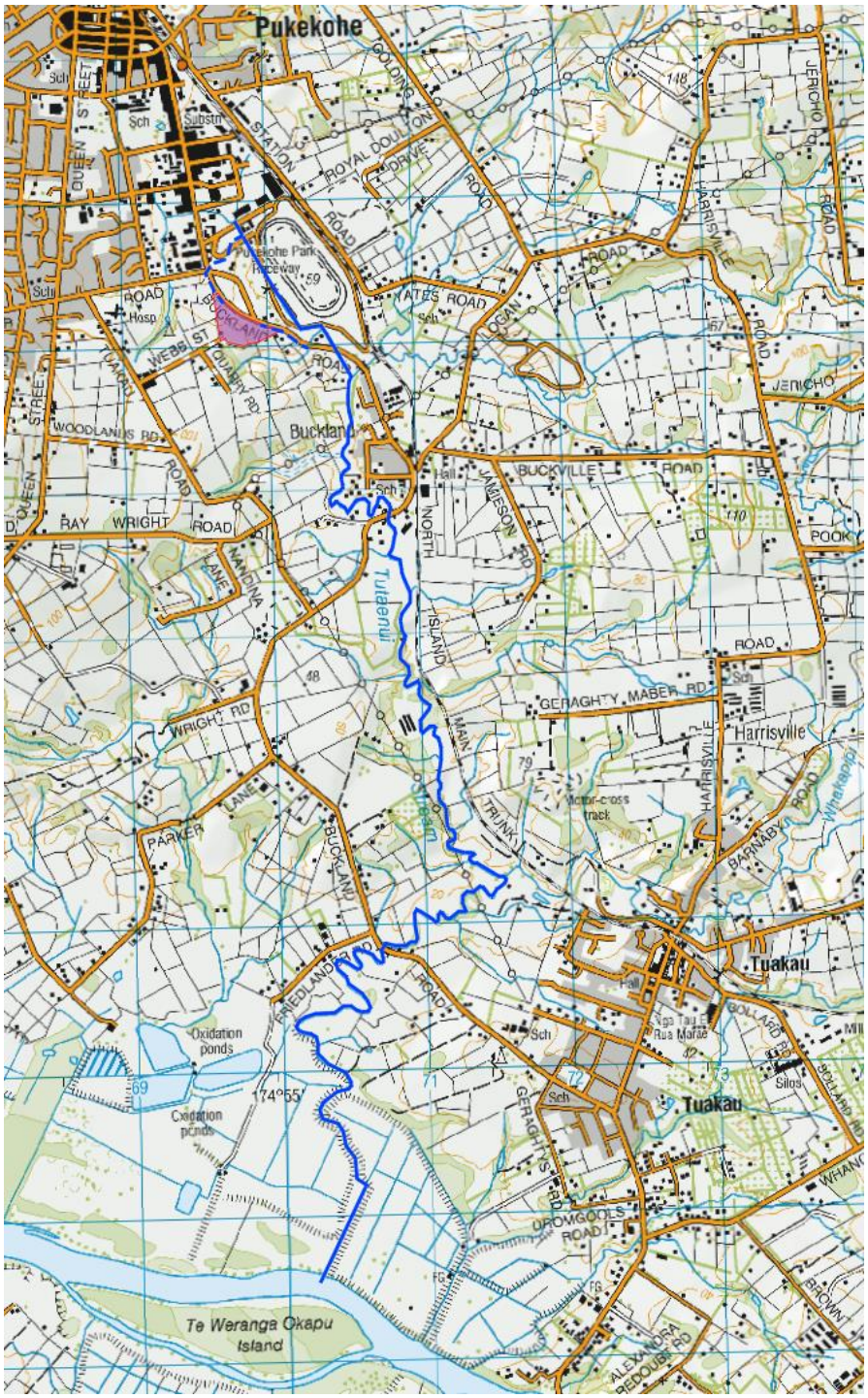
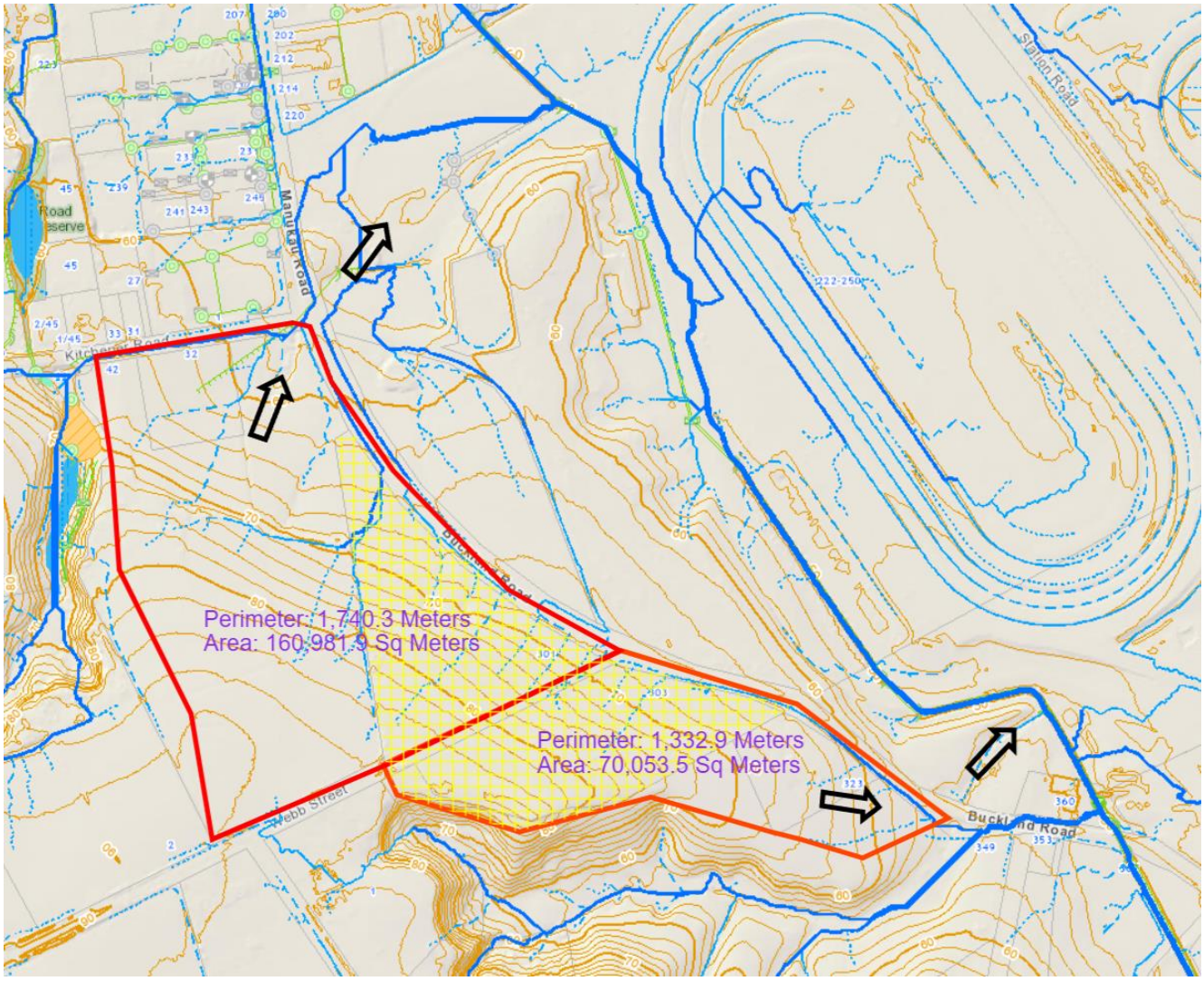


Figure 2: Location within Regional Catchment

1.4 BACKGROUND

The site straddles two catchments, and is situated at the top or side of them both with offsite drainage ensuring there is virtually no upstream catchments. #301 Buckland is at the top end of a small catchment of 16.1Ha that drains north to Manukau Road, through a culvert under Manukau Road to a short length of open drain, and then is piped some 200m to empty into the Tutaenui Stream. #303 Buckland is at the upper end of a 7.0Ha catchment draining south via open road drains/channels to join the adjacent 132Ha catchment at a common drainage point, being the head of a culvert under Buckland Road, which drains to the Tutaenui via a modified natural Channel.



There are no upstream catchments, nor does the area contain any Public Stormwater Infrastructure. The site and the surrounding area are serviced by open drains, natural channels (mostly highly modified) culverts and some historic private pipes that directs surface water to the Stream.

The Catchments Downstream from the site have existing flood and drainage issues and any development must take this into account.

The proposal and its immediate Catchment area fall within the Auckland wide Stormwater Network Discharge Consent (NDC) and within the area formerly contained in the Pukekohe South Stormwater Network Discharge Consent. The NDC regulates Stormwater Treatment and Disposal for the areas it covers.

1.5 Proposed Development

The Proposal is to change the Underlying Zone from Future Urban (Business – Light Industry) to Business-General Business Use to allow development of the sites.

1.6 Plan Change Request

A Plan Change request is being sought from Auckland Council and this assessment supports that application.

2 STORMWATER REPORT

2.1 STORMWATER DISPOSAL

In determining the appropriate Stormwater Treatment and Disposal for the proposed Activity, we anticipate a design that achieves consistency with the objectives and policies of the Auckland Unitary Plan as well as Auckland Council's Guideline Documents, the current Stormwater Network Discharge Consent and industry best practice options.

This will establish a cohesive approach to the management of stormwater runoff by specifying controls on the quality and quantity of the runoff and requiring ecological enhancements including:

- Identify Best Practice Options for Stormwater treatment for the development area
- Promote Water Sensitive Design to mitigate adverse effects of development on the receiving environment
- Minimise discharge of contaminants into the receiving environment
- Not worsen downstream flooding

Proposed methodologies to achieve the above outcomes include:

- Provide for SMAF-1 equivalent hydrology treatment for all impervious areas.
    - Retention will be achieved using the following methods in order of preference
        - Ground Soakage if conditions permit
        - Reuse if practical and feasible
        - Added to Detention Volume
    - For Roads and other access ways, should the ground soakage prove unsuitable, the detention volume will be increased by the retention component within the on-site or communal Raingarden or Wetland
    - Attenuated and treated stormwater discharge points shall be to Stabilised and/or Green Outlets as best suits the discharge point and immediate receiving environment
- Provide stormwater treatment at source or within centralised Raingardens or Wetlands.
- Inert Roofing Materials to be installed to all covered structures.
- Additional treatment may be required by future businesses to treat specific contaminants (eg Gross Pollutant Traps, Oil Grit Separators etc - depending upon actual site use).
- Provide attenuation to ensure peak runoff is not increased up to and including the 100yr ARI Rainfall event.

Buckland Road Plan Change Stormwater Toolbox:

Area of Interest/Zone	Runoff Source	Stormwater Targets				Best Practice Options
		Water Quality	Hydrology Mitigation	Flood Attenuation	Water Sensitive Design	
		GD01	SMAF-1 Equivalent	Post Dev Flows ≈ Pre-Development Flows for all Storm Event	GD04	
Business: General Business Zone	Roof	✗	✔	✔	✔	Inert Roofing Materials Hydrology Mitigation Retention: Soakage or Reuse Communal Raingardens or Wetland for hydrology mitigation and limited attenuation Communal Attenuation Basis attenuation of larger storm events
	Driveway/Access	✔	✔	✔	✔	Contaminant Specific pre-treatment using Cesspits or Gross Pollutant Traps or Oil/Grit Separators or Hydrodynamic Separators depending upon activity Communal Raingardens or Wetland for hydrology mitigation and limited attenuation Communal Attenuation Basis attenuation of larger storm events

Buckland Road Plan Change Stormwater Management Approach					
Area of Interest/Zone	SW Component	SW Outcome	At Source	Communal Device	Other Requirements
Business: General Business Zone	Water Quality	Eliminate or minimise generation of contaminants	✔ Inert Roofing Materials ✔ Driveway and Yard runoff to private treatment device (Raingarden, Tree Pit, Swale, Gross Pollutant Traps, Oil/Grit separators or hydrodynamic separators for contaminant specific treatment)	✔ Runoff directed to Communal Raingarden or Wetland for treatment and attenuation	Where Soakage or re-use is not feasible, Retention made up as Detention in Tanks or Communal Raingarden/Wetland
	Hydrological Mitigation	SMAF-1 Equivalent hydrological mitigation Flow Mitigation up to the 100yr ARI	✔ Retention via Soakage or Re-use Tanks ✔ Detention Tanks (SMAF-1 equivalent) ✔ Attenuation to provide requisite flow attenuation up to the 10yr ARI	✔ Runoff directed to Communal Raingarden or Wetland for treatment and attenuation ✔ Runoff directed to Communal Attenuation Basin for storm events larger than 10yr ARI	
Roading	Water Quality	Eliminate or minimise generation of contaminants	✔ Tree Pits / Raingardens Designed to SMAF-1 equivalent and attenuate 50% AEP Rainfall ✔ Swales and filter strips ✔ Gross Pollutant Traps	✔ Runoff directed to Communal Raingarden or Wetland for treatment and attenuation ✔ Runoff directed to Communal Attenuation Basin for storm events larger than 10yr ARI	Where Soakage is not feasible, Retention made up as Detention in Tanks or Communal Raingarden/Wetland
	Hydrological Mitigation	SMAF-1 Equivalent hydrological mitigation and required flow mitigation		✔ Runoff directed to Communal Raingarden or Wetland for treatment and attenuation	

A way of achieving the above stormwater goals is to treat Carpark runoff in Bioretention Swales to suitably treat the runoff, designed with sufficient Retention & Detention capacity to provide both SMAF-1 treatment and attenuate runoff up to the 100yr ARI Storm event. If the latter is not possible in the same device, a separate device can be utilised to provide attenuation up to the 100yr ARI Storm event.

The roofs of all buildings will be constructed from inert materials; consequently, the roof runoff can be considered clean. The runoff can be attenuated via sub-surface stormwater devices, either under the buildings or adjacent access to provide SMAF-1 treatment and to attenuate runoff up to the 100yr ARI Storm event. As all buildings in the Business- General Business Zone require resource consent for a restricted discretionary activity - this can be imposed as a condition of consent at the time of development.

TP108 was used as the basis for Stormwater Calculations and the results of these are attached in **Appendix B.** Although the Hydrology of the rezoning to General Business will allow almost full impervious coverage, we have allowed for a Post Development Hydrology of 90% impervious area, allowing 10% pervious area for anticipated Surface based Stormwater Treatment devices such as swales and wetlands/raingardens as well as allowance for soft landscaping. The Curve Numbers used in the TP108 Calculations are Group B (Alluvial), consistent with the published Soil Maps and associated Data.

The TP108 assessment shows that the proposal will increase both Peak Flows and Volumes for all Storm Events. These will be attenuated to provide the Required Treatment as required by the NDC.

It is proposed to utilise Detention in the form of sub-surface Stormwater Cells for future buildings either under the floor Slab or under adjacent hardstand areas (parking/access), with strategically located outlets to achieve the desired Stormwater Controls. The Cells will be designed for the contributing catchment and it is expected that they will have a treatment area of 70m² for every 1000m² roof area. Refer to **Appendix B** for Calculation Details. The future building sizes are unknown, and the size of the Stormwater Management Device can be determined at the time of Building Consent on a pro-rata basis. The example proposed allows for the SMAF-1 Retention and Detention as well as the 10yr ARI storm attenuation released via orifice at flowrates not exceeding the pre-development flowrates.

A similar type of system can be utilised to manage the Stormwater runoff from sealed or unsealed carpark and access, except the surface water will be directed to vegetated swales to treat the water before flowing into the stormwater cells. Raingardens or Wetlands can be used as an alternative treatment for both treatment and attenuation. Swale & Raingarden Calculations are attached in **Appendix B** and it is anticipated that a vegetated swale of 3m wide, a length of 30m is required to treat the stormwater for up to a 2000m² impervious area with the treated runoff being directed to Stormwater Cells or similar under the carpark to ensure the required attenuation is achieved. A

Raingarden of approximately 80m² per 1000m² catchment is an alternative solution to provide both treatment and attenuation.

The devices will be connected to a new internal Stormwater Network designed to convey the attenuated 10% AEP flows to the existing Road Swales and to the receiving environment. Selected widening of these swales may be required and can be assessed at time of future development.

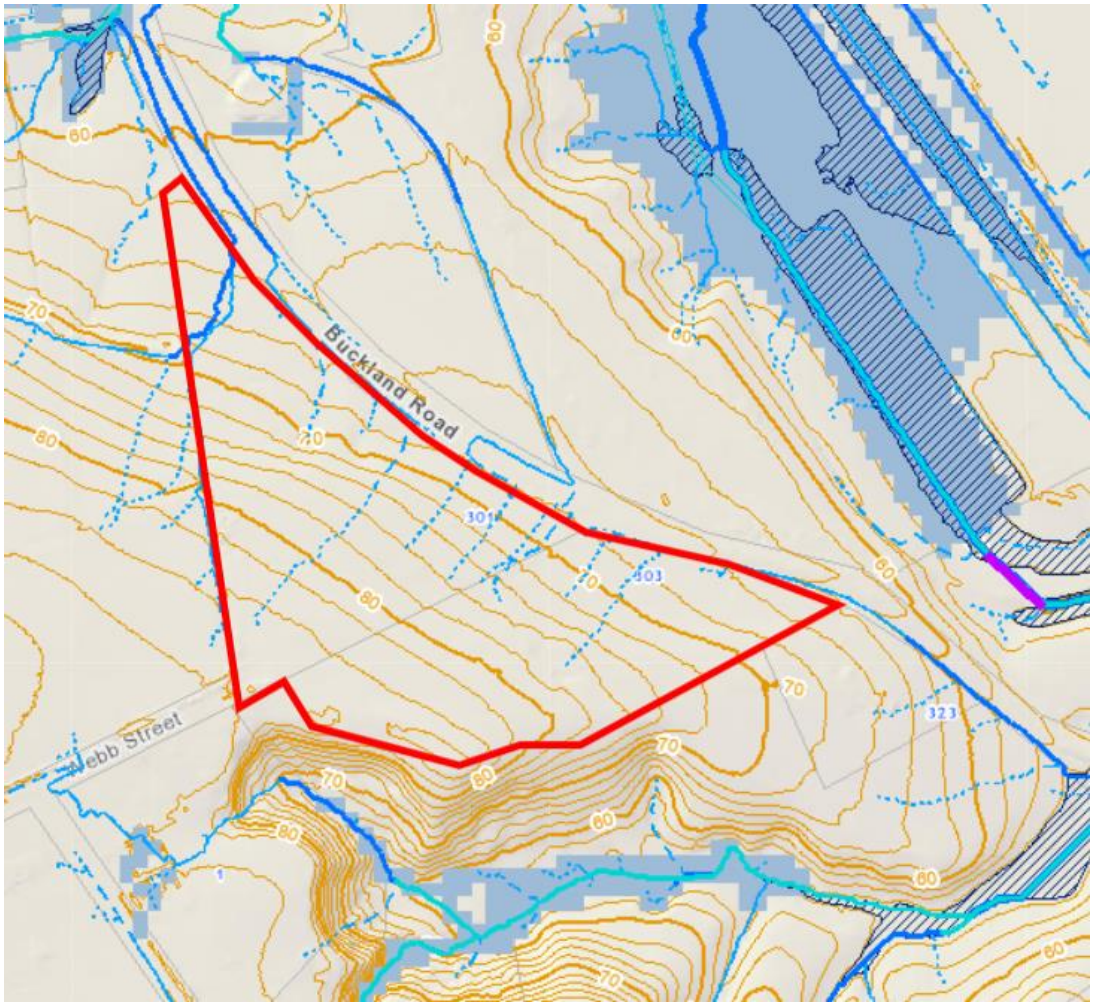
Any new Stormwater Infrastructure will need to convey the anticipated flows from the contributing catchment. There is no upstream catchment, so any proposed infrastructure need only provide for the full developed site works. The NDC identifies that developments must maintain flows to pre-development rates. Therefore, the design criteria for any new Public Stormwater Network will be to convey the existing 10% AEP runoff from all directly contributing catchments. Conceptual Plans showing a possible layout and detail of the Stormwater Devices are attached in **Appendix A**.

The combination of the Swales and sub-surface detention, Raingardens and Detention will ensure the runoff from any proposed buildings and associated parking and access are appropriately treated and the flow rates are mitigated to pre-development conditions.

2.2 Overland Flow

In assessing the proposed Activity, Council must be satisfied that the locations of proposed new buildings, access and infrastructure are safe & stable and not prone to be inundated.

The contours indicate that the surface runoff will predominantly be sheet flows, not being concentrated into overland flowpaths. The Auckland Council GIS identified overland flowpaths are minor and do not follow natural depressions, indicating these are minor to insignificant in nature. It is anticipated that the future development of the site will be undertaken holistically and will manage the surface flows in compliance with the NDC in regards to the surface water discharge flow and location and to actual site development.


Buckland Road
Webb Street

3 LOW IMPACT DESIGN

We have considered the use of Low Impact Design (LID) with the primary objectives being to limit impervious surfaces and to both treat the surface runoff before entering the stormwater network and to reduce the impact of impervious surfaces by retaining and or detaining runoff from the increased impervious surfaces that development invariably creates.

Guidance Document 2015/004 *Water Sensitive Design for Stormwater* sets out objectives, anticipated outcomes and early design considerations within Sections A-D and Concept Design in Section E outlining the Stormwater Treatment Train and types of devices used to treat and mitigate the Stormwater Runoff.

We have previously investigated a number of options and had proposed bioretention swales to treat the carpark runoff and stormwater detention tanks to mitigate the roof runoff. The roofing materials for all future buildings are to be constructed with inert materials so the runoff can be considered as clean or non-contaminated, allowing mitigation via retention and detention only.

In further consideration and application of the Stormwater Treatment Train and LID under GD2015/004, the proposed on-site stormwater management incorporates LID devices. The Soil Maps indicate that soakage is possible, and further investigation will be required. Based on the Hydrological Soil Class, the site soakage will achieve the minimum soakage rates for SMAF-1 Retention within Raingardens and thus contributing to ground water recharge. The presence of soakage also makes raingardens (bioretention) a more viable and successful stormwater treatment option; however, on-site reuse of rainwater is an option that is available.

Other LID options including living walls and roofs were investigated, but deemed impractical as the environmental benefits required can be achieved using raingardens, which are more cost effective and simpler and more economic to construct and maintain for future owners. Porous pavements were also investigated. Future carparking will be classified as high-contaminant yielding, and it is likely that the porous pavement will require more frequent maintenance using specialised equipment to ensure the environmental benefit is maintained. The maintenance regime for swales and raingardens are easier understood and simpler for future owners, ensuring better functioning of the device and therefore greater environmental efficiency. Limiting impervious areas in a business zone will depend on the future use and development design. Increasing the proposed impervious areas will also increase raingarden sizing, and by extension, the pervious area.

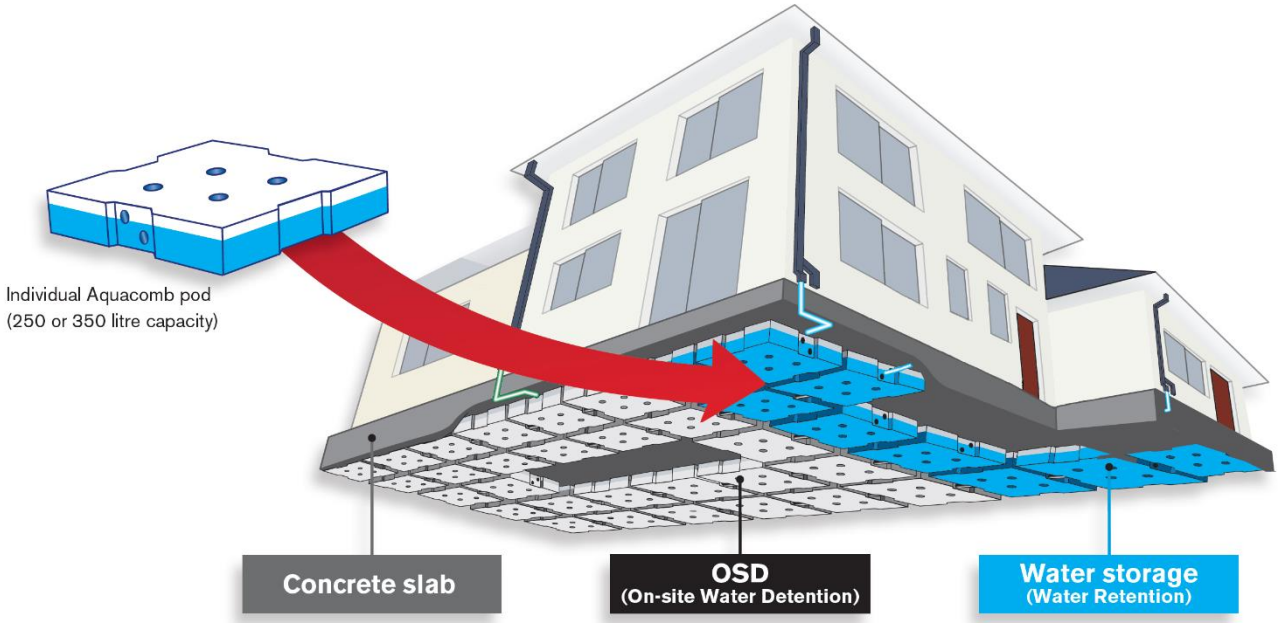
The proposed stormwater treatment will include retention & detention devices, soakage and bioretention (raingardens or bioswales). These devices are sized to soak away the SMAF 1 retention volume of 5mm, to provide detention of the 95% storm and release ensure over 24hours, and to provide detention of the 10yr ARI Storm event to pre-development flows or less and to attenuate the 100yr ARI Storm Event.

It proposed that retention & detention tanks and soak holes are used to manage the roof runoff, and bioretention is used to manage the surface water runoff from future carparks, access and outdoor storage areas.

3.1 STORMWATER DISPOSAL - BUILDINGS

Stormwater Calculations including allowance for SMAF 1 mitigation are attached in **Appendix B.** These typical calculations are sized for a 1000m² roof area and are scalable depending upon building size.

The proposed system consists of retention tanks installed within the floor slab, similar to AquaComb series and allows for retention and detention based on the pipe configuration:



All downpipes will be directed to the water retention component. The open base will allow for ground water recharge, and a ≈20mm orifice will control the SMAF-1 detention, being the slow release of the 95% rain event. Additional detention where a ≈75mm orifice will control the primary outlet to provide flood mitigation for the 10% AEP Storm, ensuring post development flows are consistent with pre development flows. Refer to **Appendix B** for a schematic layout of this proposal.

The proposal for every 1000m² contributing roof catchment, it will be anticipated that 30m³ of storage will be needed to allow for 5m³ retention and a total detention of ≈23m³ for SMAF-1 & the 10yr ARI storm to ensure flows are reduced to pre-development flowrates.

Further detention to mitigate up to the 100yr ARI storm may be required if not provided above, and this can be incorporated into attenuation basins, downstream communal devices or a combination of both to achieve the outcomes required by the NDC. All treated and attenuated flows will be conveyed to Tutaenui Stream via a combination of downstream channels and a new on-site stormwater network.

3.2 STORMWATER DISPOSAL – OTHER IMPERVIOUS (CARPARK, ACCESS & HARD STAND)

The most practicable option to treat the surface runoff from carparks and other impervious surfaces is via Raingardens. This affords stormwater treatment and ground water recharge, with the design also providing a measure of attenuation due to the increased storage volume afforded by the proposed design parameters.

The anticipated construction will be in accordance with Guidance Document 2017/001

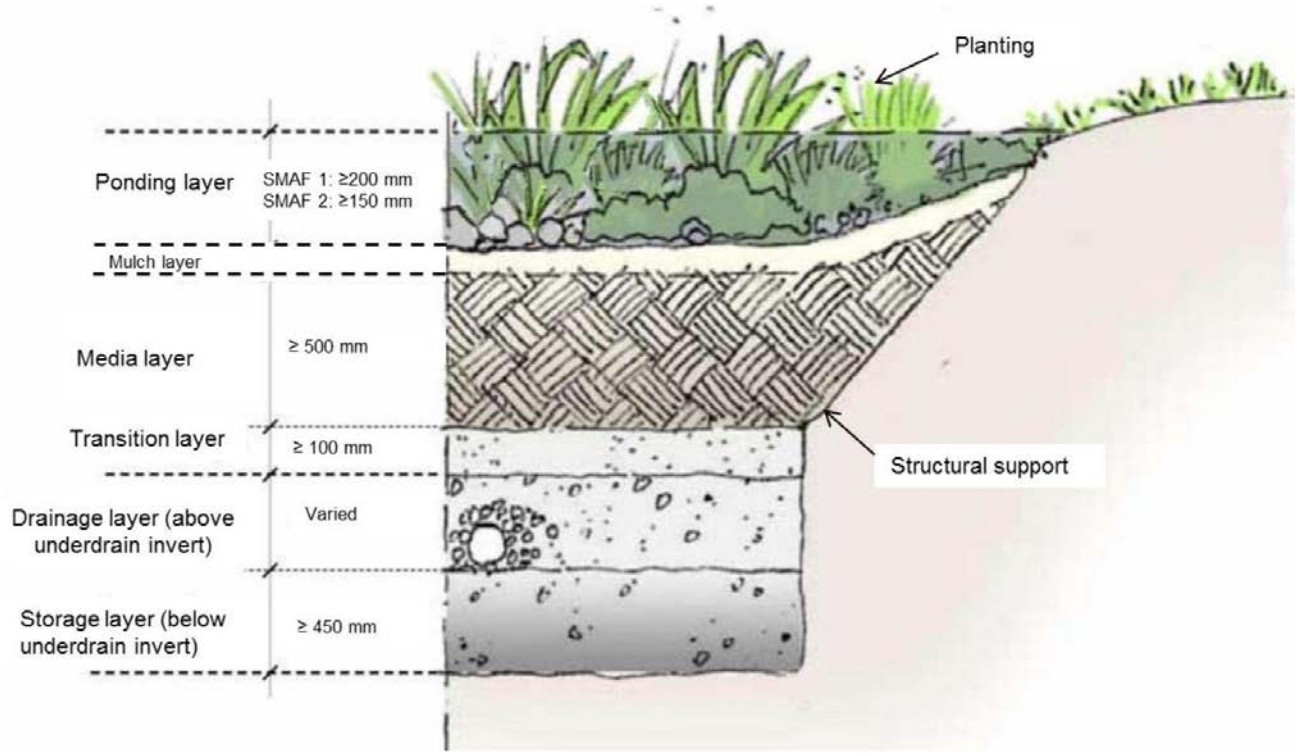


Figure 3 Raingarden (source GD2017/001)

From previous Geotechnical Investigations, the groundwater table was not encountered and this would be fairly representative of the site being elevated and on the side of a broad ridge. The proposed sizing for the raingarden to treat and mitigate the non-roof impervious surfaces is to provide a raingarden surface area of approximately 8% of the contributing catchment. This means that for every 1000m² contributing impervious catchment, a raingarden sizing of up to 80m² is anticipated. Typical raingarden calculations are attached in **Appendix B.** We note that this sizing exceeds the minimum guideline of 5%, with the larger size being required to achieve the retention volume storage at the base of the raingarden. We note that a raingarden of this size provides a Detention volume of 36m³, some 16m³ greater than the required SMAF 1 mitigation requirement of 19.4m³. This excess is necessarily provided to ensure the raingarden construction conforms to GD2017/001 and the extra storage will provide attenuation for storm events up to the 1% AEP Storm Event. This is inferred by cross referencing with the detention tank calculations, where a detention volume of 13m³ is required to attenuate the 10yr ARI storm for a 1000m² catchment. This will give

Council a level of comfort that the raingarden will treat the SMAF-1 rainfall events and will continue to treat and attenuate runoff up to the 10yr ARI storm event and even up to the 100yr ARI storm.

Alternative edge details for the Raingarden is shown:

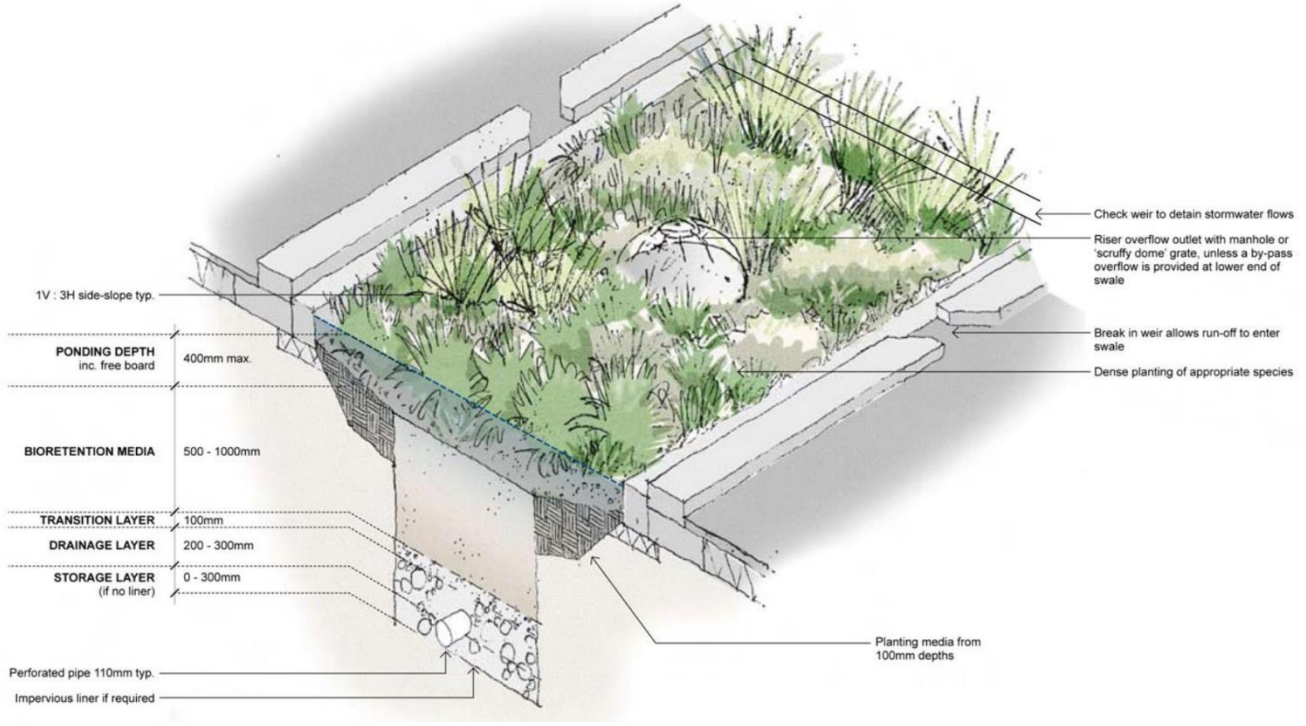


Figure 4 Raingarden BioSwale (source GD2017/001)

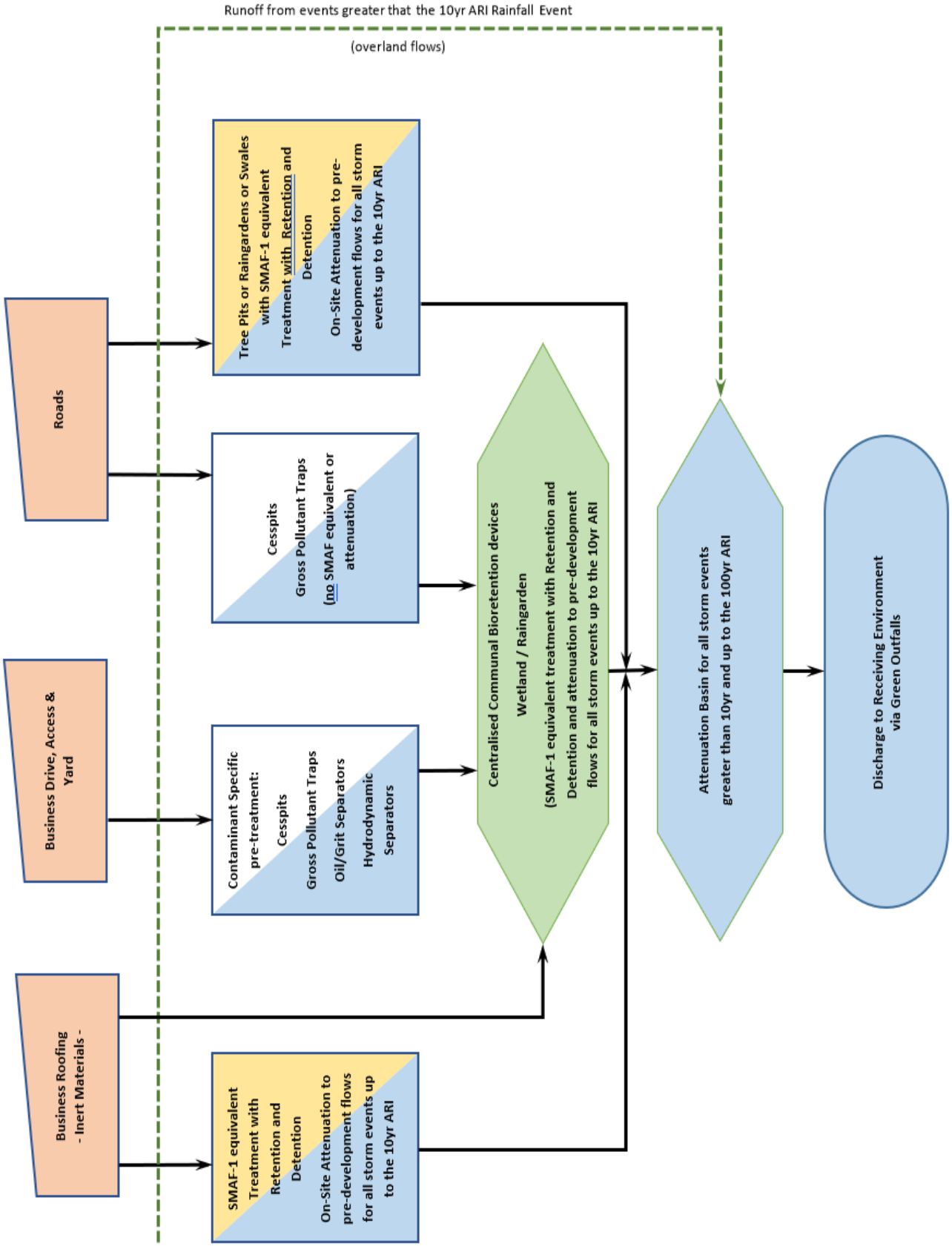
The anticipated raingarden outlets will be to a new on-site Stormwater Network, and with careful design, the outlets and overflows can be incorporated into the overall environment with minimal pipework and enhancing the pervious areas. We note that the final design and layout is site specific and will be determined upon development of the site.

3.3 Other Considerations

The sites have a gentle to moderate slope, and commercial development is likely to require earthworks to create level pads to undertake activities and create building platforms. The nature and quantity of the earthworks are as yet unknown; however all earthworks will be undertaken under the supervision of a Geotechnical Expert, and all fill will be engineered and certified. The Stormwater devices that rely on soakage will need to be carefully managed to ensure they both function and do not compromise any fill. It is anticipated that the design of the earthworks and stormwater will be carefully managed to ensure practicality and feasibility of development

We reiterate once again, the actual type and extent of development including the size and location of buildings, size and location of associated carparking and access and quantity of fill to be placed is currently unknown. The stormwater treatment devices can only be designed and constructed once the full nature and scope of the development is known, however the stormwater framework and outcomes can be anticipated and planned for.

Stormwater Runoff Treatment Flowchart – General Business Zone



4 CONCLUSIONS

Future development of the site will need to be carefully managed and the Stormwater Report shows that this can be achieved.

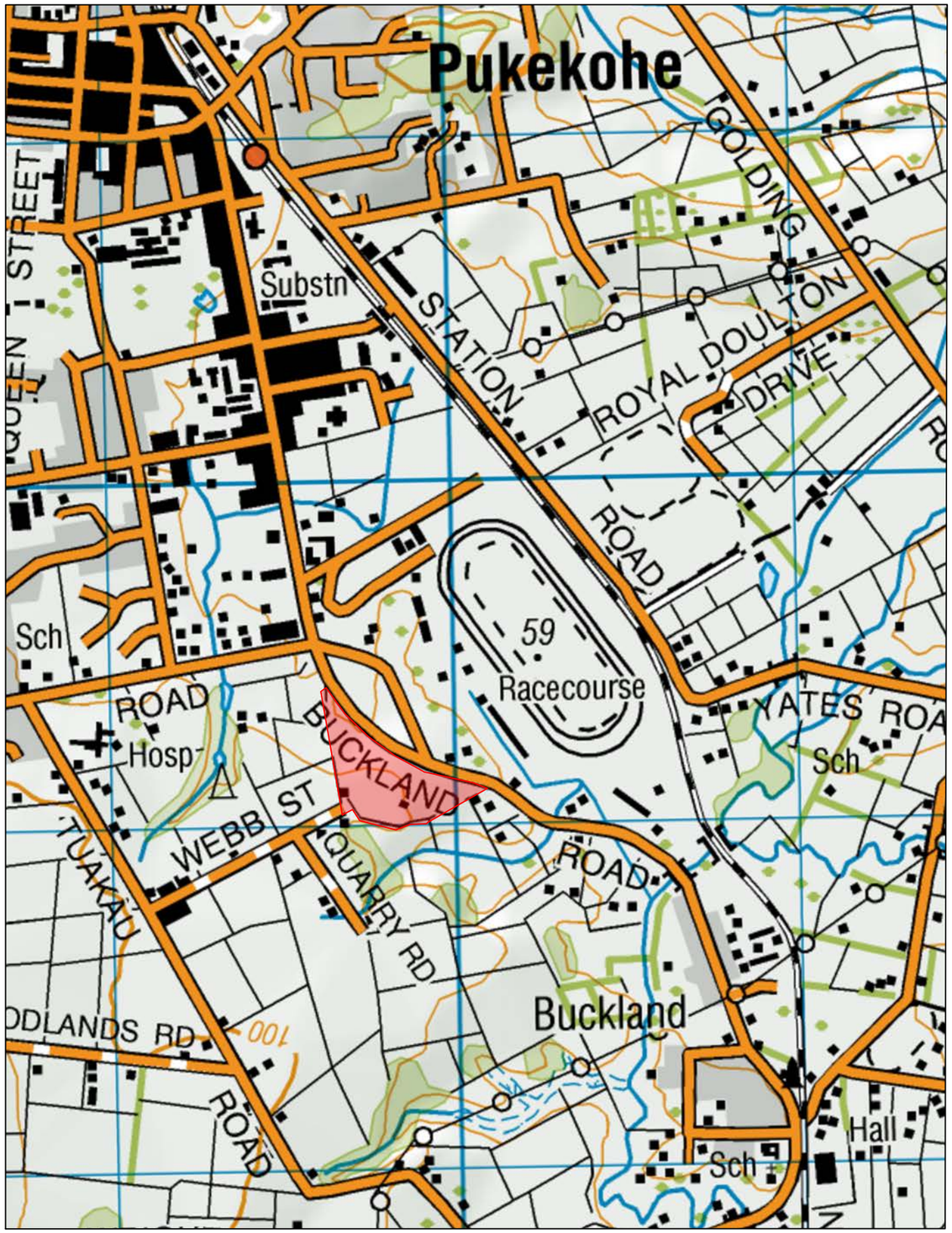
To summarise;

- Provide for SMAF-1 equivalent hydrology treatment for all impervious areas.
    - Retention will be achieved using the following methods in order of preference
        - Ground Soakage if conditions permit
        - Reuse if practical and feasible
        - Added to Detention Volume
    - For Roads and other access ways, should the ground soakage prove unsuitable, the detention volume will be increased by the retention component within the on-site or communal Raingarden or Wetland
    - Attenuated and treated stormwater discharge points shall be to Stabilised and/or Green Outlets as best suits the discharge point and immediate receiving environment
- Provide stormwater treatment at source or within centralised Raingardens or Wetlands.
- Inert Roofing Materials to be installed to all covered structures.
- Additional treatment may be required by future businesses to treat specific contaminants (eg Gross Pollutant Traps, Oil Grit Separators etc - depending upon actual site use).
- Provide attenuation to ensure peak runoff is not increased up to and including the 100yr ARI Rainfall event.

These considerations will provide stormwater treatment and mitigation ensure flood levels and peak flowrates are not increased onto downstream properties.

If further information is required please contact, Kelly Bosgra on 09 237 0781 or by email kelly@bslnz.com

APPENDIX A
LOCALITY PLAN
EXISTING SITE PLAN
INDICATIVE STORMWATER LAYOUT PLAN



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LOCAL AUTHORITY	AUCKLAND COUNCIL
PLANNING MAP	-
ZONING	FUTURE URBAN
ACTIVITY	-
COMPRISED IN	NA56A/559 & NA21A/288
TOTAL AREA	7.85ha
REGISTERED OWNERS	Peterex Properties & Pukekohe Ltd

PROJECT NAME

PUKEKOHE LTD

301 & 303 BUCKLAND ROAD
PUKEKOHE

Surveyed -	Date -	Project No.	4620
Designed -	Date -	Scale	Proportional @ A3
Drawn KDB	Date 11/2021		
Approved PROJECT MANAGER	Date		

REV.	BY	DATE	COMMENT
A	KDB	12/21	Release

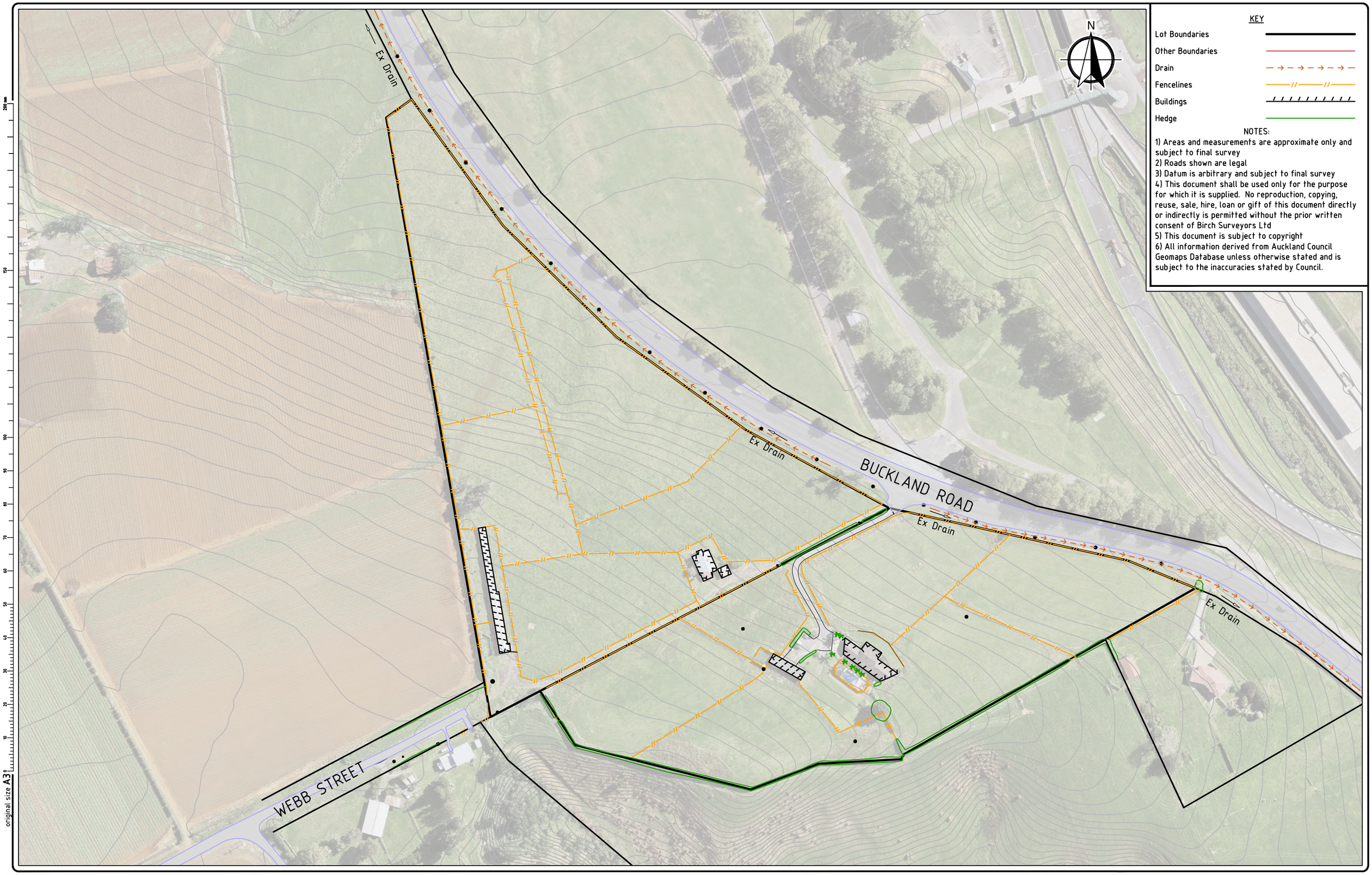
TITLE

LOCATION PLAN

Drawing Name F:\..CAD\CP 5275 A.dwg /Locality Plan

571

Rev. A



KEY

Lot Boundaries	
Other Boundaries	
Drain	
Fencelines	
Buildings	
Hedge	

NOTES:

1) Areas and measurements are approximate only and subject to final survey
2) Roads shown are legal
3) Datum is arbitrary and subject to final survey
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LOCAL AUTHORITY	AUCKLAND COUNCIL
PLANNING MAP	-
ZONING	FUTURE URBAN
ACTIVITY	-
COMPRISED IN	NA56A/559 & NA21A/288
TOTAL AREA	7.85ha
REGISTERED OWNERS	Peterex Properties & Pukekohe Ltd

PROJECT NAME

PUKEKOHE LTD

303 BUCKLAND ROAD
PUKEKOHE

Surveyed -	Date -	Project No.	5275
Designed -	Date -	Scale	Hz: 1:2000 @ A3
Drawn KDB	Date 11/2021		
Approved PROJECT MANAGER	Date		

REV.	BY	DATE	COMMENT
A	KDB	12/21	Release

TITLE

EXISTING SITE PLAN

Drawing Name	F:\..CAD\CP 5275 A.dwg /EX SITE PLAN	572	Rev. A

NOTES

1) All works to comply with local authority Engineering Quality Standards latest edition and the details and specifications hereon.

2) Vertical datum is Auckland Vertical 1946.

3) Horizontal Datum is Geodetic Datum 2000, Mt Eden circuit coordinates.

4) Existing Underground Telecom cables, Fibre Optic Cables, Power cables, Gas pipes and Water Pipes are APPROXIMATELY only. Additional services may not be shown on the plans. Contractor to verify all existing services and their positions prior to commencing work.

5) All setout of the works is the responsibility of the contractor.

6) Hardfill backfill to be placed under all roads and driveways at the direction of the engineer.

7) Contractor is to arrange appropriate traffic permits and is responsible for maintaining traffic safety.

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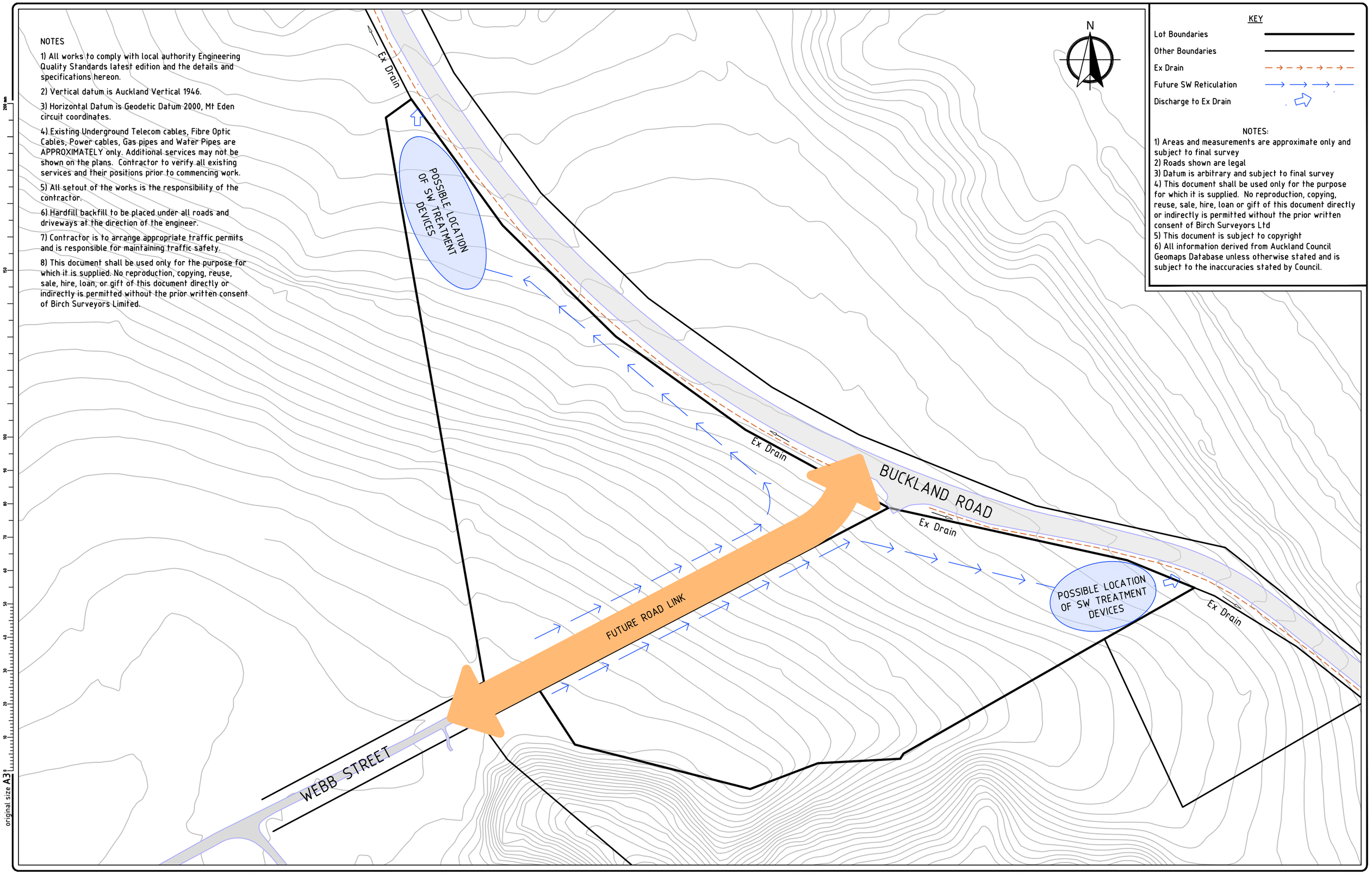

KEY

- Lot Boundaries
- Other Boundaries
- Ex Drain
- Future SW Reticulation
- Discharge to Ex Drain

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Drawn KDB	Date 11/2021	REV.	BY	DATE	COMMENT
		A	KDB	12/21	Release
Approved PROJECT MANAGER	Date				

TITLE

INDICATIVE SW TREATMENT LAYOUT

Drawing Name	F:\..CAD\CP 5275 A.dwg /SW	573	Rev. A

APPENDIX B

SWALE CALCULATIONS

DETENTION TANK CALCULATIONS

RAINGARDEN CALCULATIONS

HYDROLOGY CALCULATIONS (TP108)

2a Wesley Street
PO Box 475
Pukekohe 2340

BIRCH SURVEYORS LTD
Land Surveyors • Resource Consultants • Planners

ph: 09 237 1111
fax 09 238 0033

SWALE DESIGN TO GD04 GUIDELINES (ARC TP10) - Half Webb St Extension

Pervious Catchment

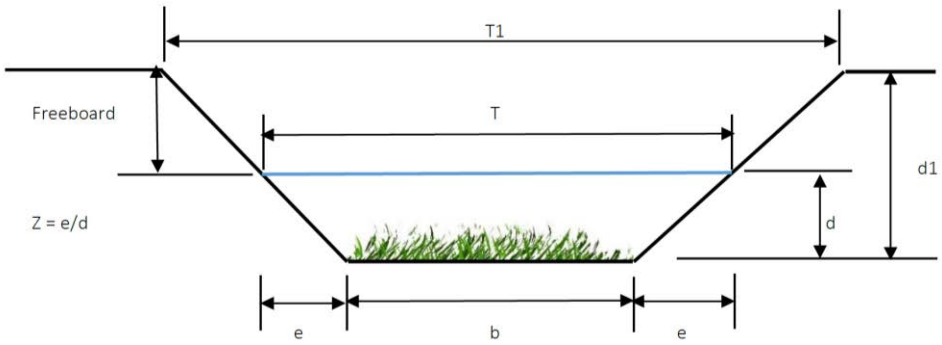
			WQV $^1/_3$ 2yr	50% AEP 2yr ARI	20% AEP 5yr ARI	10% AEP 10yr ARI	5% AEP 20yr ARI	2% AEP 50yr ARI	1% AEP 100yr ARI
Area Pervious		ha	0.0750	0.075	0.075	0.075	0.075	0.075	0.075
Hydrological Soil Group			Group_B	Group_B	Group_B	Group_B	Group_B	Group_B	Group_B
CN			61	61	61	61	61	61	61
P_{24}		mm	25.3333	76	111	136	163	187	210
Peak Rainfall		mm	17.1	51.3	74.925	91.8	110.025	126.225	141.75
Ia			5	5	5	5	5	5	5
S			162.39	162.39	162.39	162.39	162.39	162.39	162.39
c*			0.0881	0.3093	0.4181	0.4809	0.5379	0.5811	0.6170
Peak Runoff		m^3/s	0.0003	0.0033	0.0065	0.0092	0.0123	0.0153	0.0182
Peak Runoff		l/s	0.31	3.31	6.53	9.20	12.33	15.28	18.22

Impervious Catchment

Area Impervious		ha	0.1750	0.175	0.175	0.175	0.175	0.175	0.175
CN			98	98	98	98	98	98	98
P_{24}		mm	25.3333	76	111	136	163	187	210
Peak Rainfall		mm	17.1	51.3	74.925	91.8	110.025	126.225	141.75
Ia			0	0	0	0	0	0	0
S			5.18	5.18	5.18	5.18	5.18	5.18	5.18
c*			0.9157	0.9856	0.9927	0.9950	0.9964	0.9972	0.9978
Peak Runoff		m^3/s	0.0076	0.0246	0.0362	0.0444	0.0533	0.0612	0.0688
Peak Runoff		l/s	7.61	24.58	36.16	44.40	53.29	61.19	68.75
Combined Runoff		l/s	7.93	27.88	42.68	53.60	65.62	76.47	86.97
Peak Flow in Swale		l/s	7.05	24.82	37.99	47.70	58.40	68.06	77.41

STORMWATER SWALE

Swale Channel Slope	s	m/m	0.04	0.04	0.04	0.04	0.04	0.04	0.04
length of Grass		mm	75	75	75	75	75	75	75
Depth of Flow	d	m	0.053	0.082	0.093	0.101	0.107	0.113	0.117
manning n	n		0.23	0.15	0.13	0.12	0.11	0.10	0.10
Flowrate	Q	m^3/s	0.007	0.025	0.038	0.048	0.058	0.068	0.077
Side Slope	Z	1/	4	4	4	4	4	4	4
Bottom Width	b	m	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Top width	T	m	1.32	1.56	1.65	1.70	1.76	1.80	1.84
cross sectional Area		m^2	0.0589	0.1007	0.1191	0.1309	0.1421	0.1519	0.1601
flow Velocity	v	m/s	0.12	0.25	0.32	0.36	0.41	0.45	0.48
WQ Event Velocity Check			✓	✓	✓	✓	✓	✓	✓
Ultimate Velocity Check			✓	✓	✓	✓	✓	✓	✓
time of flow	t	min	9						
swale Length	l	m	64.63						
maximum available swale length		m	100.00						
Design Top width	T1	m	2.65	2.65	2.65	2.65	2.65	2.65	2.65
Design Depth of Swale	d1	mm	219	219	219	219	219	219	219
Freeboard		mm	166	137	125	118	112	106	102



TYPICAL DETENTION CALCULATIONS - For a 2000m² Building

Client	Buckland Road Plan Change	**Analysis Date**	2-Dec-21
Address	Buckland Road, Pukekohe	**SMAF Zone**	1
Project Number	5275	**10% AEP Flood Mitigation Required**	Yes

SMAF 1 Requirements:

Provide Retention (Volume Reduction) of a 5mm 24hr rainfall event for the impervious area for which hydrology mitigation is required

Provide Detention (Temporary Storage) with a volume equal to the increase in runoff volume from the 95th percentile 24hr rainfall event for the impervious area for which hydrology mitigation is required

Site Data

New and Redeveloped Impervious Area	1000	m²	Total Site Area	1000	m²
Percentage of Total Site Area	100%		Total Site Post Development Impervious Area	1000	m²
Hydrographical Soil Group	Group_B		Impervious Area required to be Mitigated	1000	m²
95th %ile 24hr Rainfall Depth	33	mm	Pervious Area required to be Mitigated	0	m²

Pre Development

Pre Developed Area to be Mitigated		1000	m²
Curve Number	(CN)	61	
Initial Abstraction	(Ia)	5	mm
Storage	(S)	162.39	mm

		Design Storm
ARI		95th %ile 24hr Rainfall
24 Hr Rainfall depth	(P_{24})	33 mm
Runoff Depth	(Q_{24})	4.12 mm
Runoff Volume	(V_{24})	4.12 m³

Table 3.3 - Curve numbers for typical Auckland conditions

Land use	Group A Soil (volcanic granular loam)	Group B Soil (alluvial)	Group C Soil (mudstone/sandstone)
Bush, humid-climate, not-grazed	30	55	70
Pasture, lightly grazed, good grass cover	39	61	74
Urban lawns	39	61	74
Crops, straight rows, minimal vegetative cover	72	81	88
Sealed roads, roofs	98	98	98

Post Development

		Area (m²)	CN	Product
Total Impervious Area to be Mitigated		1000	98	98000
Total Pervious Area to be mitigated		0	61	0
Total		1000		98000
% Impervious		100%		
CN Weighted		98.00		
Initial Abstraction Weighted	(Ia)	0.00 mm		
Storage	(S)	5.18 mm		

Storm Event (ARI)		Storm Event Retention Storm 5mm	Storm Event Detention Storm 95th %ile 24hr Rainfall	
24 Hr Rainfall depth	(P_{24})	5	33	mm
Runoff Depth	(Q_{24})	5	28.52	mm
Runoff Volume	(V_{24})	5.00	28.52	m³

SMAF Volume Requirements

Total Detention & Retention Volume Required	24.40 m³	(Post Dev - Pre Dev)	
Minimum Retention Volume Required	5.00 m³	Soakhole	Good Soakage
Minimum Detention Volume Required	19.40 m³		
Average Outflow to Detention Volume in 24 hours	0.22 l/s	for Pipe Tank use 0.86 reduction in flow	
Peak Orifice Outflow (2x Average Flow)	0.45 l/s		0.39 l/s
Head above Orifice	0.28 m		0.28 m
Orifice discharge coefficient	0.62		0.62
Orifice Diameter (Orifice 1)	20.0 mm		18.5 mm

Flood Mitigation for 10yr Event

	Area (m2)	CN	10% AEP P_{24}	t_c	c*	q*	Q (l/s)
Pre Development (TP108 Calcs)	1000	61	120	10	0.2530	0.078	9.34

Peak Orifice Outflow (10 yr Storm - SMAF Storm)	8.9 l/s	Imp Area	1000	0.95	950	m²
Average Orifice Outflow (10yr Storm - Orifice 2)	4.4 l/s	Per Area	0	0.4	0	m²
		Reduced Area			950	m²

Detention Tank Calcs (10yr storm with CC Factor)

Time Duration (min)	Intensity (mm/hr)	Reduced Area (m²)	Flow (l/s)	Time to Fill SMAF (min)	Tank Inflow (m³)	Outflow Orifice 1 (m³)	Outflow Orifice 2 (m³)	10% AEP Storage (m³)
10	89.76	950	23.7	17.2	0.00	0.13	0.00	-0.13
20	69.36	950	18.3	22.2	0.00	0.27	0.00	-0.27
30	50.4	950	13.3	30.6	0.00	0.40	0.00	-0.40
60	40.8	950	10.8	37.8	14.36	1.11	5.93	7.32
120	27.88	950	7.4	55.3	28.57	2.49	17.27	8.81
360	10.88	950	2.9	141.7	37.61	7.79	58.27	-28.45
720	7.14	950	1.9	215.9	56.99	16.49	134.54	-94.04

Minimum Detention Storage Required for 10yr Storm Event 8.81 m3

Average Orifice Outflow (10yr Storm - Orifice 2)	4.4 l/s	for Pipe Tank use 0.86 reduction in flow	
Peak Orifice Outflow (10 yr Storm)	8.9 l/s		7.7 l/s
Head above Orifice	0.10 m		0.10 m
Orifice discharge coefficient	0.62		0.62
Orifice Diameter (Orifice 2)	80.1 mm		74.3 mm

Detention Tank Square Versitank

Tank Length	L	8.35 m	Tank Area	69.72	m²
Tank Width	W	8.35 m	Volume	30.68	m³ total
Tank Height	h	0.44 m			
Number of Tanks	n	1			

Number of Orifice Holes			2	total	
Outlet Orifice Diameter	d1	20.0 mm			
Orifice 2 Diameter	d2	80.1 mm	Height above Outlet Orifice	0.10	m
Orifice Discharge Coefficient			0.62		

Hydrology - by Rational Formula

Time of Concentration	Tc	10 min	(Building Tc)
Storm Duration	D	60 min	(Total Site Tc)

Rainfall Intensity (20% AEP for D)	40.8	mm/hr
Rainfall Intensity (20% AEP for Tc)	89.76	mm/hr

	C Value	Peak Discharge (Tc)		Storm Discharge (D)	
Roof + Connected Impervious	0.95	23.69 l/s	To Detention Tank	10.77	l/s
Rest of Site	0.40	0.00 l/s		0.00	l/s
Pre Development Site Discharge		9.34 l/s			
Maximum Allowable Tank Discharge		9.34 l/s			
Actual Tank Discharge		6.97 l/s			
Actual Tank Storage		22.63 m³			

Simulation

Time Step 4 min

Time	Runoff	Tank Inflow		Tank Storage	Tank WL	Adjusted AV WL	Tank Outflow	Tank Storage	SITE RUNOFF CALC Rest of Site	Total
(mins)	l/s	l/s	m³	m³	m	m	l/s	m³	l/s	l/s
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	4.31	4.23	0.51	0.49	0.01	0.01	0.07	0.49	0.00	0.07
8	8.61	8.61	1.54	2.03	0.03	0.03	0.15	2.03	0.00	0.15
12	10.77	10.77	2.33	4.44	0.06	0.06	0.22	4.44	0.00	0.22
16	10.77	10.77	2.58	6.97	0.10	0.10	0.27	6.97	0.00	0.27
20	10.77	10.77	2.58	9.16	0.13	0.13	2.59	9.15	0.00	2.59
24	10.77	10.77	2.58	11.00	0.16	0.16	3.54	10.98	0.00	3.54
28	10.77	10.77	2.58	12.65	0.18	0.18	4.20	12.64	0.00	4.20
32	10.77	10.77	2.58	14.16	0.20	0.20	4.73	14.14	0.00	4.73
36	10.77	10.77	2.58	15.54	0.22	0.22	5.16	15.52	0.00	5.16
40	10.77	10.77	2.58	16.84	0.24	0.24	5.53	16.82	0.00	5.53
44	10.77	10.77	2.58	18.05	0.26	0.26	5.86	18.03	0.00	5.86
48	10.77	10.77	2.58	19.19	0.28	0.28	6.16	19.17	0.00	6.16
52	10.77	10.77	2.58	20.27	0.29	0.29	6.42	20.24	0.00	6.42
56	10.77	10.77	2.58	21.28	0.31	0.31	6.66	21.26	0.00	6.66
60	10.77	10.77	2.58	22.24	0.32	0.32	6.88	22.22	0.00	6.88
64	6.46	6.53	2.08	22.66	0.33	0.33	6.97	22.63	0.00	6.97
68	2.15	2.23	1.05	22.05	0.32	0.32	6.84	22.02	0.00	6.84
72	0.00	0.00	0.00	20.58	0.30	0.30	6.50	20.56	0.00	6.50
76	0.00	0.00	0.00	19.07	0.27	0.27	6.13	19.04	0.00	6.13
80	0.00	0.00	0.00	17.64	0.25	0.25	5.76	17.62	0.00	5.76
84	0.00	0.00	0.00	16.30	0.23	0.23	5.38	16.28	0.00	5.38
88	0.00	0.00	0.00	15.06	0.22	0.22	5.01	15.04	0.00	5.01
92	0.00	0.00	0.00	13.88	0.20	0.20	4.63	13.86	0.00	4.63
96	0.00	0.00	0.00	12.81	0.18	0.18	4.26	12.79	0.00	4.26
100	0.00	0.00	0.00	11.83	0.17	0.17	3.89	11.82	0.00	3.89
104	0.00	0.00	0.00	10.94	0.16	0.16	3.51	10.93	0.00	3.51
108	0.00	0.00	0.00	10.14	0.15	0.15	3.14	10.13	0.00	3.14
112	0.00	0.00	0.00	9.44	0.14	0.14	2.76	9.43	0.00	2.76
116	0.00	0.00	0.00	8.82	0.13	0.13	2.37	8.81	0.00	2.37
120	0.00	0.00	0.00	8.30	0.12	0.12	1.98	8.29	0.00	1.98
124	0.00	0.00	0.00	7.87	0.11	0.11	1.58	7.86	0.00	1.58
128	0.00	0.00	0.00	7.54	0.11	0.11	1.16	7.53	0.00	1.16
132	0.00	0.00	0.00	7.31	0.10	0.10	0.68	7.31	0.00	0.68
136	0.00	0.00	0.00	7.22	0.10	0.10	0.28	7.21	0.00	0.28
140	0.00	0.00	0.00	7.15	0.10	0.10	0.27	7.15	0.00	0.27
144	0.00	0.00	0.00	7.08	0.10	0.10	0.27	7.08	0.00	0.27
148	0.00	0.00	0.00	7.02	0.10	0.10	0.27	7.02	0.00	0.27
152	0.00	0.00	0.00	6.95	0.10	0.10	0.27	6.95	0.00	0.27
156	0.00	0.00	0.00	6.89	0.10	0.10	0.27	6.89	0.00	0.27
160	0.00	0.00	0.00	6.82	0.10	0.10	0.27	6.82	0.00	0.27
164	0.00	0.00	0.00	6.76	0.10	0.10	0.27	6.76	0.00	0.27
168	0.00	0.00	0.00	6.70	0.10	0.10	0.27	6.70	0.00	0.27
172	0.00	0.00	0.00	6.63	0.10	0.10	0.26	6.63	0.00	0.26
176	0.00	0.00	0.00	6.57	0.09	0.09	0.26	6.57	0.00	0.26
180	0.00	0.00	0.00	6.51	0.09	0.09	0.26	6.51	0.00	0.26
184	0.00	0.00	0.00	6.44	0.09	0.09	0.26	6.44	0.00	0.26
188	0.00	0.00	0.00	6.38	0.09	0.09	0.26	6.38	0.00	0.26
192	0.00	0.00	0.00	6.32	0.09	0.09	0.26	6.32	0.00	0.26
196	0.00	0.00	0.00	6.26	0.09	0.09	0.26	6.26	0.00	0.26

RESULTS

Tank Area	69.72	m²
Tank Height	0.33	m
Orifice Diameter	19.95	mm
Total Tank Volume	22.64	m³
Maximum Site Discharge	6.97	l/s

RAINGARDEN DESIGN - BASED ON GD2017/001

Instructions

Adjustable design parameters		Input yellow cells only
95th %ile Rainfall Depth (mm)	33	From Fig. 14 of TR2013/035 (SMAF 1)
Pre-development Curve Number	61	From Table 3.3 of TP108
Impervious Area (m^2)	1000	
Soil Infiltration Rate (mm/hr)	2	Use default value of 2 mm/hr unless specific infiltration data is available (e.g. via TP58 infiltration methodology)
Evapotranspiration Rate (mm/day)	3	Use default value of 3 mm/day for typical vegetation. Use higher values for trees.

Impervious Runoff (TP108)		
Storage (mm)	5.2	'S' storage using CN 98
Runoff depth (mm)	28.5	Q_{24} using Ia = 0

Pre-Development Runoff (TP108)		
Storage (mm)	162.4	'S' storage using CN61
Runoff Depth (mm)	4.1	Q_{24} using Ia = 5 for pervious surface (TP10)

Hydrology Management Runoff Depth (mm)	24.4	This is the difference in runoff when comparing green field to road surface. Pre-post…
Hydrology Management Volume (m^3)	**24.40**	Apply runoff depth over new impervious area (roof for instance) = WQV (the volume to be treated)
Detention Volume (m^3)	**19.40**	Total volume minus the retention volume which is lost due to infiltration and evapotranspiration
Retention Volume (m^3)	**5.00**	Calculated as 5mm of rainfall which is lost through the base of the rain garden

Minimum Infiltration Area Required (m^2) A_f	**32.68**	This is the infiltration area of the rain garden required to regenerate the retention volume in 72 hours

Using the calculation:

Rain Garden Design Parameters

Ponding Area (m^2)	70.00	Based on minimum infiltration area above, rounded up
Ponding Depth (mm)	300	
Media Depth - including transition layer (mm)	800	
Aggregate Depth - above underdrain invert (mm)	150	
Aggregate Depth - below underdrain invert (mm)	210	
Infiltration Area (m^2)	70.0	This must be at least as large as the value in Cell B22

Media Void Space (%)	30%	Use default value of 30%
Aggregate Void Space (%)	35%	Use default value of 35%

Ponding Volume - Detention (m^3)	21.00	200mm depth of water before overflowing to catchpit
Media Volume - Detention (m^3)	16.80	The volume of water trapped in the rain garden mix
Aggregate Volume - Detention (m^3)	3.68	The volume of water trapped above the underdrain invert
Aggregate Volume - Retention (m^3)	5.15	The volume of water trapped below the underdrain invert

Total Detention Volume Provided (m^3)	**41.48**	The volume above the underdrain invert
Total Retention Volume Provided (m^3)	**5.15**	The volume below the underdrain invert which relies on the infiltration to the soil in the base of the garden

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STORMWATER FLOWS - Site Catchment
Existing Pervious Area

Hydrological Soil Group		Group B	
	CN	Area	Product
Grassed	61	4.0500	247.0500
	totals	4.0500	247.0500

% Impervious		0.00%	
CN weighted		61.0000	
I_a weighted		5.0000	
Channelisation factor	(C)	1.0000	
Catchment Length	(l)	0.4120	km
Catchment Slope	(S_c)	0.0450	m/m
Runoff Factor		0.4388	
Time of Concentration	(t_c)	0.3110	hrs 18.7 min
Use	(t_c)	0.3110	hrs 18.7 min
Catchment Area		0.0405	km²
CN		61.0000	
Storage	(S)	162.3934	mm

Buckland Road Plan Change - NW Catchment

Table 3.3 - Curve numbers for typical Auckland conditions

Land use	Group A Soil (volcanic granular loam)	Group B Soil (alluvial)	Group C Soil (mudstone/sandstone)
Bush, humid-climate, not-grazed	30	55	70
Pasture, lightly grazed, good grass cover	39	61	74
Urban lawns	39	61	74
Crops, straight rows, minimal vegetative cover	72	81	88
Sealed roads, roofs	98	98	98

			WQV $^1/_3$ 2yr	Ex. Det.	50% AEP 2yr ARI	20% AEP 5yr ARI	10% AEP 10yr ARI	5% AEP 20yr ARI	2% AEP 50yr ARI	1% AEP 100yr ARI
24 hour rainfall depth	(P_{24})	mm	23.3333	34.50	70	100	120	140	160	180
c*			0.0394	0.0701	0.1559	0.2170	0.2530	0.2858	0.3159	0.3436
q* from ARC		Approx	0.026	0.026	0.041	0.056	0.064	0.070	0.075	0.079
Peak Flowrate	(q_p)	cumecs	0.0245	0.0362	0.1175	0.2278	0.3091	0.3947	0.4838	0.5757
Peak Flowrate	(q_p)	l/s	24	36	118	228	309	395	484	576
24 hour Runoff Depth	(Q_{24})	mm	1.86	4.54	18.58	35.06	47.68	61.28	75.69	90.77
24 hour Runoff Volume	(V_{24})	cu mtr	75	184	752	1420	1931	2482	3066	3676

STORMWATER FLOWS - Site Catchment
Existing Impervious

Hydrological Soil Group		Group_B_Impervious	
	CN	Area	Product
Building	98	0.0610	5.9780
	totals	0.0610	5.9780

% Impervious		100.00%	
CN weighted		98.0000	
I_a weighted		0.0000	
Channelisation factor	(C)	1.0000	
Catchment Length	(l)	0.4120	km
Catchment Slope	(S_c)	0.0450	m/m
Runoff Factor		0.9608	
Time of Concentration	(t_c)	0.2021	hrs 12.1 min
Use	(t_c)	0.2021	hrs 12.1 min
Catchment Area		0.0006	km²
CN		98.0000	
Storage	(S)	5.1837	mm

			WQV $^1/_3$ 2yr	Ex. Det.	50% AEP 2yr ARI	20% AEP 5yr ARI	10% AEP 10yr ARI	5% AEP 20yr ARI	2% AEP 50yr ARI	1% AEP 100yr ARI
24 hour rainfall depth	(P_{24})	mm	23.3333	34.50	70	100	120	140	160	180
c*			0.6924	0.7689	0.8710	0.9061	0.9205	0.9311	0.9391	0.9455
q* from ARC		Approx	0.135	0.142	0.150	0.153	0.154	0.155	0.155	0.156
Peak Flowrate	(q_p)	cumecs	0.0019	0.0030	0.0064	0.0093	0.0113	0.0132	0.0152	0.0171
Peak Flowrate	(q_p)	l/s	2	3	6	9	11	13	15	17
24 hour Runoff Depth	(Q_{24})	mm	19.09	29.99	65.17	95.07	115.03	135.00	154.98	174.96
24 hour Runoff Volume	(V_{24})	cu mtr	12	18	40	58	70	82	95	107

Existing Flows

			WQV $^1/_3$ 2yr	Ex. Det.	50% AEP 2yr ARI	20% AEP 5yr ARI	10% AEP 10yr ARI	5% AEP 20yr ARI	2% AEP 50yr ARI	1% AEP 100yr ARI
24 hour rainfall depth	(P_{24})	mm	23.3333	34.50	70	100	120	140	160	180
Peak Flowrate	(q_p)	cumecs	0.0264	0.0392	0.1240	0.2371	0.3203	0.4079	0.4990	0.5927
Peak Flowrate	(q_p)	l/s	26	39	124	237	320	408	499	593
24 hour Runoff Volume	(V_{24})	cu mtr	87	202	792	1478	2001	2564	3160	3783

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STORMWATER FLOWS - Site Catchment

Post Development Pervious

		CN	Area	Product
Hydrological Soil Group			Group B	
Grass		61	0.4000	24.4000
		totals	0.4000	24.4000
% Impervious			0.00%	
CN weighted			61.0000	
Ia weighted			5.0000	
Channelisation factor	(C)		0.6000	
Catchment Length	(l)		0.4120	km
Catchment Slope	(S_c)		0.0450	m/m
Runoff Factor			0.4388	
Time of Concentration	(t_c)		0.1866	hrs
Use	(t_c)		0.1866	hrs
Catchment Area			0.0040	km²
CN			61.0000	
Storage	(S)		162.3934	mm

11.2 min
11.2 min

Buckland Road Plan Change - NW Catchment

Table 3.3 - Curve numbers for typical Auckland conditions

Land use	Group A Soil (volcanic granular loam)	Group B Soil (alluvial)	Group C Soil (mudstone/sandstone)
Bush, humid-climate, not-grazed	30	55	70
Pasture, lightly grazed, good grass cover	39	61	74
Urban lawns	39	61	74
Crops, straight rows, minimal vegetative cover	72	81	88
Sealed roads, roofs	98	98	98

			WQV $^1/_3$ 2yr	Ex. Det.	50% AEP 2yr ARI	20% AEP 5yr ARI	10% AEP 10yr ARI	5% AEP 20yr ARI	2% AEP 50yr ARI	1% AEP 100yr ARI
24 hour rainfall depth	(P_{24})	mm	25.3333	34.50	76	111	136	163	187	210
c*			0.0451	0.0701	0.1689	0.2372	0.2795	0.3202	0.3527	0.3811
q* from ARC		Approx	0.031	0.031	0.053	0.072	0.081	0.089	0.095	0.100
Peak Flowrate	(q_p)	cumecs	0.0031	0.0042	0.0162	0.0318	0.0441	0.0582	0.0711	0.0839
Peak Flowrate	(q_p)	l/s	3	4	16	32	44	58	71	84
24 hour Runoff Depth	(Q_{24})	mm	2.26	4.54	21.60	41.86	58.49	77.92	96.18	114.39
24 hour Runoff Volume	(V_{24})	cu mtr	9	18	86	167	234	312	385	458

STORMWATER FLOWS - Site Catchment

Post Development Impervious

		CN	Area	Product
Hydrological Soil Group			Group_B_Impervious	
Building		98	1.8555	181.8390
Roads		98	1.8555	181.8390
		totals	3.7110	363.6780
% Impervious			100.00%	
CN weighted			98.0000	
Ia weighted			0.0000	
Channelisation factor	(C)		0.6000	
Catchment Length	(l)		0.4120	km
Catchment Slope	(S_c)		0.0450	m/m
Runoff Factor			0.9608	
Time of Concentration	(t_c)		0.1213	hrs
Use	(t_c)		0.1667	hrs
Catchment Area			0.0371	km²
CN			98.0000	
Storage	(S)		5.1837	mm

7.3 min
10.0 min

			WQV $^1/_3$ 2yr	Ex. Det.	50% AEP 2yr ARI	20% AEP 5yr ARI	10% AEP 10yr ARI	5% AEP 20yr ARI	2% AEP 50yr ARI	1% AEP 100yr ARI
24 hour rainfall depth	(P_{24})	mm	25.3333	34.50	76	111	136	163	187	210
c*			0.7096	0.7689	0.8800	0.9146	0.9292	0.9402	0.9475	0.9530
q* from ARC		Approx	0.145	0.150	0.160	0.163	0.164	0.165	0.165	0.166
Peak Flowrate	(q_p)	cumecs	0.1362	0.1926	0.4511	0.6701	0.8267	0.9960	1.1464	1.2906
Peak Flowrate	(q_p)	l/s	136	193	451	670	827	996	1146	1291
24 hour Runoff Depth	(Q_{24})	mm	21.03	29.99	71.15	106.05	131.01	157.98	181.96	204.94
24 hour Runoff Volume	(V_{24})	cu mtr	780	1113	2640	3935	4862	5862	6752	7605

Post Development Flows

			WQV $^1/_3$ 2yr	Ex. Det.	50% AEP 2yr ARI	20% AEP 5yr ARI	10% AEP 10yr ARI	5% AEP 20yr ARI	2% AEP 50yr ARI	1% AEP 100yr ARI
24 hour rainfall depth	(P_{24})	mm	25.3333	34.50	76	111	136	163	187	210
Peak Flowrate	(q_p)	cumecs	0.1393	0.1969	0.4673	0.7019	0.8709	1.0541	1.2175	1.3745
Peak Flowrate	(q_p)	l/s	139	197	467	702	871	1054	1218	1375
24 hour Runoff Volume	(V_{24})	cu mtr	789	1131	2727	4103	5096	6174	7137	8063

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STORMWATER FLOWS - Site Catchment
Existing Pervious Area

Hydrological Soil Group: Group B

	CN	Area	Product
Grassed	61	3.7045	225.9745
totals		3.7045	225.9745

% Impervious		0.00%	
CN weighted		61.0000	
I_a weighted		5.0000	
Channelisation factor	(C)	1.0000	
Catchment Length	(l)	0.4070	km
Catchment Slope	(S_c)	0.0430	m/m
Runoff Factor		0.4388	
Time of Concentration	(t_c)	0.3127 hrs	18.8 min
Use	(t_c)	0.3127 hrs	18.8 min
Catchment Area		0.0370	km²
CN		61.0000	
Storage	(S)	162.3934	mm

Buckland Road Plan Change - SE Catchment

Table 3.3 - Curve numbers for typical Auckland conditions

Land use	Group A Soil (volcanic granular loam)	Group B Soil (alluvial)	Group C Soil (mudstone/sandstone)
Bush, humid-climate, not-grazed	30	55	70
Pasture, lightly grazed, good grass cover	39	61	74
Urban lawns	39	61	74
Crops, straight rows, minimal vegetative cover	72	81	88
Sealed roads, roofs	98	98	98

			WQV $^1/_3$ 2yr	Ex. Det.	50% AEP 2yr ARI	20% AEP 5yr ARI	10% AEP 10yr ARI	5% AEP 20yr ARI	2% AEP 50yr ARI	1% AEP 100yr ARI
24 hour rainfall depth	(P_{24})	mm	23.3333	34.50	70	100	120	140	160	180
c*			0.0394	0.0701	0.1559	0.2170	0.2530	0.2858	0.3159	0.3436
q* from ARC		Approx	0.026	0.026	0.041	0.056	0.063	0.069	0.075	0.079
Peak Flowrate	(q_p)	cumecs	0.0223	0.0330	0.1073	0.2079	0.2821	0.3603	0.4417	0.5255
Peak Flowrate	(q_p)	l/s	22	33	107	208	282	360	442	525
24 hour Runoff Depth	(Q_{24})	mm	1.86	4.54	18.58	35.06	47.68	61.28	75.69	90.77
24 hour Runoff Volume	(V_{24})	cu mtr	69	168	688	1299	1766	2270	2804	3363

STORMWATER FLOWS - Site Catchment
Existing Impervious

Hydrological Soil Group: Group_B_Impervious

	CN	Area	Product
Building	98	0.0565	5.5370
totals		0.0565	5.5370

% Impervious		100.00%	
CN weighted		98.0000	
I_a weighted		0.0000	
Channelisation factor	(C)	1.0000	
Catchment Length	(l)	0.4070	km
Catchment Slope	(S_c)	0.0430	m/m
Runoff Factor		0.9608	
Time of Concentration	(t_c)	0.2032 hrs	12.2 min
Use	(t_c)	0.2032 hrs	12.2 min
Catchment Area		0.0006	km²
CN		98.0000	
Storage	(S)	5.1837	mm

			WQV $^1/_3$ 2yr	Ex. Det.	50% AEP 2yr ARI	20% AEP 5yr ARI	10% AEP 10yr ARI	5% AEP 20yr ARI	2% AEP 50yr ARI	1% AEP 100yr ARI
24 hour rainfall depth	(P_{24})	mm	23.3333	34.50	70	100	120	140	160	180
c*			0.6924	0.7689	0.8710	0.9061	0.9205	0.9311	0.9391	0.9455
q* from ARC		Approx	0.135	0.142	0.150	0.153	0.154	0.154	0.155	0.155
Peak Flowrate	(q_p)	cumecs	0.0018	0.0028	0.0059	0.0086	0.0104	0.0122	0.0140	0.0158
Peak Flowrate	(q_p)	l/s	2	3	6	9	10	12	14	16
24 hour Runoff Depth	(Q_{24})	mm	19.09	29.99	65.17	95.07	115.03	135.00	154.98	174.96
24 hour Runoff Volume	(V_{24})	cu mtr	11	17	37	54	65	76	88	99

Existing Flows

			WQV $^1/_3$ 2yr	Ex. Det.	50% AEP 2yr ARI	20% AEP 5yr ARI	10% AEP 10yr ARI	5% AEP 20yr ARI	2% AEP 50yr ARI	1% AEP 100yr ARI
24 hour rainfall depth	(P_{24})	mm	23.3333	34.50	70	100	120	140	160	180
Peak Flowrate	(q_p)	cumecs	0.0241	0.0358	0.1132	0.2165	0.2925	0.3726	0.4557	0.5413
Peak Flowrate	(q_p)	l/s	24	36	113	217	293	373	456	541
24 hour Runoff Volume	(V_{24})	cu mtr	80	185	725	1353	1831	2346	2892	3461

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STORMWATER FLOWS - Site Catchment

Post Development Pervious

Buckland Road Plan Change - SE Catchment

Hydrological Soil Group		Group B	
	CN	Area	Product
Grass	61	0.3760	22.9360
totals		0.3760	22.9360
% Impervious		0.00%	
CN weighted		61.0000	
Ia weighted		5.0000	
Channelisation factor	(C)	0.6000	
Catchment Length	(l)	0.4070	km
Catchment Slope	(S_c)	0.0430	m/m
Runoff Factor		0.4388	
Time of Concentration	(t_c)	0.1876	hrs
Use	(t_c)	0.1876	hrs
Catchment Area		0.0038	km²
CN		61.0000	
Storage	(S)	162.3934	mm

				WQV $^1/_3$ 2yr	Ex. Det.	50% AEP 2yr ARI	20% AEP 5yr ARI	10% AEP 10yr ARI	5% AEP 20yr ARI	2% AEP 50yr ARI	1% AEP 100yr ARI
24 hour rainfall depth	(P_{24})		mm	25.3333	34.50	76	111	136	163	187	210
c*				0.0451	0.0701	0.1689	0.2372	0.2795	0.3202	0.3527	0.3811
q* from ARC			Approx	0.031	0.031	0.053	0.071	0.081	0.089	0.095	0.100
Peak Flowrate	(q_p)		cumecs	0.0029	0.0040	0.0152	0.0298	0.0414	0.0546	0.0668	0.0787
Peak Flowrate	(q_p)		l/s	3	4	15	30	41	55	67	79
24 hour Runoff Depth	(Q_{24})		mm	2.26	4.54	21.60	41.86	58.49	77.92	96.18	114.39
24 hour Runoff Volume	(V_{24})		cu mtr	9	17	81	157	220	293	362	430

Table 3.3 - Curve numbers for typical Auckland conditions			
Land use	**Group A Soil (volcanic granular loam)**	**Group B Soil (alluvial)**	**Group C Soil (mudstone/sandstone)**
Bush, humid-climate, not-grazed	30	55	70
Pasture, lightly grazed, good grass cover	39	61	74
Urban lawns	39	61	74
Crops, straight rows, minimal vegetative cover	72	81	88
Sealed roads, roofs	98	98	98

STORMWATER FLOWS - Site Catchment

Post Development Impervious

Hydrological Soil Group		Group_B_Impervious	
	CN	Area	Product
Building	98	1.6925	165.8650
Roads	98	1.6925	165.8650
totals		3.3850	331.7300
% Impervious		100.00%	
CN weighted		98.0000	
Ia weighted		0.0000	
Channelisation factor	(C)	0.6000	
Catchment Length	(l)	0.4070	km
Catchment Slope	(S_c)	0.0430	m/m
Runoff Factor		0.9608	
Time of Concentration	(t_c)	0.1219	hrs
Use	(t_c)	0.1667	hrs
Catchment Area		0.0339	km²
CN		98.0000	
Storage	(S)	5.1837	mm

				WQV $^1/_3$ 2yr	Ex. Det.	50% AEP 2yr ARI	20% AEP 5yr ARI	10% AEP 10yr ARI	5% AEP 20yr ARI	2% AEP 50yr ARI	1% AEP 100yr ARI
24 hour rainfall depth	(P_{24})		mm	25.3333	34.50	76	111	136	163	187	210
c*				0.7096	0.7689	0.8800	0.9146	0.9292	0.9402	0.9475	0.9530
q* from ARC			Approx	0.145	0.150	0.160	0.163	0.164	0.165	0.165	0.166
Peak Flowrate	(q_p)		cumecs	0.1242	0.1757	0.4115	0.6113	0.7541	0.9085	1.0457	1.1772
Peak Flowrate	(q_p)		l/s	124	176	411	611	754	908	1046	1177
24 hour Runoff Depth	(Q_{24})		mm	21.03	29.99	71.15	106.05	131.01	157.98	181.96	204.94
24 hour Runoff Volume	(V_{24})		cu mtr	712	1015	2408	3590	4435	5347	6159	6937

Post Development Flows

			WQV $^1/_3$ 2yr	Ex. Det.	50% AEP 2yr ARI	20% AEP 5yr ARI	10% AEP 10yr ARI	5% AEP 20yr ARI	2% AEP 50yr ARI	1% AEP 100yr ARI
24 hour rainfall depth	(P_{24})	mm	25.3333	34.50	76	111	136	163	187	210
Peak Flowrate	(q_p)	cumecs	0.1272	0.1797	0.4266	0.6411	0.7955	0.9631	1.1125	1.2560
Peak Flowrate	(q_p)	l/s	127	180	427	641	796	963	1112	1256
24 hour Runoff Volume	(V_{24})	cu mtr	720	1032	2490	3747	4655	5640	6521	7367

301 & 303 Buckland Road
Proposed Plan Change

Integrated Transportation Assessment Report

3 November 2021

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Project:	301 & 303 Buckland Road
Report title:	Integrated Transportation Assessment Report
Document reference:	301 & 303 Buckland Road Plan Change
Date:	3 November 2021

Report Status	Prepared By	Reviewed By	Approved By
Final Report	Nabi Mussa	Leo Hills	Leo Hills
			

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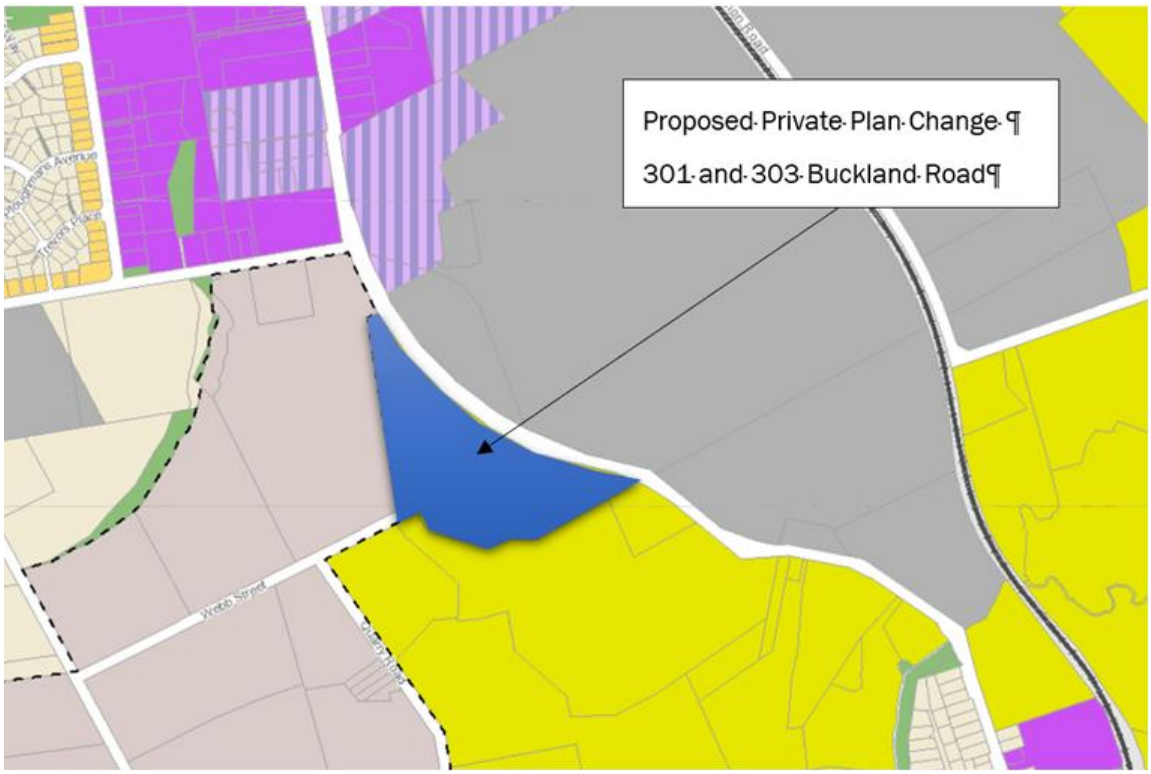
EXECUTIVE SUMMARY

PROPOSAL

Commute Transportation Consultants have been commissioned to prepare an Integrated Transport Assessment ("ITA") for a proposed Plan Change ("PPC") at 301 & 303 Buckland Road in Pukekohe, Auckland. The PPC area is approximately 7.9ha and is currently zoned as 'Future Urban Zone' in the Auckland Unitary Plan operative in part[1] (Unitary Plan), and the proposal intends to rezone this portion of land to 'Business – General Business' zoning to allow for a mixture of retail, commercial and light industrial activities.

Figure A shows the boundary of the PPC area.

Figure A: PPC area



While the activity proposed within the site is not yet been finalised, these are expected to cater for a mixture of employment-based activities enabled in the zone including large format retail, car sales/ showrooms, warehouse/ distribution, office activity and trade retail sales etc.

The key transportation considerations of the proposed Plan Change are considered to be:

- The ability of Manukau Road and Buckland Road to accommodate additional traffic generated by the activities enabled in the proposed re-zoned land; and
- Integration of any proposed development on the re-zoned land with wider transport network plans, and land use plans (Structure Plans), in Pukekohe.

[1] Auckland Unitary Plan Operative in part (Updated 26 October 2018)

ROAD NETWORK

Buckland Road typically runs in a north-south alignment connecting to Manukau Road to the north and George Street to the south.

The posted speed limit along Buckland Road is 80 km/hr. With reference to the Unitary Plan, Buckland Road is classified as an 'Arterial Road'. Based on these volumes, the major access locations to the PPC area will likely require higher level intersection treatments such as roundabouts which the roading environment would be able accommodate in the future.

TRAFFIC GENERATION

Rule E.27.6.1 "Trip Generation" of the Unitary plan sets out the trip generation limits as to when resource consent for a restricted discretionary activity is required. For retail (non-drive through), this limit is 1667 m^2 GFA therefore the likely development that would follow rezoning is likely to meet the threshold and trigger assessment under this rule.

A detailed analysis of the expected traffic generation is currently being undertaken. However, based on the analysis and size of the Pukekohe Racecourse Plan Change to General Business Zone (recently approved) opposite the site, the PPC is likely to generate up to 700 vehicles per hour. However, this assumes a high proportion of large format retail and the final make-up of the site may be significantly less should other permitted activities such as light industry and office activity be established.

ACCESS FORM

The bulk of the retail, warehouse or commercial activities within the PPC area are recommended to be served either directly off Buckland Road or by new roundabout at the extension of PU-NS-2 Road extension to Buckland Road. The establishment of a roundabout will enable safer access to and from the site as well as the Pukekohe Racecourse opposite.

Roundabouts are considered to integrate well with the existing road network and in this case provide a threshold into the south of Pukekohe. In general, it is considered that there is sufficient land area within road reserve, or within the site, to accommodate single lane roundabout.

SPEED LIMIT

As a result of the PPC, it is suggested that the posted speed limit of 50 km/hr would be extended south along the entire frontage of the PPC.

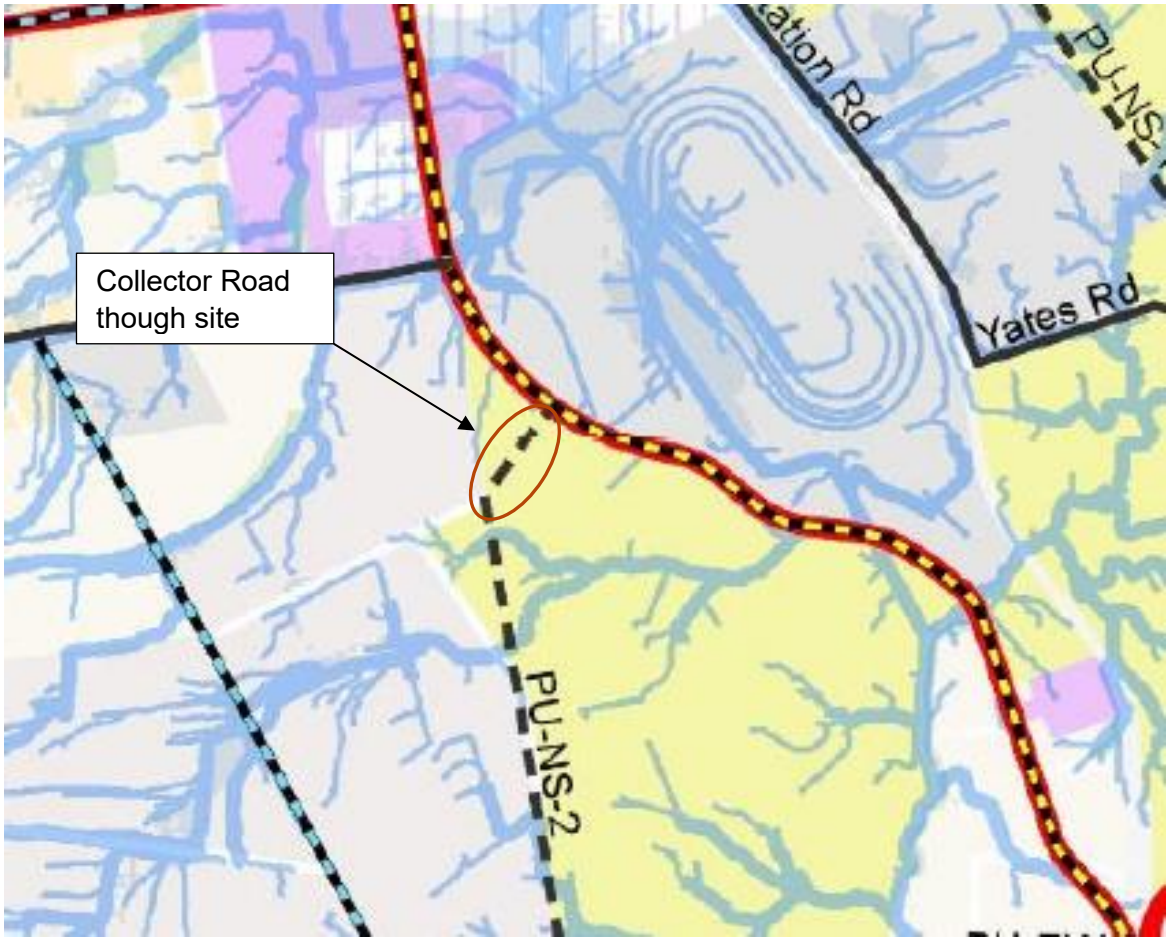
INTERNAL ROAD NETWORK

Internal public roads within the site (if required) are recommended to be 16-21 m wide in accordance with the Auckland Transport Roads and Streets Framework standard for greenfield sites.

PU-NS-2 Road extension should be extended through the site to Buckland Road with a future roundabout constructed at Buckland Road. This is in accordance with the Structure

Plan and allows roading access to both sites (it essentially splits the overall site in two). Figure B shows this road as per the Structure Plan ITA.

Figure B: PPC area



As this road is anticipated to be a collector road it should be 21m in width as per Structure Plan ITA.

PEDESTRIAN PROVISION

Due to the site being immediately outside the current Rural Urban Boundary there is currently no pedestrian access along Buckland Road (adjacent to the site). It is therefore recommended to extend the existing footpath along the western side of Buckland Road along the entire site frontage and linking to Kitchener Road (where and existing footpath exists on Manukau Road). The extended footpath should be 1.8 m wide (similar to that existing on Manukau Road).

From a pedestrian perspective (provided the above is incorporated), the site is well-connected and provides for a safe environment. It is expected that this would be required/implemented when the land is first developed or subdivided.

PUBLIC TRANSPORT

There are two existing bus routes that pass by the site with the nearest bus stop located some 1km north of the most northern portion of the site on Manukau Road. With further development likely to occur near the proposed site (at Pukekohe Park), it is recommended that consideration be given to providing bus stops fronting the site to encourage the use of public transport when travelling to and from the site. It is therefore recommended that, as the road frontage is upgraded to include a flush median (subject to any new access being established at the on Buckland Road) a bus stop should be incorporated into the design to encourage the use of public transport to and from the site. This could be implemented when the land is developed.

WIDER EFFECTS

In terms of the wider impacts (including the northern section of Manukau Road) the Drury-Opāheke and Pukekohe-Paerata Structure Plan including the "Draft Integrated Transport Assessment and Addendum" dated 2nd April 2019 contains information on the site. Of particular note are a number of projects in the wider area including:

- Electrification of the rail line to Pukekohe (already funded)
- Pukekohe Expressway linking Pukekohe with a new interchange on SH1 (medium to long term)
- Pukekohe ring road (providing a new alternative to travel around the Pukekohe Town Centre) *;
- General safety improvements on Buckland Road and
- Upgrade of Mill road (linking to Bombay)*

* At the time of writing it is uncertain if these two projects will proceed.

These upgrades are considered appropriate to cater for the growth in Pukekohe in the long term.

IMPLEMENTATION PLAN

Table 1 summarises the PPC Implementation Plan. It sets out local works that will need to be addressed as part of development of this site.

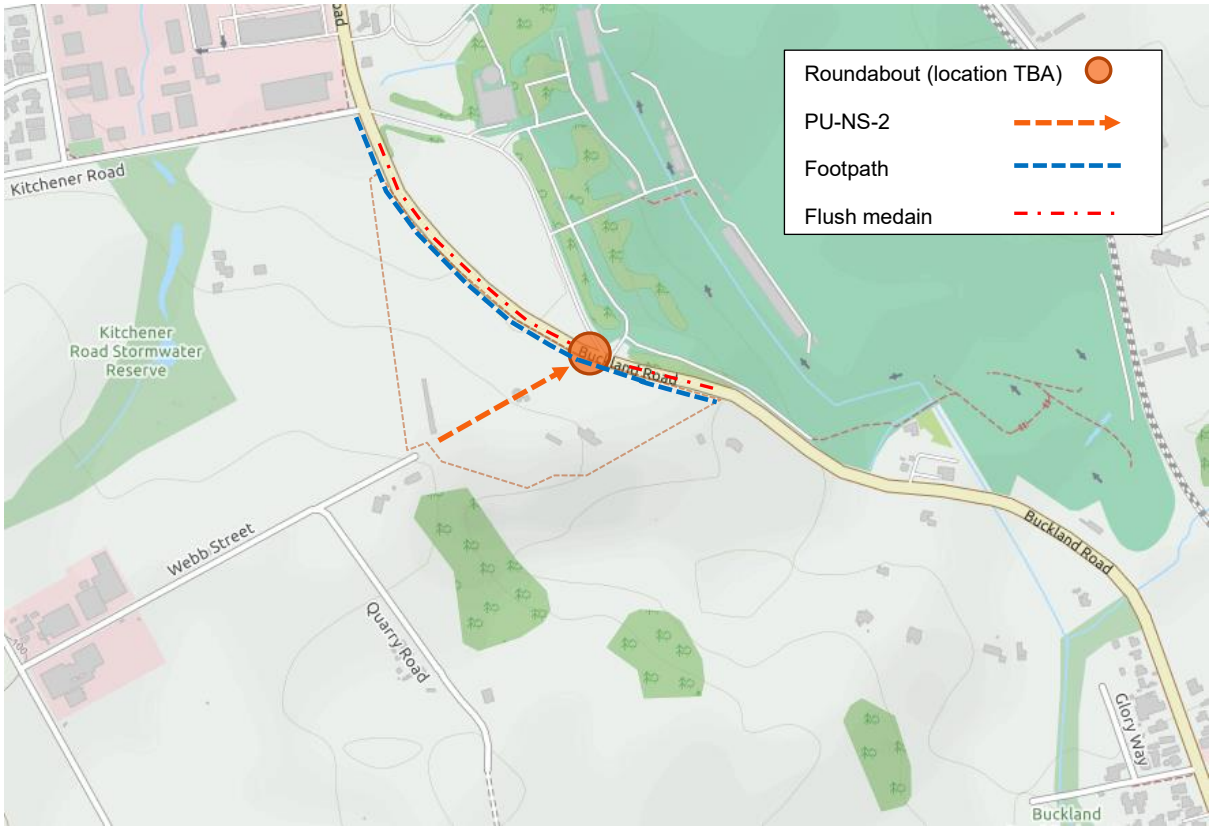
Table 1: Implementation plan

Trigger	Upgrade	Comments	Funder
Any new access on Buckland Road	Buckland Road upgraded to accommodate a painted flush median / right turn bay.	Will be required as part of initial development.	Developer
Commencement of development	Footpaths to link site(s) to existing footpath on Manukau Road (1.8 m wide)	Will be required as part of initial development and as required	Developer
Initial development	Reduce speeds past the site to 50km/hr	Speed reduction can only be instigated by Road Controlling Authority (Auckland Transport)	Auckland Transport
To be assessed at Recourse Consent (likely	Provide roundabout on Buckland Road	Highly dependent on exact land-use. Also provides an	Developer

needed early in development)		appropriate threshold to 50km/hr area.	
To be assessed at Recourse Consent (unlikely to be directly needed by development but needs to be accounted for	Provide PU-NS-2 Collector Road to Buckland Road	Highly dependent on exact land-use.	Developer
To be assessed at Recourse Consent	Upgrade Webb Street	Upgraded to local road standard, site frontage.	Developer / Other Developers on Webb Street
Considered as part of subsequent developments near the development site	Provision of bus stops (fronting the site)	To encourage the use of public transport when travelling to and from the area surrounding the site	Auckland Transport

These are shown in Figure C below.

Figure C: Implementation for PPC



In general, none of these projects are currently in the Regional Land Transport Programme (RLTP) and thus are considered to be the responsibility of developers as they progress.

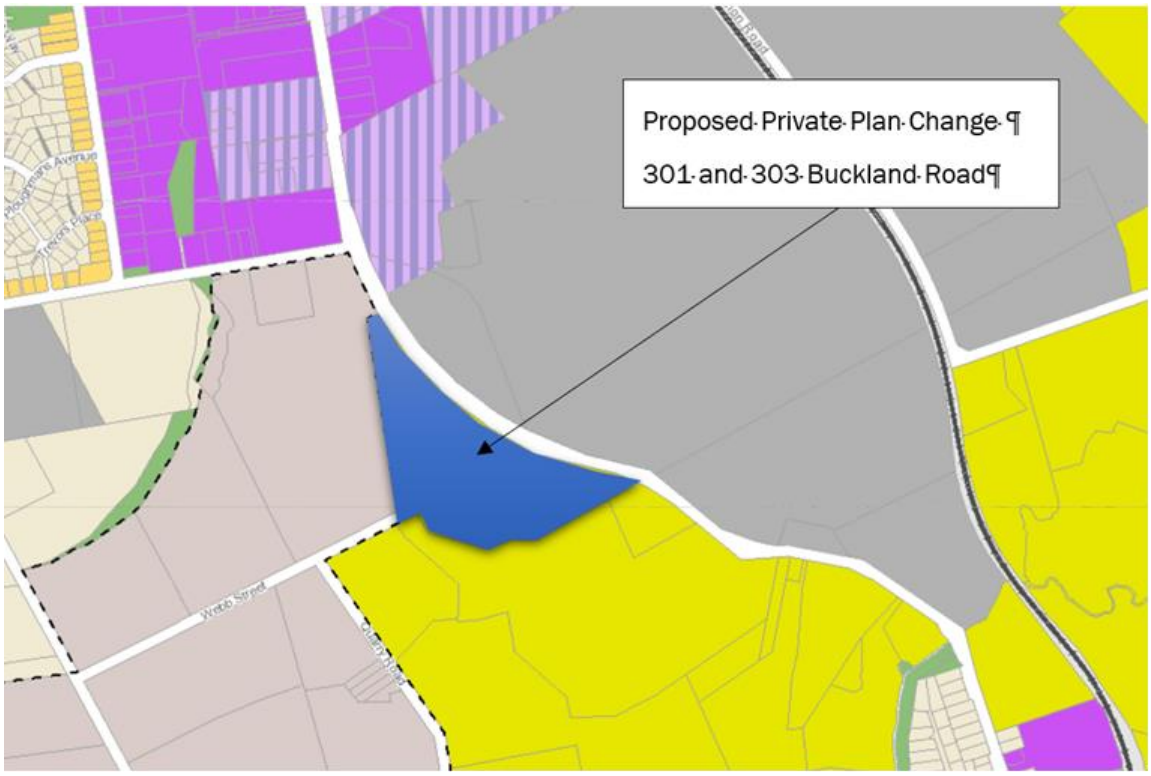
With the above in place it is considered that there is no traffic engineering or transportation planning reason to preclude the proposed rezoning of the land from Future Urban Zone to General Business Zone.

1 INTRODUCTION

Commute Transportation Consultants have been commissioned to prepare an Integrated Transport Assessment ("ITA") for a proposed Plan Change ("PPC") at 301 & 303 Buckland Road in Pukekohe, Auckland. The PPC area is approximately 7.9ha and is currently zoned as 'Future Urban Zone' in the Auckland Unitary Plan operative in part[2] (Unitary Plan), and the proposal intends to rezone this portion of land to 'Business – General Business' zoning to allow for a mixture of large format retail, commercial and light industrial activities.

Figure shows the boundary of the PPC area (indicated by orange dotted line).

Figure 0-1: PPC area



While the activity proposed within the site is not yet been finalised, these are expected to cater for a mixture of activities enabled in the zone including large format retail, car sales/ showrooms, warehouse/ distribution, office activity and trade retail sales etc.

The key transportation considerations of the proposed Plan Change are considered to be:

- The ability of Manukau Road and Buckland Road to accommodate additional traffic generated by the activities enabled in the proposed re-zoned land; and

[2] Auckland Unitary Plan Operative in part (Updated 26 October 2018)

- Integration of any proposed development on the re-zoned land with wider transport network plans, and land use plans (Structure Plans), in Pukekohe.

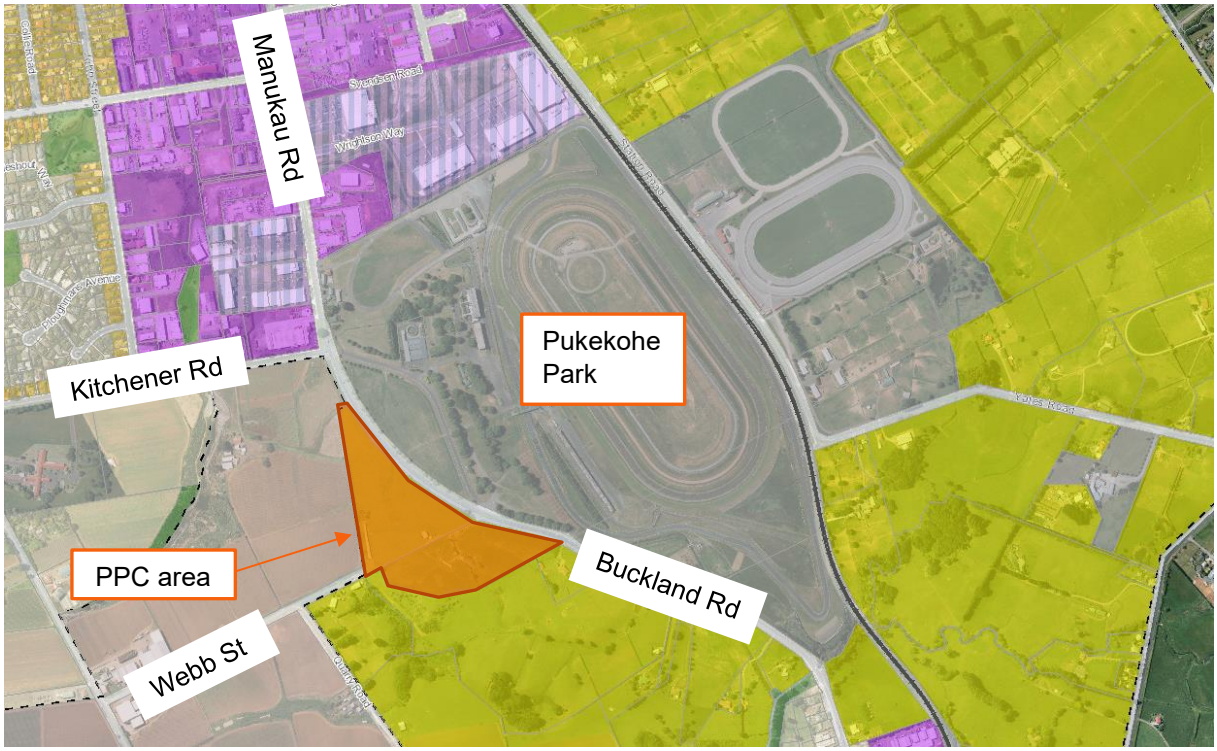
These and other matters are addressed in detail in this report. By way of summary, it is considered that the PPC and accompanying potential development, as outlined in this report (with mitigation measures), is likely to have minimal adverse effects to the function, capacity and safety of the surrounding transport network.

2 EXISTING ENVIRONMENT

2.1 SITE LOCATION

Figure 0-2 shows the location of the PPC area (referred to as the 'site') in relation to the surrounding road environment.

Figure 0-2: Site Location



The site is located at the south-western side of Buckland Road near Pukekohe Park in Pukekohe, Auckland. The area is bounded by Buckland Road and Manukau Road to the east, Business zoned land to the north, future urban to the south and Pukekohe Park to the east.

The PPC area is currently zoned as 'Future Urban Zone (FUZ)' in the Unitary Plan.

The site currently has access to Buckland Road and Webb Street.

2.2 ROAD NETWORK

2.2.1 BUCKLAND ROAD

Buckland Road typically runs in a north-south alignment connecting to Manukau Road to the north and George Street to the south. South of Kitchener Road, Buckland Road is

essentially an extension of Manukau Road. It provides a road reserve width of approximately 30 m adjacent to the PPC area, with a sealed carriageway of approximately 16 m width. Buckland Road provides a single lane in each direction for the entirety of its length. Near the vicinity of the site, there are no pedestrian footpaths provided on either side of Buckland Road. On-street parking is permitted on both sides of Buckland Road.

The posted speed limit along Buckland Road varies near the vicinity of the site. Approximately 55 m south of the intersection with Kitchener Road (and Racecourse Gate 2 access) the speed limit is 80 km/hr (continuing southbound); north of this point the speed limit is 50 km/hr (approaching the Pukekohe town centre).

With reference to the Unitary Plan, Buckland Road is classified as an 'Arterial Road'.

Photograph 1 and Photograph 2 show the typical layout of Buckland Road, adjacent to the PPC area.

Photograph 1: Northern direction along Buckland Road (northern end)

Photograph 2: Southern direction along Buckland Road (northern end)

2.2.2 MANUKAU ROAD

Buckland Road continues onto Manukau Road near the southern boundary of the PPC area and the intersection with Kitchener Road. Manukau Road typically extends in the north south direction connecting to the Stadium Dr/ Massey Ave/ King St roundabout to the north and the Buckland Road/ Kitchener Road intersection (South). It provides a road reserve width of approximately 25m (adjacent to the PPC area) with a sealed width of some 12.5 m. Manukau Road provides a single lane in each direction with additional lanes provided at intersection approaches.

Pedestrian footpaths are provided on the western side of Manukau Road only near the PPC area, while on-street parking is permitted on both sides of Manukau Road within the site's vicinity.

With reference to the Unitary Plan, Manukau Road is classified as an 'Arterial Road' in the Unitary Plan. Manukau Road has a posted speed limit of 50 km/hr.

Photograph 3 show Manukau Road to the north of the Plan Change area.

Photograph 3: Manukau Road (north of the site)

2.2.3 WEBB STREET

Webb Street is located at the western edge of the Plan change area. It is a dead-end rural road that is connected to Tuakau Road at its western end. It provides a road reserve width of approximately 20m (adjacent to the PPC area) with a sealed width of some 4.8 m. Webb Street provides a single lane in each direction.

Pedestrian footpaths or parking is not provided for on Webb Street.

With reference to the Unitary Plan, Manukau Road is not classified as an 'Arterial Road' in the Unitary Plan. Webb Street has a posted speed limit of 50 km/hr.

Photograph 3 show Webb Street in the vicinity of the Plan Change area.

Photograph 4: Manukau Road (north of the site)

2.3 ACCESSIBILITY

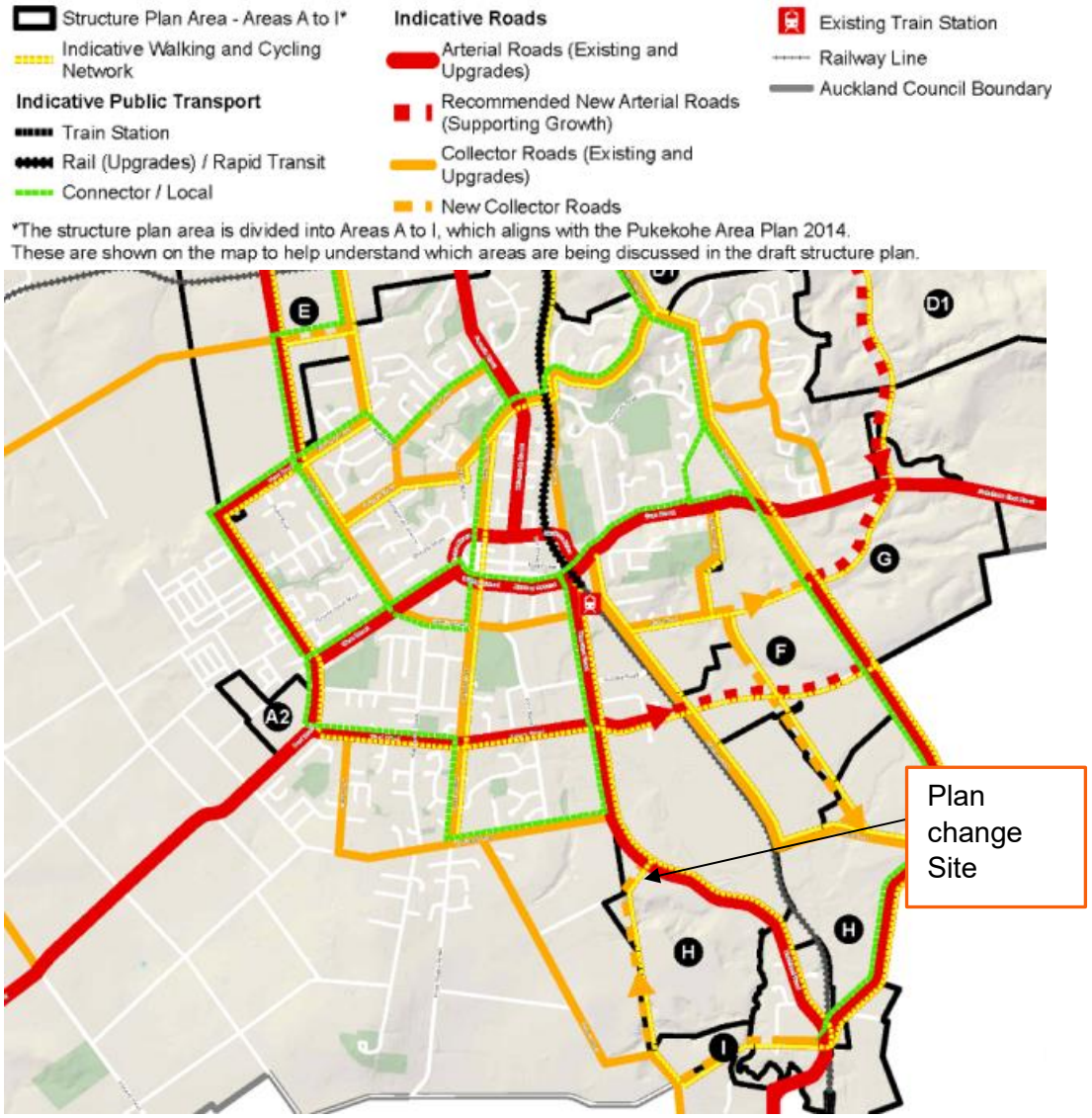
2.3.1 PRIVATE VEHICLES

The site is well located with regards to road connectivity to the wider Auckland Region. The site is located in Pukekohe, approximately 2.5 km south from SH22 and 8.9 km west from the SH1 Mill Road interchange. The SH1 Mill Road interchange connects to the Waikato expressway extending between Waikato to the south and Auckland to the north. The SH1 Mill Road interchange is located some 46 km from the Auckland city centre and 26 km from the Manukau metropolitan centre.

At peak times, travel times to and from the Auckland city are inconsistent with regular commuting times in the order of 1.5 hours.

Auckland Council, the NZ Transport Agency (NZTA) and Auckland Transport (AT) are currently assessing future transport networks for planned growth areas such as Pukekohe. The above parties, together with private consultancies, have formed the Supporting Growth Alliance (SGA) to implement the preferred transport networks for these growth areas. Map 5 of the Draft Pukekohe-Paerata Structure Plan outlines the indicative transport network for Pukekohe as shown in the Figure 0-3 below. Furthermore, various other upgrades are provided as part of the SGA and are provided in **Attachment A**.

Figure 0-3: Preferred Transport Network for Pukekohe



In relation to the PPC, the key transport network improvements identified above are:

- New arterial road connections through Pukekohe, including north of the site (shown as Item F – red dotted line).
- New collector road to the south-west and through the site
- Walking and cycling network on the new collector road
- Increased rail capacity to four tracks between Wiri and Pukekohe; and
- New rail station at Paerata in addition to the existing station at Pukekohe to enable rapid/frequent rail services.

As shown above, the indicative transport plan identifies a new arterial road extending from Svendsen Road to the east across the NIMT as the preferred arterial alignment to the east of Pukekohe. This new arterial will serve to reduce traffic volumes on Manukau Road north of Svendsen Road by providing an alternative arterial route to the north and east of Pukekohe.

2.3.2 PUBLIC TRANSPORT

Auckland Transport's Network for South Auckland (including Pukekohe) is shown in Figure 2-3.

Figure 0-4: New Network for South Auckland (Pukekohe)

As shown above, bus routes 398 and 399 pass the site and link to Pukekohe Station (providing access to additional bus and passenger rail services). Route 398 is a peak period service operating Monday to Friday only to/from Tuakau while Route 399 is a Thursday only service to/from Port Waikato. Route 393, while not passing the site, operates daily on nearby Manukau Road and Wrightson Way from 5:30 am to 9:00 pm (with nominal frequencies of 30 minutes and up to 20 minutes during peak times).

The nearest bus stop for Route 393 is located some 800 m north of the Plan Change area outside 153 Manukau Road. This is considered to be within moderate walking distance (8-10-minute walk) from the site.

Of note the Pukekohe Rail station is located some 1.7km from the site. Currently it is served by diesel locomotives through to Papakura where passengers then change to electric trains.

As noted above, one of the key transport network improvements identified in the area is upgrading the capacity of the rail corridor between Wiri and Pukekohe and providing a new rail station at Wiri to enable rapid / frequent rail services. The Regional Land Transport Plan (RLTP 2018-2028) also identifies the electrification of the rail line to Pukekohe station, additional electric trains, and rail corridor improvements between Wiri and Quay Park which will collectively enable frequent trains to Pukekohe, to be one of the key priority areas.

As such, while the existing public transport provisions near the site are considered minimal, the potential upgrades outlined in the draft Pukekohe-Paerata Structure Plan will improve connections to the wider areas. In relation to the bus services near the site, it is considered that the PPC will encourage further use of the existing routes and potentially drive demand to enable increased service frequencies. As will be noted, if an upgrade of the road reserve is required to provide a flush median (subject to establishing a new access on Manukau

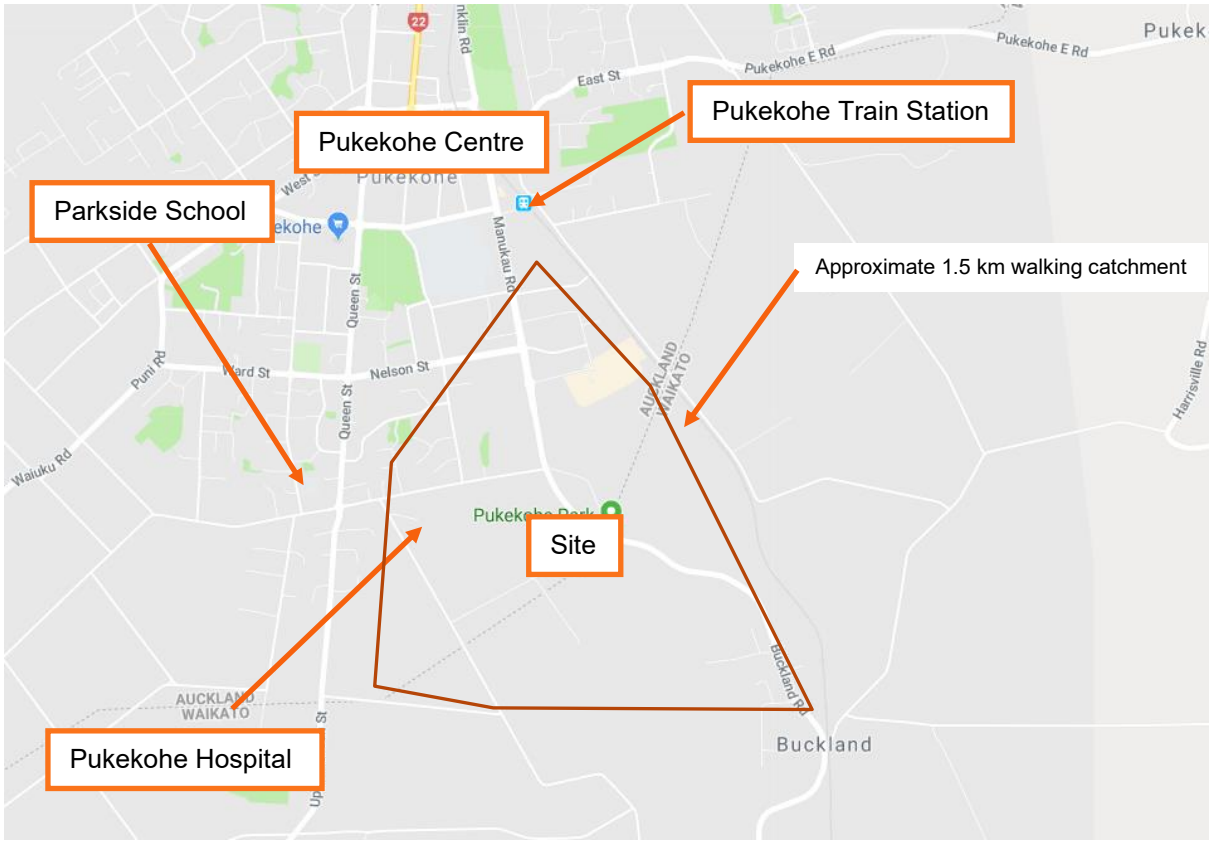
Road) it is recommended to incorporate a new bus stop (in front of the site) to encourage the use of public transport to and from the site.

2.3.3 WALKING

Using a practical walking distance of 1.5km and the 15th percentile walking speed of a typical fit, healthy adult of 1.3m/s, gives a journey time of some 20 minutes. This is generally in line with New Zealand data in the Pedestrian Planning and Design Guide, which states that for walking trips, half are more than 10 minutes and 18% are more than 20 minutes.

The primary catchment area for pedestrians has therefore been based on a 1.5 km walking distance from the site as shown in Figure 0-5 below.

Figure 0-5: Walking Catchment



As shown above, the Pukekohe centre and the train station is just outside of walking distance of the site.

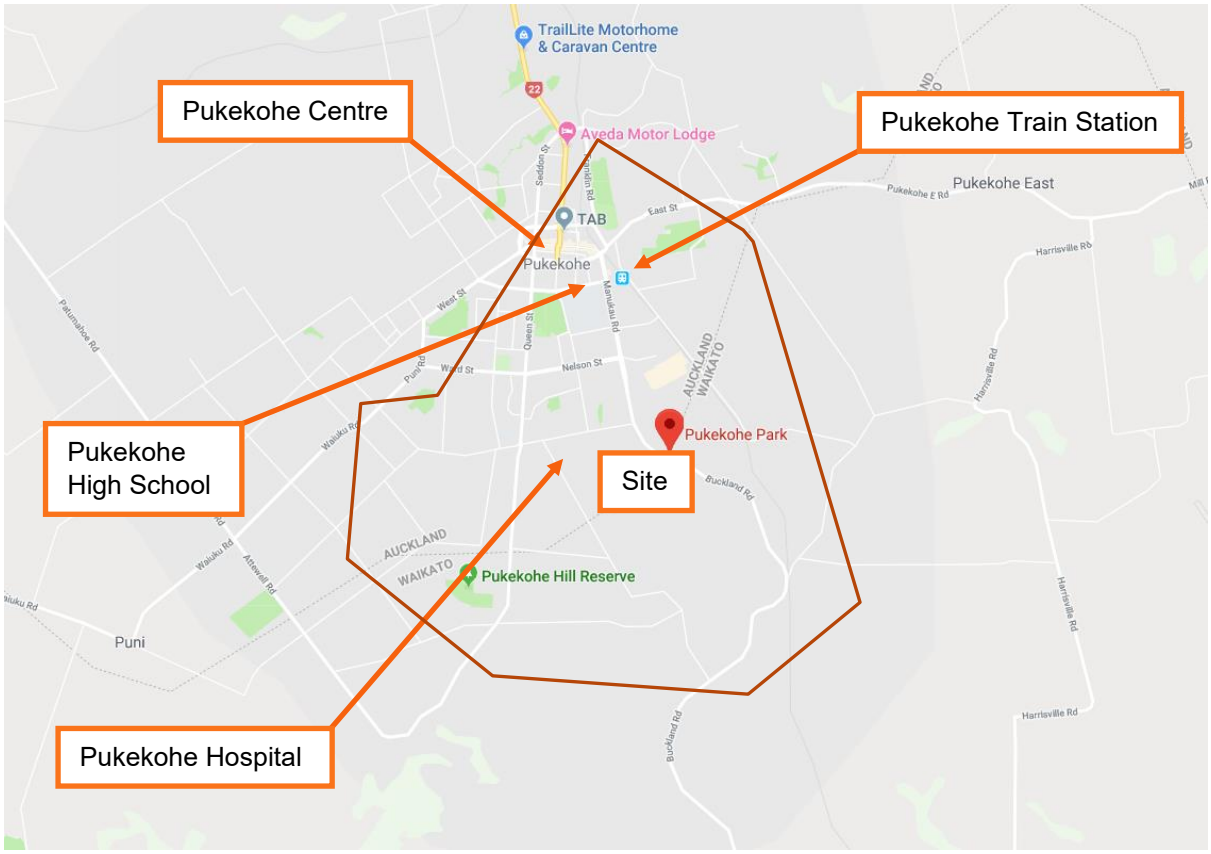
Currently, there are no footpaths along Buckland Road, however footpaths are provided along the western side of Manukau Road near the site. Given the planned urbanisation of the area, 1.8 m wide footpaths are recommended to be established along the Buckland Road and Manukau Road frontages as well as internally within the site. It is also noted that, as part of the Pukekohe Park plan change (pC30) site (opposite the PPC area), a new pedestrian footpath is planned along Buckland Road, south of the intersection with Kitchener Road.

2.3.4 CYCLING

The Auckland Regional Cycle Network does not classify roads surrounding the site as cycle routes. It is however noted that nearby roads such as Kitchener Road, Station Road, Queen Street and Nelson Street provide sufficient cycling space or are quiet roads recommended by cyclists. Therefore, the nearby roads provide safe cycle connectivity to nearby schools and Pukekohe Train Station. Due to the nature of the activities, marked cycle lanes with a painted buffer are not necessary along Buckland Road and Manukau Road near the site.

Based on New Zealand Transport Agency Research Report 426, the average cycling trip length is approximately 3 km. Figure 2-5 shows an indicative cycling catchment for the site.

Figure 0-6: Cycling Catchment



As shown above, the Pukekohe centre and Pukekohe Train Station are within cycling distance of the site. As a result, the site is considered to offer excellent cycling connectivity to a wider range of residential, employment, education, recreational and commercial activities.

2.4 TRAFFIC VOLUMES

2.4.1 AUCKLAND TRANSPORT

The latest traffic volumes for Manukau Road and Buckland Road have been obtained from Auckland Transport. The volumes are summarised in Table 1 below.

Table 2: Traffic Volumes

Road	Location	Date	Daily	AM Peak Hour	PM Peak Hour
Manukau Road	Between Wrightson Way and Kitchener Road	March 2019	11,983	1,017	1,152
Buckland Road	Between Hamilton's Bridge and Glencairn Place	May 2017	8,350	776	829

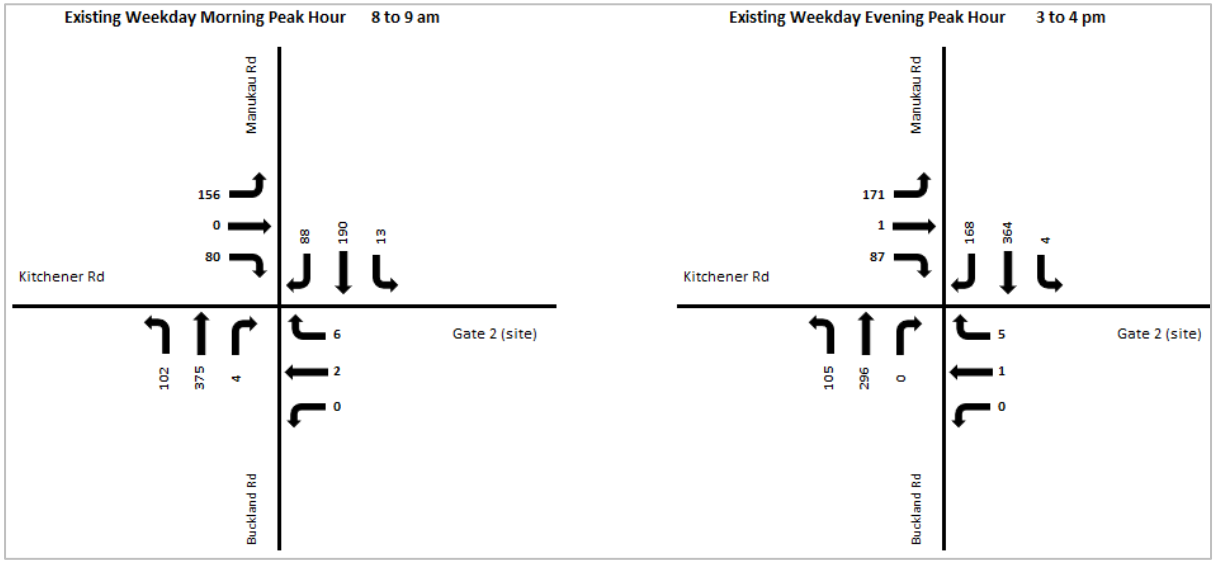
As can be seen, the road in front of the site is busy and caters for traffic volumes in the order of 10,000 vehicles per day (vpd). Based on these volumes, the major access locations to the PPC area will likely require higher level intersection treatments such as roundabouts.

2.4.2 SURVEY RESULTS

Traffic surveys were undertaken on Thursday 22nd November 2018 at the Manukau Road/ Kitchener Road/ Buckland Road intersection during the morning peak period (7-9am) and evening peak period (3-6pm). A weekend survey was also undertaken on Saturday 24th November between 10am – 3pm. These surveys were undertaken by Commute as part of an adjacent Plan Change for Pukekohe Park (PC30).

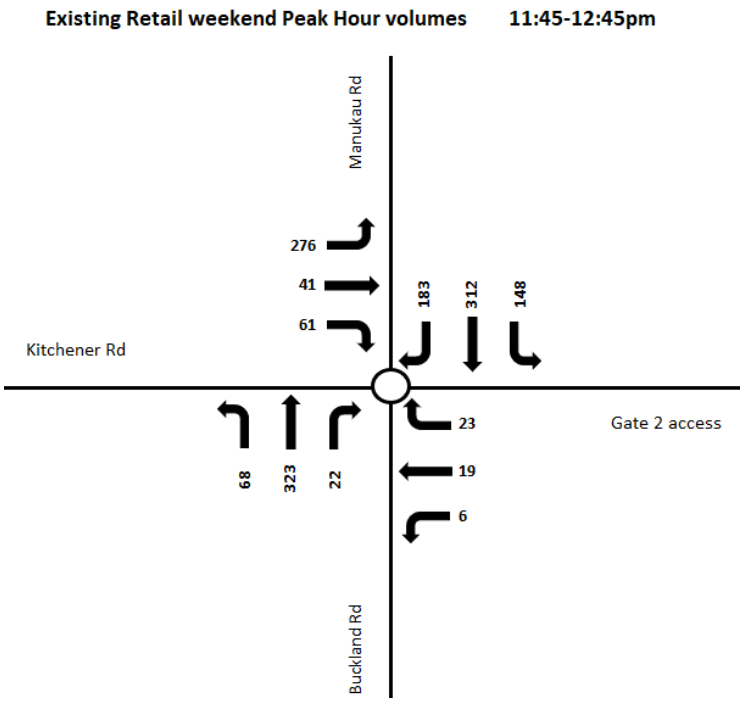
The results of the weekday and weekend survey are provided in Figure 0-7 and Figure 0-8 below.

Figure 0-7: Existing volumes during the morning and evening commuter peak hour



As shown above, there is a northbound bias along Buckland Road / Manukau Road during the morning peak hour and southbound bias during the evening peak. This is likely to be commuters travelling to and from the Pukekohe town centre.

Figure 0-8: Existing volumes during the weekend peak hour



2.5 CRASH HISTORY

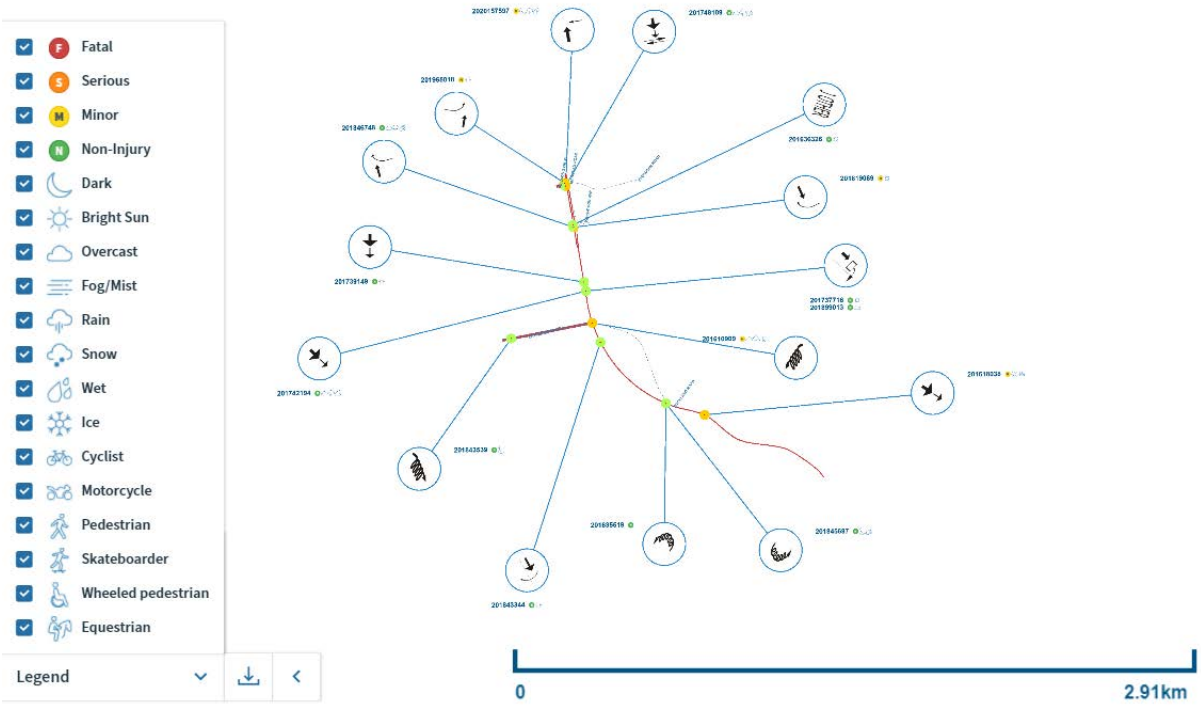
A search was made of the NZTA Crash Analysis System (CAS) for all reported crashes occurring on Manukau Road and Buckland Road in front of the site for the five-year period from 2015 to 2019 inclusive. Any crashes entered into the system form 2020 were also included.

A total of 15 crashes were identified. A summary of the crash history is provided as follows:

- 6 crashes occurred on Manukau Road between Wrightson Way and Kitchener Road. One crash was a minor injury crash while the remaining 5 crashes were non-injury crashes. The predominant crash types were right turn crashes from the centreline (2 crashes) and rear end collisions (2 crashes);
- crashes occurred on Kitchener Road between Manukau Road and John Street. Both crashes were loss of control crashes, one of which resulted in serious injury. The other crash was non-injury;
- 1 crash occurred at the Manukau Road/ Kitchener Road intersection and resulted in serious injuries. It involved a northbound vehicle on Buckland Road turning left into Kitchener Road and side swiping a cyclist, and
- 6 crashes occurred on Buckland Road between Kitchener Road and Hamilton's Bridge. There was 1 serious crash, 1 minor crash and 4 non-injury crashes. The predominant crash type was loss of control (4 crashes). The serious crash involved a southbound vehicle losing control near the Gate 3 entrance to Pukekohe Park.

The collision diagram is shown in Figure 0-9 below.

Figure 0-9: Collision Diagram



Overall, the crash history exhibits the typical characteristics of sites that are near urban and rural roads. Loss of control crashes are common on rural roads with higher speed limits and reduced street lighting. Rear end collisions and turning crashes are common in urban environments where property access creates conflicts with through movement of vehicles.

As will be described, it is recommended that a painted flush median be installed along Buckland Road / Manukau Road along the site frontage together with a reduction in speed limit thereby reducing the severity of any crashes that did occur and generally improving safety in the area.

3 PROPOSED DEVELOPMENT

The proposal intends to rezone the site at 301 & 303 Buckland Road. The PPC area is currently zoned as Future Urban Zone 'FUZ' in the Unitary Plan, and the proposal intends to rezone this to Business – General Business Zoning to enable for a mixture of Retail, Commercial and light industrial activities.

There is no specific development plan for the site. Given the proposed Business - General Business Zoning is exactly the same that has recently been assessed (by Commute) on the Pukekohe Racecourse Land (Plan Change 30) a similar methodology has been applied.

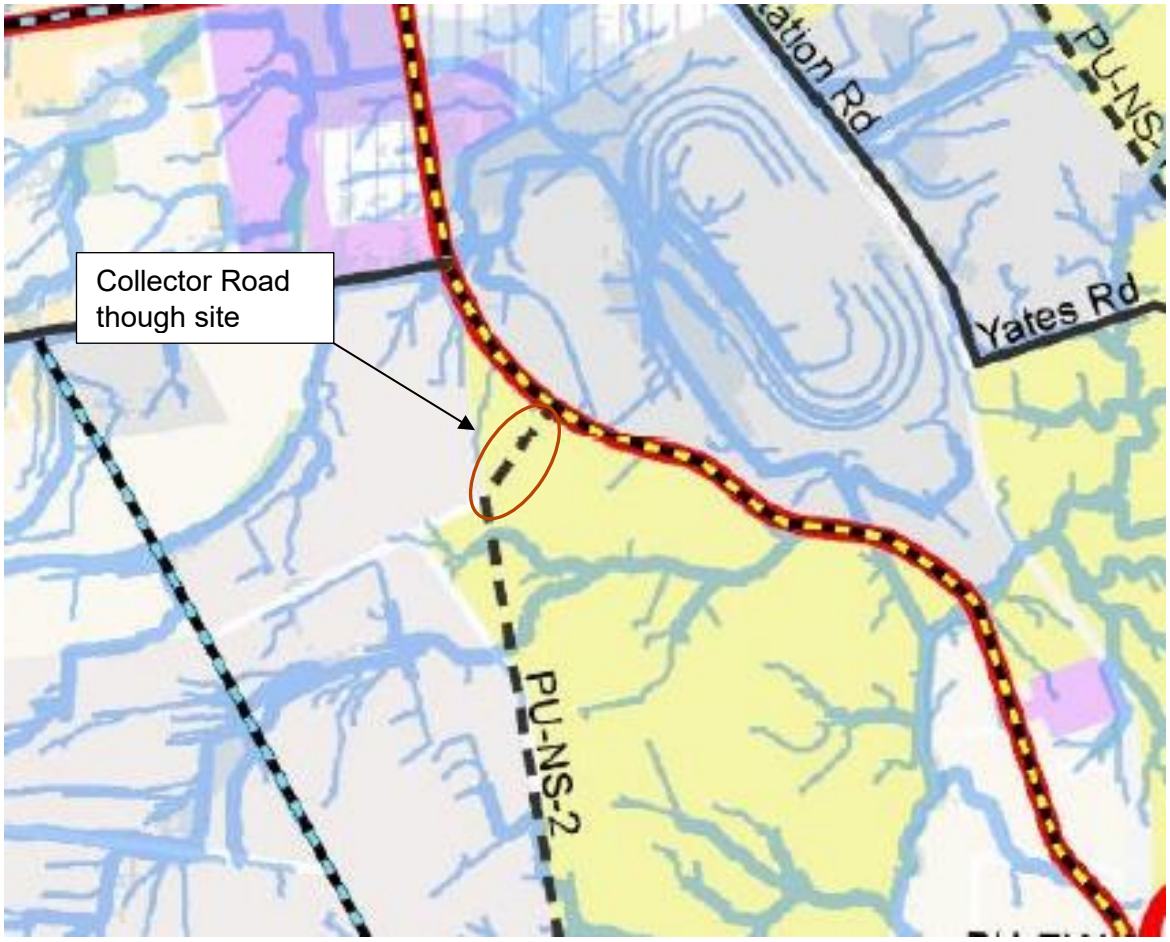
Essentially PC30 reviewed two scenarios (a low and high scenario). Given the high scenario is critical this has been used in the analysis. The areas proposed have been factored by 36% from PC30 which had a land area of 5.8ha (rather than 7.9ha proposed on the subject site).

4 INTERNAL ROAD NETWORK

Internal public roads within the site are recommended to be 16-21 m wide in accordance with the Auckland Transport Roads and Streets Framework standard for greenfield sites.

A new road is proposed (PU-NS-2) to be extended through the site to Buckland Road with an intersection constructed at Buckland Road. This is in accordance with the Structure Plan and allows roading access to both sites (it essentially splits the overall site in two). Figure 4-1 shows this road (PU-NS-2) as per the Structure Plan ITA.

Figure 4-1: PPC area (PU-NS-2)



As this road is anticipated to be a collector road it should be 21m in width as per Structure Plan ITA.

The exact point the new road (PU-NS-2) connects to Buckland Road is considered to be a matter for consideration in the development of the subject site.

5 TRIP GENERATION

5.1 GUIDELINES

The trip generating potential of the site has been estimated using the predictive models contained within the RTA Guide[3]. The RTA Guide is commonly used by transport engineering practitioners in New Zealand to estimate the traffic generating potential of various land use activities.

For warehouse / storage activities, the RTA predicts the following:

- 4 / 100m^2 GFA for daily vehicle trips; and
- 0.5 / 100m^2 GFA for peak hour trips.

For factories, the RTA predicts the following:

- 5 / 100m^2 GFA for daily vehicle trips; and
- 1 / 100m^2 GFA for peak hour trips.

For retail stores (shopping centres), the RTA predicts the following:

- 121 / 100m^2 GFA for daily vehicle trips; and
- 12.5 / 100m^2 GFA for peak hour trips.

5.2 EXISTING

Currently, the site is occupied by a farm and two houses and generates minimal levels of traffic. As this traffic volume is low it has essentially been ignored.

5.3 LEVEL OF GENERATION

The activity within each lot has not yet been finalised however a high-level traffic generating scenarios is outlined below (based on previous work on PC30):

Option A (scenario C: light industry / retail) – **high level**

- 6500 m^2 GFA of Light industrial/ vehicle sales activity;
- 4900 m^2 GFA of Retail activity; and
- 1000 m^2 GFA of commercial activity.

[3] Road and Traffic Authority of New South Wales, Guide to Traffic Generating Developments, Version 2.2, October 2002

The likely trip generation for the site is defined as follows:

Table 3: Light industry / Retail: Estimated Trip Generation - PM

Activity	RTA Rate	Number / GFA	Peak Hour Vehicle Trips	Daily Vehicle Trips
Motor showroom	*Evening peak hour rate of 0.7 per 100 m² GFA.*	3250 m² GFA	23	230[4]
Retail	*'12.5/ 100m² GFA for peak hour & 121 / 100m² GFA for daily trips'*	4900 m² GFA	612	5,929
Warehouse activity	*'0.5 / 100m² GFA for peak hour & 4 / 100m² GFA for daily trips'*	3250 m² GFA	16	130
Commercial and office activity	*'2 / 100m² GFA for peak hour & 10 / 100m² GFA for daily trips'*	1000 m² GFA	20	100
Total			**671 trips**	**6,389 trips**

Based on the above, is expected to generate in the order of 671 trips during the peak hour and 6389 trips daily.

Of note the AM peak has been assumed to be the same as the PM peak with the exception that the retail traffic generation has been assumed to be 33% of the PM (due to the retail being unlikely to be operating anywhere near peak in the AM period).

5.4 TRAFFIC DISTRIBUTION

5.4.1 DISTRIBUTION ASSUMPTIONS

All trips associated with the proposed development have been added to the surveyed intersection summarised previously.

In terms of inbound / outbound percentages, the following have been assumed for the evening peak period.

- Inbound and outbound traffic volumes have been distributed according to the type of activity. The proportional splits are as follows:

[4] Assuming that the peak hour volume is approximately 10% of ADT

- Warehouse activity - 20% inbound, 80% outbound;
- Commercial/ office activity – 20% inbound, 80% outbound;
- Retail Stores/ motor show rooms (shopping centres) – 50% inbound, 50% outbound;

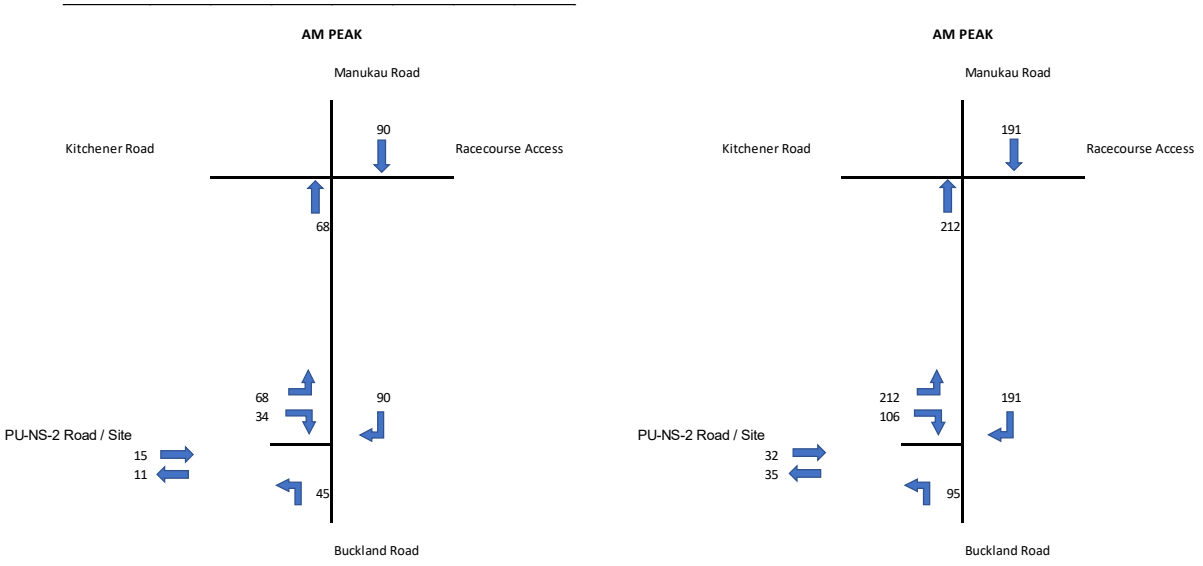
Given the location of the site, the directional split of volumes has conservatively been estimated as a 60/30/10 split with 60% of vehicles approaching the site from the north (Manukau Road), 30% from the south (Buckland Road) and 10% from the west (Webb Street or the new PU-NS-2 road) with the reverse occurring during the morning peak hour, and is shown in Table 4 below.

Table 4: Directional split of volumes entering/ leaving the site

North (Manukau Rd)	South (Buckland Rd)	West (Webb Street)
60%	30%	10%

The split of vehicle movements generated by the site is outlined in Figure below.

Figure 5-1: Weekday Peak Hour Trip Generation - AM & PM



5.5 TRAFFIC EFFECTS

Rule E.27.6.1 “Trip Generation” of the Unitary plan sets out the trip generation limits as to when resource consent for a restricted discretionary activity is required. For retail (non-drive through), this limit is 1667 m^2 GFA therefore the development meets the threshold and triggers this rule.

The following sections assess the effects of the proposed development on the Manukau Road / Kitchener Road / Buckland Road intersection as well as the new site road (PU-NS-2) with Buckland Road. For note as PC30 has been approved, this has been used as a base.

5.6 TRAFFIC MODELLING RESULTS

5.6.1 GENERAL

The performance of the Manukau Road/ Kitchener Road/ Buckland Road intersection as well as the new PU-NS-2 Road / Buckland Road intersection has been modelled using SIDRA Intersection 6.0 (Sidra), an industry standard tool for assessing the performance characteristics of intersections and road networks.

The results presented in this report include the Degree of Saturation, which is a measure of available capacity and the Level of Service ("LOS"), which is a generalised function of delay. For priority (sign) controlled intersections, a degree of saturation of less than 0.8 is considered to be acceptable. LOS A and B are very good and inactive of free flow conditions; C is good; D is acceptable; and E and F are indicative of congestion and unstable conditions.

It is noted that performance of the Manukau Road / Kitchener Road / Buckland Road intersection is based on the proposed traffic volumes from PC30, for the morning and afternoon peak hour respectively.

5.6.2 MANUKAU ROAD/ KITCHENER ROAD/ BUCKLAND ROAD INTERSECTION

Table 5 and Table 6 shows the performance of Manukau Road/ Kitchener Road/ Buckland Road intersection (upgraded to roundabout as part of PC30) during the morning and afternoon peak hour respectively. The existing "Ex" volumes are with PC30 already fully developed while the proposed (Pro) results including the additional traffic generation for the subject site.

Table 5:Proposed performance of the Manukau Road/ Kitchener Road/ Buckland Road roundabout AM

Leg	Movement	Degree of Saturation (v/c)	Average Delay (s)	LOS	95th %ile Queue (m)
		Ex (Pro)	Ex (Pro)	Ex (Pro)	Ex (Pro)
Buckland Road (South)	LT	0. 513 (0.575)	5.7 (5.9)	A (A)	32.0 (38.6)
	TH	0. 513 (0.575)	5.8 (6.0)	A (A)	32.0 (38.6)
	RT	0. 513 (0.575)	11.5 (11.7)	B (B)	32.0 (38.6)
Gate 2 (main site access) (east)	LT	0.254 (0.279)	5.8 (6.6)	A (A)	12.5 (14.2)
	TH	0.254 (0.279)	6.0 (6.7)	A (A)	12.5 (14.2)
	RT	0.254 (0.279)	11.7 (12.4)	B (B)	12.5 (14.2)
Manukau Road (north)	LT	0. 379 (0.453)	4.8 (4.9)	A (A)	21.6 (28.0)
	TH	0. 379 (0.453)	5.0 (5.1)	A (A)	21.6 (28.0)
	RT	0. 379 (0.453)	10.6 (10.8)	B (B)	21.6 (28.0)
Kitchener Rd (west)	LT	0. 350 (0.384)	8.1 (9.0)	A (A)	19.0 (21.5)
	TH	0. 350 (0.384)	8.3 (9.1)	A (A)	19.0 (21.5)
	RT	0. 350 (0.384)	14.0 (14.8)	B (B)	19.0 (21.5)

Table 6:Proposed performance of the Manukau Road/ Kitchener Road/ Buckland Road roundabout PM

Leg	Movement	Degree of Saturation (v/c) Ex (Pro)	Average Delay (s) Ex (Pro)	LOS Ex (Pro)	95th %ile Queue (m) Ex (Pro)
Buckland Road (South)	LT	0.484 (0.696)	6.4 (9.4)	A (A)	28.5 (65.7)
	TH	0.484 (0.696)	6.5 (9.5)	A (A)	28.5 (65.7)
	RT	0.484 (0.696)	12.2 (15.2)	B (B)	28.5 (65.7)
Gate 2 (main site access) (east)	LT	0.359 (0.484)	8.3 (13.0)	A (B)	19.7 (32.4)
	TH	0.359 (0.484)	8.4 (13.20	A (B)	19.7 (32.4)
	RT	0.359 (0.484)	14.1 (18.8)	B (B)	19.7 (32.4)
Manukau Road (north)	LT	0.568 (0.724)	5.1 (5.9)	A (A)	40.0 (67.5)
	TH	0.568 (0.724)	5.3 (6.1)	A (A)	40.0 (67.5)
	RT	0.568 (0.724)	11.0 (11.7)	B (B)	40.0 (67.5)
Kitchener Rd (west)	LT	0.348 (0.470)	7.4 (11.3)	A (B)	18.7 (30.5)
	TH	0.348 (0.470)	7.5 (11.4)	A (B)	18.7 (30.5)
	RT	0.348 (0.470)	13.2 (17.1)	B (B)	18.7 (30.5)

As shown above, the upgraded roundabout (from PC30) intersection is expected to perform at a good level of service LOS A or B. The maximum delay is 18.8 seconds and occurs during the evening peak at the right turn approach at the racecourse access. As such, the proposed upgrade of the intersection to a roundabout control is considered adequate to cater for the additional vehicle movements generated by the development.

5.6.3 PU-NS-2 ROAD / BUCKLAND ROAD INTERSECTION

Table 7 and Table 8 shows the performance of the new PU-NS-2 Road / Buckland Road intersection during the morning and afternoon peak hour respectively. The intersection has initially been modelled as a priority intersection with full right turn bay and critical gaps / follow-up headway based on Austroads.

Table 7:Proposed performance of the PU-NS-2 Road / Buckland Road intersection AM (Priority intersection)

Leg	Movement	Degree of Saturation (v/c)	Average Delay (s)	LOS	95th %ile Queue (m)
Buckland Road (South)	LT	0.309	5.6	A	0
	TH	0.309	0	A	0
	RT	0.001	6.8	A	0
Racecourse Gate	LT	0.008	7.3	A	0.2
	TH	0.008	14.1	B	0.2
	RT	0.008	15.6	C	0.2
Buckland Road (north)	LT	0.164	5.6	A	0
	TH	0.164	0	A	0
	RT	0.138	9.3	A	3.8
Site access (PU-NS-2 Road) (west)	LT	0.238	10.3	B	6.4
	TH	0.238	15.6	C	6.4

	RT	0.238	16.7	C	6.4

Table 8:Proposed performance of the PU-NS-2 Road / Buckland Road intersection PM (priority intersection)

Leg	Movement	Degree of Saturation (v/c)	Average Delay (s)	LOS	95th %ile Queue (m)
Buckland Road (South)	LT	0.293	5.6	A	0
	TH	0.293	0	A	0
	RT	0.001	8.1	A	0
Racecourse Gate	LT	0.013	9.0	A	0.3
	TH	0.013	19.7	C	0.3
	RT	0.013	25.0	C	0.3
Buckland Road (north)	LT	0.266	5.6	A	0
	TH	0.266	0	A	0
	RT	0.278	9.6	A	8.9
Site access (PU-NS-2 Road) (west)	LT	0.824	23.1	C	57.3
	TH	0.824	39.1	E	57.3
	RT	0.824	40.3	E	57.3

The result of the modelling shows while the AM period the intersection performs to a satisfactory level, in the PM peak hour the intersection is essentially at capacity. Of note this assumes minimal traffic on the Racecourse Gate opposite this intersection.

As such an additional assessment of the PM peak has been undertaken assuming the intersection is upgraded to a roundabout. The result of this is contained in Table 9.

Table 9: Proposed performance of the PU-NS-2 Road / Buckland Road intersection PM (roundabout)

Leg	Movement	Degree of Saturation (v/c)	Average Delay (s)	LOS	95th %ile Queue (m)
Buckland Road (South)	LT	0.446	5.0	A	27.2
	TH	0.446	5.1	A	27.2
	RT	0.446	10.8	B	27.2
Racecourse Gate	LT	0.005	8.7	A	0.2
	TH	0.005	8.8	A	0.2
	RT	0.005	14.5	B	0.2
Buckland Road (north)	LT	0.510	4.4	A	37.6
	TH	0.510	4.5	A	37.6
	RT	0.510	10.2	B	37.6
Site access (PU-NS-2 Road) (west)	LT	0.357	6.6	A	19.4
	TH	0.357	6.7	A	19.4
	RT	0.357	12.4	B	19.4

The results show the roundabout intersection performs well below capacity.

5.6.4 SUMMARY

The above assessment shows that an upgrade of the Buckland Road / Manukau Road / Kitchener Road roundabout as proposed by PC30 is still appropriate.

The assessment also shows the priority intersection of PU-NS-2 Road / Buckland Road is appropriate to cater for the traffic in the short term but nears capacity in the medium / long

term. It is considered appropriate to allow for this intersection to be roundabout controlled in the future as a result of other development in the area including from the collector PU-NS-2 Road. The need for this roundabout should be continually assessed in each Recourse Consent application.

6 WIDER EFFECTS

It is recognised that the above assessment only includes an assessment of local impacts. In terms of the wider impacts (including the northern section of Manukau Road), the investigation as outlined previously will provided significant changes / improvements to the wider area and the level of traffic anticipated (even in the high scenarios) are unlikely to change any of this investigation / upgrades.

The proposal also is an employment zone and thus will create jobs in the Pukekohe area and thus keep residents in the Pukekohe area (and thus not need to travel on the wider network).

7 GENERAL ACCESS

7.1 EXISTING ACCESS

The entire site has access via either Buckland Road or Webb Street. Given the site location, it is considered the majority of traffic will use Buckland Road.

7.2 ACCESS FORM

The bulk of the retail, warehouse or commercial activities within the PPC area are recommended to be served either directly off Buckland Road or by new intersection at PU-NS-2 Road extension.

Initially the PU-NS-2 / Buckland Road intersection can be priority controlled but will need to allow for future land connections to the PU-NS-2 Road and thus allow for a roundabout. The roundabout will enable safer access to and from the site as well as future development.

It is considered that the best location for this roundabout is opposite the Racecourse entrance on Buckland Road to maximise the use of the roundabout.

Roundabouts are considered to integrate well with the existing road network, particularly the crossroads intersections. In general, it is considered that there is sufficient land area within road reserve, or within the site, to accommodate a single lane roundabout.

7.3 SPEED LIMIT

As a result of the PPC, it is suggested that the posted speed limit of 50 km/hr would be extended south by approximately 500 m. In the future the access at the Buckland Road/ PU-NS-2 Road intersection would be an appropriate rural-urban threshold and would be an appropriate location at which to reduce the posted speed limit from 80 km/hr to 50 km/hr. The inclusion of a roundabout in this location aids in this threshold.

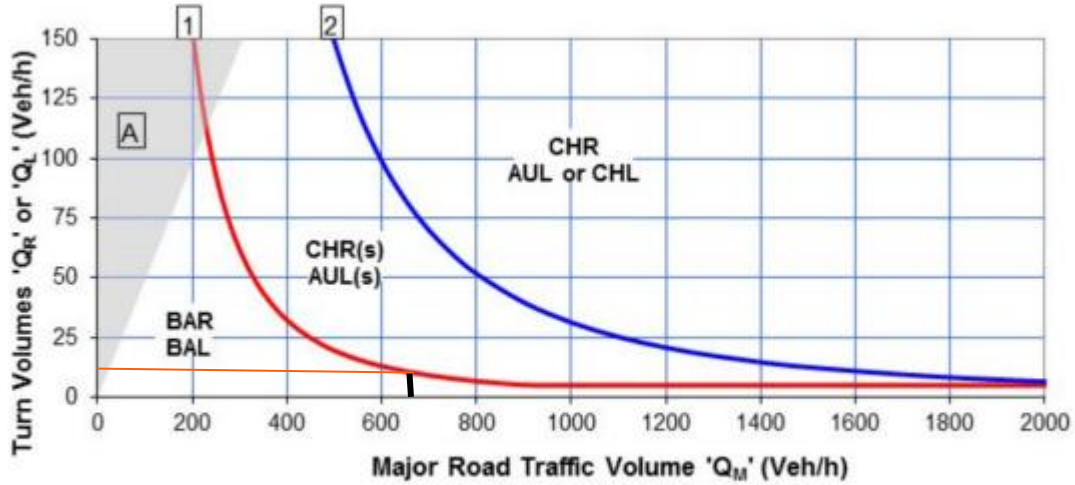
7.4 INTERNAL ROAD NETWORK

Internal public roads within the site are recommended to be in accordance with the Auckland Transport Roads and Streets Framework 'Mixed-Use Collector' standard for greenfield sites. This can be considered at future Resource Consent stages.

7.5 RIGHT TURN BAY / MEDIAN

Figure 2.26 of Austroads Part 6 Intersections Interchanges and crossings (shown below) outlines the warrant for a turning bay. For the subject site, comprising an operating speed limit of 60 km/hr (reduced) and estimated hourly volume on Manukau Road and Buckland Road of 664 vehicles per hour, a maximum of 11 turning movements are permitted per hour before a turning bay is required.

Figure 7-1: Right turn warrant



(c) Design Speed ≤ 70 km/h

As a result of the proposal this is likely to change therefore consideration must be given to providing a turning bay as part of the PPC, along Manukau Road / Buckland Road along the site frontage, if the number of right turn movements into any lot exceed 11 movements per hour. This is similar to the existing volume and a relatively low level of traffic and as such the median / right turn bay should be constructed with any new access on Buckland Road.

7.6 WEBB STREET

From on-site observations, Webb Street is not considered appropriate for significant additional traffic without a significant upgrade. From a review of the land-use and Structure Plan ITA, it is apparent the Webb Street is intended to remain rural in nature with the new Structure Plan PU-NS-2 road taking the traffic from the Future Urban Zoned land. As such no connection to Webb Street is considered appropriate, but rather the network should allow for the PU-NS-2 road.

8 PARKING

The parking supply for the potential activities in the PPC area can be addressed at land use consent stage however the parking provisions should be in accordance with Unitary Plan requirements (Tables E27.6.2.3 and E27.6.2.5).

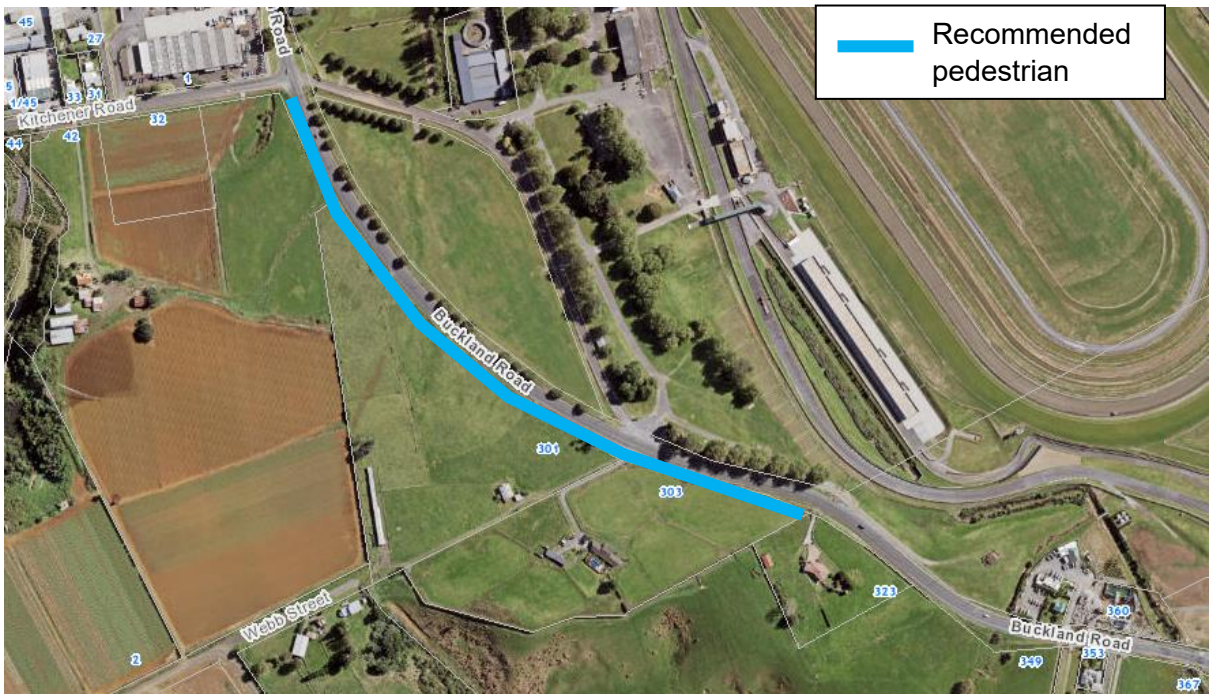
In addition, loading space provisions should also be in accordance with Unitary Plan requirements (Table E27.6.2.7).

The parking space dimensions of car park spaces and loading spaces should to satisfy Unitary plan requirements and mobility parking spaces are proposed to be provided in accordance with NZS4121.

9 PEDESTRIAN PROVISION

There are currently no pedestrian provisions on Manukau Road or Buckland Road (adjacent to the site. It is therefore recommended to extend the existing footpath along the western side of Manukau Road up to the south boundary of the PPC (as outlined in Figure) to encourage alternative modes of travel to and from the site. The extended footpath should be 1.8 m wide (similar to that existing on Manukau Road).

Figure 9-1: Proposed pedestrian provisions



From a pedestrian perspective (provided the above is incorporated), the site is well-connected and provides for a safe environment.

10 PUBLIC TRANSPORT

As outlined in section 2.3.2 above, there are two existing bus routes that pass the site with the nearest bus stop located some 800 m north of the site on Manukau Road. With further development likely to occur near the proposed site (at Pukekohe Park), it is recommended that consideration be given to providing bus stops fronting the site (as part of subsequent developments near the development site) to encourage the use of public transport when travelling to and from the site. It is therefore recommended that, as the road frontage is upgraded to include a flush median (subject to any new access being established at the on Manukau Road) a bus stop should be incorporated into the design to encourage the use of public transport to and from the site.

11 INTEGRATION WITH FUTURE TRANSPORT NETWORK

11.1 GENERAL

The following section provides a review of established policy and plans in relation to the proposed development. The documents reviewed comprise:

- Auckland Plan 2012;
- Auckland Regional Policy Statement 1999;
- Auckland Regional Land Transport Strategy 2010;
- Auckland Regional Public Transport Plan 2013;
- Sustainable Transport Plan 2006-2016;
- Proposed Auckland Unitary Plan Decision Version 19 August 2016 (referred to as the 'Unitary Plan' in this report); and
- Auckland Design Manual 2014.

11.2 AUCKLAND PLAN

The Auckland Plan 2012 is Auckland Council's 30-year strategy to create the world's most liveable city. It shows how Auckland will prepare for an expected one million additional people by 2040 and the additional 400,000 new homes needed to accommodate this increased population. The Auckland Plan also provides guidance with respect to the location and timing of investment in infrastructure, such as transport facilities.

The Auckland Plan comprises 13 chapters, of which Chapter 11 outlines the transport vision.

The strategic direction for transport is to achieve the following five targets by 2040:

- Increase non-car trips in the peak period from 23% to 37%;
- Increase PT mode share of traffic travelling into the City Centre during the morning peak from 47% to 69%;
- Reduce road deaths from 61 p.a. to no more than 40 p.a. and serious injury accidents from 483 p.a. to no more than 283 p.a.;
- Reduce freight congestion in peak periods by 20%; and
- Increase the number of centres with Quality Transit Network or Rapid Transit Network services from 44% to 80%.

The Auckland Wide Development Strategy Map identifies Pukekohe as one of two 'Satellite Towns' with future residential development occurring around this hub.

11.3 REGIONAL POLICY STATEMENT

Although now superseded by the Unitary Plan, the transport section of the Auckland Regional Policy Statement 1999 ("RPS") contains four transport-orientated objectives, as outlined below:

- to develop a transport network that supports a compact sustainable urban form;
- to avoid, remedy, or mitigate the adverse effects of transport on the environment;

- to develop a transport network which provides an acceptable level of accessibility for all sections of the community within and across the region by encouraging transport choices that are efficient, convenient or practical; and
- to develop a transport network which is as safe as is practicable and which promotes better physical health for the community.

As noted, the site is located within walking distance of proposed local shops and schools and is located near the proposed Pukekohe Station providing connectivity to longer distance routes such as the City Centre. Bus routes are also proposed to run near the site. The Pukekohe centre and Pukekohe Station are also within cycling distance of the site.

Overall, the site location is therefore considered to support a compact sustainable urban form but also offer viable transport alternatives to the private motor vehicle.

11.4 AUCKLAND REGIONAL LAND TRANSPORT PLAN

The Auckland Regional Land Transport Plan ("RLTP") forms part of the National Land Transport Programme and represents the combined intentions of the NZ Transport Agency (the Transport Agency), Auckland Transport (AT), and KiwiRail to respond to growth and other challenges facing Auckland in the next 10 years.

Some of the specific projects noted are the Pukekohe Station and electrification of the network between Papakura and Pukekohe. In conjunction with the proposed improvements to local bus services connecting to Pukekohe Station, the development site offers a wide range of alternative transport modes to the private vehicle.

11.5 AUCKLAND REGIONAL PUBLIC TRANSPORT PLAN

The Auckland Regional Public Transport Plan 2015 ("RPTP") seeks to deliver an improved public transport network in Auckland by increasing public transport frequency along key transport corridors and simplifying ticketing to improve user experience.

The vision of the RPTP is to deliver "*An integrated, efficient and effective public transport network that offers a wider range of trips and is the mode of choice for an increasing number of Aucklanders*". To achieve this vision, Auckland's public transport system needs to deliver:

- services that align with future land use patterns;
- services that meet customer needs;
- increased passenger numbers;
- increased public transport mode share; and
- improved value for money.

As noted, the New Network for Pukekohe proposes half hourly bus services with accessibility to Pukekohe and the Rapid Transit Network (RTN) rail services to the city centre.

Further employment within close proximity of public transport services and residential will assist in encouraging their use and increasing passenger numbers. The proposed Plan Change is therefore considered to be supportive of the vision of the RPTP.

11.6 AUCKLAND UNITARY PLAN

The Auckland Unitary Plan will replace the Regional Policy Statement and the District Plans of the 13 legacy Auckland Councils.

The Proposed Auckland Unitary Plan Operative in part (the latest iteration of the Unitary Plan) has the following objectives with regard to the region's transport infrastructure:

- Land use and all modes of transport are integrated in a manner that enables:
    a. the benefits of an integrated transport network to be realised; and
    b. the adverse effects of traffic generation on the transport network to be managed.
- An integrated public transport, including public transport, walking, cycling, private vehicles and freight, is provided for.
- Parking and loading supports urban growth and the quality compact urban form.
- The provision of safe and efficient parking, loading and access is commensurate with the character, scale and intensity of the zone.
- Pedestrian safety and amenity along public footpaths is prioritised.
- Road/rail crossings operate safely with neighbouring land use and development.

The development is therefore considered to align well with the transport objectives of the Unitary Plan. The proposed zoning aligns well with neighbouring zones.

11.7 AUCKLAND DESIGN MANUAL

The Auckland Design Manual 2014 is currently being developed to sit alongside the Unitary Plan and provides practical advice, best practice processes and detailed design guidance to enable informed choices, to help build houses and develop streets and neighbourhoods that not only look good but are built to last, sustainable and give the best return on investment. To date, it gives the following transport-based design outcomes:

- **Connections and connectivity** - Subdivisions that provide movement choice and connectivity, while balancing costs, safety, and privacy;
- **Walkable neighbourhoods** – Prioritisation of pedestrian convenience and access to destinations in the design of subdivisions;
- **Legible hierarchies** - A clear and consistent road hierarchy to create accessible, legible and safe subdivisions and helps people understand how to get to, and when they are on, main routes;
- **Managing speed and modes** - Subdivision design ensures the safety of pedestrians and cyclists by managing vehicle travel speed, and provides equally for the four major modes (walking, cycling, passenger transport, vehicles) in a way that will appeal to the users of each;
- **Vehicle emissions and road layout** - Movement networks are designed to minimise the costs and environmental impacts of unnecessary travel; and
- **Public access** – Streets provide public movement and access throughout a subdivision.

The PPC and any subsequent development intends to follow these design guidelines and the site promotes connectivity with the existing employment, retail, community and recreational activities in the local and wider area. Traffic calming is proposed to be investigated to promote pedestrian movement and slow traffic within the site.

12 CONSTRUCTION TRAFFIC

The construction methodology for the development has not been finalised as it will depend on a range of factors, including any resource consent requirements. As such, it is proposed that provision be made in the resource consent conditions for a Construction Traffic Management Plan to be developed for the works anticipated. It is considered that this Traffic Management Plan should include:

i. Construction dates and hours of operation including any specific non-working hours for traffic congestion / noise etc, aligned with normally accepted construction hours in the Auckland Region.
ii. Truck route diagrams both internal to the site and external to the local road network.
iii. Temporary traffic management signage / details for both pedestrians and vehicles to appropriately manage the interaction of these road users with heavy construction traffic.
iv. Details of site access / egress over the entire construction period. Noting that all egress points to be positioned so that they achieve appropriate sight distance as per the Land Transport Safety Authority “Guidelines for visibility at Driveways” RTS document.

Based on experience and bearing in mind capacity within the existing roading network, with the appropriate Construction Traffic Management Plan in place and the above measures implemented, it is considered that construction activities will be managed to ensure an appropriately low level of traffic effects.

Of note, the construction activities are temporary and with appropriate measures in place are able to be managed and therefore the construction effects are considered less than minor.

13 IMPLEMENTATION PLAN

Table 1 summarises the PPC Implementation Plan. It sets out local and wider area works that will need to be addressed as part of development of this site.

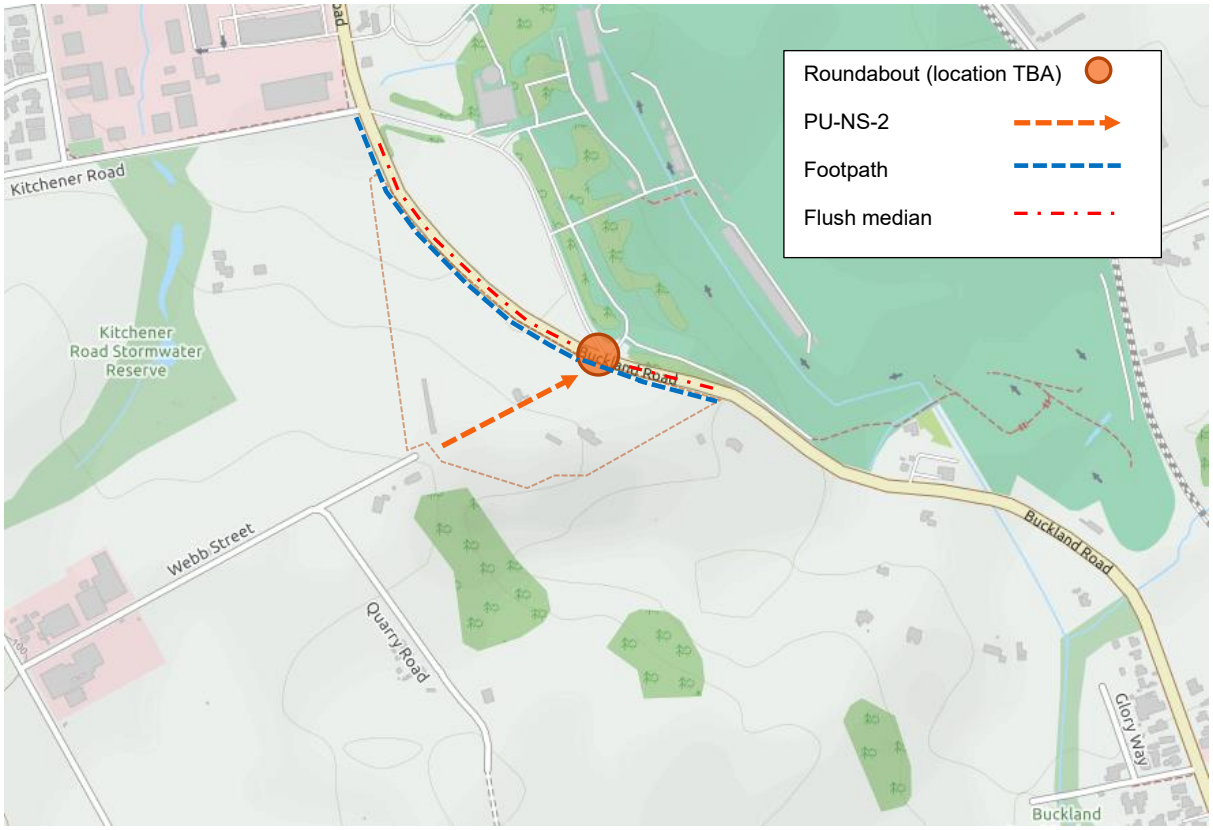
Table 92: Implementation plan

Trigger	Upgrade	Comments	Funder
Any new access on Buckland Road	Buckland Road upgraded to accommodate a painted flush median / right turn bay.	Will be required as part of initial development.	Developer
Commencement of development	Footpaths to link site(s) to existing footpath on Manukau Road (1.8 m wide)	Will be required as part of initial development and as required	Developer
Initial development	Reduce speeds past the site to 50km/hr	Speed reduction can only be instigated by Road Controlling Authority (Auckland Transport)	Auckland Transport
To be assessed at Recourse Consent (likely needed early in development)	Provide roundabout on Buckland Road	Highly dependent on exact land-use. Also provides an appropriate threshold to 50km/hr area.	Developer

To be assessed at Recourse Consent (unlikely to be directly needed by development but needs to be accounted for)	Provide PU-NS-2 Collector Road to Buckland Road	Highly dependent on exact land-use.	Developer
Considered as part of subsequent developments near the development site	Provision of bus stops (fronting the site)	To encourage the use of public transport when travelling to and from the area surrounding the site	Auckland Transport

These are shown in Figure 11-1 below.

Figure 11-1: Implementation for PPC



In general, none of these projects are currently in the Regional Land Transport Programme (RLTP) and thus are considered to be the responsibility of developers as they progress.

With the above in place, it is considered that there is no traffic engineering or transportation planning reason to preclude the proposed rezoning of the land from Future Urban Zone to General Business Zone.

14 CONCLUSIONS AND RECOMMENDATIONS

The descriptions, analyses and assessments provided in this report have shown that:

- The existing road network will partly provide for accessibility of the site by various transport modes: walking, cycling, bus and private vehicle;
- the extent of development proposed can be accommodated by the surrounding road network while maintaining acceptable levels of safety and performance (with mitigation); and
- the proposed development is consistent with and encourages key regional and district transport policies.

It is recommended that the transport network upgrades described in section 11 of this assessment be provided to enable the proposal to be appropriately supported by the road network. These can be addressed through the relevant resource consent applications.

The full extent of development enabled by the proposal will be appropriately supported by the existing road network and upgrades to existing road network (as detailed above) to maintain appropriate levels of safety and efficiency on the surrounding road network.

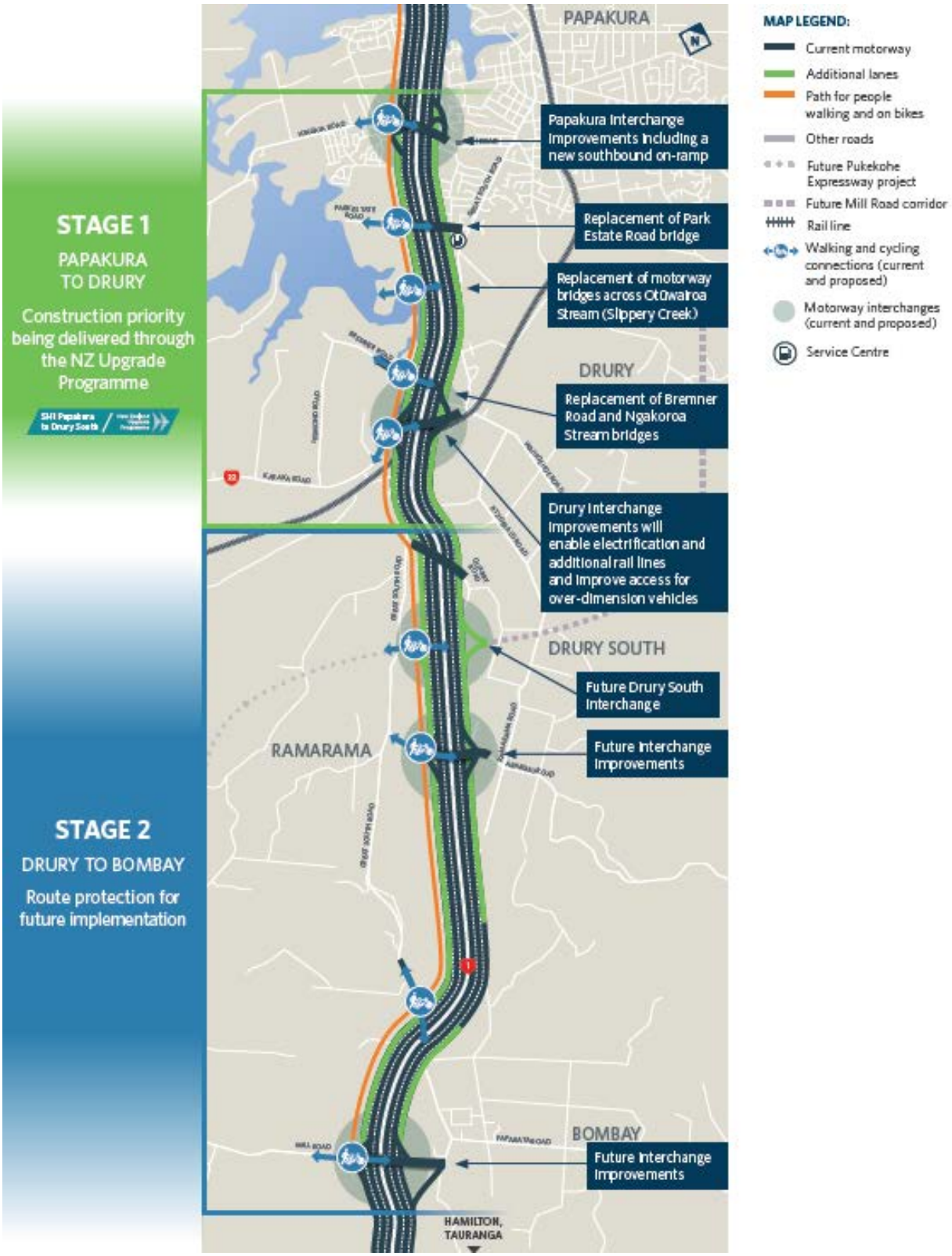
Accordingly, it is concluded that there is no traffic engineering or transportation planning reason to preclude acceptance of this proposal.

Commute Transportation Consultants

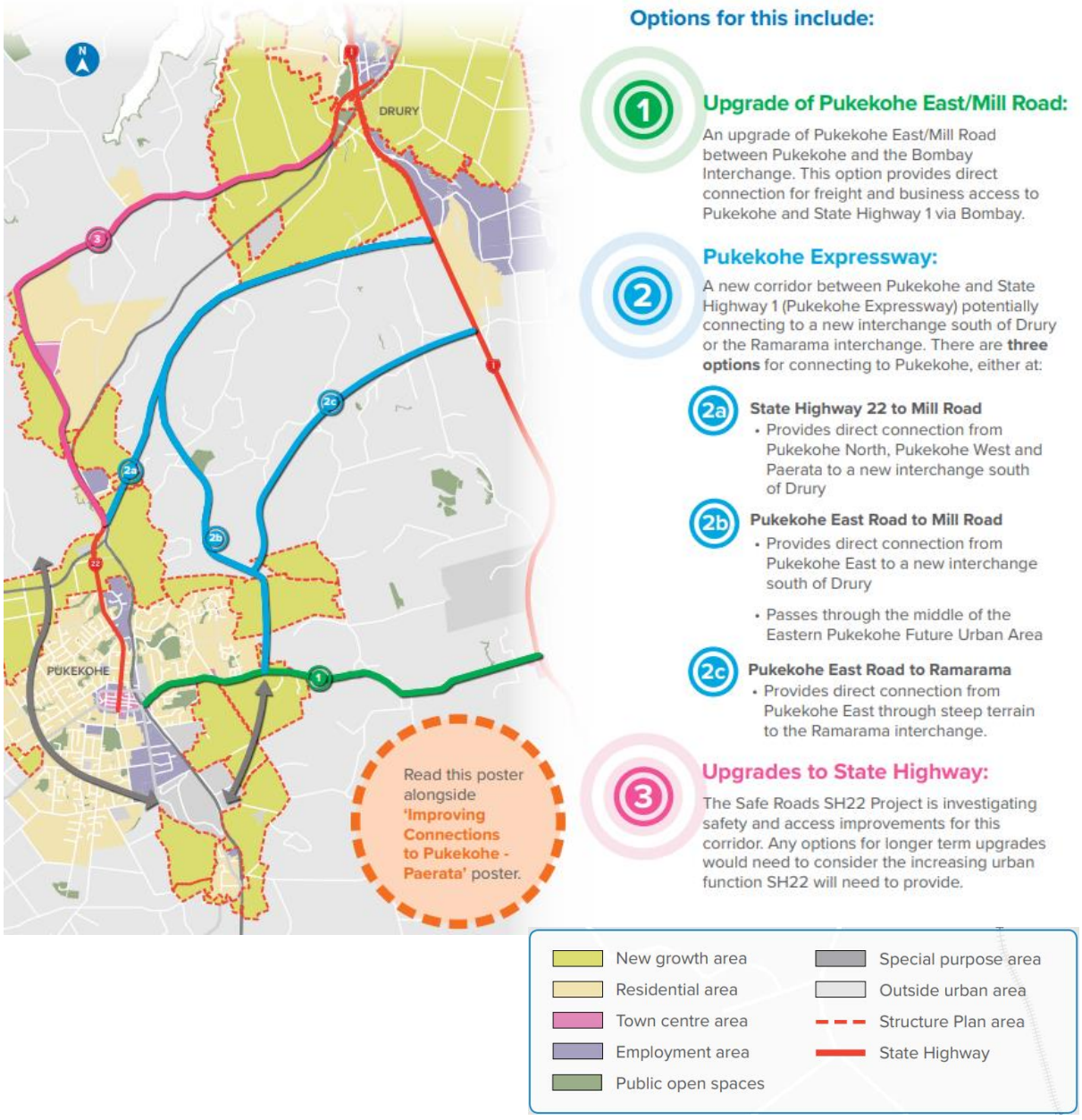
ATTACHMENT A – POTENTIAL WIDER IMPROVEMENTS

PREFERRED SH22 IMPROVEMENTS (DRURY TO PAERATA)

PREFERRED SH1 IMPROVEMENTS (PAPAKURA TO BOMBAY)

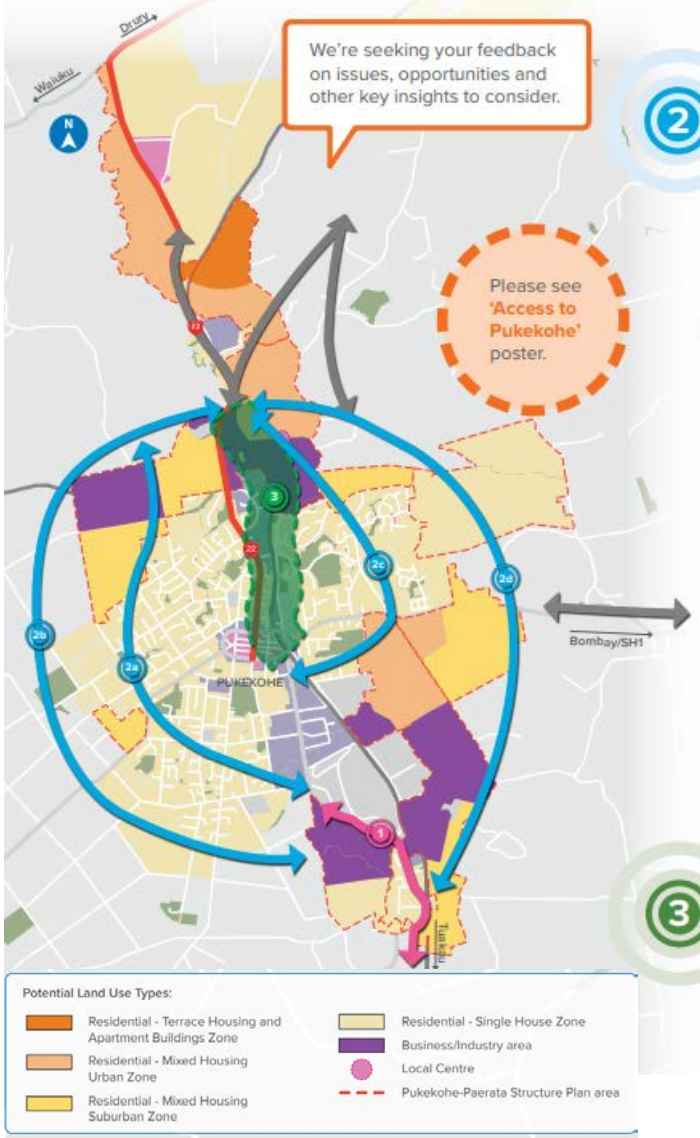


ACCESS TO PUKEKOHE IMPROVEMENT OPTIONS



PUKEKOHE-PAERATA CONNECTION IMPROVEMENT OPTIONS

We are planning how we can best deliver the infrastructure for both the existing and future communities to have safe, connected and attractive transport choices to key destinations in and beyond the town.



1 Buckland Road

Significant levels of growth are currently planned for Pokeno and Tuakau. More residential development in North Waikato will likely lead to an increase in traffic along Buckland Road. We are exploring how we can improve the road not only for vehicles but for other users too (e.g. cyclists).

2 New Pukekohe Ring Roads

The main route from one side of Pukekohe to the other currently requires drivers to travel through the town centre. This causes congestion, which will increase as the community grows. We are looking for opportunities for improving road alignments to relieve town centre congestion.

We are considering up to four ring road options:

2a Western inner ring road

Utilising existing roads from Buckland Road to the strategic network north of Pukekohe. This option travels through the existing urbanised areas of Pukekohe

2b Western outer ring road

This option is a new road outside the future urban zone of west Pukekohe from Buckland Road and connecting to State Highway 22 north of Pukekohe

2c Eastern inner ring road

Existing roads from Manukau Road to connect to East Street and the strategic network north of Pukekohe. This option travels through the existing urbanised areas of Pukekohe

2d Eastern outer ring road

This option is a new road outside the future urban zone of east Pukekohe from Buckland Road and connecting to the strategic network north of Pukekohe.

3 East-west connections

With the upgrading of the rail corridor we are looking at opportunities to improve connections from east to west over the rail corridor. This could include improving existing crossings, creating new crossing opportunities for all forms of transport or, if required, removing unsafe crossings.

URBAN ECONOMICS

1 October 2021

AUTHOR ADAM THOMPSON

51722.5.03

Economic Cost Benefit Analysis of: Proposed Plan Change, 301 & 303 Buckland Road, Pukekohe

PREPARED FOR
Jason Woodyard

ABOUT US

OUR AREAS OF EXPERTISE

Economic Analysis

Our work aims to bridge the gap between land-use planning and urban economics. Our focus is on the interaction between land markets, land-use regulations, and urban development. We have developed a range of methodologies using a quantitative approach to analyse urban spatial structure and audit land-use regulations.

Property Research

We provide property and retail market research to assist with planning and marketing of new projects. This includes identification of new sites and market areas, assessments of market potential and positioning, and the evaluation of market-feasibility of specific projects.

Development Advisory

We provide development planning and costing advisory services to support small and large-scale developments.

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CONTENTS

1. Executive Summary

Pukekohe has historically been a rural town that services a wide rural (secondary) catchment that extends between southern Auckland and Hamilton.

Pukekohe and its rural catchments are forecast to have rapid population growth, increasing from 68,000 in 2018 to 100,000 by 2038. This rapid population growth will generate demand for additional business zone land. To put this into context, Whangarei presently has a population of 80,000.

On average there is 27.8m^2 of General Business and Light Industry land per capita in Auckland. Pukekohe has 15.8m^2 of General Business and Light Industry land per capita, slightly lower than the regional average.

Pukekohe has 108 hectares of General Business and Light Industry zoned land. Land demand is forecast to increase to 133 hectares, an increase of 25 hectares or 23% over the next decade.

There is presently no General Business zone land for sale in Pukekohe.

There is presently one Light Industry zoned site for sale in Pukekohe. This is a large 19,400m^2 site located at 60 John Street which is currently under contract. It should be noted that the proposed Plan Change is for General Business land rather than Light Industry land, however the General Business does enable some Light Industry activities.

Discussions with several commercial agents that operate in Pukekohe have been interviewed to provide an insight into the day operation of the commercial and industrial land markets. All agents believe there is a definite shortage of commercial, retail and industrial land in Pukekohe. Increasing the supply of this land will promote local employment growth in Pukekohe.

The historic commercial and industrial land prices in Pukekohe were relatively constant over the 1980-2000 period, at around $100-$200/m^2, however since 2000 prices have increased at a rapid rate and are now $500 - $1,000/m^2. This rapid appreciation in prices also indicates a supply shortage of both commercial and industrial land in Pukekohe.

The site is located to the immediate south of the Manukau Road business node. This is the largest business node outside the town centre. It is mostly comprised of a mix of light industry, trade retail and large format retail. There is a conventional range of uses, including car yards, car servicing, wholesale, trade retail and some large format retail along the main road, with some more traditional light industry uses (transport, manufacturing, etc.) on the sites that are set back from the main road (e.g. on Crosbie Road).

The 'zoning principles' that Auckland Council have outlined for General Business land are in broad terms to enable a range of commercial and associated employment activities that are unable or unsuited to locate in centres, for example, trade suppliers and large format retail (with the exception of department stores and supermarkets). These activities should not adversely affect the role and function of centres.

The relevant question is therefore whether there is potential capacity for activities such as trade suppliers, and large format retail in the Pukekohe town centre that would otherwise be likely to establish on the proposed General Business land.

A detailed analysis of the capacity for additional business activity within the Pukekohe town centre has been undertaken. This found that there is practically no remaining capacity for the types of activities envisaged on the proposal property.

By contrast, there is strong demand growth forecast for the types of activities envisaged on the proposal property. For example, there is approximately 80,000m^2 – 85,000m^2 of large format retail in Pukekohe, and in this sector, there would be demand for 64,000m^2 of additional floorspace over the period to 2038.

The Pukekohe town centre is in strong commercial condition, with very low vacancies and strong rental rates. This is most clearly evident from a site visit.

Based on the Auckland Council's cost to service land with bulk infrastructure, the rezoning of the proposed site would utilise existing infrastructure with a value of $14.0 million (7.9 hectares * $1.3 million = $10.3 million). Practically, the proposal property is one of the largest undeveloped sites in Pukekohe that is presently serviced with bulk infrastructure. This is a substantial economic benefit to weigh up in the rezoning decision. Pukekohe has historically been a rural town that services a wide rural (secondary) catchment that extends between southern Auckland and Hamilton.

2. Introduction

This report provides an assessment of the economic costs and benefits for a Proposed Plan Change (the "proposal") of 7.9 hectares of land at 301 & 303 Buckland Road in Pukekohe (the "property"). In particular, the proposal is for 7.9 hectares of General Business zone land.

A practical consideration that arises is the likely composition of uses that would result if the proposal were approved. This is because the General Business zone enable a range of activities.

The following activities are considered likely uses on the proposal property:

General Business zone

- Car yards
- Large format retail, particularly less frequently visited stores such as hardware or furniture
- Trade retail
- Light industry

The main reasons supporting the General Business Zone and its likely uses are:

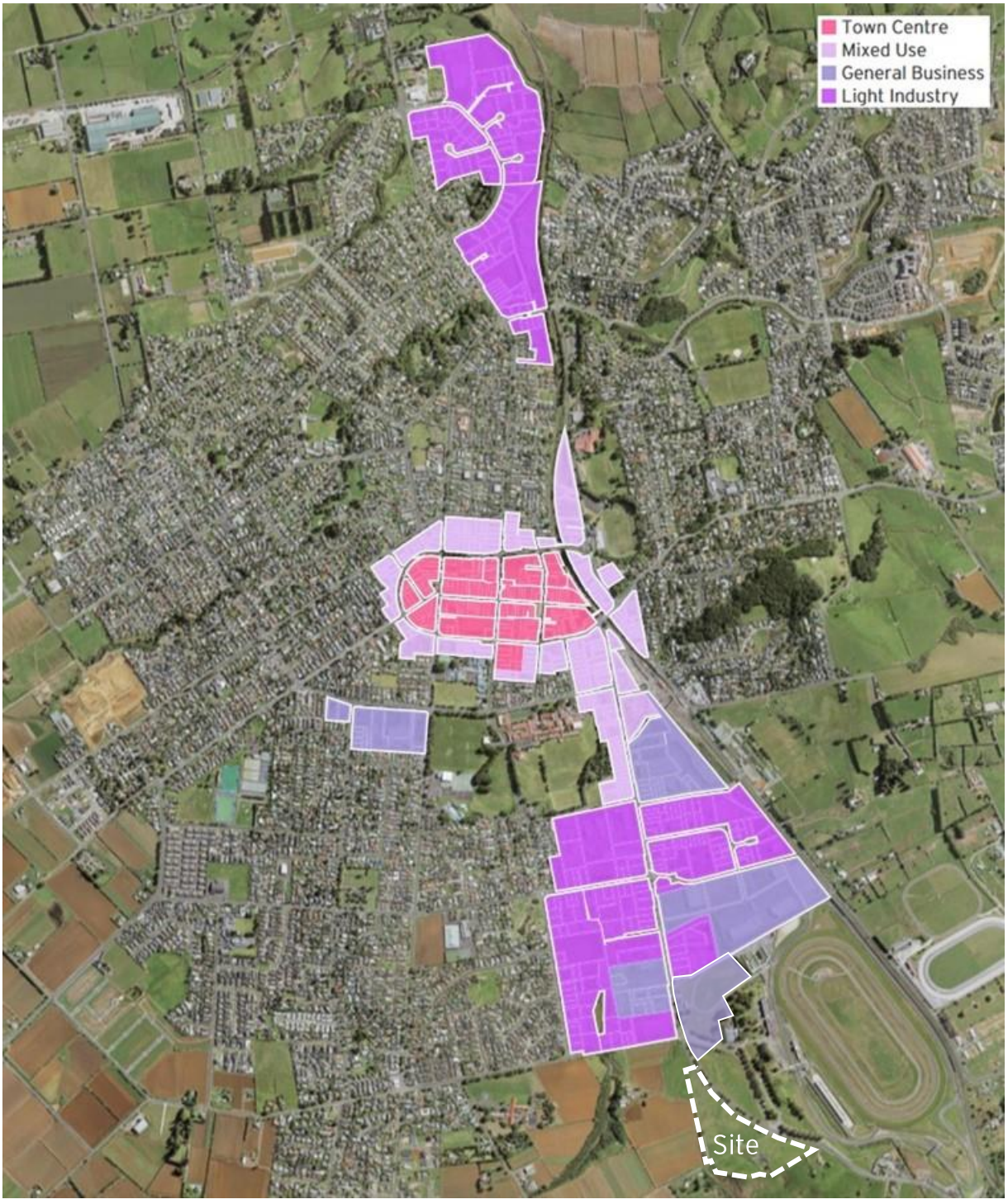
1. They are a logical extension of the current activity in the Manukau Road business node.
2. They are destination uses because of their infrequent customer visitation. Conversely, frequently visited stores such as department stores are considered less likely.
3. The location is on the southern edge of the town and would be subject to competition from high-visitation stores located 'up-stream', i.e. stores that are passed first by residents entering the town from the north.
4. There has been interest expressed from some specific firms in these sectors.

The other potential zone for the site that is considered is the Light Industry zone. This zone enables many similar activities as the General Business zone, and would also provide an expansion of the Buckland Road business cluster, which includes a pattern of both General Business and Light Industry zone land.

3. Business Zones in Pukekohe

Figure 1 outlines the main business zones in Pukekohe. The distribution of business land in Pukekohe is characterised by a Town Centre surrounded by Mixed Use, a northern Light Industry node, and a southern Light Industry and several cluster of General Business land that is interspersed within, and forms part of, the southern business node. There are a number of Large Format retailers that have established in the Manukau Road business node.

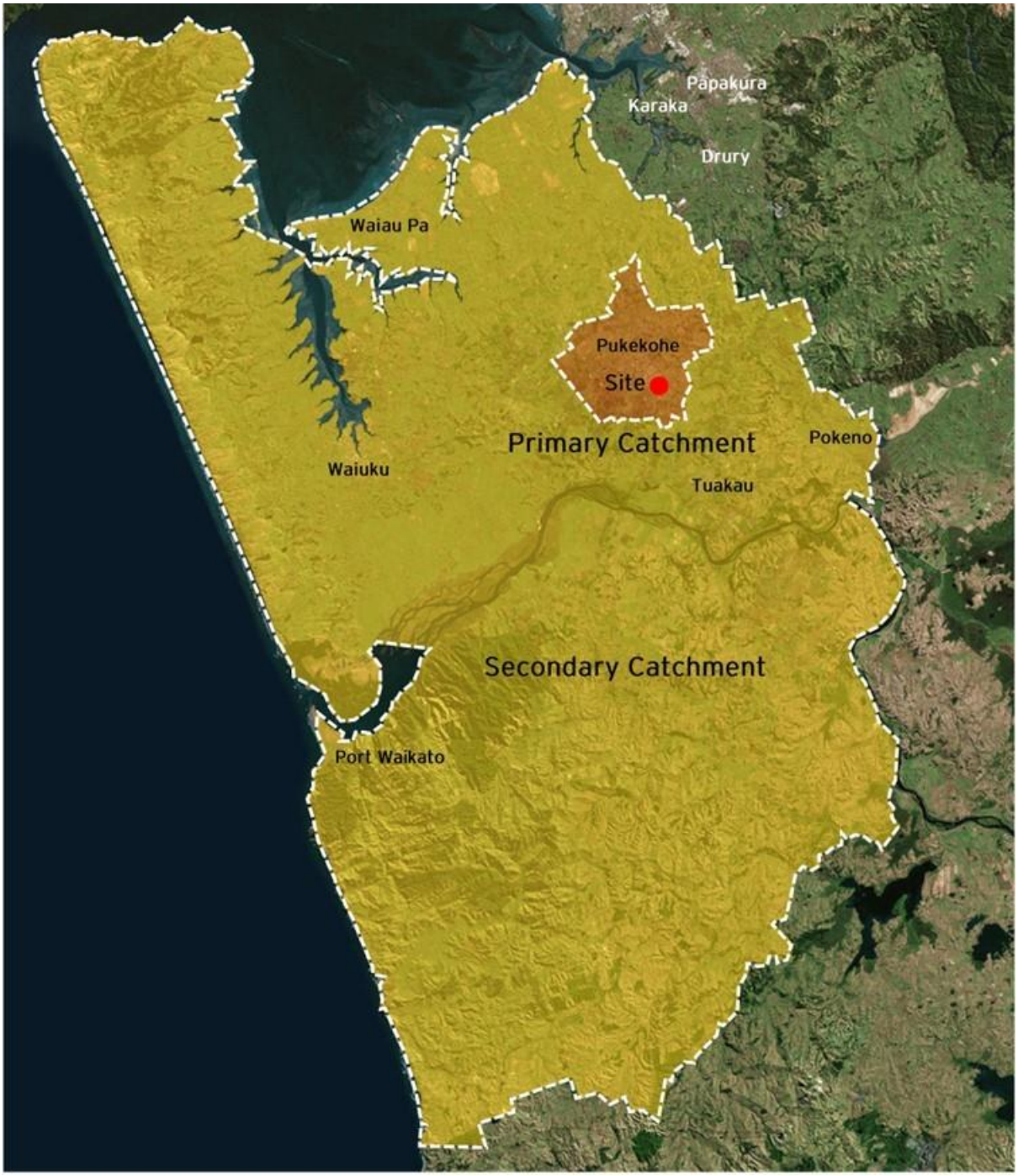
Figure 1: Commercial Zone Map



4. Pukekohe Catchment

Pukekohe has historically been a rural town that services a wide rural (secondary) catchment that extends between southern Auckland and Hamilton. These catchments are illustrated below and are used as the basis of analysis in this report.

Figure 2: Catchment Map



5. Land Demand Assessment

The following figure shows the General Business and Light Industry land per capita for Auckland, by ex Territorial Authority area, for various zones. On average there is 27.8m^2 of General Business and Light Industry land per capita in Auckland. There are however notable variations in this ratio across the City, indicating that each locality has a different business and employment composition. There may also be some overlap between the various zones. Pukekohe has 15.8m^2 of Commercial zone land per capita, indicating an overall shortage of commercial land in the regional context.

Figure 3: General Business & Light Industry Land Per Capita

		Land (Ha)			Land Per Capita (m^2)		
Sub-Region	Population 2018	General Business	Light Industry	Sub-total	General Business	Light Industry	Sub-total
Auckland Central	537,000	50	720	770	0.9	13.4	14.3
Franklin	58,000	30	220	250	5.2	37.9	43.1
Manukau	421,000	40	1,830	1,870	1.0	43.5	44.4
North Shore	261,000	100	460	560	3.8	17.6	21.5
Papakura	60,000	0	370	370	0.0	61.7	61.7
Rodney	126,000	30	370	400	2.4	29.4	31.7
Waitakere	237,000	30	470	500	1.3	19.8	21.1
Total Auckland	**1,700,000**	**280**	**4,440**	**4,720**	**1.6**	**26.1**	**27.8**
Pukekohe	**68,440**	**35**	**73**	**108**	**5.1**	**10.6**	**15.8**

Source: Urban Economics

Figure 4 applies the General Business and Light Industry land per capita ratios to the future populations of the Primary and Secondary catchments to estimate future land demand.

Based on this approach, future demand for General Business and Light Industry land is estimated to be 25 hectares per decade. This means that the current demand for 108 hectares in 2018 will increase by around 33% to 159 hectares by 2038.

As outlined in the next section, there is very little unutilised or vacant General Business and Light Industry land remaining in Pukekohe, and many firms are not able to find suitable land or premises.

Figure 4: Pukekohe General Business & Light Industry Land Demand 2018-2038

Population	2018	2028	2038	2018-2028	2028-2038
Primary	25,550	30,720	36,940	5,170	6,220
Secondary	42,890	53,750	63,640	10,860	9,890
Total	**68,440**	**84,470**	**100,580**	**16,030**	**16,110**

Land Demand	2018	2028	2038	2018-2028	2028-2038
General Business	35	43	52	8	8
Light Industry	73	90	107	17	17
Total	**108**	**133**	**159**	**25**	**25**

Source: Statistics NZ, Urban Economics

5.1. Specific Types of Demand

Medium and Large Format retail is a key growth area regionally and within Pukekohe. With the Pukekohe population forecast to double over the next few decades, there will be ongoing demand for this type of retail space.

There is potential for new car yards to establish in Pukekohe. Appendix 1 shows the location of car yards in Pukekohe. The main concentrations are around the town centre and at the southern end of Manukau Road, near the property. This site is ideally suited to car yard firms, due to its size, price, profile and proximity to existing car yards. There is also some potential that the car yards around the town centre relocate, over time, to low price land, such as the proposal property. This would free-up land around the town centre for other, more intensive, commercial uses.

Agricultural equipment retailers have similar land requirements to car yards and are considered to be a possible use for the property. As with car yards, there are a number of agricultural equipment retailers along Manukau Road.

Hardware stores, such as Bunnings and Mitre 10, require large flat sites, with a strong profile. They are infrequently visited stores, and therefore do not benefit greatly from being in a central town centre location. As they often require 1.5-2.0 hectares or relatively low price land, this is rarely available in central locations. Given the range of activities along Manukau Road, which include various trade retail and hardware stores, the site is considered to be ideally suited to a hardware store.

5.2. Commercial Agent Interviews

Several commercial agents that operate in Pukekohe have been interviewed to provide an insight into the day operation of the commercial and industrial land markets. The main findings are as follows:

- Agents believe there is a definite shortage of commercial, retail and industrial land in Pukekohe.
- One agent noted that there are no remaining sites for additional large format retail tenants.
- Several agents noted that many purchasers of business land in Pukekohe have a preference for freehold land, however the large majority of industrial land in Auckland is tightly held and is only available for lease/design-build (i.e. Auckland Airport, Hugh Green, James Kirkpatrick Group Limited, etc., do not sell industrial land rather offer lease/design-build). Other similar locations, such as the Stevenson's Quarry and Pokeno, have a similar trend, with many purchasers also having a preference for freehold land. Many businesses choose to locate in these locations to access freehold land. This is a relevant economic consideration, as land ownership offers greater certainty for business operation.

6. Land Supply Assessment

6.1. General Business and Light Industry Land for Sale in Pukekohe

There is presently no General Business zone land for sale in Pukekohe.

There is presently one Light Industry zoned site for sale in Pukekohe. This is a large 19,400m^2 site located at 60 John Street, however this site is currently under contract. It should be noted that the proposed Plan Change is for General Business land rather than Light Industry land, however the General Business does enable some Light Industry activities.

6.2. General Business and Light Industry Land Capacity in Pukekohe

This section evaluates the availability of other sites in the existing Light Industry and General Business zones that are not currently available for purchase or lease.

For a site to be considered as potential capacity it must be commercially feasible for development[1]. This is fundamentally a question of the 'residual land value' of brownfield land. The residual land value is the price a developer would effectively pay for land if the value of the existing building is included in the purchase price and then demolished before the construction of a replacement building.

The following two figures show the residual land value for the Light Industry Land and General

[1] A central concept in the National Policy Statement – Urban Development Capacity.

Business land in Pukekohe. In simple terms, properties coloured green have moderate - high development potential, whereas properties coloured in red have low - no development potential. The figures can be interpreted as follows:

Colour	Residual Land Value	Redevelopment Feasibility
Dark Green	$0-$250 / m^2	High
Light Green	$250-$500 / m^2	Low-Moderate
Yellow	$500-$750 / m^2	Low
Orange	$750-$1,000 / m^2	Very-Low
Red	$1,000 plus / m^2	Infeasible

It is evident from the following two figures that:

- There is 39.6 hectares of Light Industry land that has a residual value of $500 or less that has a moderate-high redevelopment feasibility. This represents a high proportion (54%), of the total stock of Light Industry land
- There is 10.2 hectares of General Business land that has a residual value of $500 or less that has a moderate-high redevelopment feasibility. The location of this land is shown in Figure 9 (in green). The majority of the 10.2 hectares is in the Large Format Retail Centres off Wrightson's Way. This centre is however mostly developed.

Figure 5: Residual Land Value of Light Industry Zone

	Light Industry Zone			
Residual Land Value ($/$m^2$)	Number of Properties	Percentage of Properties	Land Area (Ha)	Percentage of Land Area
Less than $250	11	5%	13.0	18%
$250-$500	58	28%	26.6	37%
$500-$750	62	30%	14.9	20%
$750-$1,000	59	28%	15.7	22%
$1,000 Plus	20	10%	2.5	3%
Total	**210**	**100%**	**72.8**	**100%**

Source: Corelogic, Urban Economics

Figure 6: Residual Land Value of General Business Zone

	General Business Zone			
Residual Land Value ($/m^2)	Number of Properties	Percentage of Properties	Land Area (Ha)	Percentage of Land Area
Less than $250	1	2%	0.1	0%
$250-$500	9	16%	10.1	29%
$500-$750	12	21%	7.0	20%
$750-$1,000	10	18%	9.9	28%
$1,000 Plus	24	43%	8.0	23%
Total	**56**	**100%**	**35.2**	**100%**

Source: Corelogic, Urban Economics

Based on the assessment of vacant and other Light Industry and General Business zone land in Pukekohe, it is concluded that there is insufficient capacity presently available to meet market demand.

Figure 7: Residual Land Value Light Industry Zone (North Block)

Figure 8: Residual Land value Light Industry Zone (South Block)

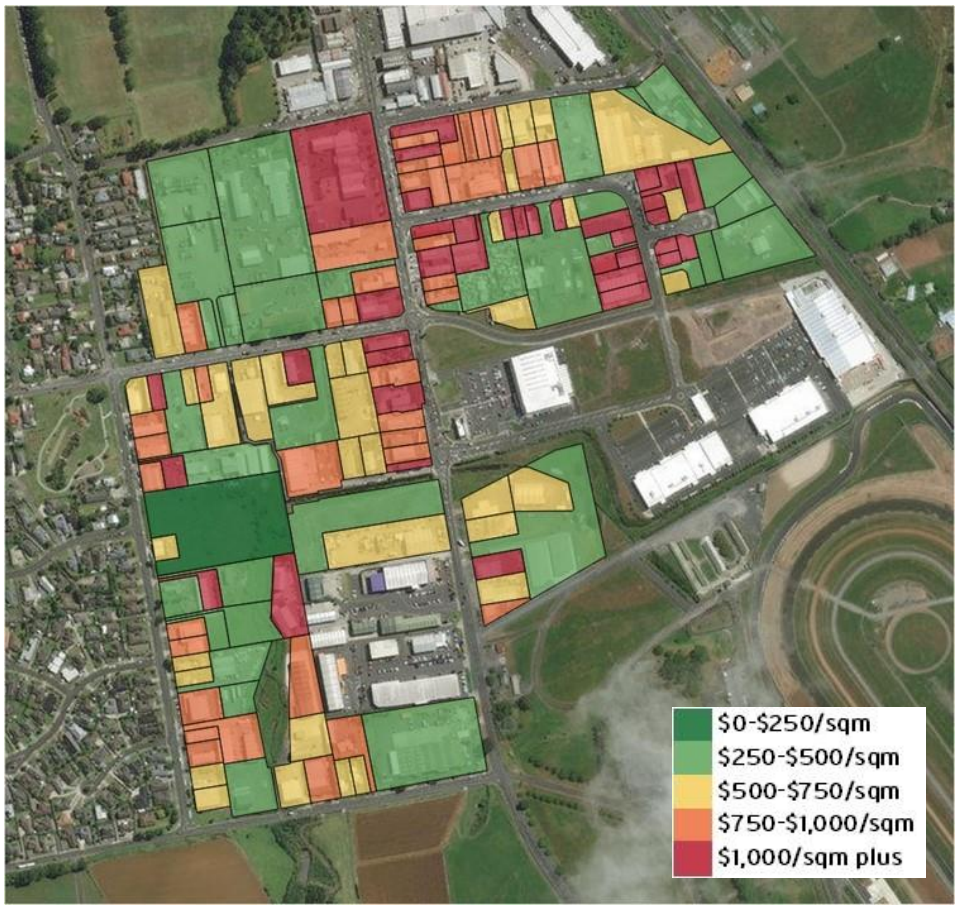


Figure 9: Residual Land Value General Business Zone

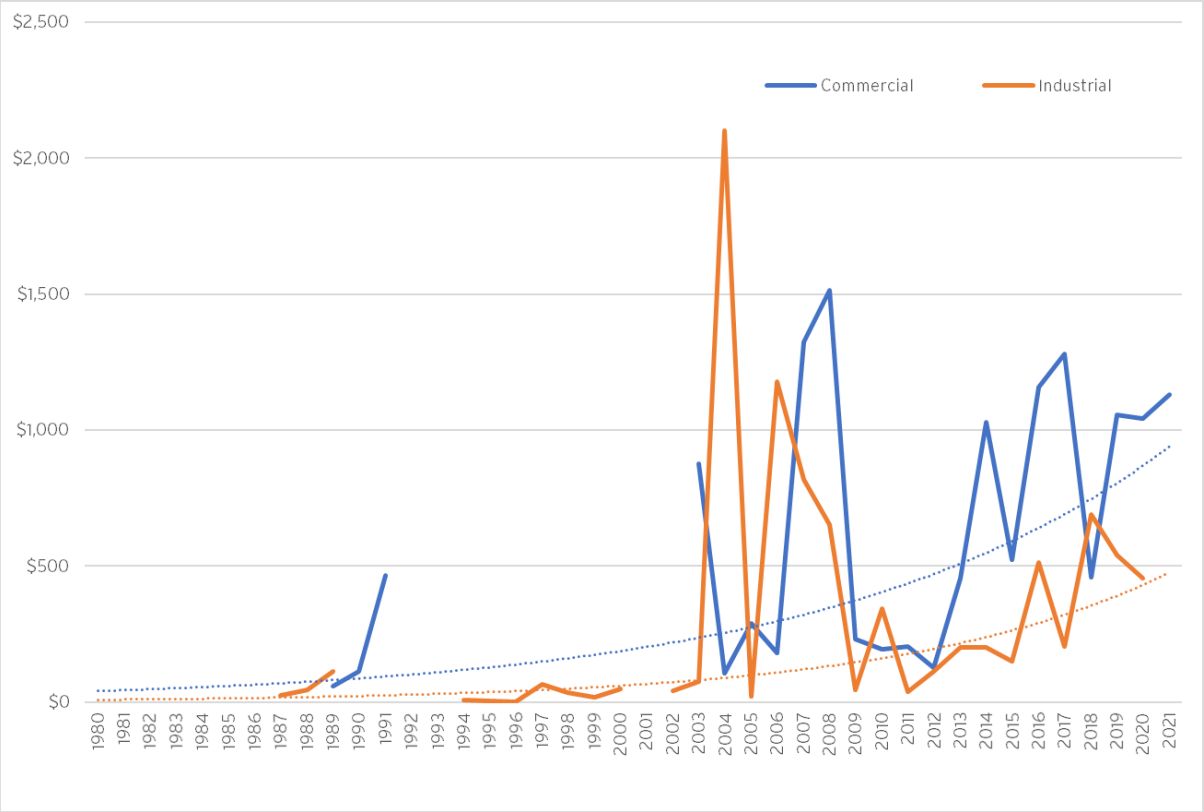
6.3. Historic Business Land Prices

The following figure shows the historic commercial and industrial residual land values for Pukekohe.

It is evident that prices were relatively constant over the 1980-2000 period, at around $100-$200/m^2, however since 2000 prices have appreciated at a rapid rate and is now $500 - $1,000/m^2.

This rapid increase in prices indicates a supply shortage of both commercial (i.e. General Business) and industrial (i.e. Light Industry and to an extent General Business) land, relative to demand.

Figure 10: Commercial & Industrial Residual Land Values (per sqm) 1980-2021



Source: Corelogic

7. Redevelopment Capacity in the Pukekohe Town Centre

This section evaluates the existing for large format retail (being the main commercial activity enabled within the General Business zone) to occur within the Pukekohe Town Centre is assessed using a 'residual land value' analysis. The residual land value is the price a developer would effectively pay for land if the value of the existing building is included.

The following figure shows the residual land value of commercial properties within the Pukekohe Town Centre zone. In simple terms, the properties that are coloured green and yellow have high to low-moderate redevelopment potential. Red and orange properties would not be commercially

feasible for redevelopment, as the cost to purchase them and demolish the existing building is prohibitive. The figure can be interpreted as follows:

Colour	Residual Land Value	Redevelopment Feasibility
Dark Green	$0-$250 / m²	High
Light Green	$250-$500 / m²	Low-Moderate
Yellow	$500-$750 / m²	Low
Orange	$750-$1,000 / m²	Very Low
Red	$1,000 plus / m²	Infeasible

Figure 11: Pukekohe Town Centre Zone Residual Land Value Map

Source: Auckland Council Rating Database, Urban Economics

As shown in the figure the majority of the Pukekohe Town Centre would be commercially infeasible for redevelopment for large format retail. There are however several "blocks" which may have development potential.

The "blocks" shown in the following figure have been assessed to identify their practical suitability for large format retail development.

Practical constraints may include for example a public use of the property such as a school or church, site size or dimension constraints, and the financial and practical difficulty of amalgamating several sites.

Figure 12: Pukekohe Town Centre Zone Residual Land Value Map

Block 1 is approximately 7,000m^2 and consists of several sites containing large commercial buildings. This block has already been developed and is therefore unavailable.

Block 2 is approximately 4,500m^2 and has low feasibility for commercial redevelopment. The block contains three residential dwellings and two commercial buildings. The block may have potential for redevelopment. However, this would require the amalgamation of 5 sites, which may be difficult and costly.

Block 3 is approximately 4,500m^2 and contains the Pukekohe War Memorial Hall and RSA Franklin. It is very unlikely that the site would be available for redevelopment due to its current use.

Block 4 is approximately 6,800m^2 and is occupied by two significant areas of public car parking and two commercial buildings. Areas of public carparking are not typically available for redevelopment, unless alternative parking options can be created elsewhere. Due to the size and shape of the block, the block is considered feasible for the placement of a small number of small - medium sized retail outlets, likely no larger than 500m^2. The block is therefore considered to be a difficult proposition for redevelopment.

Block 5 is approximately 4,400m^2 and is occupied by a large public carpark. As noted above carparks are typically unavailable for redevelopment and therefore this block is considered to be unlikely to be able to be developed.

Block 6 is approximately 2,500m^2 and is parking for the adjacent Countdown. It is therefore unavailable for redevelopment.

The analysis of the commercial and practical feasibility for redevelopment of the Pukekohe Town

Centre indicates there is very little or no potential for new large format retail development within the town centre.

8. Site Suitability for Various Business Zones

This section evaluates the site suitability for various potential business zones, given its locational characteristics.

There are two key economic factors to evaluate in respect of the optimal business zone for the site. These are the potential adverse effect on the commercial performance of the town centre, and whether there is market demand for the range of activities generally enabled by the proposed zone. The results of this analysis are outlined in Figure 13.

The main points to note are:

- The centre zones would have a potential adverse effect on the town centre and are therefore not suitable for the site.
- There is no/little demand for Business Park zone activities (i.e. an office park) in this location and it is therefore not a suitable zone for the site.
- The General Business zone enables a range of retail, commercial and industrial activities. These would not have any potential adverse effects on the town centre. There are several notable clusters of General Business zone land in the Manukau Road Business node, and the proposal would therefore provide a natural extension of this cluster. The General Business zone is therefore a suitable zone for the site.
- The Manukau Road Business node includes a significant cluster of Light Industry zone land. This zone would form a natural extension of this cluster. The Light Industry zone is therefore a suitable zone for the site.
- Heavy Industry zone land is not considered suitable.
- The General Business and Light Industry zones are the only two business zones considered suitable for the site.

Figure 13: Evaluation of Economic Factors of Business Zone Options

Zone	Potential Adverse Impact on Town Centre Retail Function	Market Demand
City Centre	Yes	No
Metropolitan Centre	Yes	No
Town Centre	Yes	No
Local Centre	Yes	Yes
Neighbourhood Centre	Yes	Yes
Business Park	No	No
Mixed Use	Yes	Yes
General Business	No	Yes
Light Industry	No	Yes
Heavy Industry	No	Yes

Source: Urban Economics

The site is located at the southern boundary of the Manukau Road Business Node. This is the largest business node outside the town centre and is mostly comprised of light industry, trade retail and large format retail. It has a conventional range of uses, including car yards, car servicing, wholesale, trade retail and some large format retail along the main road, with some more traditional light industry uses (transport, manufacturing, etc.) on the sites that are set back from the main road (e.g. on Crosbie Road). This existing pattern of activity also supports either the General Business or Light Industry zones for the site.

The General Business zone allows some Light Industry uses and a range of other uses, most notably large format retail uses. The General Business zone therefore provides a greater flexibility to respond to market demand (i.e. it can respond to demand for light industry and large format retail). This additional flexibility would support the optimal development of the site and elevates General Business over the Light Industry as the optimal zone for the site.

The Pukekohe-Paerata Structure Plan raises the potential for a substantial addition to the business zones, particularly the Industrial zones. It is however uncertain when this will occur, and it could be several years at least. There is presently an acute shortage of both Light Industry and General Business zone land in Pukekohe, and the provision of additional land, albeit a relatively small quantity, would help meet this demand in the interim period before the Pukekohe-Paerata Structure Plan (and subsequent Plan Change) enables additional land to be released to the market.

9. Large Format Retail Distribution

This section provides an analysis of the distribution of existing large format retail in Pukekohe. The following figures show distribution and store types for existing large format retail stores in Pukekohe. This demonstrates that the Manukau Road Business Node is the main cluster of Large Format Retail in Pukekohe, and it is therefore the optimal location for additional Large Format Retail, due to the agglomeration benefits that can be expected (i.e. efficiency for shoppers to visit several shops in one location).

Figure 14: Large Format Retail Map

Source: Various, Urban Economics

Figure 15: List of Stores by Location

Number	Store	Store Type
1	Placemakers	Trade Supplier
2	New World	Supermarket
3	Countdown	Supermarket
4	Farmers	Department
5	Farmlands	Trade Supplier
6	Pak'n'save	Supermarket
7	Bunnings Warehouse	Trade Supplier
8	Kathmandu	Clothing
	Repco	Motor Vehicle Parts
	Warehouse Stationery	Other
9	Lighting Plus	Trade Supplier
	Number One Shoes	Clothing
	Postie	Clothing
	Boneyard	Clothing
	Mico Plumbing	Trade Supplier
	Cracker Jack	Discount
	Computer Food	Electronic Goods
	Home & Kitchen	Furniture & Houseware
	Storage Box	Furniture & Houseware
10	Mama Africa	Grocery
	The Warehouse	Department
	Bed Bath & Beyond	Furniture & Houseware
	Beds R Us	Furniture & Houseware
11	Countdown	Supermarket
12	Furniture Now	Furniture & Houseware
	Stihl Shop	Trade Supplier
	Perfect Air	Trade Supplier
	Flooring Xtra	Trade Supplier
	Guthrie Bowron	Trade Supplier
13	Mitre 10 Mega	Trade Supplier
14	Harvey Norman	Electronic Goods
15	Hunting & Fishing	Recreational Goods
	Noel Leeming	Electronic Goods
	Briscoes	Furniture & Houseware
	Rebel Sport	Recreational Goods
16	Spotlight	Furniture & Houseware
	Bedpost	Furniture & Houseware
17	Wrightsons	Trade Supplier
	Carpet Court	Furniture & Houseware
	Cory's Electrical	Trade Supplier
	Plumbing World	Trade Supplier
	Horticentre	Trade Supplier
18	RD1	Trade Supplier
	Fresh & Save	Grocery
19	ITM	Trade Supplier

Source: Urban Economics

10. Light Industry & General Business Activity Overlap

The Light Industry and General Business zones allow a wide range of commercial and industrial activities, with considerable overlap between the two. Appendix 2 displays the commercial and industrial permitted and restricted discretionary activities. The activities that are permitted and restricted discretionary in both zones are highlighted in yellow. The key activity overlaps to note are:

- Industrial activities,
- Trade suppliers, and
- Motor vehicle sales.

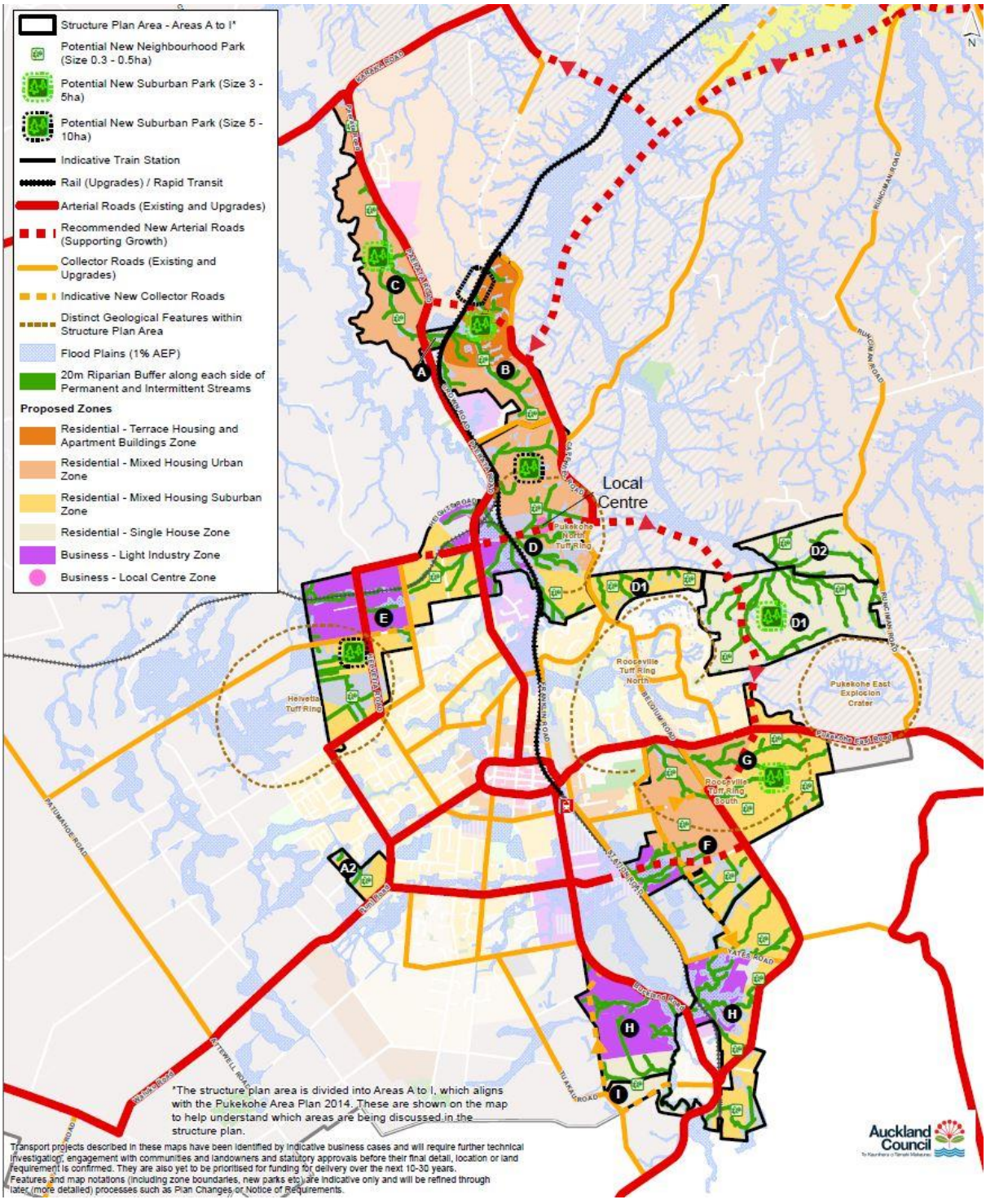
An important implication is that the General Business zone also enables several of the major activities enabled by the Light Industry zone, when considered in terms of total demand. For this reason, the General Business zone can also be used to a large extent to provide for industrial activities. The practical implication is that if the General Business zone is applied to the site, it could provide for a range of activities, including a large proportion of those activities otherwise enabled by the Light Industry zone.

11. Pukekohe Structure Plan

The following figure displays the Pukekohe-Paerata Structure Plan. This identifies a significant expansion southward of the Manukau Road Business Node, with approximately 90 hectares of additional Light Industry zone land noted as "H".

It is worth noting that the structure plan identifies a large amount of additional Light Industry zone land, one small additional Local Centre in the north, and no other additional business zone land. This raises some potential prima facie issues, for example, given the approximately doubling of the Pukekohe population, there will be a need for additional centre zone and General Business zone land, roughly in proportion to this growth, and this is likely to lead to significant shortages as the population grows. It is unlikely, for example, that the town centre can double in size in is current location, given the zoning and current land uses. This will lead to some need for additional centre zone land elsewhere.

Figure 16: Pukekohe-Paerata Structure Plan 2019 Map



Source: Auckland Council

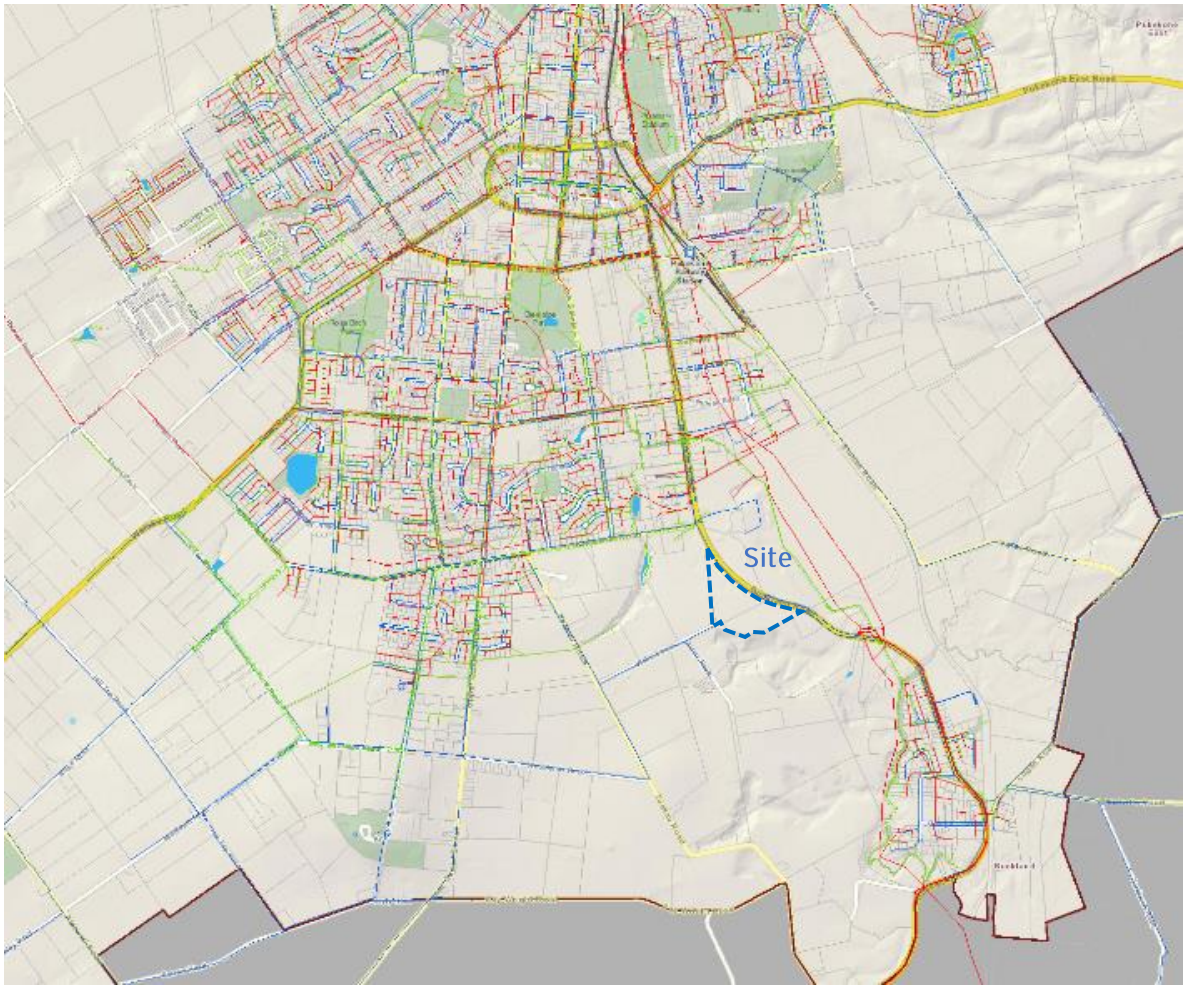
12. Efficient Use of Infrastructure

Auckland Council estimate that the City requires $19.9 billion of expenditure on the infrastructure network for future urban areas (Auckland Future Urban Land Supply Strategy, July 2017, page 20). This equates to expenditure of $1.3 million per hectare of land (15,000 hectares / $19.9 billion = $1.3 million).

The site presently has access to bulk infrastructure available in south Pukekohe, as shown in the following figure.

Based on the Auckland Council's cost to service land with bulk infrastructure, the rezoning of the site would utilise existing infrastructure with a value of $10.3 million (7.9 hectares * $1.3 million = $10.3 million). This is a substantial economic benefit to weigh up in the rezoning decision.

Figure 17: Infrastructure Map



13. Economic Costs & Benefits

The following provides a summary of the economic costs and benefits for the proposal.

As there are many significant economic benefits, and no economic costs, it can be concluded with a high degree of certainty that the proposal has a significant economic net benefit. The key economic benefits to note are:

- The proposal would increase the supply of general business land by approximately 22% of existing supply, and 50% of future general business zone demand. This contributes significantly to the capacity for the town to accommodate the expected population growth.
- The proposal would utilise existing bulk infrastructure with a value of $10.3 million, which is a substantial economic benefit.
- The proposal will provide access to services and employment and allow people to 'live and work' within the town, contributing towards the self-sufficiency identified by the Council for rural towns.
- The proposal site is optimally located for the town's southern commercial expansion, which will encourage the establishment of new local businesses while reducing the pressure on existing business land in Pukekohe. Both Light Industry and General Business zoned land are suitably located as a southward expansion of the existing Buckland Road Business Cluster.

The key economic costs to note are:

- The potential trade competition and related economic effects on the town centre are addressed when the rapid rate of demand growth is considered. There is approximately 80,000m^2-85,000m^2 of large format retail in Pukekohe, and in this sector, there would be demand for approximately 64,000m^2 of additional floorspace over the next 2 decades. This rate of growth however, offsets any competitive impact on the town centre.

14. District Plan Provisions

The main economic consideration for the proposal is its potential impact on the town centre.

It should be first noted that the General Business zone is specifically designed to only enable activities that do not impact the commercial performance of the town centre, as follows.

> *Business – General Business Zone Objectives*
>
> *(6) A range of business activities outside centres are provided for, while ensuring activities within the zone do not compromise the function, role and amenity of centres.*
>
> *Business – General Business Zone Policies*
>
> *(16) Enable a range of business activities, including large format retail, trade suppliers, light industry and small service activities that are either:*
>
> > *(a) difficult to accommodate within centres due to their scale and functional requirements;*
> >
> > *(b) more appropriately located outside of the Business – City Centre Zone, Business – Metropolitan Centre Zone or Business – Town Centre Zone; or*
> >
> > *(c) already established in locations where they are able to continue.*
>
> *(17) Avoid commercial and retail activities of a scale and type locating within the zone that will compromise the function, role and amenity of the Business – City Centre Zone, Business – Metropolitan Centre Zone and Business – Town Centre Zone beyond those effects ordinarily associated with trade effects on trade competitors.*

With regard to the core office and retail activities that may otherwise occur in a centre zone, the main points to note are:

1. **Department Stores and Supermarkets** are Restricted Discretionary activities. These are the main anchor tenants for town centres. They need to be assessed in respect of the "...expected future function, role and amenity of other Centre zones..." (H14.8.1(2)(c)). A proposed Department Store or Supermarket on the property could therefore be either approved or declined based on the competitive impact on the town centre, or in terms of whether it is consistent with the objectives to not compromise the function, role and amenity of town centre. The General Business zone is therefore considered to include a suitable mechanism for ensuring the function and role of the town centre is supported and not compromised.

2. **Retail up to 200m^2** is Non-Complying. This provision ensures a local, neighbourhood or town centre, which rely on many smaller stores, cannot establish.

3. **Retail greater than – 450m^2** is Permitted. However, in H14.8.1(5), any large format retail greater than 1,000m^2 needs to be assessed in terms of its effects on the town centre. Therefore, in regard to large format retail, only non-supermarket or department store between 450m^2 and 1,000m^2 in size, is Permitted. This is considered to be a very small area of the market, as most retail tenants require smaller specialty store of less than 450m2 or large format stores of greater than 1,000m^2 in size. As there is little market demand for

stores of this size, it is considered highly unlikely that there would be any significant development of this type of retail, and therefore no potential adverse effects on other centres are anticipated.

4. **Retail of 200m^2 – 450m^2** is Discretionary. This provision ensures a local, neighbourhood or town centre cannot establish. These activities would be subject to the same assessment of effects outlined in point 1 above, which is considered to include a suitable mechanism for ensuring the function and role of the town centre is supported and not compromised.

5. **Offices up to 500m^2** are Permitted, at a rate of one per site. This could in theory lead to a relatively large quantity of office floorspace. However, there is very little demand for office space in this part of Pukekohe, as there is a clear preference for office space in the town center, and no notable existing office space on business zone other properties along Manukau Road. It is considered highly unlikely that there would be any significant development of this type of office, and therefore no potential adverse effects on other centres are anticipated.

6. **Offices greater than 500m^2** are Discretionary. These activities would be subject to the same assessment of effects outlined in point 1 above, which is considered to include a suitable mechanism for ensuring the function and role of the town centre is supported and not compromised.

The remaining Permitted business and community activities are not considered to be core town centre activities, and therefore do not present any potential for adverse competitive impacts on the town centre.

15. AUP Zoning Principles

Mr John Duguid, General Manager Plans and Places at Auckland Council, outlined the "zoning principles" for allocating the various business zones in his evidence to the Auckland Unitary Plan Independent Hearing Panel in 2015. The zoning principles Mr Duguid outlined for the General Business zone are as follows:

> *"General Business Zone*
>
> *18.45 The General Business zone provides for business activities that may not be appropriate for, or are unable to locate in, centres. This includes activities ranging from light industry to large format retail and trade suppliers. This zone also enables limited office activities.*
>
> *18.46 In the Council's evidence for Topics 051-054, amendments proposed to the General Business zone policies clarify that although this zone is located primarily in areas close to the City Centre, Metropolitan or Town Centre zones, it is applied "in other areas where appropriate".57 The activity status for large format retail (greater than 450m2) is also proposed to be amended from a Restricted Discretionary activity to a Permitted activity, to recognise that the zone has been applied to existing cohesive areas of large format retail.*

18.47 The Council's adopted zoning principle is to primarily apply this zone to existing areas of large format retail within close proximity to the city centre, metro centres or town centres. The Council's position, supported by the Council's evidence for Topics 051-054, is that the future application of this zone should be limited, as commercial activity is expected to locate within and reinforce the roles of the city centre, metropolitan centres and town centres. Chapter B3.1 Policies 7 and 8 are relevant to submissions seeking changes to the spatial application of the General Business zone."

Before the Auckland Unitary Plan Independent Hearings Panel, Statement of Primary Evidence of John Michael Duguid on behalf of Auckland Council, (Zoning), 3 December 2015, emphasis added.

The General Business zone is therefore to enable activities that are unable to locate in centres, most notably large format retail and trade suppliers, however with the important qualification these activities are primarily intended to locate in centres, to support their role. This principle is also outlined in Objective 6 of the General Business zone:

"A range of business activities outside centres are provided for, while ensuring activities within the zone do not compromise the function, role and amenity of the centre."

The General Business zone therefore appears to be based around a conventional centres-first policy. The relevant question is therefore whether there is potential capacity for large format retail and trade suppliers in the Pukekohe town centre that would otherwise be likely to establish on the proposed General Business zone.

The General Business zone permits retail stores of 450m^2 or greater, with the specific exception of supermarkets (which require an economic impact assessment on other centres). The General Business zone therefore enables a range of large format retail and trade supplies stores. For example, see Figure 14, which shows the large format retailers currently represented in Pukekohe.

These stores range in size from 1,000m^2 to 10,000m^2 and require sites of 3,000m^2 to 3 hectares. The sites, including any existing buildings, also need to be priced at less $500/m^2 in general, to enable development that is commercially feasible[2].

In terms of demand for large format retail and trade suppliers, the Pukekohe population is forecast to have rapid growth, of an approximate 50% increase over the next two decades. This will have at least a 50% increase in the demand for large format retail.

There is approximately 52,500m^2 of large format retail in Pukekohe, and in this sector there would be demand for 25,000 – 30,000m^2 of additional floorspace over the period to 2038. This rapid rate of demand growth would offset any competitive impact on the town centre within a short time period.

More generally, the town centre is in very strong commercial condition, with very low vacancies and

[2] Retailers have rent ceilings based on their turnover and this generally means developers are only able to develop low-mid priced land for this type of tenant.

strong rental rates. This is most clearly evident from a site visit.

Figure 14 shows the distribution of large format retail in Pukekohe, and notably a large amount of this is in the Manukau Road Business Node area. This is commonly the case where town centres are comprised of smaller parcels that are not able to be easily aggregated and redeveloped for large retail stores.

The proposed General Business zone would enable additional large format retail in the Manukau Road area. This would add to the existing critical mass of large format retail in the Manukau Road area and would offer co-location of agglomeration economies. In practical terms, consumers would be able to easily visit 2-3 stores in one trip and compare goods before making a purchase. Under this scenario, retailers are more likely to compete for customers in terms of product range, price and service.

In summary, the proposed General Business zone meets the zoning principles established by Mr Duguid, in particular it would enable a range of commercial activities that "may not be appropriate for, or are unable to locate in, centres".

This zoning principle aligns with the commensurate economic principle. Namely, that commercial activities should occur in centres, however if there is no capacity in centres, they should be able to occur elsewhere. This ensures the land and premise needs of businesses are met in full. It is worth noting that the centres-first approach was agreed by economists during the AUP review process as a central principle for the distribution of commercial activities:

> *"Further capacity for retail development may be required as a last option (where the role and function of centres would not be undermined) in other locations that cannot be met in preferred alternatives. This should be accommodated only as a discretionary activity so that a full assessment of the effects to determine the appropriateness of the activity can be undertaken. (page 17, Expert Conference Joint Statement for hearing topics 051-054 Centre Zones, Business Park and Industries zones, Business Activities and Business Controls On Matters relating to the Identification of Locations for Further Future Retail Development Date: 29 July 2015, emphasis added)*
>
> *This approach was agreed by the following experts:*
>
> - *Greg Akehurst, ME Spatial Ltd*
> - *Douglas Fairgray, ME Spatial Ltd*
> - *Susan Fairgray, Auckland Council Ltd*
> - *Tim Heath, Property Economics Ltd*
> - *Robert Philpott, McDermott Miller Ltd*
> - *Mark Tansley, Market Place Ltd*
> - *Adam Thompson, Urban Economics Ltd*

16. Conclusions & Recommendations

The site is relatively small (7.9 hectares) and represents a small expansion to Pukekohe's business land supply. This economic assessment has been prepared with a level of detail that reflects the scale of the proposed land use.

There is also a requirement for specific activities that may occur on the site to be assessed in terms of their impacts (if any) on the town centre at the Resource Consent stage[3]. This means that a detailed assessment of the effects of a wide range of activities on the size is not required for this report.

Based on the research in this report it is concluded that the proposal would have significant economic benefits and no economic costs.

The proposal is recommended for approval.

[3] Based on the comments of Mr Robert Scott.

17. Appendix 1: Car Yards

Figure 18: Car Yard Location in Pukekohe

Source: Google

18. Appendix 2: District Plan Zone Overlap

The following tables display the permitted and restricted discretionary commercial and industrial activities in the respective zones. It is important to note that these zones are relatively interchangeable in nature as there is a significant overlap in what is allowed in each zone, which has been outlined in yellow in the tables. The key overlaps to note are:

- Industrial activities,
- Trade suppliers,
- Motor vehicle sales, and
- Food and beverage.

Figure 19: General Business Activity Table

Zone	Activity	Status
General Business Zone	Commercial Services	P
	Department Stores	RD
	Drive-through Restaurants	P
	Entertainment Facilities	P
	Food and Beverage	P
	5+ Food and Beverage activities part of integrated development	RD
	Garden Centres	P
	Marine Retail	P
	Motor Vehicle Sales	P
	Offices up to 500m^2 GFA per site	P
	Retail greater than 450m^2 GFA per tenancy	P
	Service Stations	RD
	Supermarkets Greater than 450m^2	RD
	Trade Suppliers	P
	Industrial Activities	P

Source: Auckland Unitary Plan, Urban Economics

Figure 20: Light Industry Activity Table

Zone	Activity	Status
Light Industry Zone	Dairies up to 100m^2 GFA	P
	Drive-through Restaurant	P
	Food and beverage up to 120m^2 GFA	P
	Garden Centres	P
	Garden Centres within 100m of Heavy Industry Zone	RD
	Motor Vehicle Sales	P
	Motor Vehicle Sales within 100m of Heavy Industry Zone	RD
	Marine Retail	P
	Marine Retail within 100m of Heavy Industry Zone	RD
	Offices up to 100m^2 GFA	RD
	Offices accessory to primary activity on site	P
	Offices accessory to primary activity on site exceeding 30% of buildings	RD
	Retail accessory to industrial activity no more than 10% of buildings	P
	Service Stations	P
	Show Homes	P
	Trade Suppliers	P
	Industrial Activities	P
	Wholesaler	P
	Storage and Lock-up facilities	P

Source: Auckland Unitary Plan, Urban Economics

NGĀTI TE ATA (WAIOHUA)
CULTURAL VALUES ASSESSMENT REPORT

PETEREX PROPERTIES LIMITED AND PUKEKOHE LIMITED PROPOSED PRIVATE PLAN CHANGE – 301 AND 303 BUCKLAND ROAD, PUKEKOHE

NOVEMBER 2021

1. Introduction to Ngāti Te Ata

Ngāti Te Ata are a mana whenua iwi of Pukekohe.

We have our own traditions establishing our cultural and spiritual association to Pukekohe indeed the Tamaki isthmus, the spiritual maunga and the surrounding lands and harbours. These accounts are supported by whakapapa, ahi kā roa and iwi /hapū traditions.

Much of today's pressure for regional growth results from a number factors, namely population growth, economic activity and commercial development. A lot of this development is taking place in sensitive ecological areas and along our rivers and coastal zones easily susceptible to adverse impact. Over recent years there has been an increasing awareness by the public of the potential adverse impacts this type of growth has on the natural environment.

In pre-European there was no urban developments on the same population scale as at present. Consequently, ancient Māori were never confronted with the issue of dealing with enormous volumes of stormwater, wastewater or the pollutants that result from the discharges from modern-day large-scale subdivisions and urban developments.

Whakapapa

Who Are We: Ko Wai Mātou?

'We are Ngāti Te Ata'.

Within the wider landscape of Tāmaki Makaurau (Auckland) lay the settlements of the Te Waiohua people (the original inhabitants). Members of the Tainui waka settled around the isthmus and began to intermarry with the ancestors of Te Waiohua. It was this intermarriage and the development of other bonds between the people that settlement established.

Ngāti Te Ata descend from both groups. As the descendants (current generation) we are kaitiaki and we have inherent responsibilities to ensure that we can protect and preserve our taonga for future generations.

Whakapapa/Genealogy

Te Huakaiwaka = Rauwhakiwhaki

(Origin of Te Waiohua)

|

Huatau

|

Te Ata i Rehia = Tapaue

(Origin of Ngāti Te Ata) (Waikato Tainui)

Our Ancestor Te Ata-i-Rehia

'Ka whiti te ra ki tua o rehua ka ara a Kaiwhare i te rua'
'As long as the sun shines over the west coast Ngāti te Ata will rise from the depths of the Manukau'

Ngāti Te Ata are are a legitimate authority with the right to govern its affairs, define its preferences and make decisions on matters which affect us as an iwi and our resources. Ngāti Te Ata are willing to enter into relationships with other organisations on the understanding that Ngāti Te Ata rights as a sovereign people are respected.

For Ngāti Te Ata it is vital that three key conditions are provided for regarding engagement with Peterex Properties and Pukekohe Limited:

1. That the **mana** of our people is upheld, acknowledged and respected.

2. That our people have **rangatiratanga** over our ancestral taonga.

3. That as **Kaitiaki** we fulfil our obligation and responsibility to our people (current and future generations) as custodians, protectors and guardians of our cultural interests and taonga.

Kaitaikitanga is an essential part of our tikanga. We are active in the protection and management of our environment and our wāhi tapu.

"It denotes obligations or responsibilities incumbent on the iwi, its members and appointed kaumātua, kuia or tohunga to carry out particular functions, be custodians, protectors and guardians of iwi interests, its taonga and the various resources that it owns"[1]

[1] Awaroa ki Manuka, 1991. Ngã Tikanga o Ngãti Te Ata Tribal Policy Statement. p.10

2. Purpose of Report and Brief History

Peterex Properties and Pukekohe Limited are applying to rezone their adjacent properties from Future Urban Zone (FUZ) to General Business Zone (GBZ).

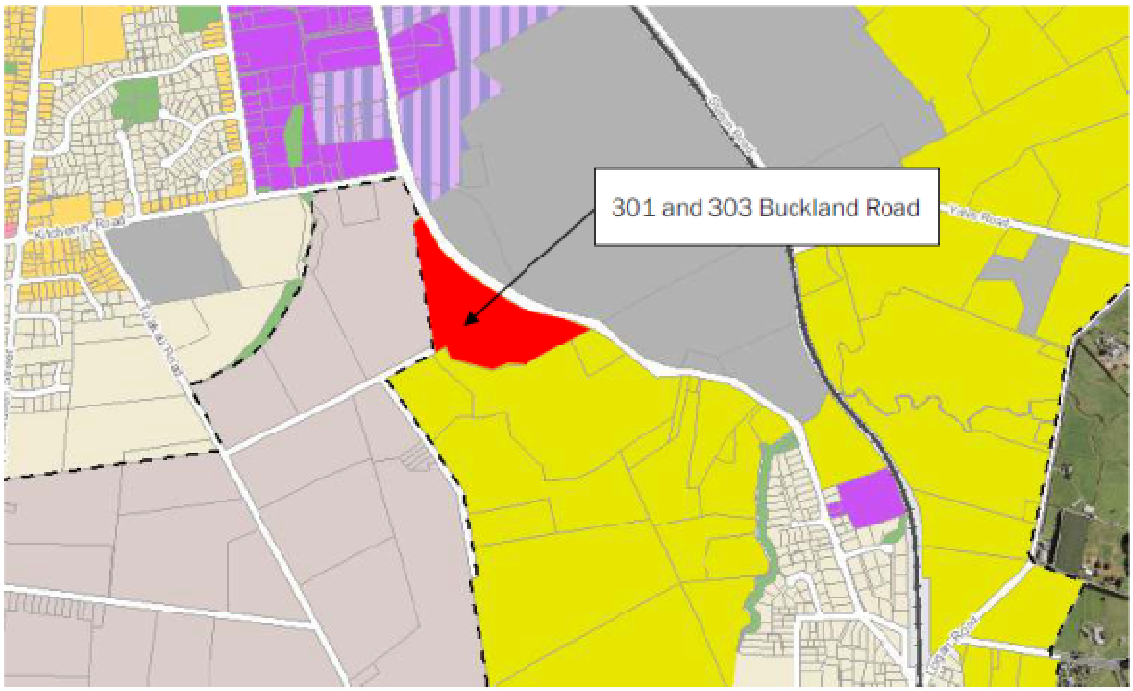


Figure 1: Locality Plan for 301 and 303 Buckland Road

This cultural values assessment is but a starting point for further engagement and dialogue given the scale, scope and future implications of the proposed private plan change. Initial discussions among Ngāti Te Ata have raised the following issues:

Will the proposed plan change?

- conflict with our values and our traditional and spiritual relationship to the Pukekohe footprint, the pā maunga, the Manukau Harbour and its many tributaries, and the receiving catchment?
- degrade or adversely impact upon wāhi taonga and mahinga kai areas?
- visually and physically compromise the integrity of maunga view shafts, landscapes and natural features including landforms, ridgelines, trees, bush, wetlands, waterways, and any other natural outstanding features?
- provide an opportunity for us to reinvest in cultural, environmental, social and economic wellbeing with the intention and commitment to developing and maintaining an interactive and positive, long-term working relationship with Peterex Properties and Pukekohe Limited to establishing a process for working together for the purpose of achieving mutual and respective objectives.

The ultimate goal is the protection, preservation and appropriate management of natural and cultural resources in a manner that recognises and provides for our interests and values, and enables positive environmental, social and economic outcomes.

This cultural values assessment will:

1. Inform Peterex Properties and Pukekohe Limited of Ngāti Te Ata historical heritage and traditional relationship to Pukekohe and wider environs.

2. Identify any issues, concerns or effects of the future development and urbanisation of the project areas on our cultural and natural heritage issues, interests and values.

3. Assist with the identification and formulation of methods to avoid, remedy or mitigate adverse effects on Māori values, or measures to recognise and provide for the relationship of Ngāti Te Ata with our ancestral lands and taonga. This may be through recommendations for the proposed subdivision process moving forward.

This report is the product of a gathering of information by Ngāti Te Ata available at the time of completing this report. It is important to recognise that any methods suggested in this cultural values assessment are supported by Ngāti Te Ata in principle based on the information we currently have. The contents may therefore be subject to any further information that may be supplied throughout the process and preferred methods may change.

This cultural values assessment does not prejudice any outstanding Treaty of Waitangi claims relating to these areas.

Ngāti Te Ata have had a long history in resource management and environmental issues within each of their rohe. Many changes over the years have not always been in our best interests. Such change has often resulted in the continual degradation of many of our natural and physical resources, wāhi tapu sites, and other taonga.

We continue to have a spiritual and emotional relationship to these places. We never forget our connection to these places. They are our inheritance.

Our key objectives for this process:

1. Assist with early stakeholder discussions regarding the proposed land change at 301 – 303 Buckland Road, Pukekohe on cultural matters.

2. Acknowledge the relationship Ngāti Te Ata has with the proposed plan change project area. This includes our relationships with our culture and traditions with our ancestral lands, water, sites, wāhi tapu, and other taonga.

3. Provide recommendations that will protect the natural and physical resources of the Pukekohe plan change area and environs and our relationship with these resources.

4. Peterex Properties and Pukekohe Limited to continue to work in conjunction with Ngāti Te Ata to protect and preserve traditional lands, taonga and its associated areas within Pukekohe and the wider environs.

Our focus is on the development and enhancement of the spiritual, cultural, social, and economic welfare of our people. Our intention is to increase our kaitiaki capacity to ensure that the good health and wellbeing of our environment is restored and maintained. Ngāti Te Ata the land and the waters are as one. Our outlook is to the future, as the land recovers and begins to thrive so too will the spiritual, cultural, social and economic welfare of Ngāti Te Ata.

Tōku Mana
"The right to be ourselves"

That Ngāti Te Ata continue to have decision making input throughout the entirety of the plan change development.

The cultural aspirations of Ngāti Te Ata to follow are consistent with and align to Te Aranga principles mana (authority), whakapapa (naming), taiao (natural environment), mauri tu (environmental), oranga (health), mahi toi (creative expression), tohu (cultural landscape) and Ahi ka (living): Each development related issue has been assessed with these principles and following aspirations of Ngāti Te Ata in mind:

Ngāti Te Aa supports engagement and involvement that respects and provides for our cultural and traditional relationship to these areas, its unique cultural identity, and input into shaping the physical, cultural, social and economic regeneration of Pukekohe.

Pukekohe Brief History

We are fully aware and troubled by how much of our urban growth is occurring in our irreplaceable highly productive land. In Pukekohe we only have limited quantities of high-class soils. We have to ensure we have enough land to build the houses people need, but we must protect our most productive areas too. The government are taking steps to address issues such as the loss of prime-market gardening land around Pukekohe, as Auckland expands, as well as the impact of lifestyle blocks on our most productive land. Also, on a more comprehensive freshwater national policy statement to address concerns about sediment, wetlands and estuaries. Is there a report that shows that these soils on the project site are beyond any productivity potential?

Events of 1840s Not long after the founding of Auckland (1840), small numbers of organised European settlement began in the Franklin area. Although very early relationships with the European settlers were relatively amicable, these were soon stifled by illegal land sales and Crown acquisitions. August 1842 was the first time Māori entered into negotiations with the Crown regarding land in the Franklin area. In the first transaction, the area stretched from the Karaka foreshore on the Manukau Harbour to the Waikato River in the south.

The Pukekohe Block:

The first purchase of the land known collectively as the ‘Pukekohe Block’ was made in 1843, with the Deed of Purchase signed on 7 December 1843.The dignitaries from the Māori parties were Katipa and Te Waka Kaihau, chiefs of the Ngāti Te Ata tribe, and seven others. Payments in cash and goods amounting to £320 (£150 of which was cash) were made to the Ngāti Te Ata tribe. The sale comprised the Karaka Parish, present day Pukekohe East and Harrisville, but did not include the areas which today form the Pukekohe central area and Tuakau, which were then Māori Reserves. The Puni Parish and also Patumahoe were also set aside as Māori Reserves.

The reserve, known as ‘Te Awanui o Taikehu’, contained cultivations and ancestral burial grounds. (This area was retained by the Māori in the second Deed of Purchase too). This purchase of land however was immediately opposed by Mohi Te Ahi a Te Ngu and Ihaka Takaanini of Te Ākitai Waiohua and in this they were supported by many other principal chiefs and tribes including Ngati Tamaoho.It was claimed that although the block could not have been sold without the consent of the Ngati Te Ata, it was Mohi’s ancestor, Te Whare Aitu, who had been the more recent owner of the land.

At this time, Ngati Tamaoho were negotiating to sell blocks of land at Rama Rama and Waiau Pa which the Ngāti Te Ata opposed; so it was agreed that each should withdraw its opposition to the other’s claim. The agreement was consummated with the payment by Ngāti Te Ata of six casks of tobacco to Mohi and Akitai.196 Ten years later a further payment was given. By 1845, the Government had on sold much land between the Waiuku-Drury roads and the Karaka foreshore. It would appear that the original owners of the Pukekohe Block never did wish to part with their ancestral land.

There was a recurring pattern, whereby the Crown first purchased Māori ancestral land from the incorrect iwi and then, in accordance with the policy of the day, compensated true owners in some form at a much later date, if at all. Additionally, to bypass lengthy sale and purchase negotiations, and the attendant problems with survey accuracy, the Crown made blanket purchases to the east and west of the Pukekohe Block. These blanket purchases included the whole of the Awhitu Peninsula, down to the Waikato River, and the Ramarama Block, to the east of the Pukekohe Block.

‘Pukekohe’ in Te Reo (the Māori language) is a contraction of the phrase “puke kohekohe”, which translates in English as ‘hill of the kohekohe tree’. This is in reference to the extensive New Zealand native mahogany forests that once covered the Pukekohe Hill area (the vicinity of which was to become a Māori Reserve in the 1840s- 1850s). Suggested names behind the naming of the small settlement of ‘Puni’ are thought to refer to ‘an overnight resting place’, or ‘place of safety on the overnight journey’. For example, ‘whare puni’, meaning a ‘sleeping house’. The name of the settlement of Paerata is a conflation of the Māori words ‘pae’, meaning a ridge or resting place, and ‘rata’, named after a large rata tree that grew on the ridge on Burtt Road, Paerata.

Today, only small elements of this former landscape physically remain as they were during earlier Māori occupation; however, even where sometimes modified or no longer present, these places can remain important in the consciousness of Māori identity and culture of today's generations. These sites and places help in enabling whakapapa (likened to genealogy) back to tupuna (ancestors) for the tangata (people) of the whenua (land).

The Tihi (Crest) of the Paa Pukekohe o Kohekohe

Ngati Te Ata Relationship to Pukekohe

Ka Whiti te Ra ki tua o Rehua ka ara a Kaiwhare i te Rua
As long as the sun shines from the East to West Coast Ngati Te Ata will rise from the depths of the Manukau

Ngati Te Ata has been in Pukekohe "mai ra ano", since time immemorial. This acknowledges Io "The omnipotent One" creating the evolution of time phases from the beginning, Te Whai Ao (The World of Growth) to Te Ao Marama (The World of understanding).

These ties were enshrined by Te Ata I Rehia, the founding ancestor of Ngati Te Ata, to her grandfather Huakaiwaka, the origin of Waiohua, the original inhabitants of the Auckland region, to Ohomairangi, the eponymous ancestor of Nga Oho and the first recognised Iwi to have settled the area. They then extend further back to Toi Te Tuatahi, who established Te Tini o Toi "The Many of Toi", having planted the seed of his many descendants throughout the Auckland region[1]. During this early period, the Waiohua waka, Tunuiarangi which landed at Tamaki, and Moekarakara and Te Waka Tu Whenua which landed at Pakiri, consolidated these early Ngati Te Ata associations to the arrival of the Tainui waka and the earlier arrival of Te Waka a Rangi, which travelled the wairua path to Aotearoa. From these ventures, the relationship to Kupe who rediscovered Te Ika a Mauri re-naming it Aotearoa is enshrined in the rocks at the entrance of the Manukau harbour, "Te Toka Tapu a Kupe" "The Sacred of Rock of Kupe" (also known as the Nine Pin Rocks). Kupe named Te Toka Tapu when he sought its protection from the guardians of the deep whilst crossing the notorious harbour bar.

Ngati Te Ata ties to Pukekohe are also reflected in the supernatural beings, from the Patupaiarehe, whose attributes Te Ata I Rehia possessed, being of fair complexion with red hair to Te Rua o Kaiwhare, the Iwi guardian of surrounding waterways. Kaiwhare, "the tribal taniwha" is also a name to whom Ngati Te Ata were originally known by. As Ben Westhead, Esq. J.P noted:

> *Te Ata I Rehia, a daughter of a chief of the Waiohua tribe…took the title of Ngati Te Ata, so named after the chieftainess…They also went by the name of the Te Rua o Kaiwhare tribe, so named after the tribal taniwha, Kaiwhare, who had his home at Awhitu (Wattle Bay)[2].*

From the spiritual guardians, the links cautiously approach the gods. Ngati Te Ata genealogical ties to Maui to whom the principle of "take whenua kite hou" or "discovery" is attributed, , is memorialised in the traditional Ngati Te Ata pepeha or saying: "Hei toi ake tatou no te whenua" "we are the offspring of mother earth".

Ngati Te Ata itself belonged to and sought instruction from Uenuku, its local deity as symbolised in the rainbow, a prominent feature in the area. Combining Uenuku and its Waiohua origins to its Waikato whakapapa, Ngati Te Ata were later referred to as the "Uenuku Division" of Tainui.[3]

Pukekohe Located within the Traditional Ngati Te Ata rohe

The extent of the Ngati Te Ata rohe that embraces Pukekohe is described by Ahipene Kaihau, "the principal chief of Ngati Te Ata" during the 1860s, in evidence before the neighbouring Tuhimata Block, Compensation Court 17-18th May 1865:

> *Our ancestors Ngaiwi o Waiohua owned all the country from Tamaki to Waikato Heads and up to Mahurangi.[4]*

Maintaining the Kaitiakitanga of Pukekohe

At 1840, when the Treaty of Waitangi was signed, Pukekohe was held under the rangatiratanga of Ngati Te Ata chief Kaihau, following a series of battles in which Ngati Te Ata were victorious.

In 1842, land at Te Karaka was offered for sale by a neighbouring Iwi. Kaihau counter offered as an assertion of Ngati Te Ata interests in the area which included the land from Te Karaka through to Pukekohe. Government Agent, Sub Protector, Forsaith was directed to investigate the issue in August 1843. Forsaith found Kaihau held "good" title to the land noting Kaihau's grandfather Te Awa had consolidated the conquered and conquerors through defeating his wife's people. Forsaith concluded:

> *Te Awa a descendent of the conquerors drove the ancestors of his wife into exile, thereby as it appears to me uniting the conflicting claims of the conquered and the conquerors…The issue of this marriage was [Te Rangikorogota] Kaihau's father. If this be a correct statement on the line of descent by which Kaihau claims, I certainly think his title good.[5]*

In the lead up to the impeding battles, Te Awa's cousin Te Horeta and their uncle Papaka; consulted their kaumatua Te Rangi Kaimata and Te Rangi Hahautu who were resident at Matukuturua (Manukau City) and Maungawhau (Auckland) respectively. Their elder's response was relayed in the following whakatauki "proverb" supporting the plight of Ngati Te Ata and its relationship throughout Tamaki and the Auckland region, including Pukekohe:

> *"Ko nga Kahupokere ko nga Kurirangaunu o Tamaki e kore e ngaro i te hinapouri"*
>
> *"Our Chieftainship in Tamaki will never be lost to darkness"*

Forsaith found that the nature of other claimant interests to Pukekohe were primarily through inter-marriage to the "original inhabitants", Ngati Te Ata Waiohua. In regard to fixing the Pukekohe boundaries which other neighbouring Iwi had participated in, Forsaith considered "Chief Katipa" Ngati Te Ata Treaty of Waitangi signatory "presence was necessary".

Based on Forsaith's findings regarding the counter offer by Kaihau to the Karaka offer from a neighbouring Iwi, the block called Pukekohe No 1 was transacted on 7th December 1843 and included all of the Karaka area (See Map Below).Historian Tony Walzl who undertook a detailed history of land alienation in the area considered the Pukekohe transaction "tuku whenua" in the nature of a leasehold arrangement as opposed to permanent alienation of the land.

1. The whakapapa from Ohomairangi to Toi Kairakau (covering over 20 generations) extending through nga atua, (which traverses various phases) is held by the by author in traditional patere form.
2. Ben Westhead, West of the Manukau 1948, 18-19.
3. See Tainui Maori Trust Board Annual Report, 1995.
4. Ahipene Kaihau (1902B, Tuhimata, Compensation Court 17-18th May 1865)

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Gateway

We acknowledge the following:

“There is demand for BGBZ zoned land in Pukekohe and a general shortage of suitable land with this zoning. The proposed location, in combination with recently rezoned land as part of the Counties Raceway (opposite the sites) to BGBZ will provide an excellent opportunity for bulk retail activity to be established in Pukekohe. It also offers other employment opportunity that is n hight demand such as light industry and office activity”.

The Buckland Road Gateway (proposed plan change) gateway from the South (Tuakau) into Pukekohe is vital to ensure that there is good design involved here. urban gateway is an entrance, a gathering place which acts as a transition between different spaces as well as a nexus for the people who inhabit and frequent these places.

A good starting point is for the Master Plan to identify the ‘gateway’ concept in the comprehensive plan, and then promote its implementation through the plan change process and reviews of development proposals. The visual impact of a specific gateway site or corridor, whether it be an actual gate, a set of columns, or a tree-lined median, or Māori Pouwhenua (totem) carving can easily be diluted by overly obtrusive business signage and commercial development.

One good definition of “gateway” is: “[A]n entrance corridor that heralds the approach of a new landscape and defines the arrival point as a destination. The goal of gateway planning is to arrange this landscape so that it rewards the viewer with a sense of arrival and a positive image of the place.” From Michael Barrette, “Planning Basics for Gateway Design,” Zoning News (December 1994).

3. Statutory

3.1. Principles of Te Tiriti or Waitangi (Treaty of Waitangi)

Te Tiriti o Waitangi Article II acknowledges Ngāti Te Ata rangatiratanga and self-determination. Ngāti Te Ata will determine how our resources and taonga are to be managed in accordance with our tikanga.

The 1991 Resource Management Act section 8 states that the principles of the Treaty of Waitangi shall be taken into account. Since the mid-1980s a set of principles have emerged from the findings of the Waitangi Tribunal, legal judgements and Crown reports, decisions and policies. These have emphasised tribal rangatiratanga, the active protection of Māori people in the use of their lands, waters and other taonga, and the duty to consult with Māori. Although there is no common agreement on what the status of the principles should be, there is some agreement on core principles and acknowledgement that principles will later evolve.

If the Peterex Properties and Pukekohe Limited are to engage with the meaning of Te Tiriti o Waitangi in their work, then there must clearly be a need for guidelines. For Ngāti Te Ata those Te Tiriti o Waitangi principles include the following:

1. Rangatiratanga, the duty to recognise Māori rights of independence, autonomy and self-determination – this principle enables the empowerment of Māori to determine and manage matters of significance to them. Rangatiratanga was traditionally the personal authority that rangatira had over the assets of an iwi or tribe; hapū or sub tribe. Rangatiratanga is embodied within the concept of Ngāti Te Ata and defines the ability to exercise and manage the relationship between tangata whenua, their culture, traditions and environment. Rangatiratanga incorporates the right to make, alter and/or enforce decisions pertaining to how the whenua is used and managed in accordance with the tikanga and kawa of the relevant iwi/hapū.
2. Shared decision-making, a balance of the kāwanatanga role in Article 1 and the protection of rangatiratanga in Article 2.
3. Partnership, the duty to interact in good faith and in the nature of a partnership. There is a sense of shared enterprise and mutual benefit where each partner must take account of the needs and interests of the other.
4. Active protection, the duty to proactively protect the rights and interests of Māori, including the need to proactively build the capacity and capability of Māori.
5. Ōritetanga to recognise that benefits should accrue to both Māori and non-Māori, that both would each participate in the prosperity of Aotearoa giving rise to mutual obligation and benefits.
6. The Right of Development, the Treaty right is not confined to customary uses or the state of knowledge as at 1840 but includes an active duty to assist Māori in the development of their properties and taonga.
7. Redress, the obligation to remedy past breaches of the Treaty. Redress is necessary to restore the honour and integrity of the Treaty partner, and the mana and status of Māori, as part of the reconciliation process. The provision of redress must also take account of its practical impact and the need to avoid the creation of fresh injustice. Noted, while the obligation of redress sits with the Crown and Auckland Council

(through Council) which has a role in the implementation of redress at the regional and local level, That Peterex Properties and Pukekohe Limited too have a role in a more collaborative approach with iwi in a mutually beneficial negotiated way.

3.2. Resource Management Act 1991

The purpose of the Resource Management Act 1991 (the Act) is to promote the sustainable management of natural and physical resources in New Zealand. Part 2 of the Act states:

> (2) In this Act, **sustainable management** means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—
>
> (a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
>
> (b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
>
> (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

Part 2 of the Act includes 'Matters of national importance' (Section 6) and 'Other matters' (section7). These sections require that 'In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resource:

- '…shall recognise and provide for…' matters of national significance. These include:

  (e) the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, wāhi tapu, and other taonga:

  (f) the protection of historic heritage from inappropriate subdivision, use, and development:

  (g) the protection of protected customary rights:

- '…shall have particular regard to…' other matters. These include:

  (a) kaitiakitanga:

  (f) maintenance and enhancement of the quality of the environment:

Section 8 of the Act also requires that 'In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).'

When taking into account the principles of Te Tiriti o Waitangi, contemporary practical expressions of Rangatiratanga may include active involvement in resource management

decision making, and in giving involvement and invested effect through Iwi Tribal Policy Statements, Cultural Values Assessments and the Auckland Council Operative Plans, moving forward. Various other sections of the Act provide some requirement for authorities, resource consent applicants and decision makers in relation to Māori and Māori values. For example, resource consent applications require an assessment of the effects of the activity on the environment. Notably, the assessment of effects must address amongst other matters:

> (d) any effect on natural and physical resources having aesthetic, recreational, scientific, historical, **spiritual, or cultural value**, or other special value, for present or future generations:[2] [emphasis added].

From a Ngāti Te Ata perspective an on-going relationship with Auckland Council (formed as a partnership between council and the crown) also upholds the principles of Te Tiriti o Waitangi with regard to the relationship, and in carrying out activities on future development sites. This must also be incumbent on those that eventually develop the proposed subdivision (of the proposed plan change area)

As kaitiaki in this day and age, we should not be boxed in the 'conversationalist' corner. We have to work within the New Zealand legal framework. More explicitly, Ngāti Te Ata may not have 'legal title' to the proposed subdivision project site and therefore cannot express kaitiakitanga as we have traditionally done. The concept of kaitiakitanga (discussed in greater detail in section 8.1) has somewhat evolved. We now have to express kaitiakitanga in other ways conducive to a modern society.

There are two obvious ways that Ngāti Te Ata can express kaitiakitanga in its modern sense over the proposed subdivision area:

- Form meaningful working and investment relationships with those who have 'legal title' to the land and those who lease/licence the land; and for those people to assist us in expressing kaitiakitanga over the land; and
- Ensure that those people involved in the implementation and build of a project (including contractors), while occupying that space, respect our tikanga of which we have kaitiaki obligations to a site.

3.3. Auckland Unitary Plan (Operative in part)

The Auckland Unitary Plan (Operative in part) is the first combined resource management plan for Auckland and replaces the former Regional Policy Statement and 13 district and regional plans, including the Auckland Council District Plan - Operative Franklin Section 2000 and the Auckland Council District Plan - Operative Franklin Section 1999. Chapter A of the unitary plan sets out the plans three key roles as:

[2] Resource Management Act 1991, Schedule 4(7)(1)(d)

- it describes how the people and communities of the Auckland region will manage Auckland's natural and physical resources while enabling growth and development and protecting the things people and communities' value;
- it provides the regulatory framework to help make Auckland a quality place to live, attractive to people and businesses and a place where environmental standards are respected and upheld; and
- it is a principal statutory planning document for Auckland. Other relevant planning documents include the Auckland Plan, the Auckland Long-Term Plan and the Auckland Regional Land Transport Plan.[3]

The regional policy statement contained within Chapter B of the unitary plan sets out an overview of the resource management issues facing Auckland, and the objectives, policies and methods to achieve integrated management of Auckland's natural and physical resources. The district and regional plan provisions within the unitary plan cascade down from the regional policy statement.

While the regional policy statement must be read as a whole, there are particular key aspects we want to highlight.

Issues of significance to Māori and iwi authorities are recognised and set out in Chapter B6.1 of the regional policy statement. These include:

(1) recognising the Te Tiriti o Waitangi and enabling the outcomes that Treaty settlement redress is intended to achieve;

(2) protecting Mana Whenua culture, landscapes and historic heritage;

(3) enabling Mana Whenua economic, social and cultural development on Māori Land and Treaty Settlement Land;

(4) recognising the interests, values and customary rights of Mana Whenua in the sustainable management of natural and physical resources, including integration of mātauranga and tikanga in resource management processes;

(5) increasing opportunities for Mana Whenua to play a role in environmental decision-making, governance and partnerships; and

(6) enhancing the relationship between Mana Whenua and Auckland's natural environment, including customary uses.

These issues are supported by objectives and policies which are found in the following chapters:

- B6.2. Recognition of Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation

[3] Auckland Unitary Plan (Operative in part), Chapter A1.1 Purposes of the Auckland Unitary Plan. Accessed 10 July 2018.

- B6.3. Recognising Mana Whenua values
- B6.4. Māori economic, social and cultural development
- B6.5. Protection of Mana Whenua cultural heritage

In addition to Chapter B6 of the regional policy statement, other chapters also contain objectives and policies that relate to Mana Whenua. For example, the issues relating to urban growth and form in Chapter B2 states that growth needs to be provided for in a way that, amongst of matters, also '…enables Mana Whenua to participate and their culture and values to be recognised and provided for.'[4]

Notably, structure planning is also provided for in Chapter B2, as a method to enable rezoning of future urban zoned land for urbanisation, in accordance with the structure plan guidelines in Appendix 1 of the Auckland Unitary Plan (OP).[5] Appendix 1 states that when structure plans are prepared iwi planning documents and Treaty settlement legislation should be considered. This includes cultural values assessments such as this one.

3.4. Auckland Plan 2050

The Auckland Plan 2050[6] sets Auckland's long-term strategy; outlining the major challenges facing Auckland and setting the direction for tackling these. It includes the Development Strategy and six outcomes. The six outcomes are:

1. **Belonging and participation**

   All Aucklanders will be part of and contribute to society, access opportunities, and have the chance to develop to their full potential.

2. **Māori identity and wellbeing**

   A thriving Māori identity is Auckland's point of difference in the world – it advances prosperity for Māori and benefits all Aucklanders.

3. **Homes and places**

   Aucklanders live in secure, healthy, and affordable homes, and have access to a range of inclusive public places.

[4] B2.1 Issues (8). Accessed 20 July 2018
[5] B2.2.2 Policies (3). Accessed 20 July 2018.
[6] The Auckland Plan 2050. https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/auckland-plan/Pages/default.aspx Accessed 30 July 2018.

4. **Transport and access**

   Aucklanders will be able to get where they want to go more easily, safely and sustainably.

5. **Environment and cultural heritage**

   Aucklanders preserve, protect and care for the natural environment as our shared cultural heritage, for its intrinsic value and for the benefit of present and future generations.

6. **Opportunity and prosperity**

   Auckland is prosperous with many opportunities and delivers a better standard of living for everyone.

Under the Māori identity and wellbeing outcome are the following directions and focus areas.

Direction	**Focus Area**
Direction1: Advance Māori wellbeing	Focus Area 1: Meet the needs and support the aspirations of tamariki and their whānau
Direction 2: Promote Māori success, innovation and enterprise	Focus Area 2: Invest in marae to be self-sustaining and prosperous
Direction 3: Recognise and provide for te Tiriti o Waitangi outcomes	Focus Area 3: Strengthen rangatahi leadership, education and employment outcomes
Direction 4: Showcase Auckland's Māori identity and vibrant Māori culture	Focus Area 4: Grow Māori inter-generational wealth
	Focus Area 5: Advance mana whenua rangatiratanga in leadership and decision-making and provide for customary rights
	Focus Area 6: Celebrate Māori culture and support te reo Māori to flourish
	Focus Area 7: Reflect mana whenua mātauranga and Māori design principles throughout Auckland

It is our expectation that the proposed subdivision aligns with, is consistent with, and supports the 2020 Franklin Local Board Plan's six aspiration outcomes that guide their work to make Franklin a better community. Notably;

Outcome 1: Our strengths generate local opportunity and prosperity.

Our goal is to support our people to create and access new job opportunities, advocate for regional, national and third party investment in infrastructure, and invest in initiatives that develop, leverage from and promote our local strengths as we anticipate changes to our economy, environment and population

Outcome 2: Improved transport options and fit for purpose roads.

We will advocate for transport improvements and services that enable our communities to be less car dependent and for design of and investment in the roading network so that it can safely accommodate current and future use.

Outcome 4: Kaitiakitanga and protection of our environment

We will work with mana whenua, local communities, and others to lead and inform environmental conservation, restoration, and regeneration projects and to recover and regenerate waste. Mana whenua maintain kaitiakitanga over the land and derive their mana from it. The local board recognises the important spiritual and cultural links and will seek iwi advice and cooperation.

Outcome 5: Cultural heritage and Māori identity is expressed in our communities

We will support the capture, recording and promotion of local cultural narratives so that new residents, visitors, and future generations can experience, understand, and enjoy our stories and perspectives.

"We must support mana whenua and local communities to capture, record and share our local cultural narrative so that new residents, visitors and future generations can experience and enjoy our worldview"

4. Our Cultural Landscape: Traditional relationship, use and occupation and historic heritage values

4.1. Defining cultural landscapes

The term cultural landscape was initially adopted by the Māori arm of the Ministry for the Environment / Manatū Mō Te Taiao. In this, they were acknowledging that in tikanga o te ao Māori all physical landscapes are inseparable from tūpuna (ancestors), events, occupations and cultural practices. These dimensions remain critical to cultural identity and to the maintenance of a Māori sense of place. A critical point is that the term 'cultural landscapes' was preferred as it does not make a distinction between urban and rural areas, for the role of Iwi extend across urban and rural divides with all areas holding cultural and spiritual significance. (Rau Hoskins, June 2008).

For Ngāti Te Ata, we have a strong taha wairua with the land which provide our people with a sense of meaning, connection and purpose. There is no such thing as an isolated site of importance. All sites are connected under Ranginui and by Papatūānuku. Sites are treasured in their own right but also exist within a tightly connected web of association. Just as no person exists in isolation within their iwi or hapū, no site exists in isolation within our respective rohe.

Tribal landmarks and resources such as maunga and waterways that were present in the time of our ancestor's impact upon our descendants that exist today. If those landmarks and resources are damaged, contaminated or even destroyed the consequences can manifest themselves in the spiritual, physical and mental detachment of the people, leading to cultural disassociation, ill health and even death. These traditional associations are still expressed today in a modern context.

It is often the case that the lack of recorded archaeological sites in an area will lead the developers or planners to the erroneous view that the area has little historical significance or significance to tangata whenua. This is a false assumption.

The heritage and history of the area is a taonga, with the water, coast and landforms being interrelated. The physical and spiritual wellbeing of tangata whenua continues to be linked to their ancestral lands and waterways. There is an enduring physical and spiritual connection with ancestral lands and wāhi tapu and other taonga and those of their tūpuna. We have long valued the rich, fertile soil from the volcanic ash and lava strewn across much of Tāmaki Makaurau, especially the Pukekohe district. This was land in which crops flourished, beside wetlands, waterways and harbours which supported prolific fisheries. The reliance (if not over-reliance) of Pākehā writers on archaeological evidence of the occupation of the area by iwi reflects the enormous and rapid loss of land that occurred after 1840. This removed Ngāti Te Ata iwi from most of their tribal lands, and many of the cultural practices associated with the land were ended.

It was only much later in the colonial period that pollution, drainage, reclamation and overfishing too began to devastate our traditional food sources in Te Mānukanuka o Hoturoa (Manukau Harbour) and its many adjacent waterways.

The Harbour held an abundance of kai ika, kai moana and attracted a number of different bird species to its coastlines. Kai moana such as cockles, sea urchins, koura (rock lobster), mud oysters, and crabs were plentiful. Fish species included snapper, kahawai, parore, tarakihi, Gurnard, kingfish, pilchard, barracouta, flounder, mullet, sharks, skates, trevally and moki. Other fish of some importance include rays, dogfish, eels, sole, piper, leather jacket, smelt, whitebait, sprats, stargazer, and yellow-eyes mullet.

Despite its altered form and diminished mauri, the Harbour remains a tangible, real, and unique entity, which generates in the hearts of Tāngata Whenua deep feelings of aroha (love), a sense of being close to, perhaps one with, nature. The Harbour is a birthplace for the creatures of the waters, and in Māori thought, is also a birthplace of Tāngata Whenua.

The Harbour was and remains Tūrangawaewae for Tāngata Whenua, their place to stand tall and gain strength from past associations made through centuries of tribal contact.

4.2. Objectives relating to our cultural landscapes

Across Tāmaki Makaurau (Auckland) some cultural sites and landscapes have been successfully preserved in part because they also happen to share environmental, scientific or historic value. However, relying on the shared worth of a site to safeguard its cultural value is no longer sufficient in a growing metropolitan environment like Tāmaki Makaurau. The effects of urban modification or demolition on a site can be irreversible. Thus, the cultural and spiritual aspects of an area need to be given as much weighting and consideration as any other unique feature that deserves protection.

Our cultural landscapes of the Franklin region have been irreversibly damaged by intensive development, inappropriate farming practices, urban pollutants and long-term quarrying. The extent of this damage is such that the best way to acknowledge and recognise our cultural landscapes is through new design possibilities that clearly exemplify our cultural associations.

The issue for us now is how does Ngāti Te Ata and Peterex Properties and Pukekohe Limited make a valued contribution back to the whole area and uplift and enhance its cultural integrity? How do we secure real cultural, environmental and economic gains moving forward?

Within our cultural landscape, the key cultural resources of Pukekohe that we have a traditional and historic relationship to are:

- Tūpuna maunga (Pukekohe maunga, Te Awanui o Taikehu)
- Ngā Taonga i Tuku Iho (the many isolated wāhi tapu and wāhi taonga in the area that collectively exemplifies the networked pā occupation that existed)
- Te Mānukanuka o Hoturoa (Manukau Harbour) and Te Awa o Waikato (Waikato River)
- All the waterways and associated tributaries (Tutaenui, catchment)

- Te Ara hīkoi (traditional walking tracks)
- Te Ara tapu (walking tracks of the spirits: the path that leads to Rerenga Wairua through the West Coast, inland of the Manukau Harbour and the walking tracks that leads to an urupā like from Rukuwai to Maioro)

As well as their volcanic origins, the regional significance of the maunga of Tāmaki Makaurau stems from the cultural history and present-day importance of each site for iwi. With this in mind the challenge is to fully integrate the future planning and development of Pukekohe within the wider cultural landscape. To provide the context of cultural connection one must also have regard to the physical landscape as it was when the occupation took place.

4.3. Cultural resources within our cultural landscape

The Pukekohe district is rich in sites of historic and cultural significance. Located to the south-west of Auckland and Manukau City, Franklin is also increasingly under pressure from population expansion, and undergoing unprecedented growth and development. One of the consequences is that significant archaeological sites and areas of great sensitivity to Ngāti Te Ata are under threat of being damaged and degraded, mainly from earthwork activity. In many cases sites have been totally destroyed and valuable tribal history and archaeological information lost forever.

In general, the whole Pukekohe area within this catchment is of high cultural and traditional importance to iwi. It was a social, economic, trading and political hub of activity for Maori at the time. This is not unusual given the many access points to and from the Manukau Harbour like the Awaroa ki Mānuka portage.

Pukekohe in general has a highly valued cultural, spiritual, historical and environmental relationship to Te iwi o Ngāti Te Ata. Within this region lay the settlements of the Tainui and Wai-o-Hua peoples. Both from which Ngāti Te Ata descend from. Ngāti Te Ata have a long history with and a traditional relationship to Pukekohe.

In pre-European times the landscape would have been more varied with swamps and bush. It was a well-travelled route and considered a ‘gateway’ into areas of settlement, resource use and occupation. Wāhi nohoanga are still known among iwi today on the many headlands and promontories around Te Mānukanuka o Hoturoa. Numerous creeks originating from deep swamps dissected Manukau making travel difficult and reducing the amount of firm and habitable land. However, the drainage and settlement of these places, the swamps and wetlands has caused immeasurable damage to the mauri (life force) of waterways, and the cultural offence due to practices such as sewage and farm effluent discharge, sediment intrusion from poor farming practices, and industrialised impacts.

Numerous iwi and hapū were mobile throughout the area, whether visiting, passing through or conquering. As a result, a number of complex inter-tribal relationships developed around the harbour shoreline. Although large parts of the Tamaki Isthmus were cleared of bush, significant areas remained within our respective Ngāti Te Ata rohe around Te Mānukanuka o

Hoturoa and its lush wetlands. From vantage points, it was possible to observe waka movements and receive early warning of the approach of friend or foe. Signals could be sent between pā to warn of approaching hostilities.

The tauihu [prow carving] of Te Toki a Tapiri, acquired by Kaihau and Te Katipa of Ngati Te Ata in c.1863. Sir George Grey Special Collections, Auckland Libraries, 121-A10815.

In the past our key economic drivers were the trade of kai like root crops; supplemented by seafood, fish and birds; and land and other resources. The main modes of transport for trade were waka and by foot. The economic objectives in those days are the same objectives sought today albeit in a slightly different context - to provide for the movement of people, goods and services, the connectivity between iwi whanaunga, and to promote and engage in sustainable economic trade for the social wellbeing of the people. This is no different today in a modern context. The strategic goals of the proposed subdivision should be to support and create employment for residents, strengthen the local economy and unlock its potential, creating safe and connected neighbourhoods, and optimising the use of land and existing housing stock.

Historically however, such intensive projects alienated us from our traditional lands in Pukekohe, divorced from the heart of our cultural nexus. In the twentieth century, a large influx of Māori moved to urban Auckland, including many of our people. Compelled by central and local government policies and financial inducements, our people moved from their wā kāinga and fragmented uneconomic agricultural holdings into industrialised urban centres. This was the experience for many of our people who moved into urban Auckland. Generations of our people continue to reside in and contribute to the development and profile of Auckland city.

As the Māori urban migration accelerated, there was a struggle to adapt to the urban environment, and it was soon apparent that urban areas had failed to keep pace with the growing population of Tāmaki Makaurau and our cultural needs. Our communities developed

a number of initiatives to overcome the experience of social, economic, spiritual and political deprivation. We strived to preserve and transpose the values of our traditional culture, to city life.

That is why it is imperative for us that we have an active and invested role in planning for this proposed private plan change. In the past our traditional relationship to our wāhi taonga has suffered as a result of major development, infrastructure and intensive settlement. We have been systematically deprived of the economic gains that have come for so many others but not iwi, the people of the land. That is why it is so critical that the ‘four well beings’ - cultural, environmental, social and economic well-being, are provided for our people.

5. Te Kaitiakitanga o Te Taiao

5.1. Principles and kaitiaki approach

One must understand what is of cultural and environmental significance to our people, our underlying beliefs, values and principles, and therefore what motivates our decisions and responses – our worldview.

In tikanga o te ao Māori (Māori customs and lore), Māori share a strong belief in Ranginui and Papatūānuku. Resources belong to Papatūānuku who is the nurturer, the giver of life. Therefore, everything born of the mother is alive and has its own life force. All elements of the natural environment possess mauri and all life is related. Humankind, just like birds, fish and other beings, has only user rights with respect to these resources, not ownership.

The relationship between Ngāti Te Ata and the environment is a symbiotic one of equality and mutual benefit. We are all inter-connected, and therefore have a duty to protect and enhance our natural surroundings, not only for ourselves, but our future generations. Our environment must be looked after so that it sustains our communities.

This knowledge of the workings of the environment and the perceptions of humanity as part of the natural and spiritual world is expressed in the concepts of mauri and kaitiaki. Mauri is a critical aspect of the spiritual relationship of Māori with their environment and specific features (such as maunga and waterways) within it. The condition of these reflects our ability as kaitiaki and predicts our own wellbeing.

As Kaitiaki it is our responsibility to speak for and protect those who cannot speak for themselves the earth, the trees, water, fish, birds, the crabs, every single element on this earth which man has not created, is alive. Every element has wairua and mauri.

Mauri can be described as the life force that is present in all things. Mauri generates, regenerates and upholds creation, binding physical and spiritual elements of all things together. Without mauri things cannot survive. Practices have been developed over many centuries to maintain the mauri of all parts of the world. Observing these practices involves the ethic and exercise of kaitiakitanga.

Kaitiakitanga underpins everything we as iwi do in ‘our’ world. Kaitiakitanga or guardianship is inextricably linked to tino rangatiratanga and is a diverse set of tikanga or practices which result in sustainable management of a resource. Kaitiakitanga involves a broad set of practices based on a world and environmental view and is about healing and restoring the land and water. The root word is tiaki, to guard or protect, which includes a holistic environmental management approach which provides for the following:

- restore mana of the Iwi (e.g. Protect sensitive cultural and natural features of the environment)
- restoration of damaged ecological systems
- restoration of ecological harmony
- ensuring that resources and their usefulness increases i.e., plan for the provision for and the restoration of traditional resource areas for future generations (e.g. kaimoana, fish, tuna)

- reducing risk to present and future generations (i.e. plan long term management and use of taonga)
- providing for the needs of present and future generations.

The kaitiaki principle also emanates from the kaupapa. It denotes obligations or responsibilities incumbent on the Iwi, its members and appointed kaumātua and/or kuia or tohunga to carry out functions, be custodians, protectors, and guardians of iwi interests, its taonga and the various resources it owns. Kaitiaki have prescribed methods for carrying out their functions and attempting to meet their stated objectives. Kaitiaki are directly accountable to their iwi, and (in this case) only Ngāti Te Ata can be kaitiaki.

The mana of our respective iwi is represented in our manākitanga and kaitiakitanga over the environment. Each whānau or hapū are kaitiaki for the area over which they hold mana whenua, that is, their ancestral lands and seas. Thus, a whānau or a hapū who still hold mana in a particular area take their kaitiaki responsibilities very seriously. The penalties for not doing so can be particularly harsh. Apart from depriving the whānau or hapū of the life sustaining capacities of the land and sea, failure to carry out kaitiakitanga roles adequately may result in the premature death of members of that whānau or hapū. Kaitiaki is a right, but it is also a responsibility for tangata whenua.

Kaitiakitanga is about managing resources in a sustainable way to provide for future generations and, protecting and enhancing the few remaining remnants of what used to be. Natural resources of land and water are not seen as a commercial resource but a treasured taonga.

The goal is to ensure that the needs of present and future generations are provided for in a manner that goes beyond sustainability towards an approach that enhances the environment. For some iwi, the aspirational desire is to provide a pathway that will return the rōhe to the modern-day equivalent of the environmental state that it was in when Pākehā arrived.

An ‘enhancement’ approach requires the consideration of, not only individual resource use, activities, buildings, or elements, but also a holistic approach to the whole environment. It aims for positive ecological and social outcomes where the resource use and activities effecting the environment becomes a conduit for producing resources and energy, improving physical and psychological health, remedying past pollution, and transforming and filtering waste into new resources.

Sustainability requires the resource to be maintained at a specified level so that future generations can enjoy the same quality use of the land, air, and water resources that we do currently. The ‘enhancement’ approach aims not to maintain but, through our actions, to improve the quality of the environment for future generations.

This approach recognises that those that utilise an environmental resource for some type of benefit (whether economic, social, cultural, spiritual and/or environmental) have a responsibility to show a reciprocal benefit back to the environment. This reciprocal approach is not intended to undermine the benefit from using environmental resources but rather to ensure that the use or depletion of environmental resources does not create a burden for future generations. This may include measures such as having a strategic approach to land development and ensuring there is efficient urban development form.

Māori have been and continue to be part of the development of our towns and cities. Developments of the landscape are a part of Māori history now also; roading, grazing, reserves, buildings, reservoirs, construction, quarrying, wastewater/stormwater disposal. However, some developments have not always been supported by Ngāti Te Ata. In many cases these developments have damaged or destroyed significant sites and failed to recognise the values held by their kaitiaki. Despite this Ngāti Te Ata have never ceased visiting these places or appreciating their cultural significance and we still share an interest in the on-going sustainable management of them.

The capacity to exercise kaitiakitanga is dependent upon prudent sustainable management and the protection of natural resources which requires the careful monitoring and safeguarding of the environment. Ngāti Te Ata welcome any opportunity to fulfil its role as kaitiaki in a relationship that also provides for future progression and development.

5.1.1. Managing effects

In managing the effects of a resource use or activity, regardless of the magnitude, frequency, or duration of the effect, Ngāti Te Ata considers that it is necessary to provide a net benefit when considering social, economic, environmental, spiritual and cultural impacts – to strive for environmental enhancement. Therefore, it is necessary to suitably manage any effects so that effects are avoided, remedied, minimised, mitigated, or balanced. Only Ngāti Te Ata can determine the effects and the degree of those effects on themselves and their values.

This is essentially a hierarchy where the first way to manage an effect is to avoid the effect, the second way is to remedy the effect, and so on through to suitably balancing the effect, what some may call offset mitigation. In managing effects consideration needs to be given to:

- **Avoid:** is there any way to manage the effects to a point where they can be avoided (i.e., no effect occurs)?
- **Remedy**: can the effect be managed to the point that it is eliminated (e.g. cleaning discharges to water so that the water discharge is of a suitable quality)?
- **Minimise:** is there a way to minimise the effect so that the effect is no longer of sufficient frequency or magnitude to cause any concern?
- **Mitigate:** if the effects cannot be adequately avoided, remedied, or minimised, is there something that can be done to mitigate or offset the effect to create a benefit not directly linked to the proposed resource use or activity. (e.g., an effect of discharge to water being offset by additional riparian planting or wetland restoration).
- **Balance:** when taking all the effects into consideration, and considering the relative weight of the effects, do the positive effects adequately balance out the negative effects, and provide environmental enhancement?

5.1.2. The highest target or measure in planning rules and regulations

Specific targets and measures will generally be contained in the methods and rules of any amendments to the Auckland Unitary Plan (Operative in Part), once adopted.

The 'highest target or measure' could be a target or measure applied by Iwi, a community, a local authority, the resource user or activity owner, or central government. Regardless, Iwi are generally supportive of the highest target or measure being applied to best achieve the objectives outlined in **Sections 6, 7, and 8** of the Resource Management Act. Iwi encourage the ongoing use of the best practicable option being applied when considering targets or measures.

All Districts/Regions within Aotearoa must have a 'Plan'. Within these plans are the visions, objectives, policies and rules for each Region/District. In the case of Auckland, this is the Auckland Unitary Plan.

Rules in a plan are a method for achieving the 'desired' outcome of the plan i.e., the objectives and policies. All rules within these plans are a 'minimum requirement'. Unfortunately, the bare minimum does not give an adequate outcome for the environment.

Ngati Te Ata believe that the minimum requirement is a **starting point**, not an **aspiration** and promotes that more than the minimum be applied to development and outcomes. The 'minimum requirement' is just that, a very bottom line, and in order to enhance and maintain our current base line of slowly declining air, land and water quality, more than the minimum needs to be provided for.

We believe that current rules in the Auckland Unitary Plan allow for some adverse environmental impact to land and waterways, but the cumulative effects of this over many different projects in the same area results in pollution that is not sustainable in a city with an ever-increasing population. We strongly recommend that any project minimises all adverse environmental effects to land or waterways now and in the future through prudent project design. Where possible, the environment must be rehabilitated to negate the impact of historical damage or any effects the project may have had or yet have on the area.

5.2. Elements of the environment

All things in the Māori world can be traced and explained through whakapapa. The whakapapa of the natural world – animals, plants, mountains, rivers, lakes, air, and coasts - is linked to that of Māori. Ngāti Te Ata have an obligation to ensure that these taonga are protected and managed when passed on to the next generation.

Māori are natural scientists who use environmental indicators as guides to the waiora of an eco-system. In doing so, they complement but do not replace the work of technical scientists. The reverse is also true.

A major natural indicator for Māori includes the life sustaining properties of an eco-system. Does a forest or bush area produce food and shelter that sustains bird and animal life? Does a waterway have sufficient bio-diversity and health that it can provide sustainable harvests of kaimoana of a standard fit for human consumption? Shellfish, berries, fish, medicinal herbs, flax and birdlife are all important indicators for Māori that reveal the strength and health of an eco-system.

As with certain other cultures, Māori holistically view human beings as an integral part of the eco-system and not as a separate entity. All living things share a natural balance, an 'interconnectedness and oneness' akin to a web of which humanity is only a part of. An imbalance in this complex network has a flow on effect that impacts the entire eco-system and ultimately humanity.

These values, passed from generation to generation, are a significant part of the intangible heritage of Māori and overall culture of Aotearoa. Like the haka, these values help to make the country a place that is unique internationally.

Ngāti Te Ata adheres to these core principles in relation to the environment and apply the philosophies contained within when examining any issues that involve natural resources and eco-systems. We believe it is essential that spiritual and cultural concepts are recognised as key factors in the management of the environment with programmes that actively enhance and facilitate these concepts.

The following sections outline our key issues and concerns for the various elements of our environment. Our recommendations for the future development of Pukekohe are based on our knowledge and tikanga of these areas.

5.2.1. Heritage protection and recognition

5.2.1.1. Physical landscapes

Physical landscapes are of particular value to Ngāti Te Ata. They form part of our cultural landscape and are part of who we are and define our history. It is imperative that our landscapes are identified and preserved. This includes but is not limited to view shafts, hilltops, tuff rings, ridgelines, streams, floodplains, estuaries and coastlines.

Future urban development of Pukekohe will potentially significantly change the physical landscape. For us, protection of the physical landscape will be essential otherwise our cultural landscape will be adversely affected.

Flood plains and reclaimed swamps are also an integral part of our landscape. They all at one time were wetlands/swamps that not only performed great ecological benefit but were also a valuable source of food. As development 'progresses' these areas are drained, built up and modified. These areas should be retained and returned to their natural state. This not only benefits the environment by creating habitat for our declining native species, but also adds huge well-being benefits to the people living around the area. Visual amenity has been

recognised as being necessary for the physical, emotional and spiritual well-being of humans.

Streams, tributaries, estuaries, coastlines and fresh water springs also form part of our cultural landscape and their preservation, protection and enhancement is paramount. A 20-metre setback is promoted for all stream, estuarine and coastal edges. As these areas usually provide for pedestrian/cycle paths a 20-metre riparian setback is necessary to provide for proper riparian enhancement. Cultural heritage is also less likely to be impacted on if there is a 20-metre riparian margin.

Another way to protect streams and coastal/estuarine environments is the use of 'park edge roads'. This leaves the amenity visually available to the public and increases safety and surveillance. This discourages the dumping of rubbish and garden refuse over back fences.

Table 1. – Issues, concerns and opportunities for Ngāti Te Ata (referred to in the tables as Ngāti Te Ata) to be addressed, and possible mechanisms to do so in relation to physical landscapes.

Issues	• Physical landscapes are an integral part of our cultural landscape and urban development may have a significant adverse effect on these physical landscapes. • Identification and preservation of landscapes is required.
Ngāti Te Ata recommendations and aspirations	• Identify and protect physical landscapes including but not limited to view shafts, hilltops, tuff rings, ridgelines, streams, floodplains, estuaries and coastlines. • Protection methods supported include: - Building setbacks and height restrictions to achieve protection of sightlines to ridgelines and hilltops. - 20m setback for all stream, estuarine and coastal edges to provide for pedestrian/ cycle paths. - 'Park edge roads' should be used for residential and commercial areas that back on to streams and coastal/estuarine edges. • Wetlands/swamps should be retained and returned to their natural state.
Relevant planning policy Note: For the Auckland Unitary	**<u>Auckland Unitary Plan (Operative in part)</u>** **Chapter B Regional Policy Statement** **B2. Tāhuhu whakaruruhau ā-taone - Urban growth and form**

Plan this section only identifies the key Regional Policy Statement provisions.	B2.1. Issues B2.2. Urban growth and form B2.3. A quality-built environment B2.4. Residential growth B2.5. Commercial and industrial growth B2.7. Open space and recreation facilities B2.9. Explanation and principal reasons for adoption **B4. Te tiaki taonga tuku iho - Natural heritage** B4.1 Issues B4.2. Outstanding natural features and landscapes B4.3. Viewshafts B4.5. Notable trees B4.6. Explanation and principal reasons for adoption **B5. Ngā rawa hanganga tuku iho me te āhua - Built heritage and** character B5.1. Issues B5.2. Historic heritage B5.4. Explanation and principal reasons for adoption **B6. Mana Whenua** B6.1 Issues B6.2 Recognition of Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3 Recognising Mana Whenua values B6.4. Māori economic, social and cultural development B6.5. Protection of Mana Whenua cultural heritage B6.6. Explanation and principal reasons for adoption **B7. Toitū te whenua, toitū te taiao – Natural resources** B7.1. Issues B7.2. Indigenous biodiversity B7.3. Freshwater systems B7.4. Coastal water, freshwater and geothermal water B7.7. Explanation and principal reasons for adoption **B8. Toitū te taiwhenua - Coastal environment** B8.1. Issues B8.2. Natural character B8.3. Subdivision, use and development B8.4. Public access and open space B8.6. Explanation and principal reasons for adoption

5.2.1.2. Cultural heritage

Our cultural heritage includes archaeological sites, wāhi tapu and other sites of significance to Ngāti Te Ata. These sites may have tangible and intangible values, and no one can identify sites of significance but us. The Sites of Significance to Mana Whenua Overlay in the Auckland Unitary Plan is only one method to identify and protect our cultural heritage. There are currently no sites of significance within the proposed subdivision project site that are formally recognised and protected through planning provisions, but this does not mean that they do not exist.

The management of our cultural heritage should be consistent with our respective tikanga and kawa. Development can have an adverse effect on our cultural heritage. This could be inappropriate activities being undertaken and/or inappropriate physical developments such as buildings/structures. The use of buffers around our cultural heritage sites is one method that can be used to protect our cultural heritage.

Table 2. – Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to cultural heritage.

Issues	• A need to protect and preserve our remaining cultural heritage from intensification of development within the Southern area. • Reliance on scheduled items (e.g. NZAA/CHI places) • Incomplete cultural heritage surveys.
Ngāti Te Ata recommendations and aspirations	• Wāhi tapu and other sites of significance are identified and protected. • Protection and management of wāhi tapu and other sites of significance (including lands that are no longer in Māori hands) should be in a manner that is consistent with the tikanga and kawa of the appropriate iwi. • Wāhi tapu and other sites of significance should be restored in partnership, where required or desired, with the community, industry, local and central government. • Only iwi should have the right to modify wāhi tapu. • Complete cultural heritage surveys as a priority, including the Franklin district including Pukekohe. • Reinstate traditional Māori place names to recognise our cultural heritage. • Iwi should have the first right to name any new roads and

	access ways to ensure the old names are retained and that the history is relevant to the proposed subdivision. • Risk assessment and protection mechanisms (accidental discovery protocols). • Buffers should be used around our cultural heritage sites to protect them from inappropriate development. • A 20-metre riparian margin should be used to reduce adverse effects on our cultural heritage.
Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**<u>Auckland Unitary Plan (Operative in part)</u>** **Chapter B Regional Policy Statement** **B3. Ngā pūnaha hanganga, kawekawe me ngā pūngao - Infrastructure, transport and energy** **B3.2 Infrastructure** **B5. Ngā rawa hanganga tuku iho me te āhua - Built heritage and character** B5.1. Issues B5.2. Historic heritage B5.4. Explanation and principal reasons for adoption **B6. Mana Whenua** B6.1 Issues B6.2 Recognition of Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3 Recognising Mana Whenua values B6.4. Māori economic, social and cultural development B6.5. Protection of Mana Whenua cultural heritage B6.6. Explanation and principal reasons for adoption **<u>Road naming policies</u>** Auckland Council has road naming guidelines that set out the requirements and criteria of the council for proposed road names. The Auckland Council Road Naming Guidelines allow that where a new road needs to be named as a result of a subdivision or development, the sub divider/developer shall be given the opportunity of suggesting their preferred new road name/s for the local board's approval.

	Mana Whenua are consulted and given first preference regarding proposed names for the plan change area in Pukekohe. Auckland Council's Road naming criteria typically require that road names reflect: • A historical or ancestral linkage to an area; • A particular landscape, environment or biodiversity theme or feature; or • An existing (or introduced) thematic identity in the area. **Auckland Design Manual** **Te Aranga Principles** http://www.aucklanddesignmanual.co.nz/design-thinking/M-design/te_aranga_principles

5.2.2. Whenua

Ngāti Te Ata descend from the land. The word whenua also refers to the placenta. At birth, this is traditionally buried in the land of the hapū, strengthening relationships with the land and with whānau. Land, water, air, flora and fauna are nga taonga i tuku iho, treasures handed down to our descendants.

Without a relationship with the land, Ngāti Te Ata are dispossessed and have no place to stand. The land gives identity and also tūrangawaewae, a place to stand. Ngāti Te Ata have strong spiritual bonds to the land. Papatūānuku our Earth Mother provides unity and identity to the people and sustains us. Papatūānuku is seen as a living organism, sustained by species that facilitate the processes of ingestion, digestion and excretion. Pou whenua, the prestige of the land, relies on marae and human activity for its visible expression and the environment also provides sustenance. In return, mankind as the consciousness of Papatūānuku has a duty to sustain and enhance her life support systems.

Reduction in native ecosystems and changing land use has consequently affected the natural ecosystem balance. This is particularly the case where current land use is not ideal for the area, such as farming on marginal, hilly lands. Attempts to control natural processes have further impacted on the natural ecosystem balance. For example, attempts to control flooding, which occurs naturally and contributes to ecosystem balance, has exacerbated habitat decline, particularly when waters are further contaminated from other land use activities or have a higher than natural sediment loading. Habitats for indigenous flora and fauna are in decline or have been destroyed.

The ability to access and effectively utilise land is intrinsically linked to the ability of iwi to provide for their environmental, social, spiritual, cultural, and economic health and wellbeing.

The mauri of much of the land within our respective rohe has been adversely affected by its historical and current use. Ngāti Te Ata seek to restore the mauri of the land in balance with achieving our environmental, social, cultural, spiritual, and economic aspirations. We recognise that restoring the mauri of land needs to occur in partnership with the wider community, local authorities, government, and commercial and industrial users.

Any future development within Pukekohe should demonstrate how it has considered and applied development principles that enhance the environment. Some of these principles are set out below. These principles include, but are not limited to:

- Development should restore the capacity of ecosystems and create or maintain ecosystems that function without human intervention.
- The natural hydrologic functions of a site should be preserved and preferably enhanced. In particular sensitive areas that affect the hydrology should to identified and preserved. This includes streams and their buffers, aquifers, floodplains, wetlands, steep slopes, high-permeability soils and areas of indigenous vegetation.
- Development should ensure clean groundwater recharge. The existing topography of the area should be maintained, and natural hazards should be effectively managed.
- The impacts of stormwater should be minimised to the greatest extent practicable by reducing imperviousness, conserving natural resources and ecosystems, maintaining natural drainage courses, reducing use of pipes, and minimising clearing and

grading. Impervious areas can be minimised by reducing the total area of paved surfaces. Where impervious areas are unavoidable, attempts should be made to break these up by installing infiltration devices, drainage swales, and providing retention areas.

- Mechanisms such as rainwater harvesting, rain gardens, roof gardens, and onsite storage and retention should be encouraged. Runoff storage measures should be dispersed through a site's landscape with a variety of detention, retention, and runoff practices.
- The use of stormwater treatment devices should be encouraged including on-site treatment systems, allowing for emergency storage and retention structures.
- Development should minimise pollution and waste and promote efficient and effective energy conservation and use. Water conservation should also be considered, including beneficial re-use on-site of stormwater and wastewater.
- Development should avoid the risk of cumulative adverse effects across the whole area.
- The diversity and uniqueness of a place should be fully understood and acknowledged (socially, culturally, spiritually, economically, and environmentally). The design of any development should incorporate this diversity and uniqueness, such as culturally appropriate design, interpretive panels, and commemorative pou whenua.
- The visual amenity of a development should be consistent with the surrounding environment.

5.2.2.1. Urban development

The future development and urbanisation of Pukekohe should not be at the expense of our natural and cultural environment and any new land use and development, should have positive environmental and cultural effects.

The Resource Management Act requires councils to monitor resource consents and compliance. However, our past experiences have been that this is not always carried out or that Ngāti Te Ata are not kept informed. For us it is critical that future development of Pukekohe is monitored and that appropriate resource consent conditions are applied and carried out. Resource consent conditions should ensure that adverse effects on Ngāti Te Ata cultural values are avoided, remedied, or at the least mitigated. It is also essential that future development is compliant with the Building Act 2004.

Ngāti Te Ata are also concerned that the future development and urbanisation of these areas could have an adverse effect on food production, especially for future generations. The southern areas have long been important horticultural areas due to the quality of the soil. There is a risk that future development and urbanisation will increase the pressure for yet more rural land to become urbanised, especially land just outside the rural urban boundary. This could result in the expansion of the rural urban boundary or removal of it altogether.

There is also a risk that reserve sensitivity concerns from new urban activities could make it more difficult for rural activities to be carried out. Future urban development needs to ensure it does not affect the viability of rural activities.

Table 3. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to urban development.

Issues	• Inappropriate form, location and scale of urban development. • Increased risk of cumulative adverse effects as land uses change and development intensifies. • Repeated strategies of planning have been implemented in this area over the last 20 years. Concerns on the stability of the current rural urban boundary and on-going pressures to expand it or remove it all together. • Loss of important horticultural land affecting future food production.
Ngāti Te Ata recommendations and aspirations	• Future planning and development of the areas should have a clear vision that recognises the diversity and uniqueness of the areas. This includes the role the areas have played as the 'food

	bowl of the south'. • The southern areas continue to play a vital role in food production for future generations. Future urban development needs to recognise that rural activities such as horticulture will continue throughout the wider area. • Existing and future residents of Pukekohe and subsequent beneficiaries of the development of these areas gain a greater understanding of our history, connection to these places and our values. • Gateways to new town centres should appropriately reflect the character of the areas. • New development should use land efficiently, especially since urban expansion has reduced the extent of rural production land. • Ngāti Te Ata have already contributed to previous planning documents and outcomes for the wider southern area. This work should be drawn upon. • Future planning and development should be cohesive and integrated with existing urban areas. • New development should have positive environmental and cultural effects. Future planning should determine where and what are 'no-go areas'; then within those areas determine areas worthy of protection and saving and the corresponding management approach. • When making decisions on future development projects, cumulative effects must be considered. • Require resource consent conditions to be imposed that allow Iwi access to culturally and/or spiritually significant sites and sites of customary activities through the imposition of caveats on titles or providing for the registration of right-of-way servitudes. • Ensure in all development proposals that access is retained and improved to water bodies and cultural and/ or spiritual sites. • Management plans will be required as conditions of resource consent to ensure that critical environmental and cultural considerations are taken into account and that on-going

	monitoring and review occurs.
Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**<u>Auckland Unitary Plan (Operative in part)</u>** **Chapter B Regional Policy Statement** **B2. Tāhuhu whakaruruhau ā-taone - Urban growth and form** B2.1. Issues B2.2. Urban growth and form B2.3. A quality-built environment B2.4. Residential growth B2.5. Commercial and industrial growth B2.7 Open space and recreation facilities B2.9 Explanation and principal reasons for adoption **B6. Mana Whenua** B6.1. Issues B6.2. Recognition of Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3. Recognising Mana Whenua values B6.4. Māori economic, social and cultural development B6.5. Protection of Mana Whenua cultural heritage B6.6. Explanation and principal reasons for adoption

5.2.2.2. Soil and earthworks

Soil is an important cultural resource and was used for various activities, such as plant cultivation and dye for garments. In the past iwi modified large areas of land for food production, such as kumara gardens. Kumara were an important source of food and our tūpuna would add stone chippings and sand to the soil used for growing kumara. Many of these borrow/excavation pits are still visible today.

Taonga such as carvings and whāriki were stored in peat soils in wetlands to both hide and preserve them during times of trouble. Soil also has an important cleansing role. Only by-passing treated waste through Papatūānuku can the mauri of water be restored.

Earthworks/land modification can significantly affect our cultural heritage, especially wāhi tapu or sites of significance. Earthworks can also affect land stability and water sources and result in the release of sediment. Ngāti Te Ata have concerns with the large-scale number of earthworks expected as Pukekohe keeps being developed, and the implications that this may have. It is therefore imperative that cultural monitoring is undertaken by our kaitiaki (alongside the project archaeologist) and monitoring agreements with Ngāti Te Ata are in place as cultural remnants and taonga will undoubtedly be exposed during future development.

We are also concerned about the source of the large amounts of fill that will be needed for future development. Will it be locally sourced or brought in from outside the areas? If outside the areas, where from and will it be assessed for contaminants? Contaminants, while they can become inert over time, are activated when disturbed. It is our assumption that most of the fill will be overburden from other development and infrastructure projects in Tāmaki Makaurau currently underway.

Table 4. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to soil and earthworks.

Issues	• Future development of these areas is expected to result in a significant number of large-scale earthworks. This includes 'cut and fill' used to create roads and various subdivisions to accommodate building platforms. The thresholds for earthworks are problematic i.e., too high. • Earthworks may have an adverse effect on cultural heritage, land stability, and the mauri of water. • Sediment may be released into the environment, including that from contaminated soils. Potentially contaminated soil may be used as fill. • Loss of productive capacity/value of land in the south.

	• Degradation of soil from intensification of agricultural practices. • Removal of indigenous vegetation can cause erosion. • Soil erosion can cause sedimentation. • Increased risk of cumulative adverse effects as land uses change and development intensifies.
Ngāti Te Ata recommendations and aspirations	• Cultural monitoring agreements should be established, and must be undertaken by iwi kaitiaki (alongside the project archaeologist) during any development • Review the Auckland Unitary Plan for provisions on volume of earthworks triggers for Ngāti Te Ata oversight. • Minimise earthworks and make maximum use of natural ground levels. • Ensure sufficient erosion and sediment control measures are in place for earthworks. Earthworks that have the potential to impact on waterways must have sufficient measures in place to ensure that adverse effects on water bodies are managed. • Riparian planting of appropriate, preferably indigenous, species must be promoted and increased to stabilise riverbanks and reduce erosion in the region. Plants should be 'eco-sourced / whakapapa plants' and consistent with local biodiversity. • Riparian vegetation must only be removed from river, lake and coastal/estuarine margins using methods that do not result in increased soil erosion in the long term. Any short-term effects must be managed to minimise any adverse effects. • When making decisions on future development projects, cumulative effects must be considered.
Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**<u>Auckland Unitary Plan (Operative in part)</u>** **Chapter B Regional Policy Statement** **B6. Mana Whenua** B6.1 Issues B6.2. Recognition of the Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3 Recognising Mana Whenua values B6.6 Explanation and principal reasons for adoption

	B7. Toitū te whenua, toitū te taiao – Natural resources B7.3. Freshwater systems B7.4. Coastal water, freshwater and geothermal water B7.7 Explanation and principal reasons for adoption **B9. Toitū te tuawhenua - Rural environment** B9.1. Issues B9.2. Rural activities B9.3. Land with high productive potential B9.4. Rural subdivision B9.5. Explanation and principal reasons for adoption **B10. Ngā tūpono ki te taiao - Environmental risk** B10.1. Issues B10.4. Land – contaminated B10.6. Explanation and principal reasons for adoption **National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health** This has established soil contaminant standards that protect human health for a range of land uses. It aims to identify and assess land affected by contaminants in soil when the land use changes, or the land is being subdivided, and, if necessary, require the remediation of the site or the containment of the contaminants to make the land safe for human use.

5.2.2.3. Erosion and sediment control

Soil erosion and inappropriate or a lack of sediment control can compromise the mauri of the land, rivers, lakes, and marine environments. It can be caused by activities such as intensive farming and forestry, vegetation clearance, and the development of urban areas (e.g., earthworks). It can also result in the contamination of land and waterways and the loss of important soil nutrients. Activities that accelerate soil erosion must be managed effectively.

It is vital that the significant urban development expected in Pukekohe follows best practice erosion and sediment controls. Current best practise is set out in Auckland Council's Earthworks Erosion and Sediment Control guidance (GD05). This will replace the legacy technical publication TP90.

While the effects of contaminants are most noticeable on water bodies, the sources and causes lie on the land and with how the land is managed. For example, the intensification of agricultural practices throughout our respective rohe increases the nitrogen and phosphorus loads and levels of faecal pathogens entering rivers, lakes, wetlands and estuaries. It also increases the risk of soil degradation, soil compaction, surface water runoff, and sediment loss from hill and flat land areas. The use of flocculants as part of sediment control can also be a contaminant. Flocculants are used when it rains and are generally a chemical poly aluminium chloride (PAC). They can have a devastating effect on the receiving environment if accidental over-dosing occurs.

The removal of indigenous vegetation in favour of pastoral farming, production forestry and roading has caused, and continues to cause, accelerated soil erosion, particularly on hill country. This is delivering inflated loads of sediment to rivers, lakes, estuaries and coastal marine areas and causing significant negative impact on water quality and aquatic biodiversity. The removal of vegetation for urban development, such as roads, subdivision and building platforms, will also have a similar effect.

Clear-felling harvesting practices create the potential for soil erosion which causes sedimentation of receiving waterways and the coastal environment and smothers in-stream habitat and ecological values. This applies both within the context of forestry but can also apply to riparian management particularly invasive/pest plant removal along waterbodies.

Fluctuations in water levels (volume/quantity), accretion (gradual build-up of sediment or other natural material), wave action and water flow can all influence erosion potential, particularly along river and lake banks, around river islands and along the coast.

Iwi kaitiaki must be involved in the monitoring of sediment and silt control management, fencing and mitigation plans during any future development.

Table 5. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to erosion and sediment control.

Issues	• Amount of sediment being released into the receiving

	environment. • Use of flocculants and potential for accidental overdosing. • Intensification of agricultural practices and levels of contaminants entering waterways or put onto/into land. • Activities that accelerate erosion (e.g. clearance of indigenous vegetation). • Increased risk of cumulative adverse effects as land uses change and development intensifies.
Ngāti Te Ata recommendations and aspirations	• Effectively manage activities that accelerate soil erosion e.g. vegetation removal and intensive agricultural practises. • Effectively manage the impact of contaminated land on the surrounding environment. Ensure contaminated land is not used as fill. • When making decisions on future development projects, cumulative effects must be considered. • Restore and protect highly erodible lands e.g. retire highly erodible land from farming, prohibit the clearance of indigenous vegetation and soil disturbance on highly erodible land that could cause further erosion and use locally sourced indigenous vegetation during restoration. • Promote the direction of funds to support local reforestation initiatives on marginal lands. • Promote the adoption of best practice land and soil management that minimises soil erosion, nutrient leaching, and sediment and nutrient runoff. • Encourage research directed at developing technology and management practices that will minimise nutrient leaching and runoff. • When undertaking earthworks 'applicants' must strive to achieve a much higher percentage of sediment retention onsite i.e. strive to meet best practice such as GD05, rather than just meeting 'bottom line' minimum requirements such as TP90. There are proven ways to reduce the amount of sediment entering the ecosystem and those which are supported are: - create a series of sediment pools instead of just one fore bay silt pond - use of filter/compost socks around cesspits and drains

	- use of an organic flocculent rather than chemical, when a flocculent is necessary. There are a variety of organic flocculent available currently on the market e.g. HaloKlear. - use of super silt fences in conjunction with silt ponds as a 'treatment train approach' - in the absence of silt fences use silt ponds, hay bales
Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**<u>Auckland Unitary Plan (Operative in part)</u>** **Chapter B Regional policy statement** **B6. Mana Whenua** B6.1 Issues B6.2. Recognition of the Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3 Recognising Mana Whenua values B6.6 Explanation and principal reasons for adoption **B7. Toitū te whenua, toitū te taiao – Natural resources** B7.3. Freshwater systems B7.4. Coastal water, freshwater and geothermal water B7.7 Explanation and principal reasons for adoption **<u>Erosion and Sediment Control guidelines (GD05)</u>** Auckland Council has worked with industry experts and Mana Whenua to produce the **GD05 document**, which provides guidance for regulators and developers to safely and effectively incorporate sediment control practices into all scales of land development. **A2.0 Fundamental principles of erosion and sediment control** The following ten fundamental principles of erosion and sediment control provide best practice guidance for minimising the adverse effects of erosion and sedimentation through the planning, construction and maintenance phases of a project. These should be followed when preparing and implementing an erosion and sediment control plan: 1. Minimise disturbance 2. Stage construction 3. Protect slopes 4. Protect watercourses 5. Rapidly stabilise exposed areas 6. Install perimeter controls and diversions 7. Employ sediment retention devices 8. Get trained and develop experience 9. Adjust the ESC Plan as needed 10. Assess and adjust your ESC measures

	Note: GD05 will replace TP90 – Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region (1999, and 2007 update), and supersedes that guideline. http://content.aucklanddesignmanual.co.nz/project-type/infrastructure/technical-guidance/Documents/GD05%20Erosion%20and%20Sediment%20Control.pdf **NZ Transport Agency's 'Erosion and sediment control standard for State highway infrastructure'.** The guidelines have been developed to assist roading practitioners with the selection and design of erosion and sediment control practices. The guidelines demonstrate our commitment to lowering environmental impacts, social and environmental responsibility, and improving the contributions of state highways to the wellbeing of Aotearoa. The inspection forms are designed to provide guidance on how to implement erosion and sediment control practices on the ground. https://www.nzta.govt.nz/assets/resources/erosion-sediment-control/docs/erosion-and-sediment-control-guidelines.pdf

5.2.3. Wai (Water)

Ko te wai te ora o nga mea katoa
Water is the life giver of all things

Ngāti Te Ata have strong cultural, traditional and historic links with wai. Water is the life giver; it represents the blood of Papatūānuku, the Earth Mother, and the tears of Ranginui, the Sky Father. Streams, rivers, lakes, puna, wetlands and coastal waters are our taonga. These taonga are spiritually significant and closely linked to our identity, and it is the responsibility of our kaitiaki that they protect and manage these taonga for present and future generations. We continue to advocate the importance of healthy uncontaminated water throughout Tāmaki Makaurau.

Waterways are home to our many taniwha that look after our people and ensure their physical and spiritual protection. Pukekohe have many significant waterways such as the Whangapouri, Whangamaire and Mauku among others.

These continue to be under threat and our traditional activities, fisheries and access to them are compromised. They are not managed in accordance with our tikanga preferences.

Natural waterways should not be altered (e.g., moved or piped). Nor should a degraded state of a waterway become the 'baseline' when considering future development.

Ngāti Te Ata aspire to have waters that are drinkable, swimmable, and fishable. However, this is limited by a number of factors such as the concentrations of E. coli, eutrophication, suspended sediments, arsenic and mercury and stormwater runoff contaminants. Iwi have the right to drink clean water at any of our marae throughout Tāmaki Makaurau. It is also our right to eat the kai from our land and waterways without fear of being poisoned or suffering some other aspect of ill health.

Water is highly valued for its spiritual qualities as well as for drinking, transport, irrigation and as a source of kai. Bodies of water that our iwi include in our different whakapapa have mana as ancestors, the Waikato River as an example. Their physical and spiritual qualities are key elements in the mana and identity of iwi, hapū and whānau.

Water is defined in terms of its spiritual or physical state as shown in the table below.

Table 1: Categories of Water

Waiora	Purest form of water, with potential to give and sustain life and to counteract evil.
Waimāori	Water that has come into unprotected contact with humans, and so is ordinary and no longer sacred. Has mauri.

Waikino	Water that has been debased or corrupted. Its mauri has been altered so that the supernatural forces are non-selective and can cause harm.
Waipiro	Slow moving, typical of swamps, providing a range of resources such as rongoa for medicinal purposes, dyes for weaving, eels and birds.
Waimate	Water which has lost its mauri. It is dead, damaged or polluted, with no regenerative power. It can cause ill-fortune and can contaminate the mauri of other living or spiritual things.
Waitai	The sea, surf or tide. Also used to distinguish seawater from fresh water.
Waitapu	When an incident has occurred in association with water, for example a drowning, an area of that waterway is deemed tapu and no resources can be gathered or activities take place there until the tapu is lifted.

Source: E M K Douglas, 1984[7]

Mauri is the binding force between spiritual and physical; when mauri is extinguished, death results. Mauri is the life force, passed down in the genealogy through the atua to provide life. It is also strongly present in water; the mauri of a water body or other ecosystem is a measure of its life-giving ability (or its spiritual and physical health). Where mauri is strong, flora and fauna will flourish. Where it is weak, there will be sickness and decay.

It is therefore imperative that nothing adversely impacts upon its integrity. Such an action detrimentally affects the mauri of the resource and consequently the mana, wellbeing and health of the people. The key here is the importance of not altering the mauri to the extent that it is no longer recognisable as a healthy component, waiora.

Mixing water of different types is a serious concern because the mauri of a water body can be destroyed by an inappropriate discharge, with serious consequences for the ecosystem concerned. For example, the discharge of wastewater or stormwater into natural water (fresh or salt water). Our reliance on the spiritual and physical well-being of the water body will also be affected. The diversion or combining of waters from different sources or catchments is considered inappropriate.

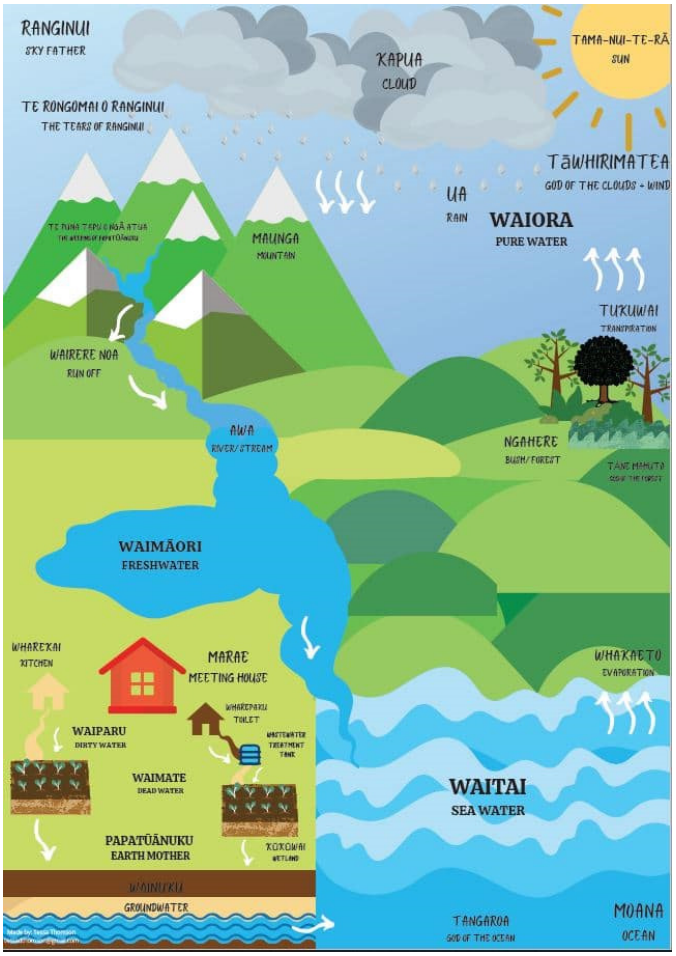
The quality of water determines the relationship that the tribe has with its waters. Environmental degradation, at a national level, has occurred at a large cost and the physical, chemical, and biological quality of water has deteriorated because of both point source pollution (discharges into a body of water at a single location), and non- point source pollution (contamination from diffuse sources).

[7] E M K Douglas; New Zealand. Commission for the Environment.; University of Waikato. Centre for Māori Studies and Research. 'Waiora, waiM, waikino, waimate, waitai: Māori perceptions of water and the environment: proceedings of a seminar; Hamilton, NZ: The Centre, 1984

Ngāti Te Ata hold on to the belief that water is pure when it leaves the heavens, and with today's technology and in the ever-increasing pollution created by man that there should be a natural treatment train approach to retain the cleanliness of the water from the skies to the sea.

The waters of the Auckland region have been modified to support economic gains, and the impacts of previous poor management practices are increasingly being seen. As a result, human impacts from such uses as farming/agriculture, wastewater discharges, damming, horticulture, urban development, alterations to the natural hydrology (straightening/piping) of rivers and streams, and forestry conversions have modified natural water flows and increased the degree of contaminants that a water body receives resulting in a decrease in water quality of rivers and streams.

Water is a fundamental component for all dimensions of life. Water not only sustains life, but also serves an economic, social, cultural, spiritual, and political purpose. Regardless of the significance of water, the increase in water contamination by cities, industries, and agriculture/horticulture has led to the deterioration of the mauri of water.



5.2.3.1. Waterways

In the past waterways provided travel, trade and communication for the tribes, as well as a resource for food. The waterways were the life blood connecting tissue between kāinga, pā, cultivations and traditional collecting resource areas. As such they are a significant part of our cultural landscape.

It is crucial that future urban development of Pukekohe recognises and respects the importance of our coastal and inland waterways; in particular Te Mānukanuka o Hoturoa and the waterways that flow into it.

Ngāti Te Ata does not accept the altering of a natural waterway; this alters its natural state. Nor do we accept that because a natural waterway has been previously 'straightened' by previous landowners, that it becomes a 'drain', it still has water flowing within it, water that still has mauri.

Also, we do not accept that because an area of swamp, wetland or stream has become degraded through past land use (e.g., dairy farming, horticulture etc.) that it becomes the 'base line' if the intent is to redevelop it. It is always possible to restore and enhance any degraded waterway through the development process. It is usually only a matter of willingness from Peterex Properties and Pukekohe Limited, Franklin Local Board and Auckland Council to achieve this.

The wider Pukekohe Stream Catchment has come under increasing pressures from intensifying land-use (particularly agricultural) and residential development. For instance, continuous forest cover now only occurs in the upper headwaters of the catchment, with the extent of forest vegetation cover reducing through the course of the catchment. This is evidenced by the diminishment of the stream corridor and natural habitat within the residential and industrial urban environments of Pukekohe.

Table 6. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to waterways.

Issues	• Past land uses and practices have altered and degraded waterways. • Future urban development could adversely affect waterways e.g., loss of streams, wetlands or floodplains; reduced water quality etc. • Increased risk of cumulative adverse effects as land uses change and development intensifies.

Ngāti Te Ata recommendations and aspirations	• Future urban development should protect, rehabilitate and enhance waterways, especially where previous land use has degraded it. • Preserve the physical integrity of receiving streams. • Streams are well integrated with town centres with use of stream management plans and special policy requirements (green space, infrastructure, wider riparian margins). • Development around streams/awa is limited to maintain access, preserve amenity, retain views and protect water quality e.g., use of 20m setbacks, use of park edge roads, lower density housing. • Address existing use rights e.g., Industrial land discharges. • Transport network planning across the wider southern area must consider stormwater treatment infrastructure. • Involvement in stormwater management planning and kept informed of the processing of the network discharge consent for the area. • Council to provide watercourse assessment reports which provide baseline information on the existing condition of waterways. • Decisions on use of reserves or similar provision in subdivision applications shall give priority to protecting the water body health regardless of the water body or subdivision size. • When making decisions on future development projects, cumulative effects must be considered. Proposed developments shall demonstrate how they have considered and applied development principles that enhance the environment including, but not limited to how the development: • Preserves and preferably enhances the natural hydrologic functions of the site • Identifies and preserves sensitive areas that affect the hydrology, including streams and their buffers, floodplains, wetlands, steep slopes, high-permeability soils and areas of indigenous vegetation • Maintains recharge of aquifers with clean uncontaminated water

	• Effectively manages natural hazards • Considers beneficial re-use on-site of stormwater and wastewater • Considers water conservation • Provides for visual amenity consistent with the surrounding environment • Minimising stormwater impacts to the greatest extent practicable by reducing imperviousness, conserving natural resources and ecosystems, maintaining natural drainage courses, reducing use of pipes, and minimising clearing and grading • Providing runoff storage measures dispersed through the site's landscape with a variety of detention, retention, and runoff practices • Where they will be of benefit, encouraging the use of mechanisms such as rainwater harvesting, rain gardens, roof gardens, and onsite storage and retention • Where they will be of benefit, encouraging the use of stormwater treatment devices including on-site treatment systems, allowing for emergency storage and retention structures • Such areas that have unavoidable impervious areas, attempt to break up these impervious areas by installing infiltration devices, drainage swales, and providing retention areas • Minimise imperviousness by reducing the total area of paved surfaces • Maintain existing topography and pre-development hydrological processes.
Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**<u>Auckland Unitary Plan (Operative in part)</u>** **Chapter B Regional policy statement** **B6. Mana Whenua** B6.1 Issues B6.2. Recognition of the Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3 Recognising Mana Whenua values B6.4. Protection of Mana Whenua cultural heritage B6.6 Explanation and principal reasons for adoption

	B7. Toitū te whenua, toitū te taiao – Natural resources B7.3. Freshwater systems B7.4. Coastal water, freshwater and geothermal water B7.7. Explanation and principal reasons for adoption **B8. Toitū te taiwhenua - Coastal environment** B8.1. Issues B8.2. Natural character B8.3. Subdivision, use and development B8.4. Public access and open space B8.6 Explanation and principal reasons for adoption **The New Zealand Coastal Policy Statement** **National Policy Statement for Freshwater Management 2014 (amended 2017)**

5.2.3.2. Water Quality

Ngāti Te Ata aspire to have waters that are drinkable, swimmable, and fishable with the water quality at least at the level it was before the impact of European settlement.

For Ngāti Te Ata the quality of water determines our relationship we have with it. The waters of the region have been modified for economic gains, and the effects of poor management practices relating to activities such as farming, horticulture, forestry, damming, wastewater, and urban development are increasingly being seen. These practices have altered the natural hydrology of rivers and streams (e.g., straightening, decreased water flow) and increased pollution. Point source and non-point source pollution has resulted in significant environment degradation, effecting the physical, chemical, and biological quality of water.

Water quality is often poor in areas where high levels of agricultural activity leach pollutants into groundwater. The nature of non-point source pollution, non-compliant discharges of urban run-off, and sewage effluent make it difficult to manage water quality, resulting in the accumulation of contaminants in sensitive environments. Point source discharges, such as those from wastewater treatment plants, can be highly organic and cause a reduction in water oxygen levels. This can stress fish life.

By-products of the previously mentioned activities contribute to the increase in nutrient levels and accumulation of key contaminants in water. Presence of metals such as iron, manganese, boron, mercury, and arsenic can have harmful effects on human health. Likewise, the use of herbicides, pesticides, insecticides, and fungicides are also recognised as potential contaminants of water. Water clarity can be altered by activities such as sand dredging/mining and soil erosion that increases the risk of sedimentation. Increased suspended sediment in waterways can have an adverse effect on ecosystems such as through smothering aquatic life in estuaries.

Contributing contaminants in water degradation are the levels of nitrogen and phosphorous. Nitrogen is found in groundwater (in the form of nitrate) and is monitored for health and environmental reasons. Elevated levels of nitrogen indicate the presence of other pollutants in freshwater and can pollute surface water. A key issue is that, with increasing nitrogen and phosphorous levels, the risk of harmful algal blooms also increases threats to human and animal health. Increasing nutrients also increases nuisance aquatic weed growth and, with increasing algae, reduces water clarity. Elevated pathogen (bacteria, such as E. coli, and viruses) levels in water are a risk to human and animal health.

Another major contributor to the quality of water is the introduction and poor management of pest species. The quality of water and its role in the natural biodiversity of waterways has been greatly altered because of transporting and holding pest fish and plant species. Pest fish (e.g., koi carp, catfish, perch, and tench) have stripped water channels of vegetation as well as excluded or out-competed native fish species. Similarly, pest plants (e.g., hornwort, yellow flag, and alligator weed) are also being transported by water and deposited on lands, where they have dominated and crowded out native flora.

Table 5. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to water quality.

Issues	• Degradation of water quality has happened at a national and local level. Adverse effects are becoming more evident. • Adverse effects caused by past land uses and practices such as farming, horticulture, urban development, point and non-point source discharges, modified waterways and decreased water flow, pest species, erosion and sedimentation, increased nutrient levels • Increased nutrient levels and contaminants in waters are a risk to human and animal health • Increased risk of cumulative adverse effects as land uses change and development intensifies.
Ngāti Te Ata recommendations and aspirations	• Ngāti Te Ata aspire to have waters that are drinkable, swimmable, and fishable with the water quality at least at the level it was before European arrival. • When making decisions on future development projects, cumulative effects must be considered.
Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**Auckland Unitary Plan (operative in part)** **Chapter B Regional Policy Statement** **B6. Mana Whenua** B6.1 Issues B6.2. Recognition of the Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3 Recognising Mana Whenua values B6.6 Explanation and principal reasons for adoption **B7 Toitū te whenua, toitū te taiao – Natural resources** B7.3. Freshwater systems B7.4. Coastal water, freshwater and geothermal water B7.7. Explanation and principal reasons for adoption **National Policy Statement for Freshwater Management 2014 (amended 2017)** **The New Zealand Coastal Policy Statement 2010**

5.2.3.3. Groundwater, recharge and water allocation

Ngāti Te Ata anticipate the future urban development of Pukekohe will have a significant adverse effect on groundwater in the long-term, especially if the lowering of groundwater levels is permanent. The key issue is to ensure the aquifers do not get contaminated. That's why it is vital to identify puna and the potential impact on these resources.

Groundwater recharge is vital to retain base flows within streams, and to keep aquifers recharged. In some areas (depending on soil type) rainwater can take between 1-100 years to seep down into aquifer. Stream base recharge does not take so long. Piping of any water flow lowers the base flow of a stream and causes higher peak flows. Impervious cover also has a devastating effect on stream base flow health. Up to 10 percent impervious cover of any site reduces base flow by 50 percent. Up to 50 percent and over of impervious cover of an area totally negates the ability for stream base flow recharge (Dr Tom Schueller).[8]

Our maunga and tuff rings are a direct avenue for groundwater recharge because of their porous nature and it is therefore imperative that they are not built upon or modified so they can continue to function as they are intended. Our aquifers are being constantly relied upon as a source of water supply. Aquifer water can take between two and 100 years to regenerate depending on soil type. Some of our aquifer in the Auckland Region are already fully allocated. Others are over allocated and already have saline intrusion. This is not sustainable, and ground water recharge must be applied in all instances. Water allocation must be consistent with restoring and protecting the health and well-being of water bodies within our rohe, including aquifers.

Our aquifer and groundwater resources are slowly depleting and becoming polluted at a fastening rate as our population continues to grow. While not necessarily 'taking groundwater' new houses continuing to be built are taking away the earth's natural way of recharge by way of impervious surfaces. Each new dwelling, road, cycle/pedestrian way prevents rainwater from naturally permeating through the ground

The practice of using soak pits for contaminated road runoff with no prior treatment also adds to the pollution of groundwater. Ngāti Te Ata are concerned that contaminant levels measured in groundwater will exceed the permitted activity criteria and will not be consistent with water quality in the receiving environment. On-going discharge of low levels of contaminants into the groundwater, will generate levels of risk to the environment and human health.

Before any future development of Pukekohe is carried out, further information is required to better understand the current state of groundwater and the effects future development may have. For example, what effects will the lowering of groundwater have on aquifers with possible long-term saline intrusion? What are the effects on ground settlement? Our past experiences with large scale housing and industrial subdivisions is that they can cause ground settlement, which is a major concern to us.

[8] Dr. Tom Schueller is a leading expert in groundwater recharge, and his evidence was taken into account at an Environment Court hearing regarding the Long Bay marine reserve area during a proposed development.

Table 6. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to groundwater, recharge and water allocation.

Issues	• Disruption to natural recharge of groundwater and stream base flow due to increased urban development. • Adverse effects of lowering groundwater e.g. ground settlement, saline intrusion. • Increased risk of cumulative adverse effects as land uses change and development intensifies. • Ongoing discharge of low levels of contaminants into groundwater which will adversely affect the environment and human health. • Protection of maunga and tuff rings as an avenue for direct groundwater recharge.
Ngāti Te Ata recommendations and aspirations	• Ensure groundwater recharge to retain base flows within streams, and to keep aquifers recharged. • Commissioned reports are undertaken to carry out an initial groundwater study based on information and results from previous studies. Ngāti Te Ata request to be updated and informed, as these reports become available. • Support the promotion of innovative green business initiatives and practices. For example, the use of low-impact building materials, packed gravel or permeable concrete instead of conventional concrete or asphalt, to enhance replenishment of ground water. • When making decisions on future development projects, cumulative effects must be considered. • The water allocation framework must be underpinned by the following principles: - Recognition that Ngāti Te Ata iwi have rights and interests in water. - Unauthorised water takes are subject to immediate enforcement action to ensure a level playing field for all water users. - All water takes (excluding those required for civil or general emergency) should be accounted for within the allowable

	limit. - The framework for allocating water to users should focus primarily on ensuring the health and well-being of waterways and secondly on contributing to the long-term economic, cultural, spiritual, environmental, and social well-being. • The water allocation framework must cater for all catchments and particularly consider catchments: - that have no significant current or foreseeable demand pressure - that continue to have water available for use and a trend of increasing demand towards full allocation - that are fully allocated - Where water is over allocated and all or any of that over allocation needs to be phased out
Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**Auckland Unitary Plan (Operative in part)** **Chapter B Regional Policy Statement** **B6. N Mana Whenua** B6.1 Issues B6.2. Recognition of the Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3 Recognising Mana Whenua values B6.6 Explanation and principal reasons for adoption **B7 Toitū te whenua, toitū te taiao – Natural resources** B7.4. Coastal water, freshwater and geothermal water B7.7. Explanation and principal reasons for adoption **B10. Ngā tūpono ki te taiao - Environmental risk** B10.1. Issues B10.4. Land - contaminated **National Policy Statement for Freshwater Management 2014 (amended 2017)** **The Resource Management (National Environmental Standard for Sources of Human Drinking Water) Regulation 2007**

	Auckland Code of Practice for Land Development and Subdivision[9] **Chapter 4. Guidance for Stormwater Code of Practice (2015)** In particular section 3.20 Groundwater Recharge Pits in Recharge Areas Groundwater recharge is necessary in areas with peat soils to maintain underlying aquifer water levels and geotechnical stability. Dewatered peat soils are subject to shrinking and ground surface settlement. The requirement for groundwater recharge is to be considered and specific design and council approval is required for any development in an area where peat soils can be anticipated. In particular, there is a significant area of peat and soils with high organic content in the Pukekohe area. Refer to Auckland Council technical report TR2013/040 (Stormwater Disposal via Soakage in the Auckland Region) for design guidance for all soakage systems. TR2013/040 also defines the likely extent of peat soils within the legacy Franklin District. However, the presence or absence of peat shall be confirmed by geotechnical investigation. Refer to the Proposed Auckland Unitary Plan (PAUP) and operative district plans for other requirements regarding groundwater recharge in peat areas. (http://www.aucklanddesignmanual.co.nz/project-type/infrastructure/codes-of-practice/stormwatercodeofpractice/guidance/design/GroundwaterRechargePitsinRechargeAreas)

[9] This relates to assets that will be transferred to Auckland Council.

5.2.3.4. Stormwater

Stormwater is a term commonly used in today's climate as referring to all water run-off, both clean (i.e. from roof tops) and contaminated (from roads, access ways, silt etc.). Past stormwater practice has been to get it all into a pipe and out of the way as fast as possible, usually draining into curb and channel, a cesspit then piped into the nearest waterway. This practice results in mixing stormwater with freshwater. This not only wastes water but also degrades the mauri of the water and is a culturally provocative act in the same vein as discharging treated effluent or waste directly into water.

There has always has been a strong argument within Aotearoa society regarding economic gain versus environmental and cultural gain. Because money talks, the gains more often than not are weighted on behalf of the economic argument. However, Ngāti Te Ata will always advocate the highest level of treatment of stormwater before it is discharged into our waterways, and that the protection of the mauri of all-natural waterways and the food producing capacity of natural waterways is protected and enhanced, as is their life supporting capacity. Our cultural position is that we advocate water conservation and efficient use of water, oppose the direct disposal of any waste into waterways and require that waste pass through the soils, or through other innovative means, before discharge. Iwi living both on the Waitemata and Manukau despair at the despoiling of our harbours, long treasured for their fisheries.

Ngāti Te Ata also promote the regeneration of any wetland (even if degraded) as wetlands featured prominently in the past as nature's natural filters. Natural wetlands should not be used as a stormwater filter device, or they will become a source of pollution. Natural wetlands should only be used to filter stormwater once it has passed through at least two forms of treatment.

The mixing of clean roof water runoff and contaminated road water is now considered a wasted resource, and often the cause of stormwater devices becoming 'inundated' during heavy rainfall, leading to further pollution and erosion of natural waterways. Often in the common 'stormwater pond' the sediments that have 'dropped out' during the 'settlement' phase within the ponds are 're-suspended' during heavy rain fall and inundation, and so all those contaminants become 'mobile' again and are flushed out of the pond and into the water ways, making the pond in-effective, and a source of contaminants.

New approaches to treating contaminated road runoff and stormwater in general are constantly being investigated and methods are becoming more 'natural'. Ngāti Te Ata support the 'treatment train' approach as current best practice. This promotes at source retention, provides quality contaminant removal, less inundation at the final stage, ensures the cost is more evenly spread, and is easier to maintain.

The treatment train approach includes methods such as roof water detention on site via rain tanks and or soakage pits, where clean rainwater can be reused or used to recharge the underground water systems as first treatment; then road water to vegetated swale and/or rain-garden; and then to a wetland for a final 'polish'. Natural stream greenways are being designed into natural waterways instead of piping to produce a more natural look, and

further treatment. This is particularly important when creating a 'coastal or stream outfall', natural vegetated, semi rocked outfall/flow structures also add additional treatment and are more natural.

Rain gardens/swales for contaminated road water retention/detention, underground Stormwater 360 or Hynds Up-Flo devices can be used where a site is already developed if space is available and then a wetland or attenuation device (large vegetated dry swale system) for a final 'polish'. This system is currently best international practice; it serves to reduce initial runoff by infiltrating the first 10mm back into source, while containing contaminants, and adding to the recharge of the ground water. This also lessens volumes to device, which improves the function of the treatment device.

It is important to note that as time goes by technologies change and monitoring has time to gather data and gain understandings of how stormwater is best treated. At the very least we expect all cesspits to be fitted with a 'stormwater 360 litter trap' or 'enviro-pod'. These devices fit easily into a cesspit and have been designed to fit under the grate for easy convenient installation and cleaning. The reference to and addition of the GD01 stormwater guidelines is promoted.[10] Ngāti Te Ata have had input into these designs and if used in a treatment train approach they an effective guideline to encouraging better stormwater quality outcomes.

Green roofs are also becoming popular mainly in overseas countries, and where pollution is a problem. The green roof concept not only adds to more oxygen being produced but to the health and well-being of people who can grow their own vegetables, fruit trees etc.

The separation of clean roof water from contaminated road runoff must become a priority for all new development, both 'brown fields' and 'greenfield' development e.g. development of Pukekohe. This is easy enough to do. The provision of roof tanks to capture clean water, which is then reused for outdoor, and some indoor use is important, if we (citizens and residents) are to retain enough available water for future generations. Excess water can then be directed to groundwater recharge via soakage pits, and any additional can then be slowly released into the rest of the infrastructure.

Table 7. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to stormwater.

Issues	• Mixing of waters, especially clean roof water with contaminated run off. • Treatment of contaminated stormwater – follow best practice. • Efficient use of water.

[10] This document was produced by Auckland Council to provide guidance on stormwater management devices. Cunningham, A., Colibaba, A., Hellberg, B., Silyn Roberts, G.., Symcock, R., Vigar, N and Woortman, W (2017*) Stormwater management devices in the Auckland region*. Auckland Council guideline document, GD2017/001.

	• Increased risk of cumulative adverse effects as land uses change and development intensifies.
Ngāti Te Ata recommendations and aspirations	• When making decisions on future development projects, cumulative effects must be considered. • 'Clean' and 'contaminated' waters are not mixed i.e. no direct disposal of any waste into waterways, including wetlands. • Highest level of stormwater treatment should be used before it is discharged into waterways. This includes, but is not limited to: - use of 'treatment train' approach - use of raingardens/swales and green roofs - all cesspits to be fitted with a 'stormwater 360 litter trap' or 'enviro-pod' - use of the new GD01 stormwater management devices guideline as an appropriate means to support the mitigation of stormwater issues. <u>Stormwater relating to wetlands</u> • When making decisions on future development projects, cumulative effects must be considered. • Water levels of all significant wetlands shall be maintained and stabilised to prevent • further deterioration in wetland ecological condition and, where possible, wetland water levels shall be restored to enhance habitat and expand wetland area. Where necessary, this shall be achieved by placing restrictions on the amount of surface and subsurface drainage installed adjacent to wetlands. • Ensure that all land use practices that have the potential to impact on wetlands have efficient sediment, drainage, discharge, fertiliser application, and riparian buffer control practices in place to ensure that adverse impacts on wetlands are prevented. • No discharges of point or non-point source wastewater to ecologically or culturally significant wetlands.All stormwater discharged to ecologically or culturally significant wetlands shall be treated in such a way that ensures the ecological condition and cultural use of the wetland is not compromised. Stormwater should be discharged to a forebay (preferably two)

	prior to entering a wetland. • Establish or maintain 'buffer zones' of appropriate indigenous plant species around all significant wetlands to protect them from the effects of land use and to help reduce fluctuations in wetland water levels. • Where appropriate land is available, and it is feasible, flood plains shall be restored to function as natural overflow areas along rivers and streams and to link more naturally with adjacent wetlands.
Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**<u>Auckland Unitary Plan (Operative in part)</u>** **Chapter B Regional Policy Statement** **B3. Ngā pūnaha hanganga, kawekawe me ngā pūngao - Infrastructure, transport and energy** B3.1. Issues B3.2. Infrastructure B3.5. Explanation and principal reasons for adoption **B6. Mana Whenua** B6.1. Issues B6.2. Recognition of the Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3. Recognising Mana Whenua values B6.6. Explanation and principal reasons for adoption **B7. Toitū te whenua, toitū te taiao – Natural resources** B7.3. Freshwater systems B7.4. Coastal water, freshwater and geothermal water B7.7. Explanation and principal reasons for adoption

	The New Zealand Coastal Policy Statement 2010 **Auckland Code of Practice for Land Development and Subdivision** **Chapter 4. Guidance for Stormwater Code of Practice (2015)** The purpose of this is provide minimum standards for the design and construction of new public stormwater assets and of new assets which are to be vested in council ownership. This is to be used in conjunction with GD01 and GD04. **Stormwater Management Devices in the Auckland Region (GD01)** This guideline document '…provides detailed design considerations aligned with the Auckland Council philosophy of stormwater management – where cultural values, social needs and natural features are considered as part of the functional design of the stormwater network – to achieve a resilient and sustainable outcome under the principles of water sensitive design.'[11] This will replace TP10. **Water Sensitive Design for Stormwater in the Auckland Region (GD04)** This guideline document provides overall guidance on the principles and process of water sensitive design.

[11] Cunningham, A., Colibaba, A., Hellberg, B., Silyn Roberts, G.., Symcock, R., Vigar, N and Woortman, W (2017) Stormwater management devices in the Auckland region. Auckland Council guideline document, GD2017/001. Page iii

5.2.3.5. Wastewater

The discharge of human effluent into natural water bodies is culturally offensive and unacceptable. Only land-based treatment through Papatūānuku can cleanse this type of waste. Our preference is for land-based disposal or at least a significant percentage of it.

New ideas and innovative technologies need to be explored for the treatment of wastewater. For example, using power free natural aerating processes, instead of mechanical pumps etc. to treat wastewater to advanced secondary levels. Nature is one huge recycling mechanism. It harnesses these forces that have been quietly working together for thousands of years to break down and decompose waste all around us. It then positions them in an enclosed eco-system that simulates the forest floor, to treat and break down your wastewater until it is perfectly safe to be re-introduced into the environment, via the soil.

Moving up the chain of life-forms capable of digesting solid matter from human and food wastes, early conclusions form the opinion that early vermiculture and biological processes offered by far the best means of treatment for solid waste, without using mechanical or electronic means. It has been shown, through extensive trialling worldwide, these vermiculture processes which reduce the solids by up to 95 percent, are unmatched by any other process. There are no mechanically moving parts in these processes and nature's power is free.

Ngāti Te Ata assume all future urban development in Pukekohe will be reticulated i.e. no on-site waste disposal. We are concerned what the effects of both residential and industrial trade wastes will be on existing infrastructure. We do recognise that the South West Wastewater upgrade project will be a big improvement on the current situation from my understanding and has capacity for the plan change area.

Table 8. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to wastewater.

Issues	• Discharge of effluent into natural water bodies is culturally offensive, land-based treatment is required instead. • Effects of new urban development on existing wastewater infrastructure including increased risk of cumulative adverse effects as land uses change and development intensifies.
Ngāti Te Ata recommendations and aspirations	• Land-based treatment of effluent is preferred. • Exploration of natural processes rather than mechanical to treat wastewater, including vermiculture. • When making decisions on future development projects, cumulative effects must be considered.

Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**<u>Auckland Unitary Plan (Operative in part)</u>** **Chapter B Regional Policy Statement** **B3. Ngā pūnaha hanganga, kawekawe me ngā pūngao - Infrastructure, transport and energy** B3.1. Issues B3.2. Infrastructure B3.5. Explanation and principal reasons for adoption **B6. Mana Whenua** B6.1. Issues B6.2. Recognition of the Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3. Recognising Mana Whenua values B6.6. Explanation and principal reasons for adoption **B7. Toitū te whenua, toitū te taiao – Natural resources** B7.3. Freshwater systems B7.4. Coastal water, freshwater and geothermal water B7.7. Explanation and principal reasons for adoption **<u>On-site Wastewater Management in the Auckland Region (GD06)</u>** This is currently a draft document but aims to provide 'technical guidance for the design, installation, and management of on-site wastewater systems, in accordance with site and soil conditions encountered in Auckland.'[12] It will eventually replace TP58.

[12] Z, Chen and G Silyn Roberts. (2018) On-site Wastewater Management in the Auckland Region. Auckland Council guideline document, GD2018/006. Draft for consultation. Page i.

5.2.4. Biodiversity

Biodiversity is integral to Ngāti Te Ata. We are not separated from it; rather it is part of us and our conception of health and wellbeing. Biodiversity continues to be under threat despite successive plans to turn the tide. Its value cannot be over-estimated, and it is interwoven with many of our traditional values and practices. As kaitiaki Ngāti Te Ata take an ecosystem view and we have a responsibility to manage and protect healthy ecosystems and the biodiversity that they support.

Increasing biodiversity can positively affect three realms:

- **Ecosystem:** Diverse ecosystems are better able to maintain high levels of productivity during periods of environmental variation than those with fewer species.
- **Economic:** Stabilised ecosystems ensure the delivery of ecological goods (e.g. food, construction materials, and medicinal plants) and services (e.g. maintain hydrological cycles, cleanse water and air, and store and cycle nutrients).
- **Social:** Visual and environmental diversity can have positive impacts on community and psychological well-being.

Indigenous vegetation is a significant element of biodiversity. Post-1840, much of the indigenous vegetation in Tāmaki Makaurau has been removed, and most indigenous flora and fauna are threatened by a lack of adequate legal protection, incompatible adjacent land uses and human-related impacts within their catchments.

The loss of habitat and introduced pests have been a major reason for the decline and extinction of many indigenous plant and animal species. Losing an indigenous species impacts on the whakapapa of the landscape and threatens the viability of Māori culture and traditional activities. Extinction or decline of a species or habitat has an impact on mātauranga about the ecosystem and environment and the information that can usefully be passed on to future generations. To promote the return of native birds and insects back into the surrounding environment, waterways a need to be cleared of all rubbish and planted out with indigenous vegetation.

The introduction of foreign species into Aotearoa ecosystems has also had devastating effects on indigenous species and their habitats. Many of these introduced species are invasive pests (plants, animals, and micro-organisms) that have caused harm to the environment, economy, and/or human health. Weed species such as wattle, privet, woolly night shade, agapanthus and others should be removed, and other exotic species should be replaced with indigenous species that are ‘eco-sourced / whakapapa plants’.

The loss of indigenous trees and plants from the productive and human-occupied landscape continues to compromise the health of the natural environment by lessening the area of suitable habitat for taonga species, severing the vegetation corridors that are essential for the dispersal of indigenous species, and reducing the contaminant buffering and cleansing function that indigenous vegetation can perform. Ngāti Te Ata are concerned that inefficient resource development, use, associated activities and infrastructure risks are compromising

and depleting the remnants of natural vegetation that remain in the region and serve as a reminder of the original natural character of the landscape.

Existing pockets of native planting must be protected, enhanced and actively managed. Ecological corridors can provide important links between larger areas of high value indigenous habitats. These corridors should include, but are not limited to appropriate riparian margins, gully systems, esplanade reserves, and vegetation planted alongside road corridors.

Any loss of native vegetation must be offset by the planting of other native varieties, replacing 'like for like' wherever possible. However, the indiscriminate use of indigenous plant material not sourced from local plant material (i.e., not 'eco-sourced / whakapapa plants') for restoration and development rehabilitation projects continues to alter the natural character of the region and the genetic composition of the remaining natural plant and animal populations. Such use needs to give consideration to strengthening the genetic pool of indigenous species.

An example of area specific provisions in the Auckland Unitary Plan that seek to enhance the ecology of the area can be found in precinct provisions require riparian margins to be planted either side to a minimum width of 10m measured from bank of the stream. Planting is also required to be native vegetation that are 'eco-sourced / whakapapa plants' and consistent with local biodiversity.

Ngāti Te Ata support the use of these area specific provisions, such as these in precinct to achieve improved ecological and biodiversity outcomes.

Table 9. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to biodiversity.

Issues	• Biodiversity is integral to Ngāti Te Ata . • Biodiversity is under continued threat, through a lack of inadequate legal protection, incompatible adjacent land uses and human-related impacts within their catchments. • Significant loss of indigenous flora and fauna is a primary risk to biodiversity.
Ngāti Te Ata recommendations and aspirations sought	• Embrace and empower kaitiakitanga and rehabilitate and heal the natural systems that support us all. • Restore iwi capacity to manage our natural and physical resources according to our own preferences. • Support iwi monitoring of the effectiveness of environmental regulation in the protection of our cultural resources, biodiversity, wāhi tapu and other taonga within our respective

	rohe. • Policies, planning, and best practice must ensure no further net losses of valuable ecosystems, and a measurable expansion of areas of regionally and culturally significant vegetation. • Support area specific planning provisions such as riparian planting requirements. • Promote the use of 'eco-sourced / whakapapa plants' that are indigenous plants and trees from within the Pukekohe areas. • Establish new and enhance existing ecological corridors as a high priority. • Implement programmes such as riparian planting and protect sensitive receiving environments and protect and enhance water quality e.g., all permanent waterways to be fenced from livestock and planted, where appropriate, with indigenous vegetation to minimise the effects of land use practices and enhance biodiversity. • Remove or reduce pest species (plant and animal) from existing locations and prevent establishment in new locations. • Proposed developments must demonstrate how they have considered and applied development principles that enhance the environment including, but not limited to how the development: - restores the capacity of ecosystems - creates or maintains ecosystems that function without human intervention. • Encourage landowners to take out protective covenants to protect remnant stands of indigenous vegetation.
Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**<u>Auckland Unitary Plan (Operative in part)</u>** **Chapter B Regional Policy Statement** **B6. Mana Whenua** B6.1. Issues B6.2. Recognition of the Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3. Recognising Mana Whenua values B6.6. Explanation and principal reasons for adoption

B7 Toitū te whenua, toitū te taiao – Natural resources
B7.1 Issues
B7.2. Indigenous biodiversity
B7.7. Explanation and principal reasons for adoption

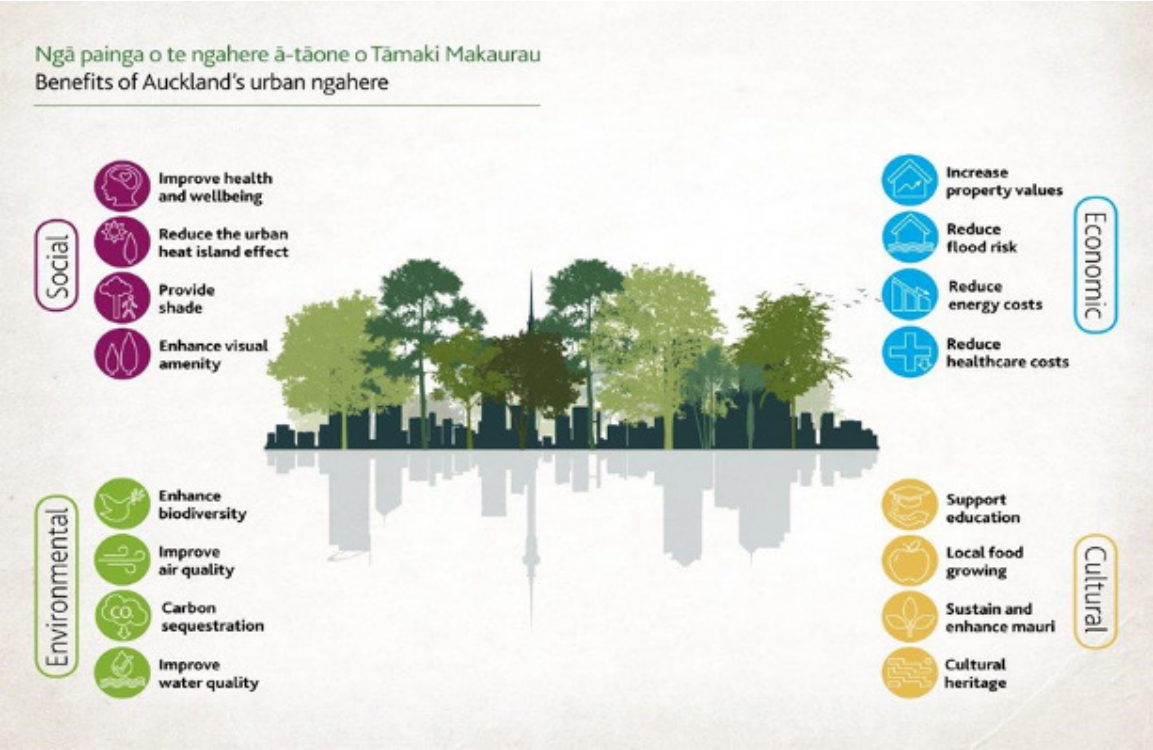
5.2.4.1. Indigenous vegetation

Native trees and biodiversity are what make Aotearoa unique. Prior to the arrival of Europeans, native trees were abundant, and used only following karakia and for specific purposes. To Ngāti Te Ata these old trees were tūpuna taonga, living entities that commanded respect. Following the arrival of Europeans, entire regions were ‘clear-felled’ then burnt, before being turned into farmland. Profit was made from the trees, either used for building houses within the country, or exported by the ship full. Imagine the greed of being able to destroy thousands of hectares of forest, hundreds and thousands of years old, there for ‘the taking’. Unfortunately, our current Auckland Council Unitary plan does not offer blanket protection to these remaining old trees. Each tree has to be individually protected if not within a covenant. Ngāti Te Ata believe that all trees over 200 years old should be automatically protected.

There are so many exotic plants and trees within our society today, and not all of them are welcome. Some have proven to be pests, while others drop their leaves in the autumn and block stormwater infrastructure, while adding to the nitrate content within the waterways. There are also a lot of ‘hybrid’ trees and plants around, as people meddle with nature to achieve ‘better looking’ or ‘better producing’ trees/plants. It is distressing to see areas denuded of original flora. Some areas were specifically named because of a particular tree species that thrived there, only today to find not even one still flourishing.

Ngāti Te Ata would like to collaborate with Peterex Properties and Pukekohe Limited , Auckland Council and other stakeholders to initiate a 15-year planting programme for the Pukekohe area. We also support and promote the use of eco-sourced / whakapapa plants and trees and would like input into the selection of plant species planted. This will enable original species to be returned to the areas from locally sourced seed. This in turn promotes the return of the native bird and insect species back into the immediate and surrounding environment. Using native species in key locations that express seasonal change and variety is also encouraged. This will reinforce associations with the wider and former landscape of the areas, as well as respect the importance of these seasonal changes in life. Many native species demonstrate clear seasonal variations through their flowers, seeds and foliage.

An example of provision for the use of eco-sourced / whakapapa plants is in precinct provisions which require riparian planting to be eco-sourced / whakapapa native vegetation and consistent with local biodiversity.



The nine principles of Auckland's Urban Ngahere (Forest) Strategy - Right tree in the right place, Preference for native species, Ensure urban forest diversity, Protect mature, healthy trees, Create ecological corridors and connections, Access for all residents, Manage urban forest on public and private land, Deploy regulatory and non-regulatory tools, Manage the whole lifecycle of urban trees.

Table 10. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to indigenous vegetation.

Issues	• Lack of blanket tree protection to old trees. • Use of inappropriate trees/plants, especially exotics. • Loss of traditional trees/plants has affected our cultural landscape. • Increased risk of cumulative adverse effects as land uses change and development intensifies.
Ngāti Te Ata recommendations and aspirations sought	• Tree surveys should be undertaken to identify all native trees. • All trees over 200 years should be protected (without the need to individually identify them).

	• Collaboration between Ngāti Te Ata and Peterex Properties and Pukekohe Limited , Auckland Council and other stakeholders to undertake a 15-year planting programme. • Ngāti Te Ata to have input in the selection of appropriate indigenous trees and plants, and involvement in the design of wetland planting. • Promote the use of eco-sourced / whakapapa plants and trees from within the Pukekohe area. Eco-sourced / whakapapa plants must be used where adjacent to areas of high ecological and conservation value and should be encouraged for all landscape plantings elsewhere. • When making decisions on future development projects, cumulative effects must be considered.
Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**<u>Auckland Unitary Plan (Operative in part)</u>** **Chapter B Regional Policy Statement** **B4. Te tiaki taonga tuku iho - Natural heritage** B4.1. Issues B4.5. Notable trees B4.6. Explanation and principal reasons for adoption **B6. Mana Whenua** B6.1. Issues B6.2. Recognition of the Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3. Recognising Mana Whenua values B6.6. Explanation and principal reasons for adoption **B7 Toitū te whenua, toitū te taiao - Natural resources** B7.1 Issues B7.2. Indigenous biodiversity B7.7 Explanation and principal reasons for adoption

5.2.4.2. Wetlands (Repo)

Wetlands are an integral component within the whakapapa of rivers and lakes and they provide an important habitat for fish and other taonga species. They also provide important ecosystem services such as reducing peak flood flows, increasing low flows, and trapping and removing sediments and nutrients.

The continued decline in healthy wetland state and function has resulted in losses of important hauanga kai and habitat for natural materials used for cultural purposes and practices (flora and fauna). In turn, this has diminished the ability of our iwi to maintain conservation practices of whakatupua and rāhui.

Many of the region's wetlands and floodplains are no longer in a suitable state to perform their functions, in particular as a spawning ground for indigenous fish. This is coupled by a reduction in the connectivity between freshwater systems and habitat due to infrastructure such as culverts, weirs and/or dams. In planning for the future urban development in Pukekohe we expect both Peterex Properties and Pukekohe Limited and Auckland Council to encourage improvements to local hydrology (where possible) to support healthy wetland function, and the restoration of locally appropriate wetland biodiversity.

Water takes from wetlands are to be restricted to promote healthy wetland function. Planning rules and policies must prevent any further reduction in wetland area or wetland condition.

Table 11. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to Wetlands.

Issues	• The health, function and extent of wetlands continues to decline. • The health, function and extent of wetlands should be restored and enhanced. • Increased risk of cumulative adverse effects as land uses change and development intensifies.
Ngāti Te Ata recommendations and aspirations	• Support the establishment of programmes to restore and expand wetland habitat. These programmes should be developed and implemented to achieve a measurable increase in the quality of wetlands, and should ideally include, but not be limited to: - restoring existing wetlands - removing and/or controlling plant and animal pests - using technology such as constructed wetlands where this

	is feasible - expanding the size of those wetlands where this is feasible - re-establishing wetlands adjacent to lakes and rivers where land is available, and conditions remain suitable for wetlands - identifying and setting aside government and local authority owned land for the creation and enhancement of wetlands. • When making decisions on future development projects, cumulative effects must be considered. • Water levels of all significant wetlands shall be maintained and stabilised to prevent further deterioration in wetland ecological condition and, where possible, wetland water levels shall be restored to enhance habitat and expand wetland area. Where necessary, this shall be achieved by placing restrictions on the amount of surface and subsurface drainage installed adjacent to wetlands. • Ensure that all land use practices that have the potential to impact on wetlands have efficient sediment, drainage, discharge, fertiliser application, and riparian buffer control practices in place to ensure that adverse impacts on wetlands are prevented. • No discharges of point or non-point source wastewater to ecologically or culturally significant wetlands. • All stormwater discharged to ecologically or culturally significant wetlands shall be treated in such a way that ensures the ecological condition and cultural use of the wetland is not compromised. • Establish or maintain 'buffer zones' of appropriate indigenous plant species around all significant wetlands to protect them from the effects of land use and to help reduce fluctuations in wetland water levels. • Where appropriate land is available, and it is feasible, flood plains shall be restored to function as natural overflow areas along rivers and streams and to link more naturally with adjacent wetlands.

Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**<u>Auckland Unitary Plan (Operative in part)</u>** **Chapter B Regional Policy Statement** **B6. Mana Whenua** B6.1. Issues B6.2. Recognition of the Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3. Recognising Mana Whenua values B6.6. Explanation and principal reasons for adoption **B7 Toitū te whenua, toitū te taiao - Natural resources** B7.1 Issues B7.3. Freshwater systems B7.7 Explanation and principal reasons for adoption **B8. Toitū te taiwhenua - Coastal environment** B8.1. Issues B8.2. Natural character B8.3. Subdivision, use and development B8.6 Explanation and principal reasons for adoption

5.2.5. Open Space and greenways plans

Ngāti Te Ata advocates that more open space is needed in urban environments. It is our expectation that a fundamental aim of both Peterex Properties and Pukekohe Limited and Auckland Council would be to maintain and encourage kaitiaki responsibility of Ngāti Te Ata by implementing a partnership approach to the sustainable management of physical resources, including parks and open spaces in Pukekohe. We acknowledge that there will be issues for Ngāti Te Ata, relating to wāhi tapu, protection and restoration of the mauri of natural eco-systems of land, water and air, the harvesting of kai and cultural materials, as well as the future management of significant open spaces.

We support the development of internal neighbourhood parks and open space buffer zones. Internal neighbourhood parks are for passive and active recreation and open space buffer zones help to 'soften the edge' of new urban development. Where possible the natural and cultural landscape should be preserved in the design and long-term maintenance of open space.

Ngāti Te Ata also support the use of 'park edge roads' along open space zones and esplanade or recreation reserves, rather than private property backing onto these spaces. This encourages a sense of public responsibility for these spaces and can help to reduce instances of illegal dumping.

Ngāti Te Ata support the use of greenways plans. Greenways plans should provide cycling and walking connections that are safe and enjoyable, while also improving local ecology and access to recreational opportunities. We support walkways that connect people to place and in particular access to the coastal margin (for example a walkway from Pukekohe township to the West Coast that includes/connects the networked pathways within the Te Pahi development). The objective being the long-term improvement of walking, cycling and ecological connections across the Franklin district. The primary reasons we support this are that the network typically follows natural landforms such as streams and coastlines, crosses existing parkland as well as man-made features such as streets and motorways. If people have access to the coastal margin and the lowland streams catchment then attention will start to focus on the restoration and healthy upkeep of these waterways and Te Mānukanuka o Hoturoa. We need to find innovative connectivity solutions to connect Pukekohe residents and users within the wider Franklin communities.

Ngāti Te Ata want the waterways in the Pukekohe to be waterways to be proud of. They will hopefully be clean and have local walking and cycling paths connecting our neighbourhoods from one side of the Pukekohe catchment to the other and re-establish a new portage from one harbour to the other. This is why it is so crucial to re-establish these connections through landscape, cultural, heritage, geological, environmental and water linkages.

Table 12. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to open space.

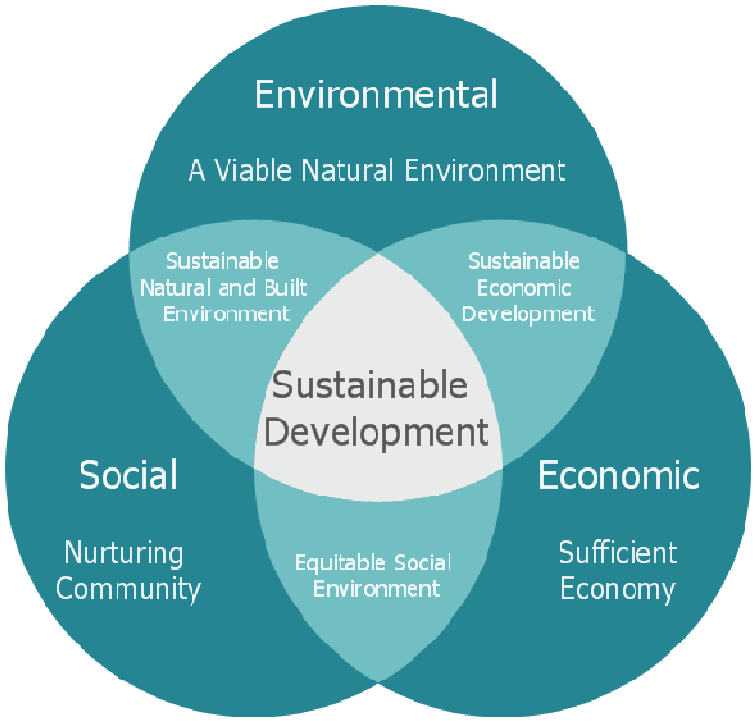
Issues	• Urban development in Pukekohe should provide open spaces that protect and enhance our cultural and natural landscapes.
Ngāti Te Ata recommendations and aspirations	• Peterex Properties and Pukekohe Limited and Auckland Council should implement a partnership approach to the sustainable management of Pukekohe's natural and physical resources, including parks and open spaces. • Cultural values and Ngāti Te Ata associations should be known and understood before the type and location of open spaces are decided. • Tikanga Māori and customary activities should influence how parks and open spaces are planned, developed and managed. • The focus should be on visually and physically connecting Pukekohe's network of parks, open spaces and streets to create opportunities for residents to move around their neighbourhoods and to enhance native biodiversity. • Ngāti Te Ata should have First Rights of Naming reserves and open spaces. • Require subdivision and new development to provide open space/reserves next to oceans, lakes and rivers. This will protect the water body, allow access, increase biodiversity, and enhance ecosystems. • Open space buffer zones and internal neighbourhood parks should be encouraged. • Encourage the use of 'park edge roads' along open space zones and esplanade or recreation reserves. • Develop greenways plans that provide cycling and walking connections that are safe and enjoyable, while also improving local ecology and access to recreational opportunities. • Ngāti Te Ata wish to continue to be involved in the development of a Blue-Green network for the Pukekohe area.

Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**Auckland Unitary Plan (Operative in part)** **Chapter B Regional Policy Statement** **B2 Tāhuhu whakaruruhau ā-taone - Urban growth and form** B2.1 Issues B2.2. Urban growth and form B2.7. Open space and recreation facilities B2.9. Explanation and principal reasons for adoption **B6. Mana Whenua** B6.1. Issues B6.2. Recognition of the Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3. Recognising Mana Whenua values B6.6. Explanation and principal reasons for adoption **B8. Coastal environment** B8.4. Public access and open space B8.6. Explanation and principal reasons for adoption **Auckland Design Manual** **Te Aranga Principles** http://www.aucklanddesignmanual.co.nz/design-thinking/M-design/te_aranga_principles

5.2.6. Sustainability

Sustainable development for Ngāti Te Ata means all new development should mostly, if not totally, be self-reliant and self-sustainable. Sustainable development is the organising principle for meeting human development goals while at the same time sustaining the ability of natural systems to provide the natural resources and ecosystem services upon which the economy and society depend. The desired result is a state of society where living conditions and resource use continue to meet human needs without undermining the integrity and stability of the natural system. This means that sustainable development can meet the needs of the present without compromising the ability of future generations.

There are many options for sustainability, with solar panels and green roofs to roof water capture for re-use and groundwater recharge being among a few. Each new development should be considering '*Where is my generated power coming from*?' and *'How can we not waste any of the good clean water that falls from the sky?'*. Sustainability also includes the retention of landscapes, cultural, visual and archaeological features, and enhancement of streams, bush areas, flora and fauna. Sustainable development also needs to consider the potential or actual effects of climate change and the risks associated with natural hazards. Natural hazards can pose a risk to human health, property and the environment, and development that ignores these risks is not sustainable in the long term.



5.2.6.1. Sustainable Development

All Ngāti Te Ata of Tāmaki Makaurau are having to 'culturally accommodate' another million people in our respective rohe by 2040. Our challenge is to reduce and manage our ecological footprint. Ngāti Te Ata support proposals for energy efficiency and transition away from fossil fuels. We support zero waste minimisation initiatives and proposals to reduce, reuse and recycle.

Ngāti Te Ata promotes sustainable development and believe that all new development should in some form, if not in most ways, be self-reliant and sustainable. There are many options for sustainability to be built into the build design, e.g. solar panels, green roofs, and water recycling. Ideally all houses should achieve at least a 6-star level from New Zealand Green Building Council 'Homestar' or an equivalent standard. Achieving this would ensure new houses are typically better quality than a house built to just the building code i.e. warmer, drier, healthier and cost less to run.[13]

Solar power is a renewable energy source, and unlike many other energy sources it does not disrupt the local environment or annoy people. Solar panels are inexpensive to maintain (after initial costs of installation) and can be an efficient energy source for households and street lighting.

Green roofs can provide insulation, noise attenuation and reduce energy use. They can also sustain a variety of plants and invertebrates and provide a habitat for various bird species. By acting as a stepping stone habitat for migrating species they can link species together that would otherwise be fragmented.

Current stormwater and wastewater management practices often contravene our principles. Water recycling is a major opportunity that should be pursued, and primary stormwater retention and treatment methods should be universally applied. Rainwater can also be collected and used by households.

Developments are not sustainable if their waste products and wastewater cannot be managed consistently with our cultural values. Discharging hazardous, toxic, wastewater into our waterways and water bodies remains a cultural and spiritual offence. It is one of the greatest contributors to Māori ill health. Others may not understand that but our wairua does. The use of potentially contaminated fill during development is also an unsustainable practice that should be avoid. Any contaminated land should be remediated.

Consistent use of sustainable practices can, over time, have cumulative positive effects and help to enhance the state of the environment.

[13] https://www.nzgbc.org.nz/homestar accessed 9 October 2018.

Table 13. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to sustainable development.

Issues	• Significant growth in Tāmaki Makaurau (including the Pukekohe area) requires Ngāti Te Ata to 'culturally accommodate' a significant amount of people. • Ecological footprint needs to be reduced and managed. This includes reducing greenhouse gas emissions, restricting urban sprawl, and using more sensitive urban design. • Unsustainable development is inconsistent with our cultural values, especially when does not manage wastewater and waste products appropriately. • New development should be sustainable and self-reliant. • Operational costs can be a barrier to trying new methods to achieve better environmental outcomes e.g., stormwater infrastructure.
Ngāti Te Ata recommendations and aspirations	• Support energy efficiency, transition away from fossil fuels and zero waste minimisation initiatives. • New development should incorporate sustainable options and housing should achieve at least a 6-star level from New Zealand Green Building Council 'Homestar' (or equivalent). This includes but is not limited to green roofs, solar panels and recycling of water and other resources. • New development should have positive impacts on the environment e.g. enhance water quality, increase biodiversity connections, and remediate contaminated land. • Significantly improve stormwater and wastewater management and treatment to acknowledge our cultural values. • Support the use of LID (Low impact design) principles in all new subdivisions and developments.
Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy	**<u>Auckland Unitary Plan (Operative in part)</u>** **Chapter B Regional Policy Statement** **B2. Tāhuhu whakaruruhau ā-taone - Urban growth and form** B2.1 Issues B2.3. A quality-built environment B2.4. Residential growth

Statement provisions.	**B3 Ngā pūnaha hanganga, kawekawe me ngā pūngao - Infrastructure, transport and energy** B3.1. Issues B3.2. Infrastructure B3.4. Energy B3.5. Explanation and principal reasons for adoption **B6. Mana Whenua** B6.1. Issues B6.2. Recognition of the Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3. Recognising Mana Whenua values B6.6. Explanation and principal reasons for adoption **B7 Toitū te whenua, toitū te taiao - Natural resources** B7.1. Issues B7.2. Indigenous biodiversity B7.3. Freshwater systems B7.4. Coastal water, freshwater and geothermal water B7.7. Explanation and principal reasons for adoption

5.2.6.2. Natural hazards

Natural hazards are environmental events that are not caused by human interference with the environment but occur because of nature's activities. However, the magnitude or the consequences of these events can be exacerbated by human activity, such as increased frequency and severity of landslips through poor land management practices. Natural hazards are a concern, as they have the potential to affect human health, property, and the environment, yet they cannot necessarily be managed in the same manner as natural resources.

Global warming and climate change are likely to result in a rise in sea levels; more extreme weather events; changes to rainfall patterns; increased erosion; changes in the population density and distribution of fish and wildlife; and changes in the viability of cultural and/or spiritual resources and activities. They could also increase droughts, which in turn effects water bodies. For example, a reduction of ‘summer low flows’ could create greater stress for aquatic life. Increases in storm flows can increase the potential to scour life and habitats out of water ways (particularly smaller more open streams).

The region is prone to flooding particularly as it is susceptible to tropical storms. There are steep river catchments that receive intense and localised rainfall, there are low lying areas of flood plain that are intensively farmed, and some land management practices allow or have allowed extensive land clearance resulting in increased runoff and erosion. Flooding in coastal areas may arise from tsunamis, or from high tides coupled with storm events.

Natural hazard risk management is very important to ensuring the safety of people, communities, marae, and areas of cultural and spiritual significance. Activities and resource use practices should occur in a way that does not increase the risk of a natural disaster occurring or increase the magnitude of the effects from a natural event should it.

Inappropriate subdivision, land use, or development can increase the risk of some natural hazards occurring and the magnitude of any effects when hazardous events do occur. For example, building houses in an area prone to flood or tsunami creates a risk that residents or buildings are endangered if a flood or tsunami was to occur. There are parts of Pukekohe that are subject to flooding, especially the local stream catchment. Consideration should be given to turning low-lying flood prone areas back into wetlands rather than using for urban development such as housing.

Coastal erosion and land instability cause environmental as well as cultural and/or spiritual impacts particularly on wāhi tapu and sites of significance (e.g., human remains being exposed through coastal erosion and land use creating landslips.

Property owners may have an expectation that properties already developed in hazard zones should be permitted to erect protection structures. The erection of these structures may enable the well-being of an individual or particular group, but may have an adverse effect on landscape, indigenous fauna and flora, and culturally and/or spiritually sensitive sites. Balance is required between utilising hazard management protection mechanisms, such as groynes, walls, and stop banks to protect property, and protecting areas of significance to Māori and avoiding adverse effects on the environment.

Table 14. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to natural hazards.

Issues	• Natural hazards, climate change and global warming can have a negative effect on human health, property, natural environment, and areas of cultural and spiritual significance e.g. sea level rise and increase in coastal inundation and flooding, increase in erosion and droughts, reduced viability of cultural and/or spiritual resources and activities. • Natural hazards cannot necessarily be managed in the same manner as natural resources. Appropriate natural hazard risk management is required. • The effects of natural hazards can be exacerbated by inappropriate subdivision, land use or development e.g. increased frequency or severity of landslips caused by poor land management practices. • Increased risk of cumulative adverse effects as land uses change and development intensifies.
Ngāti Te Ata recommendations and aspirations	• New land use and structures shall avoid creating actual or potential adverse effects, including an increase to the risk or magnitude of a natural hazard event. • Preference is given to any new or changing land use, subdivision or development avoiding, rather than mitigating, any natural hazard. • Existing land use, activities, and structures in areas where natural hazards occur are encouraged to change land use or activities and shift, abandon or suitably modify structures to withstand the potential effect of a natural hazard event. • Encourage low-lying areas prone to flooding to be turned back into wetlands rather than using for urban development such as housing. • Risk of adverse effects on human, cultural, spiritual, or environmental well-being shall be prioritised over risks to individual properties when assessing natural hazard risks and/or the need for hazard protection structures. • Where it is practical, and environmentally, culturally, and/or spiritually preferable, a ‘soft’ engineering solution should be utilised over a ‘hard’ solution (e.g. the use of swales rather than

	concrete channels). • If an existing or proposed natural hazard protection structure adversely affects human, cultural, spiritual, or environmental well-being then alternative solutions are encouraged and expected. • Hazard management structures, activities, and schemes and their ongoing function should strive to maintain and restore ecosystem function and habitat, and cultural and/or spiritual well-being. • Where there is existing development and the effects on cultural and/or spiritual values and the environment are adverse, the concept of 'managed retreat' should be applied. This means existing structures are not replaced or maintained, and no new structures are allowed to be erected. • Where culturally and/or spiritually sensitive sites or sites of significance are subject to natural hazards, in which human intervention has played no role, then we should be advised to enable our correct protocols and procedures to be adopted to address the situation. • The cumulative adverse effect of land use and structures on natural hazards shall be avoided or managed consistent with the above recommendations, such that there is no increased risk to human life, structures, cultural, spiritual or environmental well-being.
Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**<u>Auckland Unitary Plan (Operative in part)</u>** **Chapter B Regional Policy Statement** **B2. Tāhuhu whakaruruhau ā-taone - Urban growth and form** B2.4. Residential growth **B10. Ngā tūpono ki te taiao - Environmental risk** B10.1. Issues B10.2. Natural hazards and climate change

5.2.7. Infrastructure

Planning for the future urban development of Pukekohe needs to ensure new and/or upgraded infrastructure will be provided to meet the demands of growth. Currently inadequate and outmoded infrastructure is not keeping up with the rate of growth and is contributing to environmental degradation. For example, we are concerned with leaking and deteriorating stormwater and wastewater pipes and wastewater overflows. Non-compliant and unconsented Wastewater Treatment Plants do not meet acceptable environmental standards and many need to be upgraded. There are better alternatives out there in treating wastewater.

Transport is a vital part of creating healthy and connected communities. This is as true today as it was in our past - our old transport routes are an important part of our cultural landscape. Transport options will need to be improved within Pukekohe with a focus on creating environments for people not cars and de-emphasising road building. Pedestrian and cycling options are an important part of this. More roads just equal more vehicles. Accessible and affordable public transport is also essential. For example, our kaumātua need to be able to conduct tribal duties, often at night, throughout their rohe. Broadband supports our intent to live locally but be global players. Fast broadband is required for rural and urban areas. This will support our people and help us deliver services to them more efficiently and effectively.

Like other development within Pukekohe, it is important that future and existing infrastructure also uses a water sensitive design approach.

Table 15. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to infrastructure.

Issues	• Provision of infrastructure is not matching the pace of urban growth. • Inadequate and deteriorating infrastructure such as wastewater and stormwater pipes are causing adverse environmental effects. • Wastewater Treatment Plants are problematic and better options exist. • Transport options need improving to create healthy and connected communities. • Fast broadband is needed. • Provision of infrastructure should use a water sensitive design approach.

Ngāti Te Ata recommendations and aspirations	• Actively explore alternative wastewater treatment and disposal options including removal of trade wastes, recycling of grey water, disposal to land (or other innovative methods) and not using water as a waste transport system. • De-emphasise road building and car parking and create people-friendly environments, including pedestrian and cycling networks. • Reduce current transport congestion levels. • Support fast broadband rollout including to rural areas. • Support and encourage the use of water sensitive design in the provision of infrastructure.
Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**<u>Auckland Unitary Plan (Operative in part)</u>** **Chapter B Regional Policy Statement** **B2. Tāhuhu whakaruruhau ā-taone - Urban growth and form** B2.1 Issues B2.2 Urban growth and form B2.3. A quality-built environment B2.9. Explanation and principal reasons for adoption **B3 Ngā pūnaha hanganga, kawekawe me ngā pūngao - Infrastructure, transport and energy** B3.1. Issues B3.2. Infrastructure B3.3. Transport B3.5. Explanation and principal reasons for adoption **B6. Mana Whenua** B6.1. Issues B6.2. Recognition of the Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3. Recognising Mana Whenua values B6.6. Explanation and principal reasons for adoption **B7. Toitū te whenua, toitū te taiao – Natural resources** B7.1. Issues B7.3. Freshwater systems B7.4. Coastal water, freshwater and geothermal water **<u>Draft Auckland Regional Land Transport Plan 2018-2028</u>** Māori Outcomes – five strategic pou for Māori aspirations include: cultural identity, economic well-being, leadership and influence,

	infrastructure and property, and natural environment.[14] **National Code of Practice for Utility Operators' Access to Transport Corridors** **National Environmental Standards for Electricity Transmission Activities 'NESETA'** **National Environmental Standards for Telecommunication Facilities 'NESTF'** **Compliance with NZECP 34:2001 under Electricity Act 1992**

[14] Draft Auckland Regional Land Transport Plan 2018-2028, Auckland Transport, pages 10-11. Accessed 27 July 2018.

5.2.8. Urban Design

When it comes to urban design, Ngāti Te Ata are often frustrated that our culture is rarely reflected in the urban built environment, particularly across Auckland, which Ngāti Te Ata identify as a unique cultural landscape featuring significant historical pā on volcanic cones. Indigenous, local character is a vital ingredient in good urban design, in contrast to the increasingly homogenised urban environments that arise out of globalisation. Urban design that responds to cultural-specific values and features will foster healthy expressions of different cultural identities and realities within our urban environments.

Te Aranga Māori Design Principles are a set of outcome-based principles founded on intrinsic Māori cultural values and designed to provide practical guidance for enhancing outcomes for the design environment. These principals have been adopted by Auckland Council and are being applied to all projects with iwi involvement within the Auckland region. Ngāti Te Ata have been involved since the inception of these principles and believe that planning for the future development of Pukekohe provides an opportunity to incorporate and activate Te Aranga design principles.

Ngāti Te Ata believe that incorporating our history of early Māori occupation into the design enhances an appreciation for sites of significance and assists the wider community in understanding the uniqueness of its environment and the people who lived in it. Our cultural design narrative can be expressed though artworks, storyboards and pou whenua, and the use of colours, building materials and Māori symbols where appropriate.

During future consultation on this plan change, we expect these principles to be fundamental and to be applied wherever possible to underpin our relationship to these significant areas.

The principals are summarised below. You will also see the essence of these principles reflected throughout this cultural values assessment.

- **Mana:** Treaty based relationships. We require a high-level Treaty based relationships with all key stakeholders which recognise our status as Ngāti Te Ata in Tāmaki Makaurau so that we can better fulfil our roles as kaitiaki in an engaging way. Such relationships can then inform our participation in collaborative design and the development processes. Such relationships are a precursor to actualising the other six principles.
- **Whakapapa:** Names/Naming. Ancestral or historical events. Names provide entry points for exploring historical narratives, tūpuna and critical events relating to development sites.
- **Tohu:** The wider cultural landscape acknowledges wider significant iwi land marks and the ability to inform the design of projects. Such tohu can include wāhi tapu, maunga, awa, puna and ancestral kāinga.
- **Taiao:** Natural environments, exploring opportunities to bring natural landscape elements back into urban modified areas – trees, water, insects, birds, aquatic life, mahinga kai allow for active kaitiakitanga.
- **Mauri Tu**: Environmental health, ensuring emphasis on maintaining or enhancing environmental health and life essence of the wider site – in particular focussing on the quality of wai, puna (fresh water springs), whenua and soil and air.

- **Mahi Toi:** Creative endeavour drawing on names, local tohu and appropriate plant species to develop strategies to creatively re-inscribe iwi narratives into architecture, interior design, landscape, urban design and public art. Iwi designers and artists are readily available to assist in such collaborative projects.
- **Ahi Ka:** Visibility and living presence, we need to explore opportunities to facilitate living presences for iwi and hapū to resume ahi-ka and kaitiaki roles.

In addition to Te Aranga Principles, Ngāti Te Ata expect the development of Pukekohe should also reflect other important urban design values. For example, quality urban places should invoke emotion, feelings and experience when entering and leaving an area, it should feel like you are arriving at a destination. A place should be welcoming, non-threatening, whānau ora; a place of spiritual well-being. People should have a strong sense of place, and strong cultural values should be evident. This includes linkages between ranginui, whenua and moana, and recognition of the life-giving element of wai.

Places should reflect diversity and be a place of gathering (people from the four winds of all cultures). Public spaces should not be corporate spaces (i.e., no advertising) and they should be simplistic in design, not over whelmed with art and sculpture. A mix of appropriate lighting should be used dependant on the situation e.g., ambient, bright, strong. Public spaces should be designed to encourage a sense of ownership by everyone.

Urban places should be designed to be self-contained using sustainable resources. Strong geological and conservational values should be evident and views to other significant places should be utilised.

Table 16. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to urban design.

Issue	• Māori culture is rarely reflected in the urban built environment of Tāmaki Makaurau (Auckland).
Ngāti Te Ata recommendations and aspirations	• Te Aranga Principles should be incorporated and activated into the proposed subdivision development and design process. • Future development should show how Te Aranga Principles have been considered and applied. This includes but is not limited to how the development understands, acknowledges and incorporates the diversity and uniqueness of the development location (socially, culturally, spiritually, economically, and environmentally), and whether it provides for visual amenity consistent with the surrounding environment. • Other urban design values should also be incorporated. For example, we support the use of 'park edge development/park edge roads' as a design feature. These can help foster a sense of ownership, increase safety and surveillance (e.g. deterrent to

	illegal dumping), increase visual and landscape amenity, and a higher likelihood or better opportunity to protect our cultural values.
Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**Auckland Unitary Plan (Operative in part)** **Chapter B Regional Policy Statement** **B2. Tāhuhu whakaruruhau ā-taone - Urban growth and form** B2.1 Issues B2.3. A quality-built environment B2.5. Commercial and industrial growth B2.7. Open space and recreation facilities **B4. Te tiaki taonga tuku iho - Natural heritage** B4.1 Issues B4.2. Outstanding natural features and landscapes B4.3. Viewshafts B4.6. Explanation and principal reasons for adoption **B6. Mana Whenua** B6.1. Issues B6.2. Recognition of the Treaty of Waitangi/Te Tiriti o Waitangi partnerships and participation B6.3. Recognising Mana Whenua values B6.5. Protection of Mana Whenua cultural heritage B6.6. Explanation and principal reasons for adoption **B7 Toitū te whenua, toitū te taiao – Natural resources** B7.1. Issues B7.2. Indigenous biodiversity B7.3. Freshwater systems B7.4. Coastal water, freshwater and geothermal water B7.5. Air B7.7. Explanation and principal reasons **Auckland Design Manual** **Te Aranga Principles** http://www.aucklanddesignmanual.co.nz/design-thinking/M-design/te_aranga_principles

When it comes to urban design, Ngāti Te Ata (Ngāti Te Ata in general) are often frustrated that our culture is rarely reflected in the urban built environment, particularly across Auckland, which Ngāti Te Ata identify as a unique cultural landscape featuring significant historical pa on volcanic cones. Indigenous, local character is a vital ingredient in good urban design, in contrast to the increasingly homogenised urban environments that arise out of globalisation. Urban design that responds to cultural-specific values and features will foster healthy expressions of different cultural identities and realities within our urban environments.

Ngāti Te Ata believe that incorporating our history of early Māori occupation into the design enhances an appreciation for sites of significance and assists the wider community in understanding the uniqueness of its environment and the people who lived in it. Our cultural design narrative can be expressed though artworks, storyboards and pou whenua, and the use of colours, building materials and Māori symbols where appropriate.

During ongoing consultation on the proposed residential development, we expect these principles to be fundamental and to be applied wherever possible to underpin our relationship to these significant areas.

Build Design Principles

He wāhi hirahira, he hangānga, me nga rakau o te ngahere kei tenei rohe. He nui te mana o nga taonga nei; ahakoa he mana tikanga, mana wairua, mana korero tuturu, mana mahi huakanga ranei.

Whakanuia, tiakina hoki te whanuitanga me te mana motuhake o nga taonga tuku iho, hei painga mo nga tamariki, mokopuna, o nga ra kei te haere mai.

There are special sites, places, structures and trees which are treasured by us as a heritage passed into our care. Let us be good caretakers of our diverse and unique heritage that we in turn may pass it on to the care of future generations.

WHAKAARO HOAHOA / Cultural Design Ideas

MANA: Rangatiratanga/Authority

- This principle revolves around ensuring appropriate engagement and relationships with Ngāti Te Ata and that this is a key part of the development, from the beginning through to completion.
- In the case of all developments, Ngāti Te Ata will be engaged in the process in a number of ways, including:
    - Formal agreements
    - Creation and operation of the Ngāti Te Ata Taiao Taiao team; and the
    - Cultural Landscape Assessment process

- The key point is that this engagement must continue throughout the design and development phase, and beyond, if the integration of Ngāti Te Ata values is to be integrated into both the Design Guide and future developments within their mana rohe.
    - It is an ongoing commitment and partnership between Ngāti Te Ata and Peterex Properties and Pukekohe Limited.

WHAKAPAPA: Names and Naming

- The use traditional names for the geographic area as well as for key sites, spaces, features and/or buildings is critical to consider and incorporate.
- It is also recommended that the developer work in-conjunction with Ngāti Te Ata to come up with appropriate naming (and branding) for the development, and/or specific spaces, buildings, features and areas.
- This could take the form of a naming strategy that takes into account the following:
    - Geographical Area: Referencing, traditional sites, ancestors
    - The Development Brand: Potential of a new name that provides reference to traditional names or values, such as something associated with shelter / rest / protection
    - The internal street: Acknowledging the former reference
    - Buildings and public spaces: Mahinga kai sites,
- The wider use of Te Reo Māori and pūrākau (traditions/history) within all the design documentation, as well as through all signage/interpretation/wayfinding is also important.
- This could be achieved through including this in the naming strategy and developing terms, designs, stories, images and historical text for any signage required in the area, eg. Tari/Office,

TOHU: Wider Cultural Landscape

- There are numerous landscape features to acknowledge within the vicinity of Ngāti Te Ata mana rohe
- All of these are associated with key cultural values including:
    - settlement/occupation (kāinga);
    - battle
    - waterways

- wāhi tāonga
- volcanic features of Mataoho
- flora and fauna

- In particular, the value of shelter/protection and being a place to rest/gather food are key themes associated with the traditional use of the area, as well as contemporary and potential future values.
- Ensuring view shafts to key maunga, awa as well as access ways and wayfinding devices that point to and provide a tangible link to both the coast/ocean, as well as inland trails, is important to consider. This could:
  - Develop a link/pathway to other sites, reserves and public parks/open space).
  - A tūranga or landing place allowing access down to the water, potentially as a place for waka or other small craft to tie up.
  - Planting and/or other design elements acknowledging the former / original natives
- Ensuring stormwater treatment, potentially via appropriately vegetated and constructed raingardens, swales and wetlands and/or other forms of treatment is a key way to acknowledge Ngāti Te Ata cultural values associated with Whakaraupō.
- The extensive use of local native vegetation in streets, in public open space, swales, raingardens and even retrofitting/replacing existing vegetation (even over time as these get old) is also important. Species can be chosen to have a particular focus on mahinga kai as well as their potential to improve indigenous biodiversity.
  - Species specifically noted in addition to those included in the draft Design Guide moving forward

TAIAO: Natural Environment & Mauri Tū: Environmental Health

- Ngāti Te Ata value mahinga kai within the catchment first and foremost, and therefore ensuring a sustainable/best practice approach to stormwater, building design, infrastructure, as well as the inclusion of native vegetation restoration are critical.
  - Implementing certain standards, such as greenstar ratings for buildings, and/or specific water use, stormwater treatment and native biodiversity goals is recommended.

MAHI TOI: Creative Expression

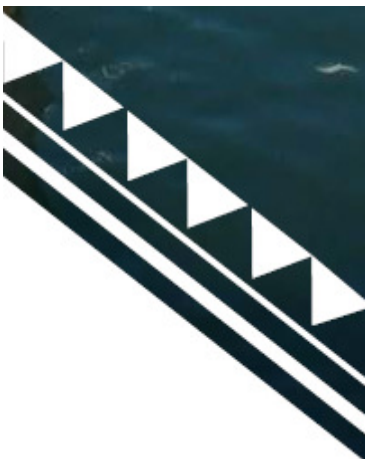
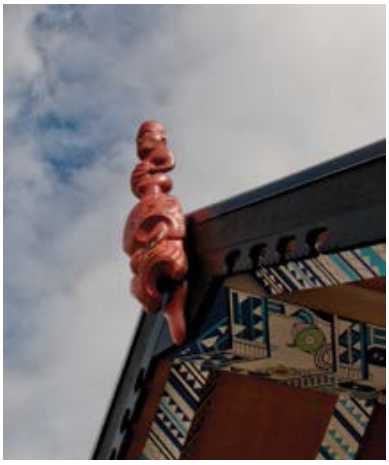
- Including design inspirations related to key cultural values and particularly drawing inspiration from well-known Ngāti Te Ata objects, art forms and tāonga, as well as pūrakau/narratives, is critical.
    - This must involve further discussion with Ngāti Te Ata and potentially the involvement of appropriate Ngāti Te Ata endorsed artists – most likely in further design stages.
- Key objects / art forms / taonga / pūrakau could include:
    - Pūrakau – ancient legends, stories
    - Waka – various forms: waka taua, waka unua (sailing canoes), waka ama, and associated objects: hoe (paddles), and tatā (bailers).
    - Whakairo – carving forms, pou, patterns, kaitiaki/tūpuna representations
    - Kōwhaiwhai – traditional patterns and motifs, often providing connection to the natural world, particularly fisheries, tuna associated with the Waikato Rver catchment.
    - Whata – food storage rack common in Ngāti Te Ata kāinga (villages).
    - Wharerau – temporary 'round' house associated with nohoanga mahinga kai.
    - Tukutuku/raranga – traditional panels and patterns depicting images/stories/objects
    - Korowai/kakahu – various forms of weaved cloaks and clothing.
    - Tāonga kararehe – white heron, flounder, tohoroa
- Base designs around celebrating the white heron of Whakaraupō, including through:
    - sculpture / whakairo including those that make sounds/utilise colour etc;
    - shapes – to symbolise the manu / flight paterrns etc, including in paving etc; and/or
    - symbols / designs / shapes that promote the idea of shelter/protection – wharerau / kakahu etc.
- Building form is another key element, particularly utilising waka forms eg. upturned waka/hulls used for shelter / as a roof form

AHI KĀ: Living Presence

- This principle includes bringing life and vibrancy into an area that particularly appeals to Ngāti Te Ata.

- Enhancing the connection to the natural environment and its use for living, recreation, walking and fishing/mahinga kai is a major way to do this – which neatly connects to commercial space/shopping and making people feel like it right to transition between the awa and local centre/shops for example could be important.
- Ngāti Te Ata have raised the idea of a whare waka / cafe, as well as the idea of direct investment in future development. This should be explored further.

Images showing examples of key values and design ideas are shown below and on the following pages.


Kōwhaiwhai: Examples of potential kōwhaiwhai patterns, Rāpaki (centre) that could be used in future design elements, including wayfinding.

Waka: Examples of different waka forms to inform future design.

Pou along the Stonefields Heritage Trail, Mount Wellington, Auckland.

Pou / Whakairo: Examples of different pou and carving forms and patterns for future design ideas. Pou at Ōhinehou/Suttons Reserve; Waharoa whakairo / Carved gateway at Albion Square (by Caine Tauwhare); Waka gateway and Roof Detailing (Rau Hoskins); and Kūwaha / Gateway, Auckland, Uenuku (Te Waka Kotahi), Te Pou o Waiohua (Maungarei Walkway).



Ika / Kaimoana: Examples of patterns and taonga utilising fish and fishing implements. L to R: Pioke/Shark kōwhaiwhai at Hauā Marae; Hei Matau/Fish Hooks (Te Papa); Pātiki paving (Auckland Viaduct).

Te Mānukatanga o Hoturoa

Te Moananui o Rehua and Āwhituwhitu

Tūtohu Whenua: Connection to wider cultural landscape.

5.2.8.1. Air

Discharges to air from development and land-use activities can cause poor air quality. This may impact adversely on the health and well-being of our people, as well as on the environment, hauanga kai, and our cultural values and/or activities. Impacts on human health can be specific to an individual and linked to their overall holistic health profile

Discharges include but are not limited to industrial discharge, domestic discharge (e.g. home fires), the spraying of farm effluent, dust and noise, coal dust emitted during transport (this applies to other material that can emit particles or dust during transport), fertiliser application (top dressing), vehicle emissions, and volatile organic compounds that can present through vehicle emissions in urban areas.

Fine particles from industrial processes, smoke from fires and vehicle emissions are the most significant activities impacting on air quality in the region and are particularly a problem in winter. Poor air quality that can affect human health can occur inside homes due to inadequate heating and/or ventilation, and the use of some heating appliances. Human and animal health can be affected by poor air quality from individual and cumulative discharges. Increased population and urban development contribute to increased emissions.

Air pollution can cause a reduction in visibility and impede views of maunga, landmarks, the sea, the awa, etc. Noise pollution from traffic, trains, planes and industry disrupt proceedings on marae and cultural and/or spiritual practices. Light pollution from developments impact on celestial darkness and the ability to learn and give effect to mātauranga Māori around cosmology and astronomy.

Controls must ensure that any discharge to air does not compromise the life supporting capacity and quality of air within our rohe so that our health, amenity values, or property are not adversely affected.

Table 18. Issues, concerns and opportunities for Ngāti Te Ata to be addressed, and possible mechanisms to do so in relation to air.

Issues	• Discharges to air can reduce air quality and cause noise pollution and light pollution. • Discharges to air can have a significant adverse effect on human health, the environment and cultural values and practises. Effects can be cumulative.
Ngāti Te Ata recommendations and aspirations	• Encourage industry to implement industry best practice or best practicable option for improving air quality. • Promote public transport to reduce vehicle emissions. • Manage the effects on amenity values of an area due to

	contaminants, dust, odour, light, or noise. • When making decisions on future development projects, cumulative effects must be considered.
Relevant planning policy Note: For the Auckland Unitary Plan this section only identifies the key Regional Policy Statement provisions.	**<u>Auckland Unitary Plan (Operative in part)</u>** **Chapter B Regional Policy Statement** **B7. Toitū te whenua, toitū te taiao – Natural resources** B7.1. Issues B7.5. Air B7.7. Explanation and principal reasons for adoption

6. Conclusions

The ultimate goal for Ngāti Te Ata is the protection, preservation and appropriate management of our natural and cultural resources in a manner that recognises and provides for our interests and values, and enables positive environmental, social and economic outcomes. We support engagement and involvement that respects and provides for our cultural and traditional relationships to Pukekohe, its unique cultural identity, and input into shaping the physical, cultural, social and economic regeneration of these areas.

Further discussion will be needed around the implications of the future development of this proposed plan change area to identify information gaps in our thinking, raise issues or opportunities we had not foreseen, and clarify and reach agreement of those issues as identified in this assessment. It is intended that this assessment will assist with ongoing decision making from all relevant parties involved and ensure that Ngāti Te Ata issues, concerns, interests and values are provided for, including resource consent requirements.

Based on our understanding of cultural matters and our experience, we do not expect any significant cultural constraints to the rezoning of this site.

In principle we are supportive (at this stage) providing that further discussion takes place as more technical detail becomes known and the recommendations as outlined in Section 5: *Te Kaitiakitanga o te Taiao* are provided for in design, best practice and decision making moving forward.

However, this cultural values assessment represents only a starting point for initial engagement and will require further consultation and dialogue between Ngāti Te Ata and Peterex Properties and Pukekohe Limited and Auckland Council. An Addendum to this cva report may also be required as the plan change progresses.

Cultural Values Assessment: Plan Change

301-303 Buckland Rd

Pukekohe.

IMAGE: Plain of Pukekohe, John Grant Johnson 1853. Auckland Museum: 63/44, PD-1963-8-37.

Compiled by Edith Tuhimata on behalf of Ngati Tamaoho Trust.

October 2021

NGĀTI TAMAOHO TRUST
WHĀTAPAKA, MANGATANGI & NGĀ HAU E WHĀ MARAE

Ko Maungaroa te maunga
Ko Waikato te awa
Ko te Mānukanuka o Hoturoa te Moana
Ko Tainui te waka
Ko Mangatangi, ko Whātāpaka, ko Ngā Hau e Whā ngā marae
Ko Ngati Tamaoho Matou.

"Kaua te tau e pōkea,
Kaua te tau e rewanatia,
Koia hoki te tūturutanga i heke iho nei i ō tātou tūpuna"

"Let us not be greedy,
Let the land remain whole as handed down by our ancestors"

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CIA Statement:

For Ngati Tamaoho Waiohua a CIA provides a vehicle for communicating our own unique perspective, telling our story in our words, and incorporating our tikanga (the way we do 'things') into our decision---making and ultimately our findings, conclusions and recommendations.

A CIA ensures that all our issues, concerns and interests and impacts on our taonga are captured, recorded, and included as part of the overall documentation that goes before decision makers. A CIA is an essential prerequisite. The Cultural Landscape used alongside archaeological surveys and other technical reports ensures that we are making informed decisions regarding our Taiao.

A CIA is supported under the Resource Management Act's Fourth Schedule 88 (6) (b), which states 'matters that should be considered when preparing an assessment of effects on the environment include:

a) Any effect on those in the neighborhood and, where relevant, the wider community, including any socio---economic and cultural effects

b) Any physical effect on the locality, including any landscape and visual effects

c) Any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural, or other special value for present or future generations.'

This report:

- Provides an overview of the proposed application for Power Station.
- Describes the depth of engagement through the project phases and ongoing partner relationship.
- Identifies specific sites, features, values, and cultural context of the project area.
- Identifies potential effects of the project on cultural sites, features, values, and cultural context.
- Recommends measures for the avoidance, remediation, or mitigation of these effects.

Te Maunu A Tumatauenga/ Paerata

1. TIMATANGA KŌRERO - INTRODUCTION

1. Ngāti Tamaoho descend from the among the first peoples of Te Ika-roa-a-Māui (North Island). Our whakapapa stretches back to the earliest inhabitants of our rohe and the many descendants who came after them. This includes Ngā Tūrehu, Te Tini O Maruiwi and Te Tini O Toi.

2. Journeys from across Te Moananui a Kiwa (Pacific Ocean) also brought our tūpuna to these lands. These were the waka Tainui, Aotea, Mātaatua, Arawa and others. In particular, Tainui passed through Te Waitematā, Te Moananui O Toi, and Te Mānukanuka O Hoturoa, with many of its crew remaining in these places. These tūpuna, included, Rakataura, Marama, Poutūkeka, Pāpaka, Riukiuta and Taikehu, are vital parts of our people's whakapapa. These were the early ancestors of the great iwi known as Ngā Oho, descendants of the ariki Ohomairangi.

3. As these peoples grew and spread, hekenga from across the motu arrived in the rohe. These include Ngāti Awa on their hekenga from Te Tai Tokerau, and Ngā Iwi from the Taranaki coast.

4. From Waikato came Tamaoho, a warrior of great renown. After journeying from Marokopa, Tamaoho settled at Maungaroa with his relations of Ngā Iwi, Ngā Oho and Waikato. The descendants of these unions became known as Ngāti Tamaoho with interests stretching from the Waikato River to Tāmaki Makaurau, and from Tīkapa Moana to Te Pae O Rae.

2. TE TAKIWĀ – CULTURAL LANDSCAPE

1. For Ngāti Tamaoho, no place exists in isolation. Each mahinga kai (traditional food resource), each papakāinga (settlement), and each pā tauā (fortified village) exist as part of a wider cultural landscape that makes up our rohe (traditional territory). While each of these places has its own unique character and history, they are all connected by their whakapapa (genealogy), their history, the natural environment, and their use by generations of tūpuna (ancestors) before us.

2. Our whenua (land) is the basis for life itself. We have long protected and utilised the resources of our rohe, including the waters, forests, wetlands, and rich, fertile soils. This was land in which crops flourished, beside wetlands, waterways and harbours which supported prolific fisheries.

3. The over-reliance of some writers on archaeological evidence has often led to the conclusion that some areas were culturally or traditionally unimportant. This is reflected in much of the existing historiography and heritage studies relating to Ngāti Tamaoho's rohe.

4. In turn this has become reflected in local and central government planning that disregards areas such as Pukekohekohe as lacking traditional or cultural value.

5. In reality, the lack of archaeological evidence of the occupation of these areas reflects the enormous and rapid loss of land that occurred after 1840, and the continued effects of colonisation.[i] These processes removed Ngāti Tamaoho people from most of our traditional lands, slowly eroded much of our associated mātauranga (knowledge) and tikanga (customs/protocols), and led to the limited understanding of the importance of this whenua today.

6. As mana whenua of this area, Ngāti Tamaoho assert the inherent and immutable cultural, spiritual, and traditional value of these lands and waters. Though many of the details of their use have been lost to us, their significance remains.

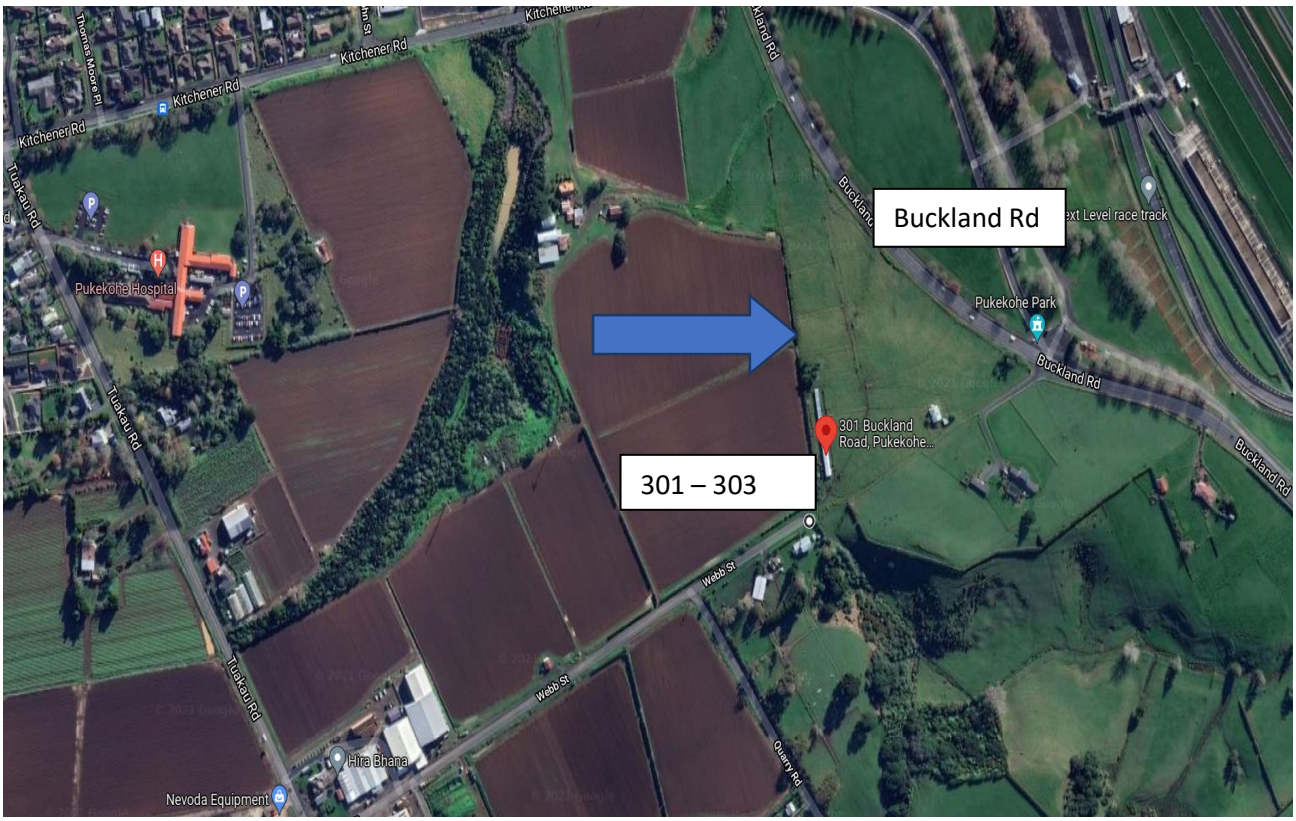
3. PROJECT BACKGROUND

1. Ngāti Tamaoho have been commissioned to do a Cultural Values Assessment (CVA) for a proposed plan change at 301-303 Buckland Road development.

2. The Clients development is in an area of the Ngāti Tamaoho rohe bordered by Buckland and Kitchener Rd, Pukekohekohe. The lot is currently zoned as a Rural Urban Zone.

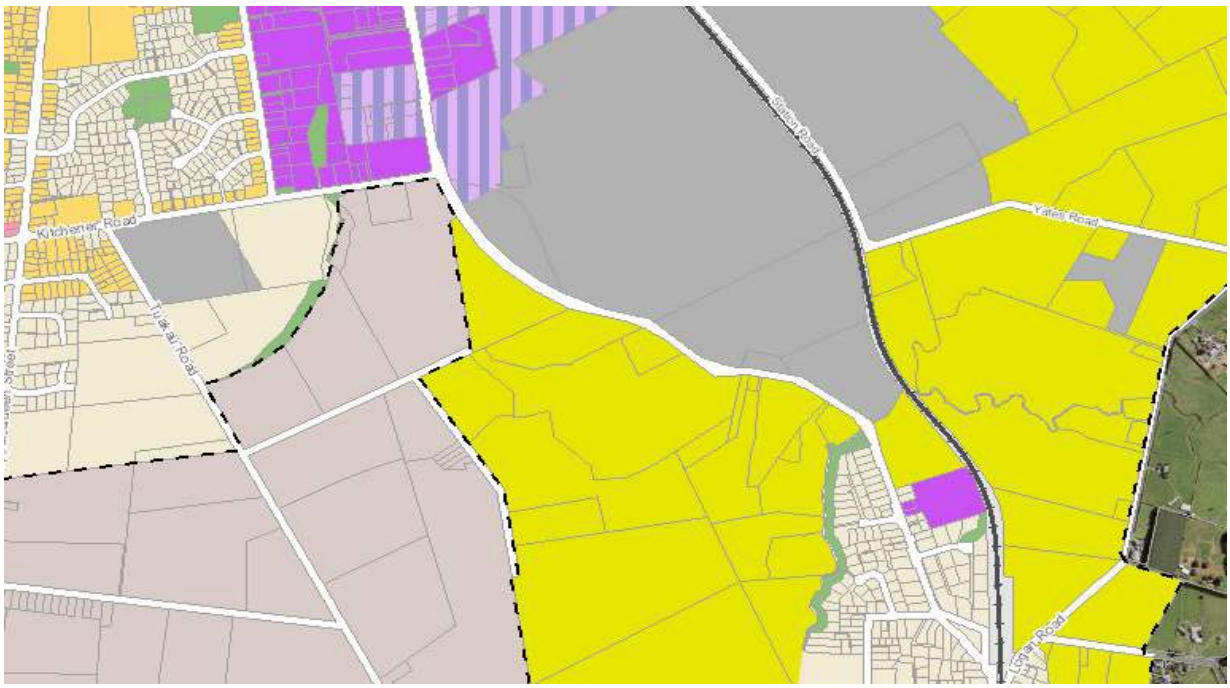
3. This Cultural Values Assessment (CVA) report has been done by the mana whenua hapū of Tāmaki Makaurau (Auckland) and Waikato. The purpose of this CVA is to provide the client and relevant statutory agencies with documentation of Ngāti Tamaoho cultural values, interests, and associations with the project area and its natural resources, and the potential impacts of the proposed project activities on these.

4. This Assessment also provides recommendations as to how to avoid, remedy or mitigate any potential cultural effects that arise from the project.
Ngāti Tamaoho engagement in statutory processes including provision of technical advice for impact assessments is guided by our tikanga and framed by Te Tiriti o Waitangi and our Ngāti Tamaoho Settlement Act 2018.



Site Area and Area Map

4. SITE AERIAL 301-303 Buckland Rd



1. The area proposed for the plan change is on the north western slope of Pukekohekohe (Pukekohe Hill). It is bordered on the east by Buckland Rd, on two sides by abutting properties and Kitchener Rd to the west sloping up towards Pukekohekohe. The lot slopes upward from its north-western corner to its south-western corner at roughly 179m. The property slopes up toward the tihi of Pukekohekohe hill. Its main geographic characteristic is being on the northwestern-facing slope of Pukekohekohe. The main waterway is to the west of the site. There is one stream on the periphery of the site located in the north western area. This is an area of immense traditional, cultural, historical, spiritual, and economic importance to our people.

2. This part of the Ngāti Tamaoho rohe has been extensively settled and utilised by our people for centuries. In particular, this area was part of the traditional food-bowl of people because of its fertile volcanic soils. These are some of the best soils in the country and were one of Ngāti Tamaoho's taonga held and passed down by generations of our tūpuna. As a result, this area contained large areas of some of our peoples most productive māra-kai (cultivations). Kūmara, taro, hue, uwhi, rīwai were grown here in abundance. In the months of Hine-raumati, the crops were pulled up and stored in such abundance as to supply the people year-round.

3. As a result of the fertile soils, this area was also extensively settled by our tūpuna. The papakāinga (settlements) of this area were some of the oldest in the region. Te Awanui O Taikehu, in particular, was in use for centuries through the times of Te Tini O Toi, Ngā Oho, Te Uri O Pou, and Ngā Iwi. Tamaoho arrived in this area after his

journey from Marokopa and brought together the descendants of these people and his own people to form Ngāti Tamaoho. The entire Pukekohekohe region was recognised as falling under the mana of Tamaoho. In later generations, this area was held by his descendants Ruamano and his son Te Whare Aitu.

4. This CVA will discuss the cultural, historical, and traditional importance of this area to Ngāti Tamaoho. It will also discuss the historic alienation of this land from Ngāti Tamaoho customary ownership. This is an important and ongoing mamae (injury) to Ngāti Tamaoho that needs to be understood and acknowledged by all those engaged in works on this whenua.

5. AIMS AND OBJECTIVES

1. The aim of this CVA is to document Ngāti Tamaoho's cultural values, interests, and associations with the site; identify specific cultural sites and resources; assess the values of these sites and resources; identify the potential impacts that arise from project activities and assess the significance of effect; and provide recommendations as to how to avoid, remedy or mitigate the potential effects to Ngāti Tamaoho.

This assessment will:

1. Provide a baseline of known environmental or natural features and resources that may hold cultural values.
2. provide a statement of cultural association Ngāti Tamaoho has with the study area.
3. identify any known cultural sites and resources within the study area.
4. describe the value or significance of such sites and resources.
5. identify the cultural constraints and risks associated with the study area and the potential significance of effects.
6. identify the aspirations of Ngāti Tamaoho for key values and features of this site so as to give the Client a basis for working with Ngāti Tamaoho to avoid adverse effects and protect cultural values.

6. ASSUMPTIONS AND LIMITATIONS

1. Ngāti Tamaoho are the experts of our own culture and tikanga. Through a necessity to work within a western planning framework we utilise planning language where possible to aid in mutual understanding, however there is difficulty in the translation and application of some core cultural concepts to such a framework. This is particularly an issue when segmenting or demarcating value spatially, when ascribing a type of significance hierarchy, and when limiting value to tangible elements, whereas Māori hold a holistic perspective that operates counter to typical western paradigms. This means that where there is doubt or confusion over a term or point of discussion, readers should contact Ngāti Tamaoho directly for clarification.

2. Due to the sensitive nature of certain cultural knowledge, areas and sites (e.g., burial grounds), Ngāti Tamaoho reserves the right not to identify the exact spatial extents or provide full information of such areas to retain and protect this knowledge within the Ngāti Tamaoho. In other situations, while a general area may be known to be of cultural significance the exact spatial extent or location of the site may have been lost over successive generations. Where possible and appropriate, sites are described and defined to enable discussion of the impacts while acknowledging these limitations.

3. The environmental and archaeological data relied upon for elements of this report are derived from secondary sources and it is assumed the data and opinions within these and other secondary sources is reasonably accurate they do not include the cultural landscape as described by manawhenua.

4. The Auckland Council's Cultural Heritage Index and New Zealand Archaeology Association Arch Site databases are a record of known archaeological and historic sites. They are not an exhaustive record of all surviving historic or cultural sites and resources and do not preclude the existence of further sites which are unknown at present. The databases also utilise a site location point co-ordinate system rather than detailing site extents or cultural landscapes.

7. ENVIRONMENTAL ENHANCEMENT - TE WHAKAPAKARI I TE TAIAO

1. The goal of Ngāti Tamaoho is to ensure that the needs of the present and the future generations are provided for in a manner that goes beyond sustainability and enhances/restores the environment. An 'enhancement' approach requires the consideration not only of individual resource use, and activities, but also a holistic approach to the whole environment. It aims for positive ecological and social outcomes where the resource use and activities affecting the environment become a conduit for producing resources and energy, improving physical and psychological health, remedying past pollution, and transforming and filtering waste into new resources.

2. Sustainability requires the resource to be maintained at a specified level so that future generations can enjoy at least the same use of the land, air, and water that we do currently. The 'enhancement' approach aims not only to maintain but also, through our actions, to improve/restore the quality of the environment for future generations. Therefore, Ngāti Tamaoho is in favour of an approach to resource use and activity operation that sees a net benefit back to the environment in such a way that the environment is actually enhanced from the resource use, activity, or development.

3. Ngāti Tamaoho recognises that the implementation of an enhancement approach is something that can take time and education for full implementation. Resource users and activity operators need to consider how their existing or proposed use or activity can actually enhance and restore the natural environment. This is a strategic approach which recognises that those that utilise an environmental resource for some type of benefit (whether economic, social, cultural, spiritual or environmental) have a responsibility to create a reciprocal benefit back to the natural environment. In practice in some cases, and

particularly in the case where environmental resources are depleted (e.g., mineral mining), there needs to be a broader consideration of how to provide a reciprocal benefit.

4. Ngāti Tamaoho recognizes that the achievement of environmental enhancement can include use of regulatory and non-regulatory methods, [such as achieving "over and above" council minimum requirements]. Tamaoho will always advocate for environmental enhancement/restoration.

8. PROJECT AREA.

1. Stephen Smith (Peterex Properties Limited) at 301 Buckland Road and Jason Woodyard (Pukekohe Limited) at 303 Buckland Road, propose to rezone their land under the Auckland Unitary Plan – Operative in Part (Unitary Plan) from its current Future Urban Zone (FUZ) to Business – General Business Zone (BGBZ). This is a request to change the zoning from FUZ to BGBZ only and no other changes the provisions of the Unitary Plan are proposed. Requests to the Council for a private initiated plan change are enabled subject to Part 2 of the First Schedule of the Resource Management Act 1991 (RMA). Consultation with iwi authorities is mandatory pursuant to Clause 4A of the First Schedule.

9. PLAN CHANGE DETAILS:

Address: 301 and 303 Buckland Road, Pukekohe
Legal Description: 301 Buckland Road Pt Lot 1 DP 3363
303 Buckland Road Lot 1 DP 64805
Land Area: 301 Buckland Road 4.3602
303 Buckland Road 3.5038
Unitary Plan Overlays: Natural Resources: High-Use Aquifer Management Areas Overlay - Pukekohe
Central Volcanic
Natural Resources: Quality-Sensitive Aquifer Management Areas Overlay - Franklin Volcanic Aquifer

10. EXISTING RESOURCE CONSENTS:

- 301 Buckland has an existing resource consent granted to Peterex Properties Limited on 9 September 2019 (BUN60333645) to establish a Trade Supplier activity (Franklin Plumbing). This consent has not been implemented.

- 303 Buckland Road has an existing resource consent to Pukekohe Limited on 15 April 2021 use up to 4,320m2 of the site as an industrial service storage yard for a period of 10 years (BUN60368560). This consent is in the process of being implemented.

2. The general characteristics of the area is on the north - western facing slope of Pukekohekohe, it is undulating rolling hill country the land use has been largely used as cropping areas, the main volcanic puke of the region. It is flanked on two sides by Buckland and Kitchener Rd the land is part of a large area of rich volcanic soils from the Pukekohekohe volcanic eruption. As such, this area was primarily used

by Ngāti Tamaoho as an area of maara-kai (cultivations). In fact, this area represents some of the largest and most important maara-kai of Ngāti Tamaoho, a significant taonga and resource for our people for centuries.

3. It is difficult to overstate the importance of the soil of this area and its gardens for Ngāti Tamaoho. This was our people's intergenerational food basket, one of our most treasured sources of sustenance, especially during the winter months when kaimanu, kaimoana, and mātaitai were less available. The soils of this area provided our people with the food they needed to thrive.

4. Primarily the food grown here was kūmara, though other crops such as hue and uwhi were grown also. The climate was warm enough for long growing periods and the friable and well-draining soil was perfect for these kinds of root crops. Pukekohekohe, and particularly the northern sun-drenched slopes such as the study area in question, could support large cultivations and produce substantial amounts of food.

5. The growing and storage of these crops was a highly skilled activity that required expertise and mātauranga of everything from the soil, to the maramataka, to the pests that could threaten the crops. The growing of kumara was undertaken with expertise from the tōhunga who could read the tohu of te taiao and te maramataka. Meanwhile, the work required every member of the hapū at some point in the growing process, whether at the planting phase or during the busy late summer/autumn period when the crops were pulled up and prepared for storage.

6. Alongside the maara-kai, areas were set aside and used for pātaka kai (food storage and preparation), umu (ovens), and rua kumara (storage pits). All of these activities carried cultural and spiritual elements, as well as tikanga and mātauranga. This only adds to the traditional importance of this land to our people.

7. Pukekohekohe is also important in our people's whakapapa, an ancestor of Ngāti Tamaoho and one of our wāhi tūpuna. As such the importance of this place goes even further beyond the value of its volcanic soils and maara-kai. This place is part of the whakapapa and cultural identity of Ngāti Tamaoho.

9. TE AWANUI O TAIKEHU

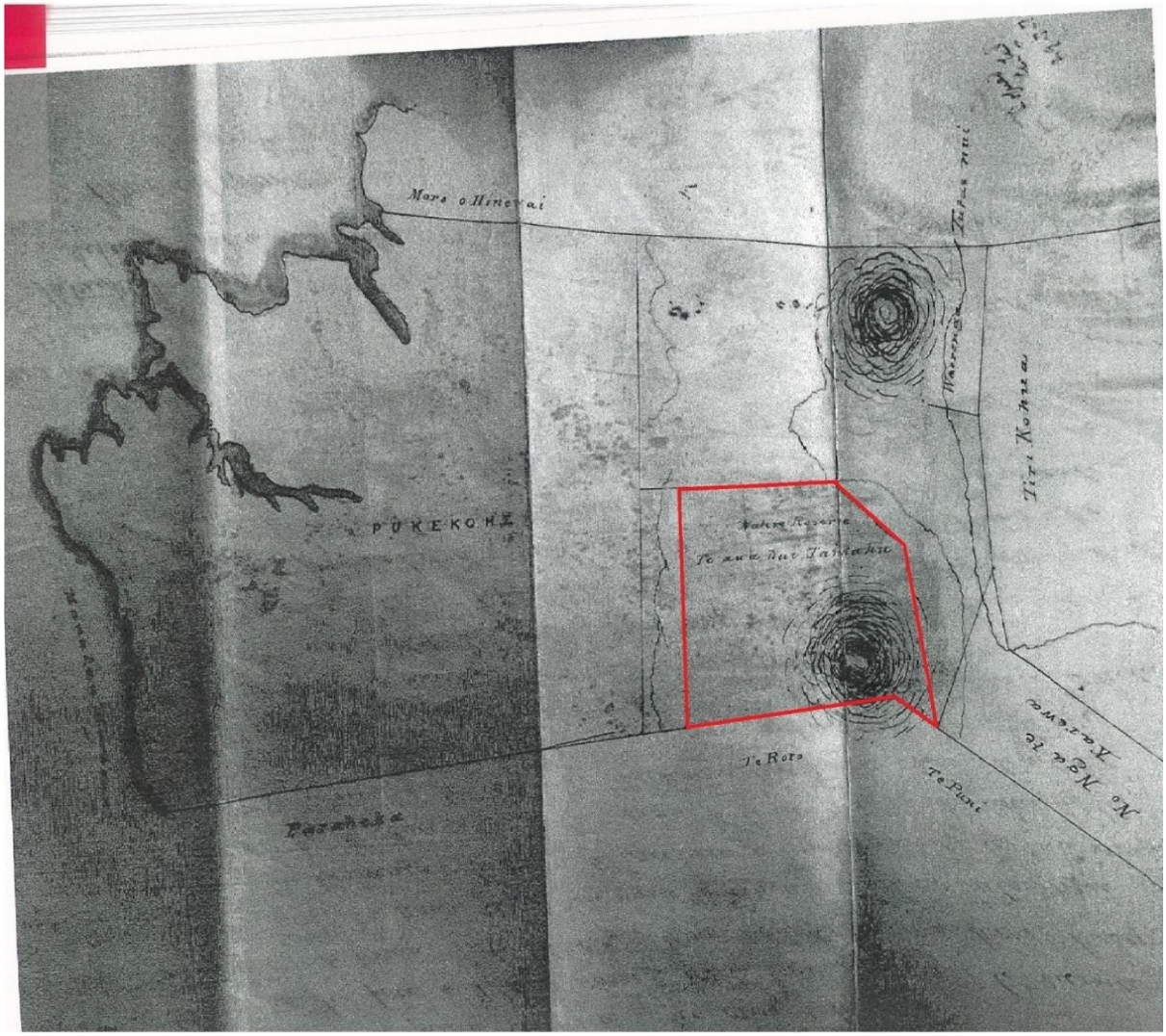
1. Te Awanui O Taikehu is an ancient area of settlement lying to the north and east of Pukekohekohe. It is an area that has seen settlement by our tūpuna since the earliest peoples of the rohe. The area contains some of the most fertile soil in the entire country, making it an attractive places for settlement. These soils became one of our peoples most valuable resources, supplying our people with food for our whānau and trade with our whanaunga for a wide range of other goods. These taonga soils were the wealth and wellbeing of our peoples.

2. The name of the of this area refers to its proximity to the Waikato River. In former times this waterway was known as Te Awanui O Taikehu, the great river of Taikehu. Taikehu is one of our tūpuna who arrived in Te Ika-roa-a-Māui aboard the Tainui

waka and explored much of this land. It is a name of great significance and speaks to the regional significance of this area.

3. As a result of the fertile volcanic soils of the area, Te Awanui O Taikehu was an area of settlement for our people. The papakāinga here was an ancient one, having been in use since the time of the first peoples and the arrival of the Ngā Oho aboard the Tainui waka. At its peak the papakāinga is thought to have been home to hundreds, making it one of the largest in the region. Among these people were some of Ngāti Tamaoho's most well-known rangatira such as Te Whare Aitu and his father Ruamano.

4. Te Awanui O Taikehu also includes one of Ngāti Tamaoho's oldest and most significant urupā. As such, the area is considered a wāhi tapu of great significance.



Pukekohe Block No.2, 17 June 1853, ABWN 8102 153 Archives New Zealand Wellington, AVC 87.

10. PUKEKOHEKOHE

1. In the south-west of Te Awanui O Taikehu is the maunga Pukekohekohe. This is a site of great cultural significance to our people, being the main strategic high points of the region. Its northern slopes were the site of some of the largest maara-kai in the region.

2. After the confiscation of the Pukekohe block in 1865 (following the invasion of our rohe in 1863), the township of Pukekohe was built to the north of the maunga. As Ngāti Tamaoho returned to the area from the 1870s, they came to Pukekohe to gain work as labourers in the market gardens that had once been theirs.

3. These workers lived in substandard housing, supplied by the market garden owners and were subjected to racism on both a structural and individual level. Despite their landlessness at the hands of the Crown, these whānau worked tirelessly picking the crops of potatoes, onions, and other vegetables.

4. The contrast between itinerant Māori workers and the Pākehā residents of Pukekohe became increasingly stark. Appalling housing conditions and consequent widespread ill-health were the norm for Ngāti Tamaoho in Pukekohe in this time.

5. A large number of Māori children attended the Pukekohe public school. Because whole families worked in the gardens, Māori pupils fell far behind their Pākehā counterparts, and the prevalence of disease among them caused a panic among Pākehā parents who feared that their children would be exposed to contagious diseases. Māori students were, for example, only permitted to use the school swimming pool late on Friday afternoons, just before the water was changed. This led, in 1952, to the establishment of a separate Maori school in Pukekohe. Segregation continued in Pukekohe well into the 1960s with Māori not welcome in certain barbers, bars, and cinema seating.

6. Despite the immense challenges Ngāti Tamaoho faced in Pukekohe, they were eventually able to establish the Ngā Hau E Whā community hall under the guidance of Te Puea Herangi for their cultural and social gatherings. Eventually, land for a marae was purchased and the Ngā Hau E Whā marae on Beatty Street became one of the three modern Ngāti Tamaoho marae as it remains to this day.

11. TE KAIĀ O TE WHENUA – LAND ALIENTATION

1. During the early 19th century, Pākehā began arriving in Ngāti Tamaoho's rohe. This included the British Crown and their representatives. From the 1830s onward, Pākehā began seeking land from Ngāti Tamaoho and from 1840 onward the Crown assumed a pre-emptive right to trade with Ngāti Tamaoho for land rights under Te Tiriti O Waitangi.

2. This phase of colonisation includes many nuanced concepts of tikanga and its intersection with the Crown's concepts of law and ethics. For instance, the degree to which the Crown could assume pre-emptive rights to land is undermined by the fact that Ngāti Tamaoho never signed Te Tiriti O Waitangi. However, there is evidence that at least some rangatira used Te Tiriti as a basis for ongoing relationships with the Crown.

3. Ignorant of Ngāti Tamaoho tikanga, the Crown sought to ‘purchase’ lands around the project area 1842.[ii] The land of the study area was alienated from Ngāti Tamaoho against the will of our tūpuna through the ‘Pukekohe block’ sold by some of our whanaunga in 1842.

4. The Pukekohe block was massive and included some of our most important lands and taonga guaranteed to our people by Te Tiriti O Waitangi. The land was though to comprise either 20,000 or 30,000 acres at the time, though this turned out to a serious underestimate. The land was ‘purchased’ for £500.

5. A £50 deposit was paid, and a surveyor was instructed to accompany the interpreter Edward Meurant and the vendors on a perambulation of the boundaries. This immediately led to complaints from Ngati Tamaoho. Our tūpuna petitioned the Crown for the next ten years, trying to reach a resolution. However, they were rebuffed and turned aside at every turn.

6. In June 1853, ten years after the initial transaction, our tūpuna were forced to finally accept the Crown's terms.

The Pukekohe Block an others of the Ngāti Tamaoho rohe. Sketched by J. Johnson, 1853. Archives New Zealand, Wellington: IA 1 1853/12070.

7. These events shed light on a number of important matters. Firstly, Ngati Tamaoho's objectives in entering into land dealings with the Crown are evident. A cession of land resulted in an initial 'down-payment' consisting of cash, livestock

and other items which would help them develop their remaining land, and agricultural and other produce would be traded with the settlers who would take up residence the block. There were thus both short and long-term advantages, and there is no doubt that Ngati Tamaoho were encouraged in their expectations of future rewards by promises of 'collateral' advantages held out by Crown purchase agents.

8. There were also a number of serious problems. The Crown's insistence on purchasing large blocks necessarily involved a number of iwi, and the Crown's habit of paying the first tribe to come forward was clearly a fruitful source of tension and conflict which might easily get out of hand.

9. With respect to the Pukekohe block, Ngati Tamaoho were forced into accepting the Crown's terms.

10. In several key respects the Pukekohe transaction was a tragic and unjust experience for Ngati Tamaoho. While it is one the Crown has since apologised for, the mamae (hurt) remains and the land is still alienated from our people's customary ownership.

11. The Pukekohe block did include a number of reserve areas where Ngāti Tamaoho were able to continue living in traditional papakāinga and practice Ngāti Tamaoho tikanga. However, these were also taken from our tūpuna by the Crown.

12. On 17 June 1853 Mohi Te Ahi O Te Ngu, his cousin Ihaka Takanini, Pepene Te Tihi (Takanini's father) and several other rangatira sold the Pukekohe Block No. 2 to the Crown for £200. This sale followed the earlier Pukekohe No. 1 deed signed by Ahipene Kaihau and others in December 1843.

13. The deed of sale states that:
"That portion of Pukekohe called Te Awa nui o Taikehu is reserved for us [the sellers] and is encircled by a line on the plan annexed."

14. The deed map laid out the boundaries of the Pukekohe Block No. 2 and the Taikehu reservation, although in poor detail and using boundary markers now lost. The setting out of reserves in this way had become common practice by 1853, Maori vendors often wishing to retain cultivations, settlement areas, urupa and other wahi tapu. Setting aside Te Awanui O Taikehu as an inalienable reservation was of vital importance to the Pukekohe No. 2 sale and the deal would have almost certainly failed without it. It was essential to Ngati Tamaoho that they retained Te Awanui o Taikehu for future generations.

15. After the conclusion of the Pukekohe No. 2 deed, it was assumed that a further survey and plan of the reserve would be completed. However, there were significant delays on the Crown's part, and it was not until 1857 that the issue was first addressed. In the intervening years a steady stream of settlers had begun to acquire land in Pukekohe and the surrounding district. The area was soon in high demand. In fact, parts of the reserve had already been sold and it was only then that the Taikehu reservation became a pressing issue for the Crown.

16. On February 3, 1857, the Chief Land Commissioner Donald McLean wrote to Land Commissioner Mr. Johnson to ask if Johnson would survey and lay out the Taikehu Reservation that had been agreed to in the Pukekohe 2 purchase. In this letter McLean noted that the reserve had never been properly defined and that land in the area was selling quickly at a high price. He requested that Johnson survey a reserve in the area and also that he induces the Maori vendors to relinquish "an equal quantity of waste land" so that "the Government may fulfil its engagement with the European purchasers who have selected portions of this reserve". The Chief Commissioner noted that the reason for this being such an urgent priority is that land meant for the reservation had already been sold and that the Land Commissioner's Office wished to avoid certain "difficulties and litigations".

17. On 1 August the Assistant Native Secretary sent Mr Johnson two letters Mohi had written to the Chief Land Commissioner. The letters stated that Mohi and his cousin Ihaka Takanini did not accept the previous surveys of the reserve land, given that they were not present when the survey was completed. Mohi also stated that he and his people intended to work their cultivations on the land and that the Europeans residing there should vacate immediately.

18. Then on the 12 August Commissioner Johnson released a memorandum setting out the boundaries of the reserve. On the same day Mr Johnson wrote to the Assistant Native Secretary (acting for the Chief Commissioner) that this was only a preliminary step in concluding the reservation and that it was still unclear what was to be done about the parts of the reserve already sold by the Government. Johnson noted that the survey was not done in consultation with Mohi and Ihaka and that as a result the problem of boundaries and previous selling of parts of the reserve were still very much unresolved.

19. In fact, around 850 acres of the reserve had been sold by the Crown to E. Fairburn (who had originally surveyed the reserve) and T. Russell. Fairburn had then on-sold the land to a number of settlers who had already started to cultivate it. Government surveyor William Searancke, who was well acquainted with Ngati Tamaoho and issues of land around the Manukau, noted that Fairburn had not adhered to the memorandum of the boundaries of the reserve that was made available to him and had not been accompanied with any of the Maori vendors when he conducted his survey.

20. Mohi was especially concerned because the parts of the reserve that had been alienated were the parts containing the numerous urupa for which the reserve had been created. Because of the incorrect survey and the absolute breakdown of communication between the various government officials, settlers now owned the burial places of generations of Ngati Tamaoho tupuna.

21. Mohi urged Searancke to give up the blocks that had been sold to settlers. He had been clear that Taikehu was of immense importance and that it should never be alienated. Mohi considered all fault in the matter to lie with Fairburn for incorrectly surveying the area to purchase parts of it himself.

22. Nothing was done and on 17 November 1857 Searancke again wrote to McLean regarding Taikehu. He laid out the events that had led to the alienation, noting that although Mohi and Ihaka brought the error to the attention of the Surveyor-General shortly after the Fairburn survey, Crown grants were still issued to settlers. Mohi and Ihaka had protested the sale ever since and had "repeatedly cautioned the settlers themselves, in a firm though friendly manner, against making improvements on the land which was especially reserved".

23. Searancke had visited the area and with the help of several other rangatira, Mohi and Ihaka being absent, had made a rough plan of the reserve as claimed by them and the parts that were sold to settlers. He noted that the area contained many of their settlements and cultivations as well as urupa. The area set out by Fairburn, not including the alienated land, amounted to about 3,115 acres. The land alienated was about 2,099 acres with three Pakeha settlers in occupation. This brought the total area of the Taikehu reservation as originally promised to around 5,214 acres.

24. Searancke advised that he had always "treated the matter lightly" when negotiating with Mohi and advised him that it was merely "a casual error" on the part of Fairburn. This cavalier attitude by Crown agents to one of Ngati Tamaoho's most significant traditional sites underscores the tragedy of the entire affair. From the outset, Mohi had done everything possible to protect Te Awanui O Taikehu and had made it perfectly clear to the Crown why the area was of such importance. His persistence and dedication were met with indifference and delay by those specifically charged with resolving the situation.

25. 7 months passed with no progress until on 28 June 1858 John Rogan, District Land Commissioner, visited Mohi and arranged to go to Pukekohe to ascertain the boundaries of the land claimed. Rogan adopted Johnson's description of the boundaries agreed to by the Surveyor-General and the Maori vendors by memorandum which Fairburn had failed to adhere to. Rogan concluded that about 2,600 acres had wrongly been alienated from the reserve and was now in occupation by settlers.

26. On 2 July, Rogan climbed the Pukekohe maunga with Ihaka and Mohi. He noted that it was impossible for him to dispute their claims to the correct boundaries of the block as they merely claimed what had clearly been agreed to in the memorandum by Johnson.

27. Rogan faced a difficult decision. Mohi and Ihaka were clearly entitled to the lands they claimed as had been set out by Johnson. However, settlers already occupied the land alienated by Crown grant and had begun cultivating. As such, Rogan undertook to pay the chiefs for the land that had already been alienated.

28. Mohi and Ihaka immediately opposed the idea that the totally unwarranted alienation of their lands could be compensated by anything less than their return. However, after some negotiations Ihaka begrudgingly accepted that since the Crown was completely unwilling to return the land, he would accept £300. Rogan offered £50 which was immediately rejected. After further negotiations Rogan offered £100 which was reluctantly accepted by Mohi, fearing that, should he not accept this deal, the government would cease to deal with him altogether.

29. On 26 July, Rogan wrote to the Chief Commissioner noting the finalisation of the claim and requesting it be Gazetted.

30. The end result was that Ngati Tamaoho received a little over half of the reserve as originally agreed to and £100 in settlement of the rest. After 5 years of struggle and protest this was a heavy blow to Ngati Tamaoho. The tribe had agreed to give up a vast tract of its traditional lands to the Crown with the Pukekohe No. 2 deed under the expectation that they would be allowed to retain a small piece for themselves. The Crown had failed to honour this.

31. In July 1863, Governor General George Grey issued a proclamation that required all Māori living between Auckland and the Waikato to give up their arms and make an oath of allegiance to the Queen. Those failing to do so were forcibly ejected from their homes. Many of the hapū of the region, were forced from their homes and moved to the Waikato to join there whanaunga. The brutal invasion of the Waikato by Crown forces followed. Many lives were lost.

32. Following the end of the war in the Waikato, Ngāti Tamaoho remained loyal to King Tawhiao following him from place to place, some settling permanently in the areas he passed through. As a result, the period following the war saw the wide dispersal of Ngāti Tamaoho across the Waikato district.

33. A number of whānau returned to traditional Ngāti Tamaoho lands in the project area from the 1880s onward. However, conditions were difficult for those who choose to return. Confiscation had thwarted Ngāti Tamaoho's economic success prior to the war and access to health care for Maori was appalling.

34. The remainder of the Taikehu reservation was taken on 29 December 1864 as part of the 6,514-acre Pukekohe confiscation block.

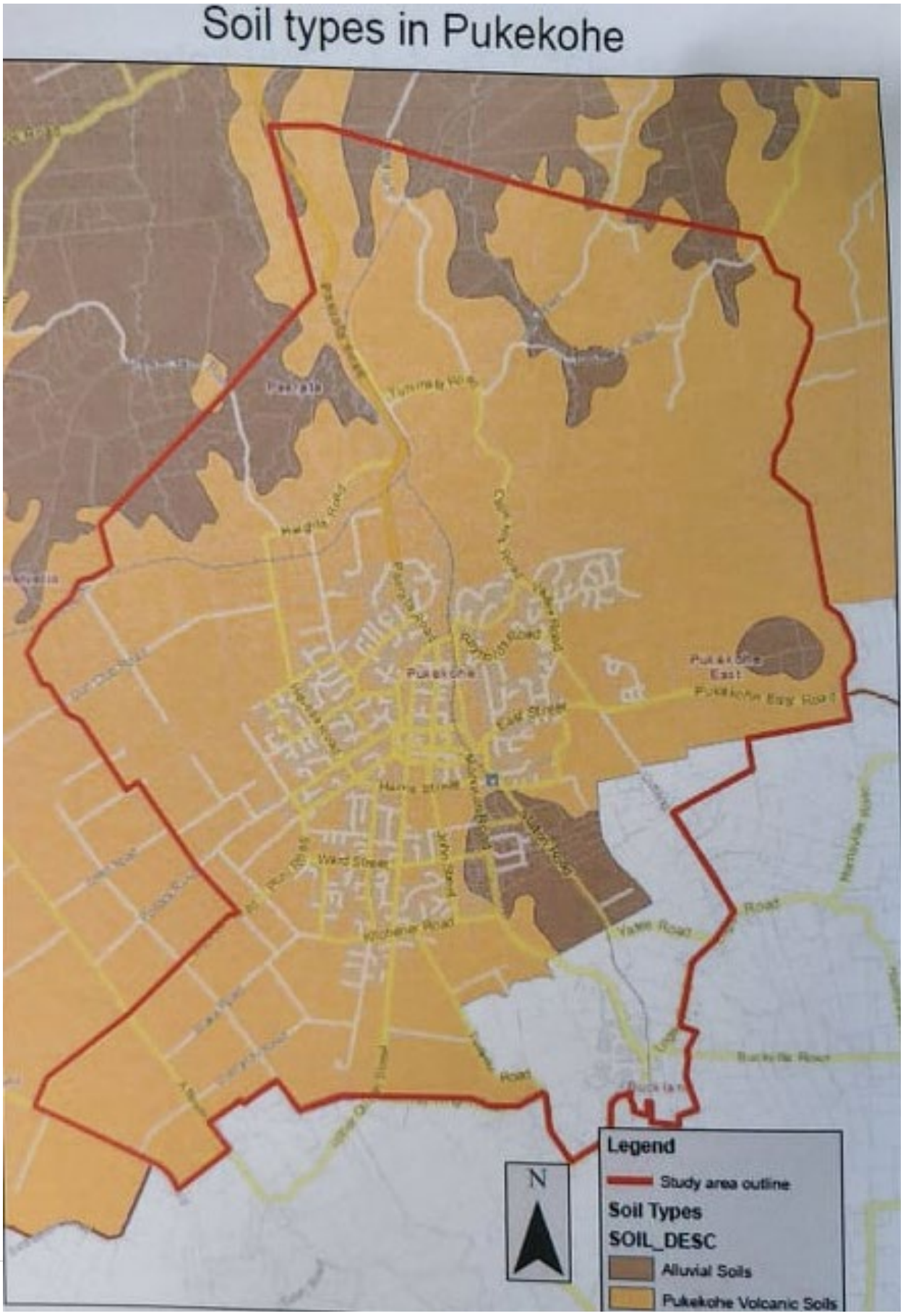
35. The war and subsequent confiscation severed Ngāti Tamaoho's ability to connect with our whenua and rendered our people effectively landless. The effects of these actions continue to affect Ngāti Tamaoho to this day.

12. LAND - TE WHENUA

1. Introduction

1. In 1863 – 1864 the Crown engaged in a war against Māori in the Waikato causing suffering to the people. After the war in Waikato the Crown unjustly confiscated large areas of land. This confiscation or raupatu has, over time, had a crippling impact on the welfare, economy and mana whakahaere of Ngāti Tamaoho and the ability to manage the lands, awa and resources within the tribal rohe. Though raupatu did not change the beliefs and values of Ngāti Tamaoho, nor the unique relationship with the whenua and awa, its impact on the mana whakahaere exercised by the tribe was immediate.

2. Subsequently, land in the Ngāti Tamaoho rohe has been drained and developed for a number of uses. Land development has dramatically reduced the



area of native forest and wetlands throughout the region and pastoral farming, exotic forestry, industrial and urban development is now the main productive land uses.

3. This reduction in native ecosystems and changing land use has consequently affected the natural ecosystem balance. This is particularly the case where current land use is not ideal for the area, such as farming on marginal, hilly lands.

4. Attempts to control natural processes have further impacted on the natural ecosystem balance. For example, attempts to control flooding, which occurs naturally and contributes to ecosystem balance, have exacerbated habitat decline, particularly when waters are further contaminated from other land use activities or have a higher than natural sediment loading. Habitats for indigenous flora and fauna are in decline or have been destroyed.

5. Declining habitats has resulted in a decreased ability for Ngāti Tamaoho to undertake mahinga kai. This causes whakamā for Tamaoho who are unable to share their bounty with and to adequately host manuwhiri.

6. Of particular concern to Ngāti Tamaoho is the degradation that has occurred in soil quality caused by unsustainable land use practices (such as some agricultural and horticultural practices). Poor soil quality increases the risk of erosion and nutrients leaching into water bodies, thereby further degrading water quality, adversely affecting the health of the river, and causing a loss of cultural uses.

2. Issues

1. Soil erosion and soil management

1. The removal of indigenous vegetation in favour of pastoral farming, production forestry, urban development, roading and horticulture has caused, and continues to cause accelerated soil erosion, particularly on hill country. This is delivering inflated loads of sediment to rivers, lakes, estuaries and coastal marine areas and causing significant negative impact on water quality and aquatic biodiversity.

2. Intensification of agricultural practices and the urbanisation over some of our most productive soils throughout the rohe as horticulture is forced into less productive areas increases the risk of soil degradation, soil compaction, surface water runoff, and sediment loss from hill and flat land areas.

3. Clear-felling harvesting and horticulture practices create the potential for soil erosion which causes sedimentation of receiving waterways and the coastal environment and smothers in stream habitat and ecological values. This applies both within the context of horticulture and forestry, but can also apply to riparian management particularly with regard to invasive pest and plant removal along waterbodies.

4. Fluctuations in water levels (volume/quantity), accretion, wave action, and changes to water flow due to land fill dams and redirection of waterways can all influence erosion potential, particularly along river and lake banks, around river islands and along the coast.

2. Nutrient loss and water quality management

1. Intensification of agricultural practices increases the nitrogen and phosphorus loads and levels of faecal pathogens entering rivers, lakes, wetlands and estuaries. While the effects of these contaminants impact most noticeably on water bodies, the sources and causes lie on the land and with how the land is managed. Contaminants put onto or into land compromise the mauri of the land, rivers, lakes, and marine environments.

3. Land contamination

1. There is a lack of detailed knowledge of existing and historical contaminated sites within the rohe and their on-going impact on the environment.

4. Floodplains and Drainage

1. The construction of flood protection and drainage works to prevent periodic flooding of natural flood plains has limited the natural process of soil fertility replenishment, disconnected aquatic systems from land-based environments (e.g. waterbodies to wetlands to forests), and consequently, has reduced the habitat available for the plant and animal life.

5. Integrated Catchment Management

1. The relationship between land, water, Ngāti Tamaoho, and communities are interlinked. Greater focus needs to be placed on an integrated catchment management approach to land and water management.

2. For Ngāti Tamaoho, integrated catchment management includes recognising and providing for the relationship of Ngāti Tamaoho with the catchment and therefore necessitates Ngati Tamaoho involvement/engagement.

13. CUSTOMARY ACTIVITIES - NGĀ MAHI TUKU IHO O NGĀTI TAMAOHO

1. Introduction

1. The unique and historical relationship of Ngāti Tamaoho with its traditional lands and waterways has extended over many generations. The importance of this relationship is evident in many customary activities that Ngāti Tamaoho still undertakes. The mana whakahaere of Ngāti Tamaoho has associated requirements to responsibly use, protect, and enhance customary resources, and to ensure their on-going health and wellbeing. Ngāti Tamaoho customary activities and resource use include, but are not limited to the activities below.

2. **Waka or kohikohia** – the launching and use of waka and support craft and the erection and use of associated temporary structures (including barges and temporary jetties) for ceremonial, customary, recreational, competition and sporting purposes including at significant iwi and hapū events.

3. **Haerenga** – transportation of people and goods on established routes on land and over water.

4. **Tangihanga and hari tūpāpaku –** the transportation of human remains and the accompanying funeral ceremonies.

5. **Tangohia ngā momo takawai –** the collection of resources, such as river stones, shingle, and sand from waterways for the purposes of customary practices including:

- The building of a tūāhu (altars).
- Whakairo (carvings); and
- The preparation of hāngī.

1. **Whakamahi rawa –** the gathering and use of resources for the benefit of the tribe. This includes activities such as using wood for carving; using harakeke (flax) for kākahu (clothing) or whāriki (mats), and so on.

2. **Waioranga –** the use of waterways for customary practices relating to the physical health and wellbeing of persons including bathing and cleansing. This also includes other places where similar activities are undertaken.

3. **Wairua –** the use of waterways (including lakes and harbours) for customary practices relating to spiritual and cultural health and wellbeing of persons and the tribe including baptisms and other traditional ceremonies.

4. **Rāhui –** the imposition of restrictions, from time to time, on all or part of an activity, or the use of a resource, or rohe. Rāhui may be imposed for the purpose of conservation protection, spiritual or physical well-being, or other purpose as from time to time determined.

5. **Mahinga kai –** the customary and contemporary gathering and use of naturally occurring and cultivated foods.

6. From the time of raupatu, the Crown usurped control of, and exercised jurisdiction over, Ngāti Tamaoho traditional lands, waterways, and resources. The Crown developed legislation that delegated the authority and rights of management over these taonga to entities other than Ngāti Tamaoho (such as local authorities and administration bodies).

7. In the past Ngāti Tamaoho had priority use of their lands and waterways and undertook customary activities free from third party legislative rules and procedures. Ngāti Tamaoho determined, through its own tikanga and kawa, what should or should not be permitted to occur. Now, Ngāti Tamaoho customary activities often require

some external form of authorisation. There is increasing pressure on resources in the rohe from commercial and private interests. Ngāti Tamaoho now has to compete with other users in the region to undertake customary activities over its traditional lands and waterways.

2. Issues Access

1. Access to traditional areas for customary activities and resource use has been compromised, affecting the ability to practice these activities and transfer knowledge of the traditions between generations.

2. Pressures from other resource users and over use have over-ridden traditional customary activities or natural environment characteristics in some locations. For example, the protection of trout fisheries is considered by some to be a higher priority than restoring native and endemic species, and the desire by "all" to collect kai moana.

3. Pressure from continuing development compromises the ability to access and gather traditional mataitai, kaimoana and other foods.

4. Continued commercial fishing in our harbours and waterways limits the availability of access to traditional food sources.

2. Customary activities and resources

1. Competing interests have limited the ability of Ngāti Tamaoho to exercise control over and exercise the necessary authority to undertake customary activities.

2. Traditional sites, including those for fisheries and hunting sites are often not appropriately recognised or provided for under the current management regimes.

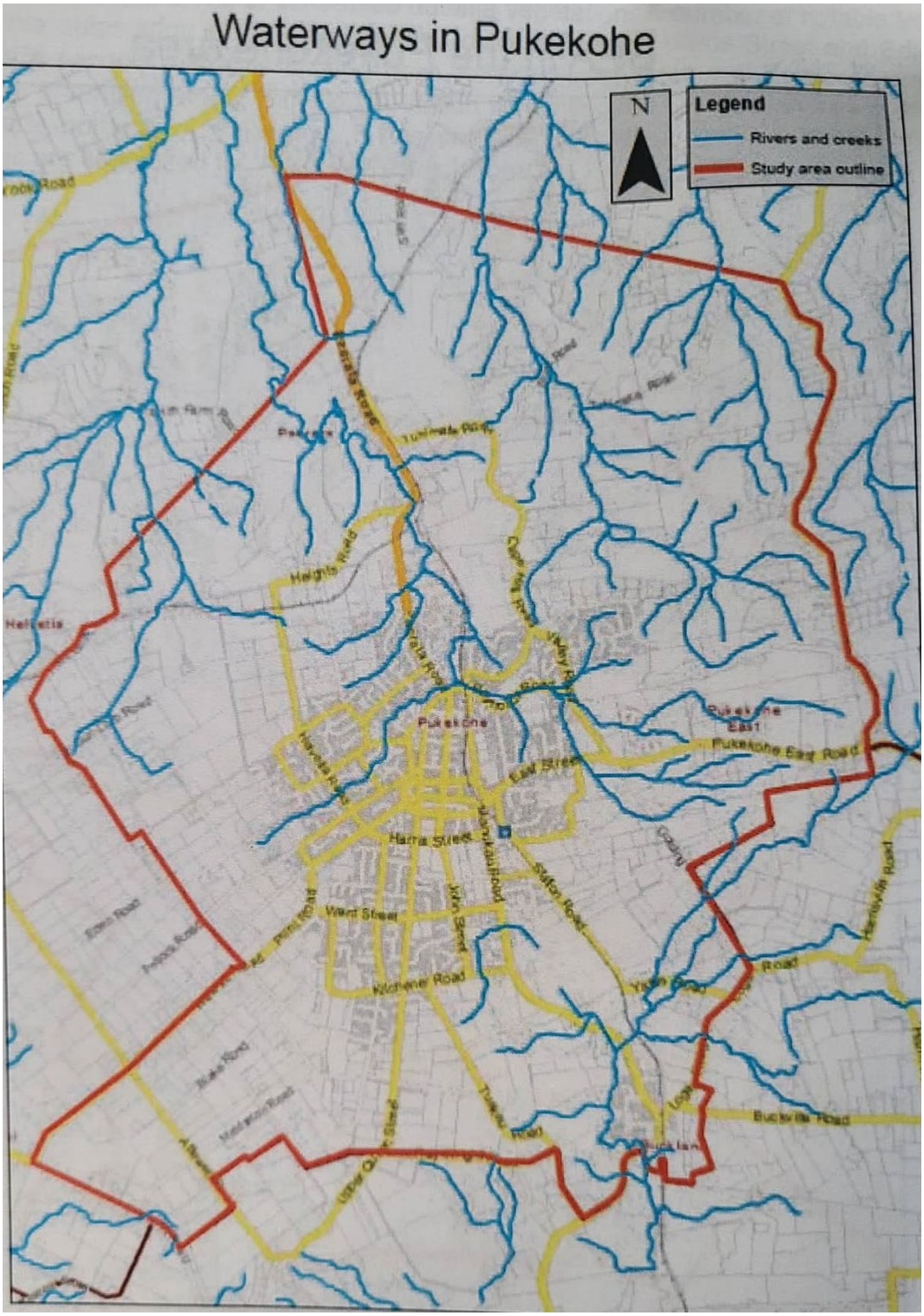
3. There is a lack of recognition of the importance of and provision for customary activities in resource management planning documentation (e.g. reserve management plans, local authority plans, conservation management strategies)

4. There is often a lack of consideration of the effect of resource use and infrastructure development activities on customary practices and activities (For example, river hydrological flows to provide for the regatta, etc.)

5. There has been a significant decline in the diversity and abundance of traditional resources. This, combined with a loss of access to traditional sites and resources has resulted in some loss of knowledge of customary activities but most importantly the loss of resource.

6. Customary activities are not recognised in a consistent manner across or even within regions, with some activities being provided for whilst others are not.

7. Lack of recognition of mātauranga Māori innovation and engineering solutions to real world physical problems (e.g dune stabilisation, coastal erosion, untreated discharge, silt and sediment controls in development).



Waterways Pukekohe

14. FRESH WATER - TE WAI MĀORI

1. Introduction

1. To Ngāti Tamaoho, water has the ability to both create and sustain life. It is of no coincidence that marae were established alongside or near water bodies. Water is required to sustain the functions of the marae, hapū, and the people. The significance of water to Tamaoho is immeasurable and the respect for it is demonstrated by the manner and purposes for which it is used and handled. This includes certain waters being used only for bathing, blessings, healing, spiritual cleansing, gathering kai, and waters that are totally excluded from use for cultural reasons.

2. Ngāti Tamaoho recognises that water is a scarce resource. National and Regional Council Policies and Plans determine the manner and principles for which water may be allocated. This involves determining limits for allocable use (waters to be used for predominantly economic purposes) and understanding the recharge capacity (water to remain to sustain ecosystems) of water bodies and aquifer. What has been missing from setting those types of limits is the incorporation of tribal knowledge. A summary of Tamaoho's view of water, and regard for its use can be broadly noted as the following:

- ***Wai Ora*** – Life giving and sustaining. These waters are generally regarded as pristine, sanctified water, primarily used for "higher" purposes such as ceremonial use, blessings, cleansing of chiefs etc. These waters are generally spring waters (puna), or in areas specifically designated for higher purposes. These waters must be protected.

- ***Wai Matao- Drinking*** water/potable waters

- ***Wai Māori*** – Useable for general purposes. These waters are termed wai māori because they are required for human use. These are waters used for general purposes such as recreation, sustenance, economic use and provision for food gathering. Waters used to sustain the marae functions should be protected for marae use. Waters used for general purpose should be managed in a way that ensures the future of the tribe can be sustained.

- ***Wai Kino*** – Waters of limited use. These waters can still be used generally, but may have limited ability to sustain life, or to be safely used due to poor water quality, accessibility, or other limiting factors. These waters require greater management to ensure safe and optimal use.

- ***Wai Mate*** – Waters that have exceeded the ability to properly sustain life. These waters are regarded as waters not fit for human or certain productive use. To some they are identified as 'dead' waters, but to Ngāti Tamaoho, no water is regarded as being 'dead', as all things, including water, have mauri. Therefore, these waters must be better managed and restored to a higher quality and monitored by Ngati Tamaoho.
- ***Wai Manawa*** – Waters from the heart of Papatuanuku.

- ***Kaawa*** – Waters from the Aquifer.

3. It must be always remembered that the headwaters and small tributaries are of equal importance to the larger waterways. The above 'states' of water should be determined by iwi and hapū, and be incorporated in the future of water management.

2. Āhua ki te Wai

1. To Ngāti Tamaoho, the quality of water determines the type of relationship that Tamaoho has with it. Following on from the states of water, the diagram below attempts to demonstrate how Ngāti Tamaoho consider water, the state of water, its relevance of use, and general use, management, and protection of each state.

- Waters regarded as waiora must be protected from impacts, and general use. They should not be allocated for general use.

- Waters that are required for marae sustenance or to support spiritual guardians in fulfilling their roles as kaitiaki, must not be allocated, but must be protected.

- Those waters that do not fall into the waiora, or upper echelon of wai matao, can be allocated for general human purposes, but must be used in a manner that demonstrates greatest efficiency, and optimises cultural, environmental, social, and economic well beings.
- Waters that are regarded as being 'lifeless' or 'dead' must be protected from further degradation, and subject to a restorative plan.

- Decision makers for policy, plans, and resource consents must consider the state of the water, impacts on the use of the water, and Tamaoho's relationship with wlkgater.

3. Issues

1. Water is a fundamental component for all aspects of life. Water not only sustains life, but also serves an economic, social, cultural, and political purposes. Regardless of the significance of water, the increase in contamination by cities, industries, agriculture, and horticulture has led to the deterioration of the mauri of water. The degradation of the whenua and waterways affects the use (physical and metaphysical) of water resources, mahinga kai, and water's life supporting capacity. It is recognised that there are two major issues related to water, which are water quality and water quantity (allocation). These have significant impacts on the relationship between Ngāti Tamaoho and water.

4. The relationship between Ngāti Tamaoho and water

1. The regard that Ngāti Tamaoho has for the rivers and streams in its rohe cannot be overestimated. Historically, through tikanga and kawa, and traditional resource methodologies Tamaoho learned how to and then managed water bodies, to ensure their capacity to sustain the tribe. Over many generations, successive governments, and the development of plans and policies that dictate the management of all water bodies, the ability of the tribe to actively manage its kaitiaki obligations

to wai/water has diminished. For Ngāti Tamaoho, the relationship between the tribe and its waters has been weakened **owing** to the following matters:

- Land confiscation.
- Local body and Legislation decisions that have allowed bad practice.

Lack of recognition of tāngata whenua values in local policy.

- Limited representation of tāngata whenua at a governance level.
- Economic objectives overriding cultural and environmental aspirations; · The ability to physically access water bodies has diminished.
- Poor water quality has diminished the desire to use and enjoy water bodies; and
- Inadequate control of water take and as a result Ngāti Tamaoho does not have an equitable share of allocable water for economic purposes.

2. Providing for the matters above would go some way towards providing kaitiaki and governance better management and improving the relationship of Ngāti Tamaoho with its waters.

5. Water Quality

1. The quality of water determines the relationship that the tribe has with its waters. Environmental degradation, at a national level, has occurred at a large cost and the physical, chemical, and biological quality of water has deteriorated as a result of both point and non-point source pollution. The waters of the Tāmaki Makaurau region have been degraded to support economic gains, and the impacts of previous poor management practices are increasingly being seen, namely in stormwater water discharge, ongoing siltation from development and wastewater discharges.

2. As a result, human impacts from such uses as farming and agriculture, wastewater treatment, damming, horticulture, urban development, stormwater discharges, and forestry conversions have modified natural water flows and the degree of contaminants that a water body receives resulting in a decrease in water quality.

3. Due to the large catchment area of the Whangapōuri awa and the wider Te Mānukanuka O Hoturoa (Manukau Harbour), and the highly fertile farmland, historical and ongoing agricultural/horticultural activities expanded at an exponential rate. Consequently, water quality is poor in these areas when high levels of agricultural activity leach pollutants into groundwater. The nature of non-point source pollution, non-compliant discharges of urban run-off, and sewage effluent make it difficult to manage water quantity, resulting in the accumulation of metal and organic contaminants in sensitive environments.

4. The effects of these activities contribute to the increase in nutrient levels and accumulation of key contaminants in water. An increasing trend in nutrient levels

within Aotearoa (New Zealand) rivers and lakes is likely to result in unwanted changes to river, lake, estuarine and coastal ecosystems.

5. The presence of metals such as iron, manganese and, more specifically, arsenic can have harmful effects on human health. Storm water runoff from our town centres and roading network containing metals, oils, petrol, diesel, and other contaminants has a cumulative effect on our streams and harbours. With increasing population and greenfield development the past, present and future effects of urban and industrial development must be addressed. The use of herbicides, pesticides, insecticides, and fungicides is also recognised as resulting in contamination of water. Water clarity can be impacted by activities such as sand dredging and mining. Soil erosion increases the risk of sedimentation.

6. It is also well known that the main contaminants in water degradation are the increasing levels of nitrogen and phosphorous and in some areas heavy metals. Nitrogen is found in groundwater and surface water (in the form of nitrates) and is monitored for health and environmental reasons. A key issue is that, with increasing nitrogen, phosphorous and heavy metal levels, the risk of harmful algal blooms also increases.

7. Another major contributor to the quality of water is the introduction and poor management of pest species. The quality of water and its role in the natural biodiversity of waterways has been greatly altered as a result of transporting and holding pest fish and plant species. Pest fish (e.g. koi carp, catfish, perch, and tench) have stripped water channels of vegetation as well as excluded or out-competed native fish species. Similarly, pest plants (e.g. hornwort, yellow flag, and alligator weed) are also being transported by water and deposited on lands, where they have dominated and crowded out native flora.

8. In most urban developments and many industrial activities, such as mining, the use of flocculants is promoted for capture of sediment. To date, there is insufficient data on build ups of aluminium in flocculants in the receiving environments such as wetlands and coastal areas. Ngāti Tamaoho do not support the continual and frequent use of flocculants and continue to promote the use of organic based flocculant.

9. An integrated approach to water quality management is lacking between responsible agencies, industry partners, the community, hapū, and iwi. Sharing information and accepting roles and responsibilities would assist in better management of these issues that contribute to water degradation.

6. Water Quantity (Allocation)

1. On an international level, New Zealand benefits from a relative abundance of water. The total water use in New Zealand is estimated to be at least two to three times more water per capita than in 30 other OECD countries. However, the availability of water, with regards to supply and demand, is highly variable across regions and seasons. The Tāmaki Makaurau region experiences both drought and flooding events that can be

aggravated by human intervention and consequently, the dynamic character of water supply has led to the need for efficient allocation and management regimes. It is the scarce and valuable nature of water, which highlights a key issue of water allocation.

2. The key issues and considerations for water quantity include:

- Clear limits have not been set, and therefore the majority of waters in the region are regarded as over allocated, and hence water body health has become degraded.

- The 'First-In First-Served' approach as an allocation method is inefficient and not supported by Ngāti Tamaoho;

- Water is a 'subtractable resource' – meaning that a disjunction has occurred between Ngāti Tamaoho and its water bodies because water used by another party, is generally not available for use by Ngāti Tamaoho or any other party;

- Ngāti Tamaoho, owing to confiscation and other Crown actions, do not have an allocation of water to provide for economic, social, environmental, and cultural purposes;

- The current allocable thresholds are driven by economic gains and other competing factors. The role of Ngāti Tamaoho in decision making is limited.

- There is an expectation from existing consent holders that they should, as of 'right', have their consents renewed at expiry. However, if water has been over-allocated or there are other limiting factors in the allocation, the expectation of renewal cannot be reasonably assumed;

- Not all consent consents holders for water use (including water take and direct or indirect discharge to water), undertake good management practices, and therefore efficiency gains are not achieved;

- Allocable 'space' needs to be created to allow new, more effective, and efficient users to enter the water market;

- There is a lack of accurate knowledge as to how much water is actually being used; · The assimilative capacity of water (water to remain to sustain ecosystems) in the Tāmaki Makaurau region is relatively unknown; therefore, Ngati Tamaoho continues to promote the installation of water meters on each and every water take and the installation of roof water collection tanks for outdoor reuse.

- The water remaining in water bodies is still relied upon to disperse and minimise diffuse and direct discharges, where treatment should be the first priority; and

- The issue of tāngata whenua rights and interests in water has not been resolved between the Treaty Partners, in this case, Ngāti Tamaoho and the Crown.

7. Groundwater / aquifers

1. Groundwater and aquifers are culturally significant, as they can provide base flows to streams and waterways, and all waterbodies. They provide for puna which are culturally significant. With ever increasing urban sprawl, the ability for groundwater and aquifer to recharge is decreasing, in some places non-existent. It is imperative that not all ground is covered by impervious surfaces, and that all effort is made to recharge the groundwater with clean water.

2. As water becomes scarcer and our rivers and streams more polluted and over allocated, with more and more people seeking consent to drill down deeper aquifers for water supply, especially for horticulture, farming and in some cases just for domestic use.

3. Some of the aquifer within the rohe of Ngāti Tamaoho are already fully allocated, most nearing full allocation. When over allocation occurs in coastal areas there is potential for saline intrusion. In some instances deep aquifers are contaminated from past land practice as surface water can take between two and sixty years to reach the aquifer. All water takes [including "permitted"] from our aquifer should have a water meter installed.

15. NATURAL HERITAGE AND BIOSECURITY - NGĀ TAONGA MĀORI TUKU IHO ME TE ĀRAI TAIAO

1. Introduction

1. The indigenous plant and animal species found in the Tāmaki Makaurau region are valuable cultural resources, and in themselves serve as natural indicators reflecting the health of the environment.

2. Traditionally, the region was renowned for the abundance of natural resources that lay within the rivers, lakes, wetlands, harbours and their catchments and ngahere (native forests). The alluvial soils, sands and gravels carried and deposited by the rivers provided the beds and materials for Ngāti Tamaoho māra (gardens). Manu (birds) such as kiwi, kōkako, kākā, tūī, kererū and hihi were found commonly throughout the ngahere. Valued weaving resources such as harakeke, kiekie, raupo and ngāwhā graced many of the riverbanks and wetlands. Furthermore, Ngāti Tamaoho traditional korero speak of when the lakes, wetlands and estuaries teemed with large quantities of kai.

3. The loss of habitat has been a major reason for the decline and extinction of many native plant and animal species. Losing an indigenous species impacts on the whakapapa of the Ngāti Tamaoho landscape and threatens the viability of Tamaoho culture and traditional activities. Extinctions or declines in a species or habitat have an impact on mātauranga (knowledge) about the ecosystem and environment and the information that can usefully be passed on to future generations.

4. Today, the Ngāti Tamaoho rohe provides habitat for a number of nationally endangered species. It is important to Tamaoho that the remaining indigenous species are protected from further depletion and other threats to their wellbeing, and that their populations and habitats are left alone in traditional nesting areas, enhanced and restored.

5. The introduction of foreign species into New Zealand ecosystems has also had devastating effects on native species and their habitats. Many of these introduced species are invasive pests (plants, animals, and micro-organisms) that have caused harm to the environment, economy, and human health.

6. Ngāti Tamaoho culture has evolved with the indigenous flora and fauna of the tribal area. The continued threat of invasive species to the delicate balance of the indigenous ecosystem is also a threat to the Ngāti Tamaoho way of life. The prevention of new pests and diseases from inhabiting the natural environment and the removal or reduction of pest species from existing natural areas is necessary to prevent the continued decline of remaining natural areas.

7. Genetic modification (GM) remains a controversial issue both globally and nationally. It is vital that Ngāti Tamaoho views and policies on the potential adverse consequences of GM are clearly outlined and recognised. Most importantly, Tamaoho wants to avoid any disruption caused by Genetically Modified Organisms to the balance of indigenous ecosystems and to cultural beliefs.

Pukekoiwiriki.

2. Issues

1. Decreased indigenous biodiversity

1. The size, natural health, and ecological integrity of the remaining indigenous areas of vegetation within Tāmaki Makaurau will continue to decline without additional effort to protect, and enhance them.
2. The loss of indigenous trees and plants from the productive and human-occupied landscape continues to compromise the health of the natural environment by lessening the area of suitable habitat for taonga species, severing the vegetation corridors that are essential for the dispersal of indigenous species, and reducing the contaminant buffering and cleansing function that indigenous vegetation can perform.
3. A significant number of native flora and fauna species in the Tāmaki region continue to decline in abundance and geographic spread. Many of the species facing local and regional decline or extinction are of cultural and spiritual significance to Ngāti Tamaoho.

2. Impacts on the relationship between Ngāti Tamaoho and the environment

1. Since colonisation, the impacts of changed land use have gradually depleted the abundance of Ngāti Tamaoho resources, undermined the ability to manaaki, or care for our people and manuwhiri, has consequently weakened environmental whakapapa and hence, the foundations of Ngāti Tamaoho's relationship with the whenua.

3. Landscape planning and compromising natural heritage

1. Ngāti Tamaoho are concerned that resource development, use, associated activities, and infrastructure risks, are compromising and depleting the remnants of natural vegetation that remain in the region, which serve as a reminder of the original natural character of the landscape.

2. The indiscriminate use of indigenous plant material not sourced from locally (i.e. not eco-sourced/whakapapa) for restoration and development rehabilitation projects continues to alter the natural character of the region and the genetic composition of the remaining natural plant and animal populations. Best practice needs to ensure the strengthening the genetic pool of indigenous species through whakapapa planting.

3. Inadequate rural and urban design standards also allow for ill-considered designs for dwellings and other structures to be built in areas of high natural character. This further detracts from the mauri of the land and weakens the connection with its natural, cultural, and spiritual foundations.

4. Biosecurity - Plant and Animal Pests

1. Several of the exotic fish species found in this regions rivers, lakes, and wetlands pose a substantial threat to aquatic ecosystems. Koi-carp, in particular, causes considerable damage to habitat, degrades water quality, and excludes native fish species.
2. Control of key vertebrate (animal) pests, such possums, stoats, rats, feral cats, rabbits, goats is effective enough in high priority conservation areas to arrest the decline of

important threatened bird species. However, due to issues related to limited or poor planning, limited funding and resourcing, pest control is not sufficient in many other areas of indigenous habitat. As are result, there is a continued decline in several indigenous species of bird, reptile, frog, plant species, and an unknown number of invertebrates.

3. Some culturally significant pests, such as cyanobacteria/blue-green algae, are not appropriately recognised in regional biosecurity and pest management policies despite the impact of this organism on mahinga kai and the associated ability to harvest kai.

5. New organisms and Genetically Modified Organisms

1. New organisms continue to be introduced, either intentionally or unintentionally, or developed through genetic manipulation (GMOs). Ngāti Tamaoho remains concerned about the potential of these new organisms to attack, compete with, interbreed, or otherwise harm native and taonga species.

2. Ngāti Tamaoho also has a vested interest in protecting the economic sustainability of tribal members and tribal lands within the primary production sector, and to prevent the negative impacts on productivity which can be caused by the introduction of new organisms – whether GMO or otherwise. PSA (kiwifruit), varroa bee mite, and oyster herpes are examples of devastating biological outbreaks that risk creating severe economic loss and reduced capability.

6. Control Agents

1. Herbicides and pesticides used to control weed and pest species have increasingly been developed to be more effective against target pests, less harmful to non-target species and less persistent. However, some in current use are known to kill non-target species, some bio-accumulate, and some remain active in the soil for prolonged period

16. AIR - TE ARARANGI

1. Introduction

1. Local industrial development and long distance transport of pollutants have the potential to negatively affect air quality. Additionally, the foreseeable increase in population and urban growth will inevitable intensify air pollution emissions if not managed properly. Air pollution can affect our health and wellbeing, as well as the health of the environment. It is important to Ngāti Tamaoho that emissions to air are adequately regulated to maintain and improve air quality. Air is a taonga and is valued for its life supporting capacity for all things.

2. Like water, air was sacred to Ngāti Tamaoho tūpuna with its quality affecting our environment, health, cultural lifestyle, and standard of living. Pollution affects the te ha, te hau, te atua (Tawhirimatea), the infinite.

3. Holistically, air should be seen as having its own mauri, or life force. Its continued maintenance and protection contributes to improved regional, national, and

global air quality. Today, the main activities contributing to poor air quality arise from human activity, and include vehicle emissions, aerial discharge and spraying, odour contamination, and industrial aerial discharge. Significant emissions can also affect the visible air cleanliness and clarity.

2. Issues

1. Discharge quality and amenity

1. Discharges to air from development and land-use activities impact adversely the health and wellbeing of people, the environment, mahinga kai, and cultural activities. Discharges to air can cause dust nuisance, reduce visibility, cause odour problems, cancers that can potentially impact on human health. Impact on human health can be specific to an individual and linked to their overall holistic health profile. Discharges include, but are not limited to, industrial discharge, domestic discharge (such as that from home fires), the spraying of farm effluent, dust and noise, coal dust emitted during transport (this also applies to other material that can emit particles or dust during transport), fertiliser application (top dressing), vehicle emissions, and volatile organic compounds that can be present through stronger odours like that off a eucalyptus burn-off.

2. Fine particles from smoke from home heating, industrial processes, and vehicle emissions are the most significant activities impacting on air quality in the Tamaoho rohe. Poor air quality that can affect human health can occur inside homes due to inadequate heating or ventilation, and the use of some heating appliances. Human and animal health can be affected by poor air quality from individual and cumulative discharges. National standards have been set for air quality (including fine particles) to avoid health effects. Increased population and urban development contributes to increased emissions.

3. Air pollution can cause a reduction in visibility and impede views of maunga, landmarks, the sea, the awa, etc.

4. Noise pollution from traffic, trains, planes and industry disrupt proceedings on marae (e.g. pōwhiri) and cultural practices (e.g., karakia).

5. Light pollution from developments impact on celestial darkness and the ability to learn and give effect to mātauranga Māori related to cosmology and astronomy.

17. IMPACT ASSESSMENT

Overview

1. As set out above, Ngāti Tamaoho have significant cultural and traditional values present in the land proposed for subdivision. This land is our tūpuna and we are its descendants and kaitiaki. As such, it is incumbent on us to protect and preserve the

mauri, wairua, mana and taonga of the area. We are the kaitiaki of this place and its care and protection is our responsibility.

2. With regard to the proposed subdivision, Ngāti Tamaoho are concerned about impacts on the land's soils, natural heritage, cultural heritage, water, flora and fauna, and air. The chapters above set out the major issues facing the natural and cultural environment of this area and Ngāti Tamaoho aspirations for the same. Ngāti Tamaoho wish to retain our cultural and traditional values within the area, and to be able to continue cultural practices in the surrounding landscape particularly Pukekohekohe.

3. It is recommended that the Client, their contractors and employees work alongside Ngāti Tamaoho to protect, preserve, and restore the cultural values noted in this assessment and to give effect to the Ngāti Tamaoho aspirations listed therein.

2. Potential Direct Impacts

1. The potential direct impacts of the subdivision are primarily associated with the development of the area. The potential impacts of development to the area includes earthworks, construction (both housing and infrastructure), impact on soil, impact on subsurface water, storm water pollution and discharge, wastewater discharge, loss of traditional cultivation lands, changes to the settings of cultural sites, loss of traditional view-shafts, and transport routes, soil erosion and pollution, lack of access to land for cultural activities, loss of natural heritage, degradation and destruction of wāhi tūpuna (sites of traditional significance), noise pollution and air pollution.

2. In particular, Ngāti Tamaoho wishes to avoid the loss of traditional cultivation lands, traditional view shafts from Pukekohekohe, water, air and land pollution, destruction of waterways, loss of natural heritage and biodiversity. These lands are part of the whakapapa of our people and their protection is our responsibility as kaitiaki.

3. Potential Indirect Impacts

1. Indirect impacts of these works include growth in traffic, erosion from earthworks and vegetation clearance, and inhibition of Ngāti Tamaoho access to traditional lands, mahinga kai and waterways

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4. Potential Cumulative Impacts

1. The potential cumulative impacts of the proposed upgrades include net loss of cultural sites from the landscape, impact on wairua and mauri and mana of the soil, further loss of Ngāti Tamaoho access and connection to our traditional lands, loss of Ngāti Tamaoho physical heritage and associated impacts on place-based identity, loss of biodiversity from the area and further environmental degradation.

18. CONCLUSION

1. The area of the proposed plan change is part of the traditional food-bowl of Ngāti Tamaoho. It includes maara-kai, pataka-mai, mahingakai and is part of the waahi tupuna that is Pukekohekohe. While the nature of the development works into the future are not yet fully known, the cumulative effects of development will risk effecting

the freshwater, former wetlands, soil and land, biodiversity flora and fauna, and air. It is important for the client and their contractors and employees to recognise that these are the traditional lands of Ngāti Tamaoho as recognised by the Crown.

2. Ngāti Tamaoho understands the importance of development to provide for a growing region and country. These upgrades and works provide for that growth and were done in conjunction with Ngāti Tamaoho can retain and enhance our place as mana whenua of the area. As kaitiaki it is our duty to protect the lands, waters, flora and fauna of our rohe.

3. Ngāti Tamaoho seeks to reconnect with our traditional lands and taonga as guaranteed by both Te Tiriti O Waitangi and the Ngāti Tamaoho Settlement Act 2018. By working with Ngāti Tamaoho to protect and uphold the cultural values discussed here, the Client have the opportunity to uphold these agreements and support our self-determination as a people.

4. Ngati Tamaoho does not object to this Plan Change even though we reserve the right to do an addendum when future consents come up to recognise this overview cannot drill down into design and concept detail.

5. We agree in principal subject to: ongoing meaningful engagement into the future with the developers on any future design.

19. RECOMMENDATIONS

1. Ngāti Tamaoho wish to see the natural environment enhanced as a result of any future applications. This means going above and beyond bare minimum environmental standards for the protection of the land, water, and air of the area. Pukekohekohe is an interconnected cultural landscape and what can happen on one lot can significantly affect other nearby or down-stream.

2. In particular, Ngāti Tamaoho wish to retain and recover (where possible) the cultural and traditional value of Pukekohekohe as a food-basket for our people. Ngāti Tamaoho also wish to retain the use of Pukekohekohe for other cultural uses such as wananga and okiokinga. For these reasons, the proposed development should take into account the cultural values discussed above and continue to engage with Ngāti Tamaoho to achieve our aspirations.

3. As kaitiaki of Pukekohekohe, Ngāti Tamaoho have the long-term health of this landscape as our main priority. This will enhance the lives of all who live and work on this land.

4. This will require the client to engage meaningfully with Ngaati Tamaoho governance and kaitiaki to provide for the outcomes as outlined within this report. We recommend rain tanks for reticulation and reuse of rain water.

5. We recommend treatment train approach such as raingardens or swales to treat stormwater before it is discharged back into the main system.

6. We recommend cultural monitoring when scraping back the surface of the land.

7. We recommend native plantings be used in the planting plans.

8. We recommend the Discovery Protocols be used for this site as a proactive measure considering there is a probability of finding taonga as the land is undeveloped.
9. If there are any taonga found it is to be returned back to the Iwi to be managed by tribal taonga tuturu holders in the interim.

B2. Tāhuhu whakaruruhau ā-taone - Urban growth and form

Tāhuhu whakaruruhau ā-taone

The sheltering ridge pole

B2.1. Issues

Auckland's growing population increases demand for housing, employment, business, infrastructure, social facilities and services.

Growth needs to be provided for in a way that does all of the following:

(1) enhances the quality of life for individuals and communities;

(2) supports integrated planning of land use, infrastructure and development;

(3) optimises the efficient use of the existing urban area;

(4) encourages the efficient use of existing social facilities and provides for new social facilities;

(5) enables provision and use of infrastructure in a way that is efficient, effective and timely;

(6) maintains and enhances the quality of the environment, both natural and built;

(7) maintains opportunities for rural production; and

(8) enables Mana Whenua to participate and their culture and values to be recognised and provided for.

B2.2. Urban growth and form

B2.2.1. Objectives

(1) A quality compact urban form that enables all of the following:

(a) a higher-quality urban environment;

(b) greater productivity and economic growth;

(c) better use of existing infrastructure and efficient provision of new infrastructure;

(d) improved and more effective public transport;

(e) greater social and cultural vitality;

(f) better maintenance of rural character and rural productivity; and

(g) reduced adverse environmental effects.

(2) Urban growth is primarily accommodated within the urban area 2016 (as identified in Appendix 1A).

(3) Sufficient development capacity and land supply is provided to accommodate residential, commercial, industrial growth and social facilities to support

growth.

(4) Urbanisation is contained within the Rural Urban Boundary, towns, and rural and coastal towns and villages.

(5) The development of land within the Rural Urban Boundary, towns, and rural and coastal towns and villages is integrated with the provision of appropriate infrastructure.

B2.2.2. Policies

Development capacity and supply of land for urban development

(1) Include sufficient land within the Rural Urban Boundary that is appropriately zoned to accommodate at any one time a minimum of seven years' projected growth in terms of residential, commercial and industrial demand and corresponding requirements for social facilities, after allowing for any constraints on subdivision, use and development of land.

(2) Ensure the location or any relocation of the Rural Urban Boundary identifies land suitable for urbanisation in locations that:

(a) promote the achievement of a quality compact urban form

(b) enable the efficient supply of land for residential, commercial and industrial activities and social facilities;

(c) integrate land use and transport supporting a range of transport modes;

(d) support the efficient provision of infrastructure;

(e) provide choices that meet the needs of people and communities for a range of housing types and working environments; and

(f) follow the structure plan guidelines as set out in Appendix 1;

while:

(g) protecting natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage and special character;

(h) protecting the Waitākere Ranges Heritage Area and its heritage features;

(i) ensuring that significant adverse effects from urban development on receiving waters in relation to natural resource and Mana Whenua values are avoided, remedied or mitigated;

(j) avoiding elite soils and avoiding where practicable prime soils which are significant for their ability to sustain food production;

(k) avoiding mineral resources that are commercially viable;

(l) avoiding areas with significant natural hazard risks and where practicable avoiding areas prone to natural hazards including coastal hazards and flooding; and

(m) aligning the Rural Urban Boundary with:

(i) strong natural boundaries such as the coastal edge, rivers, natural catchments or watersheds, and prominent ridgelines; or

(ii) where strong natural boundaries are not present, then other natural elements such as streams, wetlands, identified outstanding natural landscapes or features or significant ecological areas, or human elements such as property boundaries, open space, road or rail boundaries, electricity transmission corridors or airport flight paths.

(3) Enable rezoning of future urban zoned land for urbanisation following structure planning and plan change processes in accordance with Appendix 1 Structure plan guidelines.

Quality compact urban form

(4) Promote urban growth and intensification within the urban area 2016 (as identified in Appendix 1A), enable urban growth and intensification within the Rural Urban Boundary, towns, and rural and coastal towns and villages, and avoid urbanisation outside these areas.

(5) Enable higher residential intensification:

(a) in and around centres;

(b) along identified corridors; and

(c) close to public transport, social facilities (including open space) and employment opportunities.

(6) Identify a hierarchy of centres that supports a quality compact urban form:

(a) at a regional level through the city centre, metropolitan centres and town centres which function as commercial, cultural and social focal points for the region or sub-regions; and

(b) at a local level through local and neighbourhood centres that provide for a range of activities to support and serve as focal points for their local communities.

(7) Enable rezoning of land within the Rural Urban Boundary or other land zoned future urban to accommodate urban growth in ways that do all of the following:

(a) support a quality compact urban form;

(b) provide for a range of housing types and employment choices for the area;

(c) integrate with the provision of infrastructure; and

(d) follow the structure plan guidelines as set out in Appendix 1.

(8) Enable the use of land zoned future urban within the Rural Urban Boundary or other land zoned future urban for rural activities until urban zonings are applied, provided that the subdivision, use and development does not hinder or prevent the future urban use of the land.

(9) Apply a Rural Urban Boundary for Waiheke Island (identified in Appendix 1B) as a regional policy statement method.

B2.3. A quality built environment

B2.3.1. Objectives

(1) A quality built environment where subdivision, use and development do all of the following:

(a) respond to the intrinsic qualities and physical characteristics of the site and area, including its setting;

(b) reinforce the hierarchy of centres and corridors;

(c) contribute to a diverse mix of choice and opportunity for people and communities;

(d) maximise resource and infrastructure efficiency;

(e) are capable of adapting to changing needs; and

(f) respond and adapt to the effects of climate change.

(2) Innovative design to address environmental effects is encouraged.

(3) The health and safety of people and communities are promoted.

B2.3.2. Policies

(1) Manage the form and design of subdivision, use and development so that it does all of the following:

(a) supports the planned future environment, including its shape, landform, outlook, location and relationship to its surroundings, including landscape and heritage;

(b) contributes to the safety of the site, street and neighbourhood;

(c) develops street networks and block patterns that provide good access and enable a range of travel options;

(d) achieves a high level of amenity and safety for pedestrians and cyclists;

(e) meets the functional, and operational needs of the intended use; and

(f) allows for change and enables innovative design and adaptive re-use.

(2) Encourage subdivision, use and development to be designed to promote the health, safety and well-being of people and communities by all of the following:

(a) providing access for people of all ages and abilities;

(b) enabling walking, cycling and public transport and minimising vehicle movements; and

(c) minimising the adverse effects of discharges of contaminants from land use activities (including transport effects) and subdivision.

(3) Enable a range of built forms to support choice and meet the needs of Auckland's diverse population.

(4) Balance the main functions of streets as places for people and as routes for the movement of vehicles.

(5) Mitigate the adverse environmental effects of subdivision, use and development through appropriate design including energy and water efficiency and waste minimisation.

B2.4. Residential growth

B2.4.1. Objectives

(1) Residential intensification supports a quality compact urban form.

(2) Residential areas are attractive, healthy and safe with quality development that is in keeping with the planned built character of the area.

(3) Land within and adjacent to centres and corridors or in close proximity to public transport and social facilities (including open space) or employment opportunities is the primary focus for residential intensification.

(4) An increase in housing capacity and the range of housing choice which meets the varied needs and lifestyles of Auckland's diverse and growing population.

(5) Non-residential activities are provided in residential areas to support the needs of people and communities.

(6) Sufficient, feasible development capacity for housing is provided, in accordance with Objectives 1 to 4 above, to meet the targets in Table B2.4.1 below:

Table B2.4.1: Minimum Dwelling Targets

Term	Short to Medium 1 - 10 years (2016 – 2026)	Long 11 - 30 years (2027 – 2046)	Total 1 – 30 years (2016 – 2046)
Minimum Target (number of dwellings)	189,800	218,500	408,300

Source: Development Strategy, Assessing Demand, Auckland Plan 2050.

B2.4.2. Policies

Residential intensification

(1) Provide a range of residential zones that enable different housing types and intensity that are appropriate to the residential character of the area.

(2) Enable higher residential intensities in areas closest to centres, the public transport network, large social facilities, education facilities, tertiary education facilities, healthcare facilities and existing or proposed open space.

(3) Provide for medium residential intensities in area that are within moderate walking distance to centres, public transport, social facilities and open space.

(4) Provide for lower residential intensity in areas:

(a) that are not close to centres and public transport;

(b) that are subject to high environmental constraints;

(c) where there are natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage and special character; and

(d) where there is a suburban area with an existing neighbourhood character.

(5) Avoid intensification in areas:

(a) where there are natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage or special character; or

(b) that are subject to significant natural hazard risks;

where such intensification is inconsistent with the protection of the scheduled natural or physical resources or with the avoidance or mitigation of the natural hazard risks.

(6) Ensure development is adequately serviced by existing infrastructure or is provided with infrastructure prior to or at the same time as residential intensification.

(7) Manage adverse reverse sensitivity effects from urban intensification on land with existing incompatible activities.

Residential neighbourhood and character

(8) Recognise and provide for existing and planned neighbourhood character through the use of place-based planning tools.

(9) Manage built form, design and development to achieve an attractive, healthy and safe environment that is in keeping with the descriptions set out in placed-based plan provisions.

(10) Require non-residential activities to be of a scale and form that are in keeping with the existing and planned built character of the area.

Affordable housing

(11) Enable a sufficient supply and diverse range of dwelling types and sizes that meet the housing needs of people and communities, including:

(a) households on low to moderate incomes; and

(b) people with special housing requirements.

B2.5. Commercial and industrial growth

B2.5.1. Objectives

(1) Employment and commercial and industrial opportunities meet current and future demands.

(2) Commercial growth and activities are primarily focussed within a hierarchy of centres and identified growth corridors that supports a compact urban form.

(3) Industrial growth and activities are enabled in a manner that does all of the following:

(a) promotes economic development;

(b) promotes the efficient use of buildings, land and infrastructure in industrial zones;

(c) manages conflicts between incompatible activities;

(d) recognises the particular locational requirements of some industries; and

(e) enables the development and use of Mana Whenua's resources for their economic well-being.

B2.5.2. Policies

(1) Encourage commercial growth and development in the city centre, metropolitan and town centres, and enable retail activities on identified growth corridors, to provide the primary focus for Auckland's commercial growth.

(2) Support the function, role and amenity of centres by encouraging commercial and residential activities within centres, ensuring development that locates within centres contributes to the following:

(a) an attractive and efficient urban environment with a distinctive sense of place and quality public places;

(b) a diverse range of activities, with the greatest mix and concentration of activities in the city centre;

(c) a distribution of centres that provide for the needs of people and communities;

(d) employment and commercial opportunities**;**

(e) a character and form that supports the role of centres as focal points for communities and compact mixed-use environments;

(f) the efficient use of land, buildings and infrastructure;

(g)high-quality street environments including pedestrian and cycle networks and facilities; and

(h)development does not compromise the ability for mixed use developments, or commercial activities to locate and expand within centres.

(3) Enable the expansion of metropolitan and town centres having regard to whether it will do all of the following:

(a) improve access to a range of facilities, goods and services in a convenient and efficient manner;

(b) maintain or enhance a compact mixed-use environment in the centre;

(c) retain or enhance the existing centre's function, role and amenity;

(d) support the existing network of centres and achieve a sustainable distribution of centres that is supported by sufficient population growth;

(e) manage adverse effects on the function, role and amenity of the city centre, and other metropolitan and town centres, beyond those effects ordinarily associated with trade effects on trade competitors;

(f) avoid, remedy or mitigate the effects of commercial activity on adjoining land uses;

(g) support medium to high intensity residential development; and

(h) support a safe and efficient transport system which is integrated with the centre.

(4) Enable new metropolitan, town and local centres following a structure planning process and plan change process in accordance with Appendix 1 Structure plan guidelines, having regard to all of the following:

(a) the proximity of the new centre to existing or planned medium to high intensity residential development;

(b) the existing network of centres and whether there will be sufficient population growth to achieve a sustainable distribution of centres;

(c) whether the new centre will avoid or minimise adverse effects on the function, role and amenity of the city centre, metropolitan and town centres, beyond those effects ordinarily associated with trade effects on trade competitors;

(d) the form and role of the proposed centre;

(e) any significant adverse effects on existing and planned infrastructure;

(f) a safe and efficient transport system which is integrated with the centre; and

(g) any significant adverse effects on the environment or on natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage or special character.

(5) Enable retail activities, where appropriate, on identified growth corridors in business zones, having regard to all of the following:

(a) adverse effects on the function, role and amenity of the city centre, metropolitan and town centres, beyond those effects ordinarily associated with trade effects on trade competitors;

(b) adverse effects on the quality compact urban form including the existing and planned location of activities, facilities, infrastructure and public investment;

(c) effects on community social and economic wellbeing and accessibility;

(d) the efficient use and integration of land and infrastructure;

(e) effects on the safe and efficient operation of the transport network;

(f) effects of the development on the efficient use of any industrial land, in particular opportunities for land extensive industrial activities and heavy industry;

(g) avoiding conflicts between incompatible activities; and

(h) the effects on residential activity.

(6) Enable commercial activities, where appropriate, in business zones in locations other than the city centre, metropolitan and town centres and identified growth corridors, having regard to all of the following:

(a) the matters listed in Policy B2.5.2(5)(a) to Policy B2.5.2(5)(h) above;

(b) the extent to which activities would compromise the achievement of policies B2.5.2(1) and B.2.5.2(2): and

(c) the extent to which activities would compromise the hierarchy of locations identified in policies B2.5.2(1) to B.2.5.2(5).

(7) Enable the supply of land for industrial activities, in particular for land-extensive industrial activities and for heavy industry in areas where the character, scale and intensity of the effects from those activities can be appropriately managed.

(8) Enable the supply of industrial land which is relatively flat, has efficient access to freight routes, rail or freight hubs, ports and airports, and can be efficiently served by infrastructure.

(9) Enable the efficient use of industrial land for industrial activities and avoid incompatible activities by all of the following:

(a) limiting the scale and type of non-industrial activities on land zoned for light industry;

(b) preventing non-industrial activities (other than accessory activities) from establishing on land zoned for heavy industry; and

(c) promoting co-location of industrial activities to manage adverse effects and to benefit from agglomeration.

(10) Manage reverse sensitivity effects on the efficient operation, use and development of existing industrial activities, including by preventing inappropriate sensitive activities locating or intensifying in or adjacent to heavy industrial zones.

B2.6. Rural and coastal towns and villages

B2.6.1. Objectives

(1) Growth and development of existing or new rural and coastal towns and villages is enabled in ways that:

(a) avoid natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage or special character unless growth and development protects or enhances such values; and

(b) avoid elite soils and avoid where practicable prime soils which are significant for their ability to sustain food production; and

(c) avoid areas with significant natural hazard risks;

(d) are consistent with the local character of the town or village and the surrounding area; and

(e) enables the development and use of Mana Whenua's resources for their economic well-being.

(2) Rural and coastal towns and villages have adequate infrastructure.

B2.6.2. Policies

(1) Require the establishment of new or expansion of existing rural and coastal towns and villages to be undertaken in a manner that does all of the following:

(a) maintains or enhances the character of any existing town or village;

(b) incorporates adequate provision for infrastructure;

(c) avoids locations with significant natural hazard risks where those risks cannot be adequately remedied or mitigated;

(d) avoids elite soils and avoids where practicable prime soils which are significant for their ability to sustain food production;

(e) maintains adequate separation between incompatible land uses;

(f) is compatible with natural and physical characteristics, including those of the coastal environment; and

(g) provides access to the town or village through a range of transport options including walking and cycling.

(2) Avoid locating new or expanding existing rural and coastal towns and villages in or adjacent to areas that contain significant natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage or special character, unless the growth and development protects or enhances such resources including by any of the following measures:

(a) the creation of reserves;

(b) increased public access;

(c) restoration of degraded environments;

(d) creation of significant new areas of biodiversity; or

(e) enablement of papakāinga, customary use, cultural activities and appropriate commercial activities.

(3) Enable the establishment of new or significant expansions of existing rural and coastal towns and villages through the structure planning and plan change processes in accordance with Appendix 1 Structure plan guidelines.

(4) Enable small-scale growth of and development in rural and coastal towns and villages without the need for structure planning, in a manner consistent with policies B2.6.2(1) and (2).

(5) Enable papakāinga, marae, customary use, cultural activities and appropriate commercial activities on Māori land and on other land where Mana Whenua have collective ownership.

B2.7. Open space and recreation facilities

B2.7.1. Objectives

(1) Recreational needs of people and communities are met through the provision of a range of quality open spaces and recreation facilities.

(2) Public access to and along Auckland's coastline, coastal marine area, lakes, rivers, streams and wetlands is maintained and enhanced.

(3) Reverse sensitivity effects between open spaces and recreation facilities and neighbouring land uses are avoided, remedied or mitigated.

B2.7.2. Policies

(1) Enable the development and use of a wide range of open spaces and recreation facilities to provide a variety of activities, experiences and functions.

(2) Promote the physical connection of open spaces to enable people and wildlife to move around efficiently and safely.

(3) Provide a range of open spaces and recreation facilities in locations that are accessible to people and communities.

(4) Provide open spaces and recreation facilities in areas where there is an existing or anticipated deficiency.

(5) Enable the development and use of existing and new major recreation facilities.

(6) Encourage major recreation facilities in locations that are convenient and accessible to people and communities by a range of transportation modes.

(7) Avoid, remedy or mitigate significant adverse effects of land use or development on open spaces and recreation facilities.

(8) Avoid, remedy or mitigate significant adverse effects from the use of open spaces and recreational facilities on nearby residents and communities.

(9) Enable public access to lakes, rivers, streams, wetlands and the coastal marine area by enabling public facilities and by seeking agreements with private landowners where appropriate.

(10) Limit public access to and along the coastal marine area, lakes, rivers, streams and wetlands by esplanade reserves, esplanade strips or other legal mechanisms where necessary for health, safety or security reasons or to protect significant natural or physical resources.

B2.8. Social facilities

B2.8.1. Objectives

(1) Social facilities that meet the needs of people and communities, including enabling them to provide for their social, economic and cultural well-being and their health and safety.

(2) Social facilities located where they are accessible by an appropriate range of transport modes.

(3) Reverse sensitivity effects between social facilities and neighbouring land uses are avoided, remedied or mitigated.

B2.8.2. Policies

(1) Enable social facilities that are accessible to people of all ages and abilities to establish in appropriate locations as follows:

(a) small-scale social facilities are located within or close to their local communities;

(b) medium-scale social facilities are located with easy access to city, metropolitan and town centres and on corridors;

(c) large-scale social facilities are located where the transport network (including public transport and walking and cycling routes) has sufficient existing or proposed capacity.

(2) Enable the provision of social facilities to meet the diverse demographic and cultural needs of people and communities.

(3) Enable intensive use and development of existing and new social facility sites.

(4) In growth and intensification areas identify as part of the structure plan process where social facilities will be required and enable their establishment

in appropriate locations.

(5) Enable the efficient and flexible use of social facilities by providing on the same site for:

(a) activities accessory to the primary function of the site; and

(b) in appropriate locations, co-location of complementary residential and commercial activities.

(6) Manage the transport effects of high trip-generating social facilities in an integrated manner.

B2.9. Explanation and principal reasons for adoption

A broad strategy is needed to address the resource management issues arising from the scale of urban growth in Auckland. The objective of a quality compact urban form is supported by a primary policy approach of focussing residential intensification in and around commercial centres and transport nodes and along major transport corridors.

A compact urban form is one with clear boundaries where the residential and commercial areas are relatively close together. In Auckland, most urban growth is expected to be inside the Rural Urban Boundary:

- to promote efficient and timely provision of infrastructure;
- to protect natural and physical resources that have been scheduled for particular identified values; and
- to avoid urbanisation without appropriate structure planning.

The location of the Rural Urban Boundary is a district plan land use rule pursuant to section 9(3) of the Resource Management Act 1991, other than for Waiheke Island where it is an interim regional policy statement method until it is considered as part of a plan change to incorporate the Auckland Council District Plan – Operative Hauraki Gulf Islands Section into the Unitary Plan.

A compact urban form can deliver a range of benefits by:

- enabling a range of housing choices in size, typology and price within neighbourhoods;
- protecting sites and areas with identified high environmental values;
- providing access to open space and social facilities;
- fostering productivity, creativity and social vitality by enabling social and business networks based on spatial proximity;
- promoting an integrated approach to land use and transport; and
- providing investment certainty about use and development strategies.

A quality built environment is one which enhances opportunities for people's well-being by ensuring that new buildings respond to the existing built and natural environment in ways that promote the plan's objectives and maintain and enhance the amenity values of an area. In most areas this is regulated by permitted standards and by assessment where those standards are exceeded. In centres and where higher intensity development is enabled, the design and appearance of buildings is generally assessed on a restricted

discretionary basis.

In addressing the effects of growth, a key factor is enabling sufficient development capacity in the urban area and sufficient land for new housing and businesses over the next 30 years. The objectives and policies guide the location of urban growth areas. They identify how greenfield land which is suitable for urbanisation will be managed until it is re-zoned for urban development. They encourage provision for Mana Whenua to develop and use their resources. They also set out the process to be followed to ensure that urban development is supported by infrastructure on a timely and efficient basis. They should be considered in conjunction with the Council's other principal strategic plans such as the Auckland Plan, the Long-term plan and the Regional Land Transport Plan. The strategies and asset management plans of infrastructure providers will also be highly relevant.

Housing affordability is a significant issue in Auckland. These objectives and policies, as one component of the many things that need to be done to address this issue, seek to enable urban growth, improve development capacity and encourage a variety of housing types and sizes as resource management methods to improve housing affordability.

Urban growth in rural and coastal towns and villages is also anticipated and provided for, but at a much lesser scale than in the main urban areas. Extensions to towns and villages, and proposals for new towns or villages, must be considered against factors including ensuring compatibility with existing local character, the protection of areas with identified values (including areas of land containing elite soils) and the avoidance of areas with significant natural hazards. Changes of zoning to accommodate such growth will be the subject of structure planning processes, as for other plan changes.

Auckland has a large number of open spaces that covers a wide variety of environments. Open spaces and recreation facilities may be privately or publicly owned and operated. Auckland's streets, including shared spaces and street berms, are also an important component of the open space network. The coastal marine area is a significant public open space and recreational resource. For additional policy direction on the coastal environment see section B8 Coastal environment.

Collectively these open spaces perform a wide range of functions including:

- providing opportunities for active and passive recreational activities, locally or Auckland-wide;
- enabling public access to the coastline, islands and beaches;
- maintaining and enhancing the amenity values and the quality of the environment around them;
- protecting and enhancing our natural and cultural heritage, landscapes and ecological values; and
- providing locations for social facilities used for sports, recreation and leisure and community activities.

With growth, new open spaces and social facilities will be required and the existing open space and social facilities will need to be expanded and upgraded to meet the needs of new residents and the increased level of use.

Social facilities include public and private facilities which provide for services such as education, health, justice, corrections, community and cultural facilities. They also

contribute to the economy of Auckland and New Zealand in a variety of ways, both supporting other activities and by contributing to a high-value knowledge economy. This is particularly important for a growing city, as increasing numbers of people rely on these facilities to meet their needs and provide for their social, economic and cultural well-being.

The objectives and policies in this section of the regional policy statement must be read together with other relevant sections which set out the direction for the sustainable management of natural and physical resources in more specific contexts.

Auckland Unitary Plan
Proposed Plan Change 87 (Private): 301 and 303 Buckland Road, Pukekohe

Auckland Council has accepted a private plan change request to the Auckland Unitary Plan (Operative in Part) from Pukekohe Limited under Schedule 1 to the Resource Management Act 1991 (RMA).

Proposed Private Plan Change 87 is a proposal that seeks to rezone 7.8 hectares of land at 301 and 303 Buckland Road, Pukekohe from the Future Urban Zone to the Business – General Business Zone.

The proposal may be viewed at www.aucklandcouncil.govt.nz/planchanges. If you have any questions about the application, please contact: Jimmy Zhang Senior Policy Planner on 09 301 0101.

The following persons may make a submission on the proposal:

- The local authority in its own area may make a submission; and
- Any other person may make a submission but, if the person could gain an advantage in trade competition through the submission, then the person may do so only if the person is directly affected by an effect of the proposal that –
  - adversely affects the environment; and
  - does not relate to trade competition or the effects of trade competition.

You may make a submission by sending a written or electronic submission to Auckland Council at:

- Auckland Council, Unitary Plan Private Bag 92300, Auckland 1142, Attention: Planning Technician, or
- By using the electronic form on the Auckland Council website at www.aucklandcouncil.govt.nz/planchanges, or
- By email to: unitaryplan@aucklandcouncil.govt.nz ;or
- Lodging your submission in person at Auckland Council, Libraries or offices

The submission must be in form 5 and must state whether or not you wish to be heard in relation to your submission. Copies of this form are available to download at www.aucklandcouncil.govt.nz/planchanges or can be collected from any Library or Council office.

Submissions close on 24 November 2022.

The process for public participation in the consideration of the proposal under the RMA is as follows.

- after the closing date for submission, Auckland Council must prepare a summary of decisions requested by submitters and give public notice of the availability of this summary and where the summary and submissions can be inspected; and
- there must be an opportunity for the following persons to make a further submission in support of, or in opposition to, the submissions already made:
  - any person representing a relevant aspect of the public interest:
  - any person who has an interest in the proposal greater than the general public has:
  - the local authority itself; and
- if a person making a submission asks to be heard in support of his or her submission, a hearing must be held; and
- Auckland Council must give its decision on the provisions and matters raised in the submissions (including its reasons for accepting or rejecting submissions) and give public notice of its decision within 2 years of notifying the proposal and serve it on every person who made a submission at the same time; and
- any person who has made a submission has the right to appeal the decision on the proposed plan modification to the Environment Court if-
  - in relation to a provision or matter that is the subject of the appeal, the person referred to the provision or matter in the person's submission on the proposal; and
  - in the case of a proposal that is a proposed policy statement or plan, the appeal does not seek the withdrawal of the proposal as a whole.

John Duguid Manager – Plans & Places
Notification date: 27 October 2022

PUKEKOHE LIMITED

PROPOSED **PRIVATE PLAN CHANGE FROM FUTURE URBAN ZONE TO BUSINESS – GENERAL BUSINESS ZONE**

301 and 303 Buckland Road, Pukekohe

Section 32 Evaluation

Project No. 4314.00

Date January 2022

SCOTT WILKINSON PLANNING

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ISSUE AND REVISION RECORD

Status	Draft
Revision No.	1
Project No.	4314.01
Date of Issue	January 2022
File Name	S32 Evaluation

Prepared by

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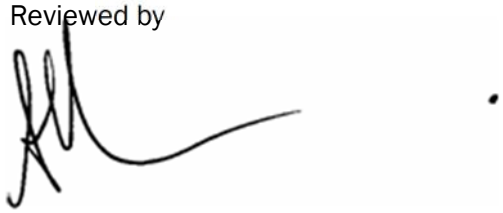

Andrew Wilkinson (BPlan Hons MNZPI)
Planning Consultant | Director

Approved by

Robert Scott (BA, BPlan, Dip Bus Admin MNZPI)
Planning Consultant | Director

LIMITATIONS

This section 32 evaluation report has been prepared for the private plan change Request at 301 and 303 Buckland Road, Pukekohe, in accordance with the requirements of the Resource Management Act 1991. No responsibility is accepted by Scott Wilkinson Planning Limited or its directors or employees for the use of any part of this report in any other context or for any other purpose.

This report is for use by Pukekohe Limited and the Auckland Council only, and should not be used or relied upon by any other person or for any other project.

1 INTRODUCTION

1.1 PPC DETAILS

Site Address	301 and 303 Buckland Road, Pukekohe
Name of Requester	Pukekohe Limited
Legal Description	301 Buckland Road - Pt Lot 1 DP 3363 303 Buckland Road - Lot 1 DP 64805
Site Area	301 Buckland Road – 4.3602 ha 303 Buckland Road - 3.5038 ha

PLANNING INSTRUMENTS

Auckland Unitary Plan- Operative in Part:

Zoning	Future Urban Zone
Precinct	NA
Overlays	Natural Heritage NA Natural Resources Natural Resources: High-Use Aquifer Management Areas Overlay [rp] - Pukekohe Kaawa Aquifer Natural Resources: High-Use Aquifer Management Areas Overlay [rp] - Pukekohe Central Volcanic Natural Resources: Quality-Sensitive Aquifer Management Areas Overlay [rp] - Franklin Volcanic Aquifer Height Sensitive Areas NA
Controls	Controls: Macroinvertebrate Community Index - Rural
Designations	NA
Other features	NA

1.2 STRUCTURE

The report is structured to respond directly to the requirements of s32 of the Resource Management Act 1991 (**RMA**) and contains the following Sections:

- **Section 1** provides an overview of the objectives of the private plan change (**PPC**) and assesses the appropriateness of the proposal to achieve the purpose of the RMA. The section concludes that the objectives of the proposed plan change are the most appropriate way to achieve the purpose of the RMA.
- **Section 2** provides an assessment of the appropriateness of the provisions to achieve the objectives of the proposal. This section includes a consideration of reasonably alternative methods to achieve the plan change objective and assesses the costs, benefits, efficiency and effectiveness of the provisions. The section concludes that the provisions of the proposed plan change are the most appropriate way of achieving its objectives.

This s32 evaluation should be read in conjunction with the Assessment of Environmental Effects report and suite of technical reports that were prepared in support of the proposal and provide further details of the proposed plan change and its potential effects.

1.3 SECTION 32

The provisions of section 32 of the RMA are as follows.

32 Requirements for preparing and publishing evaluation reports

(1) An evaluation report required under this Act must—

(a) examine the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of this Act; and

(b) examine whether the provisions in the proposal are the most appropriate way to achieve the objectives by—

(i) identifying other reasonably practicable options for achieving the objectives; and

(ii) assessing the efficiency and effectiveness of the provisions in achieving the objectives; and

(iii) summarising the reasons for deciding on the provisions; and

(c) contain a level of detail that corresponds to the scale and significance of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the proposal.

(2) An assessment under subsection (1)(b)(ii) must—

(a) identify and assess the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions, including the opportunities for—

(i) economic growth that are anticipated to be provided or reduced; and

(ii) employment that are anticipated to be provided or reduced; and

(b) if practicable, quantify the benefits and costs referred to in paragraph (a); and

(c) assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions.

(3) If the proposal (an amending proposal) will amend a standard, statement, national planning standard, regulation, plan, or change that is already proposed or that already exists (an existing proposal), the examination under subsection (1)(b) must relate to—

(a) the provisions and objectives of the amending proposal; and

(b) the objectives of the existing proposal to the extent that those objectives—

(i) are relevant to the objectives of the amending proposal; and

(ii) would remain if the amending proposal were to take effect.

(4) If the proposal will impose a greater or lesser prohibition or restriction on an activity to which a national environmental standard applies than the existing prohibitions or restrictions in that standard, the evaluation report must examine whether the prohibition or restriction is justified in the circumstances of each region or district in which the prohibition or restriction would have effect.

(4A) If the proposal is a proposed policy statement, plan, or change prepared in accordance with any of the processes provided for in Schedule 1, the evaluation report must—

(a) summarise all advice concerning the proposal received from iwi authorities under the relevant provisions of Schedule 1; and

(b) summarise the response to the advice, including any provisions of the proposal that are intended to give effect to the advice.

(5) The person who must have particular regard to the evaluation report must make the report available for public inspection—

(a) as soon as practicable after the proposal is made (in the case of a standard, regulation, national policy statement, or New Zealand coastal policy statement); or

(b) at the same time as the proposal is notified.

(6) In this section,—

***objectives** means,—*

(a) for a proposal that contains or states objectives, those objectives:

(b) for all other proposals, the purpose of the proposal proposal means a proposed standard, statement, national planning standard, regulation, plan, or change for which an evaluation report must be prepared under this Act

***provisions** means,—*

(a) for a proposed plan or change, the policies, rules, or other methods that

implement, or give effect to, the objectives of the proposed plan or change:

(b) for all other proposals, the policies or provisions of the proposal that implement, or give effect to, the objectives of the proposal.

2 SECTION 32(1)(A) ASSESSMENT

Section 32(1)(a) of the RMA requires the evaluation of the extent to which the objectives of the PPC being evaluated are the most appropriate way to achieve the purpose of the RMA. The purpose of the RMA is to promote the sustainable management of natural and physical resources, recognise and provide for matters of national importance and have particular regard to specified matters. For the following reasons it is considered that the plan change objectives are the most appropriate way to achieve the purpose of the RMA.

2.1 THE OBJECTIVES OF THE PLAN CHANGE

A key issue identified in the Auckland Unitary Plan – Operative in Part (**Unitary Plan**) (Issue B2.1) is the continued pressure to accommodate Auckland's population growth and provide access to housing and employment opportunities. This PPC responds to that issue with regard to providing employment opportunity.

While this PPC does not involve residential development it provides much needed opportunities for employment growth within the community to support the residential growth already underway in Pukekohe.

The Pukekohe-Paerata Structure Plan (**Structure Plan**) has the broad goal of:

> *New growth areas will enhance Pukekohe as a focal point and place to further support the surrounding rural economy. These areas will offer a range of housing choice and employment opportunities for people at all stages of life. It will be well connected to the wider Auckland and Waikato regions, while protecting and enhancing the natural, physical and cultural values that contribute to Pukekohe's unique character and identity.*

The need for local employment to support growth is set out in the Structure Plan and the site included in the plan change area (**PCA**) are in an area identified for business/employment zoning. The choice of a Business – General Business Zone (**BGBZ**) will best achieve this objective as it is a zone that enables the broadest range of employment activities including light industry, office development and large format retail, all of which have a demonstrable demand in Pukekohe.

The PPC has adopted the provisions of the BGBZ without amendment as the implementation of this zone is considered to be the best way to enable employment related growth. In particular:

- The BGBZ will facilitate the development of an employment node adjoining an area of existing business/industrial development and opposite Pukekohe Park which has also recently rezoned some of its surplus land to BGBZ;
- Detailed specialist investigations have been undertaken to inform and support the request and are submitted. The investigations demonstrate that the BGBZ provisions are suitable such that any adverse effects of activities on the environment can be appropriately avoided, remedied or mitigated;
- Detailed specialist investigations have demonstrated that no significant natural or heritage features or values will be affected through the proposed zoning and subsequent development

enabled by it.

- Detailed specialist investigations have demonstrated that suitable infrastructure can be provided at the development stage and service the land and to manage any natural hazards.
- All interested iwi authorities have been consulted and CVA's from Ngati Te Ata and Ngati Tamaoho have not identified any significant adverse cultural effects, subject to ongoing engagement.
- Future road upgrades to Buckland Road and the extension of Webb Street have been identified to support the growth enabled by the rezoning of the land to BGBZ.

2.2 CONSIDERATION OF ALTERNATIVES

2.2.1 OPTION1 – STATUS QUO

Maintaining the status quo would see the land remaining as FUZ. This is not seen as the best option as residential development and intensification is proceeding in Pukekohe with new areas of residential development and population growth occurring at present. It is understood that several other private plan changes in Pukekohe are currently being processed or prepared that include significant new areas of residential zoning. This includes plan changes in the Golding Road area and Pukekohe East.

As discussed in the Auckland Plan 2020 and the Pukekohe-Paerata Structure Plan, Pukekohe is identified as a satellite town with the objective of servicing their surrounding rural communities in terms of supporting significant local business and residential growth. Section 3.3.2 of the Structure Plan states:

> *As a satellite town Pukekohe is anticipated to have significant future growth in employment as well as residential growth. A key part of the Pukekohe-Paerata Structure Plan 2019 is to identify a sufficient amount of land for employment opportunities.*

Maintaining the status quo would result in population growth without the corresponding supply of new employment related land to provide new local employment opportunity, especially with regard to Large Format Retail which the Urban Economics assessment identified a high demand for. The consequence of not providing business land while residential growth is occurring is that residents will seek employment elsewhere in the Auckland Region or the adjoining Waikato Region. This in turn would put pressure on the roading and transport infrastructure and would deprive Pukekohe of economic revenue as well as local employment.

For these reasons, maintaining the status quo of FUZ on the land is not considered the best option.

2.2.2 OPTION 2 – BUSINESS LIGHT INDUSTRY ZONE

The Pukekohe-Paerata Structure Plan has identified the land to be zoned Business – Light Industry Zone (**BLIZ**). Section 3.3.2 discusses business land options and states:

> *Business land demand analysis was prepared for the structure plan. This estimates that approximately 80 to 100ha (net developable) of new industrial land is needed in Pukekohe-Paerata to meet future demand for employment. This assessment takes into account the capacity in existing zoned industrial areas. In addition to this 80 to 100ha, additional land will be needed for new roads, esplanade reserves, flood affected areas and any other constraints in industrial areas.*
>
> *The structure plan proposes approximately 95ha (net developable) of land to be zoned*

> *Light Industry to meet the demand discussed above. This could enable around 2370 new jobs within the new industrial areas in the structure plan area. Providing for business activities in the structure plan area can reduce the need for community and freight movement northwards, which affects congestion across Auckland as a whole.*
>
> *The Light Industry Zone provides for a range of business activities that are less likely to fit within town centres. Some activities that support rural industries are also provided for in this zone. While this zone anticipates a lower level of amenity than the other business zones (except the Heavy Industry Zone), it does not anticipate activities that will generate objectionable odour, dust or noise.*
>
> *The structure plan proposes new areas of Light Industry Zone in the north (part Area D), north west (part Area E) and to the east and south (part Areas F and H).*

While this analysis is generally supported, the Urban Economics assessment has identified strong demand for Large Format Retail activity as well as demand for light industry and has identified this land (adjoining the existing light industry area in south Pukekohe) and opposite Pukekohe Park (with newly zoned land to BGBZ) as being particularly suitable for a wide range of business activities.

While the Urban Economics assessment concludes that the BGBZ and BLIZ are the only business zones suitable for this land it has concluded that the BGBZ is preferred due to its wider range of employment opportunities and flexibility to respond to market demand before the Structure Plan enables the release of additional land to facilitate growth.

For these reasons a BLIZ zoning on the land, while being feasible, is not considered the best option.

2.2.3 OPTION 3 – BUSINESS – MIXED USE ZONE

The Business – Mixed Use Zone (**BMUZ**) is a business zone that specifically enables a range of activities including residential (and visitor accommodation) and a wide range retail of development. The zone description states:

> *The zone provides for residential activity as well as predominantly smaller scale commercial activity that does not cumulatively affect the function, role and amenity of centres. The zone does not specifically require a mix of uses on individual sites or within areas.*

In this case, residential development would not be appropriate on this land, even in the context of a business zone, due to the likely adverse reverse sensitivity effects associated with the use of Pukekohe Park for motor racing.

Furthermore the provision of small format retail in this location would likely attract business away from the existing Pukekohe Town Centre and thereby have adverse effects on the viability of this form of retail in the existing town centre. In contrast Large Format Retail – as enabled in the BGBZ does not have this effect on the commercial viability of town centres.

For these reasons a BMUZ zoning on the land is not considered the best option.

2.2.4 OPTION 4 – BUSINESS – GENERAL BUSINESS ZONE

The BGBZ offers a wide range of business and employment related activities and the Urban Economics assessment has demonstrated that there is demand for new business land in Pukekohe to meet the current demand associated with a growing population. As set out in 5.1 of the effects assessment report the range of activities enabled in the BGBZ include light industry, office development, large format retail and food beverage activity. The economic assessment in

section 6.7 effects assessment report has shown that there is demand for both light industry and large format retail development in Pukekohe and the BGBZ is well suited to provide the flexibility of these business activities.

The proposed zoning would complement the existing business and light industry development along Manukau Road and will also complement the recently zoned BGBZ land opposite the PCA. A BGBZ would also not inhibit the further introduction of BLIZ on FUZ land further to the south as those areas are brought into the urban fabric of Pukekohe.

2.2.5 CONCLUSION

Overall, the BGBZ is considered to be the best option for rezoning the land. It is able to be applied to the land without amendment and the zoning will complement the zoning of the adjoining industrial area the activities at Pukekohe Park and recent BGBZ zoning on land to the immediate north of the Park.

2.3 EFFICIENCY AND EFFECTIVENESS OF THE PROVISIONS

2.3.1 UTILISING AN EXISTING ZONE FRAMEWORK

The Request will see the underlying zoning of the land change from FUZ to BGBZ. The BGBZ was established through the development of the Unitary Plan which became operative in Part in November 2016 and largely applies to areas close to BLIZ zones Business -Town Centre Zones or within identified growth corridors, where there is good transport access and exposure to customers.

The provisions of the BGBZ were assessed and considered as part of the Unitary Plan process and determined to provide the most efficient and effective method for facilitating business and employment development and activities in specific locations across Auckland. The BGBZ is considered the most appropriate zone available within the suite of the Unitary Plan's zones to meet the broader objectives of the plan change for the following reasons:

- There is a demonstrated demand for new land on larger sites to establish Large Format Retail and industrial development and within the wider area (refer to Urban Economics Report submitted in support of this Request).
- The Pukekohe-Paerata Structure Plan identifies the land for business/employment purpose.
- The BGBZ would enable the development of industrial activities, however, it has the potential to facilitate other business land uses that are desirable including large format retail and office activity.
- While the BLIZ provides for industrial activities that do not generate odour the BGBZ also provides for Light Industry and a wider range of employment activities.

It is concluded that the provisions of the BGBZ, provide an appropriate suite of objectives, policies, development standards and activity controls to enable the establishment of a quality business node within Pukekohe.

2.3.2 CONSIDERATION OF ALL RELEVANT ENVIRONMENTAL EFFECTS

Through substantial technical investigations and design considerations it has been determined that the land subject to this PPC has minimal constraints to its development. In particular the land has no significant ecological values or natural water courses or wetlands. It has been demonstrated that the geology and geotechnical limitations of the land are sufficient to allow business development in accordance with the activities enabled in the BGBZ. Similarly, only low

levels of contamination have been identified and can easily be managed as part of any development process. On that basis there are no physical constraints or adverse environment effects that cannot be avoided remedied or mitigated.

In terms of transportation effects these have been assessed and it has been demonstrated that the road network can support a BGBZ in this locality. A number of transportation improvements have been identified and are recommended to occur along with any large scale development of the land under a BGBZ zoning. This includes the upgrade of Buckland Road to an urban arterial road, the extension of Webb Street to Buckland Road and the possible addition of a roundabout at this intersection.

In terms of infrastructure effects, the land can be adequately serviced by reticulated water supply and wastewater infrastructure (including planned upgrades). With regard to stormwater the assessment has demonstrated that on site treatment, retention and detention can be undertaken to support business development. It is noted that the approach adopted by the Requester is consistent with the approved stormwater management regime for the Franklin Plumbing development approved at 301 Buckland Road.

The Economic effects of the proposed zoning has also been considered and the assessment by Urban Economics has demonstrated that the activities enabled in the BGBZ can be established on the land without having an adverse economic effect on the existing town centre and the retail activities established there.

Finally, cultural effects have been carefully examined by the two local mana whenua groups Ngati Tamaoho and Ngati Te Ata and they both conclude that any adverse cultural effects can be managed.

Overall, it is therefore concluded that all relevant environmental effects have been considered and that these can be sufficiently avoided, remedied or mitigated under the development that would be enabled in the BGBZ.

2.3.3 CONSISTENCY WITH OTHER LAND NEARBY

It is concluded that the BGBZ would be an effective zoning with regard to the zoning and established activities on other land nearby. The Proposed BGBZ will complement other BGBZ land recently rezoned opposite the PCA and it is understood that the land immediately opposite the Requester's land (and owned by Counties Racing) is proposed to also be rezoned BGBZ. The proposed zoning will also complement the activities within Pukekohe Park and will avoid any adverse reverse sensitivity effects by being a zoning that only enables employment activity and does not enable sensitive activities such as residential or visitor accommodation.

The location of the land near the southern extent of existing BLIZ zoned development means that any BGBZ development on the Requesters land will complement the existing business activities within this existing light industrial area of Pukekohe.

2.3.4 EMPLOYMENT TO SUPPORT PLANNED GROWTH IN PUKEKOHE

The purpose of the request to rezone the land to BGBZ is to provide a flexible and wide range of employment activities to support the planned and already established growth in Pukekohe. The BGBZ provides the most flexible and broadest range of employment activities in the Unitary Plan while also excluding or discouraging activities that are not suited to this locality (i.e. residential and small form retail).

There is demonstrated demand for more business land in Pukekohe and the provision of business land to support growth is an outcome of the Pukekohe-Paerata Structure Plan and the Auckland

Plan 2020.

2.3.5 COST BENEFIT ANALYSIS

This section provides an assessment of the potential costs and benefits of the plan change as a result of its likely environmental, economic, social and cultural effects and as is required under sections 32(2)(a) and (b) of the RMA. This section should be read in conjunction with the more detailed Economic Assessment prepared by Urban Economics that is submitted in support of this plan change.

BENEFITS	COSTS
Environmental	
There are no significant ecological values associated with the land subject to the Request. Stormwater mitigation can be achieved using a range of low-impact design techniques and methods.	There is some identified low-level contamination but this can be managed using accepted remediation methods. The need for on-site stormwater mitigation (and lack of a reticulated solution) means that areas of land will need to be set aside for this purpose instead of being developed for business activity.
Social and Cultural	
The Request will provide opportunity for local employment activities to be established for the growing residential population. Positive outcomes associated with this include less trips out of Pukekohe for workers and greater social and community cohesion associated with people living and working locally. Adverse Māori cultural effects can be managed in association with mana whenua who broadly support the plan change but wish to remain engaged. The land is located in an area that is not identified as having high cultural or heritage values.	There will potentially be some "leakage" of business activity from the town centre to the new BGBZ.
Economic	
There is demonstrated demand for new business/employment land in Pukekohe and strong demand for light industry and Large Format Retail as well as some demand for office activity. The request will immediately address that demand. The costs of the private plan change process are borne by the Requester. The land is of a sufficient size to accommodate additional business land without com-	There is potential for some trade-competition with the town centre if the rate of population growth does not match the supply of new business land.

promising the viability of other industrial precincts within the Pukekohe-Paerata area.	

2.4 RISK OF NOT ACTING

Section 32(2)(c) requires an assessment of the risk of acting or not acting if there is uncertain or insufficient information about the plan change. This plan change request includes technical reports that have been prepared to understand the effects of the plan change. These reports assess matters relating to civil engineering, geotechnical, transportation, ground contamination and economic impacts.

Based on the above, it is concluded that sufficient information has been gathered to justify proceeding with the plan change and that the risk of acting on this information is less than not acting and adopting a reactive stance to unplanned development within FUZ zoned land in the area.

The land is zoned FUZ and is identified suitable through structure planning for a BLIZ zoning along with other land to the south along Buckland Road. The land would eventually be zoned in accordance with the Structure Plan – although there is no stated timeline for this. However, there is need for new land in Pukekohe to be zoned BGBZ now. This proposal would provide much-needed business and employment land to meet immediate demand to support growth occurring at the present while the Council consider the rezoning of the other FUZ land in the future.

APPENDIX 2

FURTHER INFORMATION, REQUESTS AND RESPONSES

18 February 2022

Issued via email: robert@scottwilkinson.co.nz

Dear Robert,

RE: Clause 23(1) Resource Management Act 1991 Further Information – Private Plan Change request by Pukekohe Limited

Thank you for the private plan change request lodged with Auckland Council on 25 January 2022 to rezone 7.8 ha of land at 301 and 303 Buckland Road from the Future Urban Zone to the Business: General Business Zone.

Further to this request under Clause 21 to Schedule 1 of the Resource Management Act 1991, the Council has now completed an assessment of the information supplied.

Pursuant to Clause 23(1) of the Resource Management Act 1991, the Council requires further information to continue processing the private plan change request.

Appendix 1 attached to this letter sets out the further information requested and the reasons for these requests.

If you have any queries regarding the above, please do not hesitate to contact me at jimmy.zhang@aucklandcouncil.govt.nz.

Kind regards,

Jimmy Zhang | Planner
Plans and Places

Appendix 1:

Further information requested under Clause 23 First Schedule of the Resource Management Act 1991

Contents

#	Category of information	Specific Request	Reasons for request
Planning, statutory and general matters			
P1	Shape files	Please provide shape files showing the proposed plan change area.	Shape files are required to show the extent of the Private Plan Change (PPC) request on the AUP(OP) GIS Viewer upon notification.
P2	Consultation	Please clarify whether Auckland Transport have been consulted with in the preparation of the PPC,and if so what the outcome of that consultation was.	Given the PPC will increase the number of trips generated on the current and future local and strategic network, it would be helpful to understand the extent of consultation undertaken with AT as the road controlling authority.
P3	Integrated Planning approach	Please provide an assessment of the potential effects of the zoning proposal on the future implementation of the Pukekohe-Paerata Structure Plan, as well as any other potential risks/issues associated with rezoning the land General Business ('GB').	In setting council's strategic direction for the FUZ surrounding Pukekohe-Paerata, the Pukekohe-Paerata Structure Plan has indicated a preference for the Light Industry ('LI') zone over the plan change area. The Urban Economics assessment notes that both the LI and GB zones are appropriate for the PC land. It appears that the GB zone is preferred due to the 'flexibility' it provides, as it enables a wider range of activities relative to the LI zone. The benefits of increased flexibility for a site needs to be considered alongside the strategic implications for the surrounding Future Urban zone ('FUZ') indicated for LI and the need to carefully manage the expansion of the GB zone.

P4	Integrated Planning approach	Please explain how the mitigation measures outlined in Table 1 of the Commute ITA can be implemented, and also delivered in a manner which ensures the safety and efficiency of the road network, if no precinct is proposed to sit over the land.	This information is required to better understand the transport effects and their management, particularly given the range of uncertainties including the future use of the land, the range and scale of activities enabled through the zoning and the potential for multiple landowners and future subdivision.
P5	Precinct provisions	Has consideration been given to the application of a SMAF:1 overlay over the plan change area?	The AUP states that for greenfield areas adverse effects of development shall be avoided as far as practicable or otherwise remedied or mitigated and this includes changes in hydrology (Policy E1.3.8).
P6	Clarification	Please confirm if the upgrade of 'footpaths' in Table 1 of Commute's ITA will include kerb and channelling.	Point of clarification on whether upgrades to kerb and channelling are included in the provision of 'footpaths'.

#	Category of information	Specific Request	Reasons for request
Economics: Derek Foy			
E1	Business land per capita ratio	Clarification as to the geographic area that the 108ha land (GBZ and Business Light Industry Zone "BLIZ") included in Figure 3 (of the Urban Economics report) relates to, and discussion about how relevant Auckland average ratios are to a peripheral location such as Pukekohe.	It is unclear from Figure 3 and the associated text whether the 198ha relates to all the land within the primary and secondary catchment, or only the land in Pukekohe. If the 108ha doesn't include all GBZ and BLIZ land in the primary and secondary catchment, then it will be important to understand how much GBZ and BLIZ land there is in the primary and secondary catchment in total. This affects the land per capita ratios which flow through into the land demand estimates provided in Figure 4. It is important that the ratio calculated uses the same geographic area for the land area quantified and the population used in the calculation. The assumptions and data in figures 3 and 4 underpin all the assessment of demand for additional business zoned land in Pukekohe, and are relied on in forming conclusion in the Urban Economics report.
E2	Vacant business land	Please describe any areas of vacant business land that have been considered in the assessment of economic effects, that are located outside of the Pukekohe town centre. If this has not been considered, please provide an explanation as to the rationale for this.	Availability of other (vacant) business zoned land in Southern Auckland may draw demand for additional business land for both LFR and general and light industry activities in Pukekohe to other locations, especially if they are large and new.

#	Category of information	Specific Request	Reasons for request
E3	Business land prices	Please describe whether the trend of rapid increase in land prices shown in Figure 10 is unique to Pukekohe or is consistent with wider Auckland trends, and discuss the extent to which trends in Pukekohe are influenced by macroeconomic factors as opposed to local land supply constraints.	Understanding the potential drivers of recent local price growth for commercial and industrial land is important in order to establish whether the trend is any evidence of an undersupply of business land, or supports the need for the PPC.
E4	FLR floorspace estimates	Please explain how the estimate of demand for an additional 64,000m² LFR (p26 of the Urban economics report) were arrived at. That estimate is inconsistent with the estimate of 25,000-30,000m² additional LFR demand presented on p29.	The demand for LFR is relied on in part as justification for the PPC request, so it is important to understand the origin of the numbers and reason for any differences between numbers presented.
E5	Economic effects	Please provide some assessment of the direct and indirect economic effects of on the Pukekohe Town Centre if the site was exclusively occupied by LFR. This assessment should explain what assumptions have been made about where spend resident in the catchment is directed, and the degree to which spend is likely to leak into the catchment from other places, or out of the catchment to competitor locations.	The demand for LFR is one justification for the proposal to re-zone land. It is important to consider how the PPC request might affect the Pukekohe town centre and to ensure that there would be enough demand to support the proposal without resulting in significant adverse effects on existing centres. This assessment would expand on the key economic costs identified in section 13 (p26 of the Urban Economics report).

E6	Economic benefits	Please provide some assessment of the number of jobs that are likely to be supported on the PPC site, and the associated economic benefits.	Development of the site will likely support increased employment in Pukekohe, reducing the need to travel for work, and to travel to access goods and services provided on the site. This is not discussed in the Urban Economics report.
Transport matters – Wes Edwards			
#	Category of information	Specific Request	Reasons for request
T1	Assumed land use	Please assess a more intensive development scenario for the site including greater building coverage with a high proportion of more intensive activities including LFR and little, if any, motor vehicle sales or industrial activities.	The BGBZ is a zone that provides for Large Format Retail [LFR] in addition to a wide range of business, food and beverage, and light industrial activities. The transport assessment is based on a development scenario consisting of 12,400m2 GFA, representing 16% coverage of the gross land area. Allowing for some loss of developable land due to internal roads, the assumed building coverage appears to be at the low end of what the proposed zoning could enable. The assumed gross floor area is made up of 40% retail, 26% motor vehicle sales showrooms, 26% warehousing, and 8% commercial and office activity. The proposed BGBZ could provide for a different mix of activities with significantly higher intensity. For example, there could be significantly more retail including a substantial proportion of LFR, home-improvement, trade retail, and fast-food and/ or dine-in food

			and beverage retailing, and a far lower proportion of motor vehicle sales and warehousing.
T2	Trip Generation Rates	Please adopt higher trip generation rates for retail and provide evidence to demonstrate the adopted trip generation rates represent the activities that could develop on the site.	The assessment adopts the RTA shopping centre recommended trip generation rates for all retail activity. Rates for smaller and/ or stand-alone retail developments and for activities such as food and beverage retailing can be significantly higher.
T3	Trip Generation Rates	Please provide assessment of the weekend midday peak period.	The ITA estimates the trip generation of the PCA during the weekday AM and PM peak periods. No estimates are provided for weekday or weekend midday periods. The weekend midday period could be a critical period for analysis, particularly as a considerable proportion of the site could be used for retail activity.
T4	Trip Splits	Please recalculate movements with directional splits based and provide evidence to support the splits used.	The assessment is based on a peak-hour split of 80/20 for warehousing activities and commercial/ office activities. Available data indicates this split is likely to be closer to 90/10 AM and 85/15 PM for both warehousing and office. The assessment is based on a 50/50 split for retail and motor vehicle sales. The available data suggests that retail splits are more likely to be around 60/40 AM, and motor vehicle sales around 75/25 AM and 40/60 PM.
T5	Trip distribution	Please provide an assessment with 90% of all trips generated by the site (and by the PC30 development) assigned to and from the north.	The assessment assumes a directional distribution of traffic with 60% north, 30% south and 10% west. Given the site is located on the southern fringe of its primary catchment of Pukekohe with most growth located in the north, the proportion of traffic arriving and departing to and from the north could be in the order of 90%.

T6	Basis for Analysis	Please provide analysis of the proposal against a future development environment such as 2036.	The basis for the transport analysis appears to be a 2018 survey of traffic movements at the Manukau/ Kitchener intersection plus some allowance for development of PC30. It appears no allowance has been made for traffic growth from any source other than PC30. The assessment does not consider an appropriate future transport environment. Existing resource consents for developing the sites are held and one is currently being implemented, so it may be some years before the site is fully developed to the potential enabled by the BGBZ. This reinforces the need to assess an appropriate future environment. An appropriate future environment for assessment would account for the significant growth in travel demand that is expected to occur as Pukekohe and surrounding areas are developed over the next ten or so years. An analysis horizon of around 2032-2036 would be appropriate for a plan change assessment such as this. *Note: SGA has recently undertaken extensive, albeit high-level and longer-term, modelling of the Pukekohe area reflecting expected development patterns, infrastructure provision and expected travel behaviour. That work, with localised refinement and enhancement and adjustment to account for different land use assumptions (e.g., BGBZ replacing LIZ), may provide a suitable basis for analysis.*
T7		Please assess the impact of the proposal on the transport environment in the weekend midday peak hour	
T8	Pukekohe Park Events	Please assess the impact of the proposal on and during large events at the wider Pukekohe Park site, including on the temporary traffic management deployed for large events.	Events at Pukekohe Park opposite the PCA are a feature of the existing environment. Some events attract large crowds, high traffic volumes, and generate a high demand for parking, as evidenced by the parking controls across the PCA frontage. These events occur at times when many or all the activities likely to establish in the BGBZ would be

			operating. The ITA does not provide any description of these events, assess the impact of the PPC on the operation of the road network or on users of Pukekohe Park during the events, and does not assess how events may affect operation of the PCA.
T9	Public Transport	Please update the ITA to consider the planned public transport environment.	The ITA describes the public transport services currently available at the site and suggests the PPC could enable increased service frequencies. The Pukekohe-Paerata Structure Plan [PPSP] ITA provides a map of planned public transport services for the future, and no services are shown passing the site. Auckland Transport is unlikely to have funding to enable additional services or increased frequency of services.
T10	Manukau / Kitchener / Buckland/ Pukekohe Park Gate 2 Intersection	Please provide an assessment of how this intersection would operate during events at Pukekohe Park in the future.	The ITA analyses the performance of this intersection as a single-lane roundabout based on 2018 volumes plus some allowance for PC30 development. As noted above, this intersection should be assessed for the future environment, and allow for events at Pukekohe Park. Given the future environment includes cycling and walking facilities, public transport on Kitchener Rd and Manukau Rd, potentially a lower speed limit, and new business development on surrounding land including Pukekohe Park, the future environment is expected to include higher levels of walking and cycling activity. Arterial road roundabouts typically provide poor environments for pedestrians and cyclists, and traffic signals are often preferred.
T11		Please provide an assessment of how this intersection could operate under traffic signal control.	
T12		Please provide concept drawings of intersection layout(s) showing how a safe and efficient intersection could be provided.	

T13		Please provide diagrams from the modelling software to confirm the layout(s) modelled.	
T14	Buckland / PU-NS-2 Intersection	Please clarify the proposed location of the PU-NS-2 road alignment through the site, connections with Webb St, the location of the intersection with Buckland Rd, and the rationale for the proposed route and intersection location.	The PPSP ITA describes the planned PU-NS-2 collector road route, noting it may need to include Quarry Rd (a short distance west of the PCA) due to steep land and stream crossings between the PCA and Quarry Rd. This is likely to result in an alignment through the end of Webb Street, as shown in the PPSP. The PPSP ITA shows the PU-NS-2 intersecting with Buckland Rd approximately 100m north of Pukekohe Park Gate 3 where it would form a right-angle with Buckland Rd and be located around 300m north of a bend in Buckland Rd that constrains sight distances. The ITA recommends there be no road connection to Webb Street which is inconsistent with the PPSP. The ITA assumes the new Collector intersection will initially be priority-controlled and later controlled by a single-lane roundabout. The ITA states there is sufficient land within the road reserve or the site to accommodate a roundabout, but that has not been demonstrated. The ITA also recommends that this intersection provide access to Pukekohe Park. If Pukekohe Park Gate 3 is to remain in the existing location, this is likely to result in the PU-NS-2 road joining Buckland Rd at an acute angle which is undesirable. Gate 3 has three internal roads connecting
T15		Please clarify if this intersection will provide access to or from the racecourse site, and how any such access will be arranged. If the intersection will be separate to any Pukekohe Park access, please provide details on the proposed separation distances.	
T16		Please demonstrate how the intersection(s) could operate safely, particularly in relation to Pukekohe Park access.	
T17		Please provide information on the sight distances and operating speeds at the proposed intersection location(s).	
T18		Please provide an assessment of how this intersection would operate during events at Pukekohe Park in the future.	

T19		Please provide an assessment of how this intersection would operate under traffic signal control.	immediately adjacent to Buckland Rd which is likely to result in adverse intersection operation. The intersection would also be located approximately 200m from the bend to the south with shorter sight distances. If the intersection is to be co-located with an existing or relocated access to Pukekohe Park, that would form a crossroads intersection which is incompatible with a busy arterial road environment for safety reasons unless controlled by a roundabout or traffic signals.
T20		Please provide concept drawings of the intersection layout(s) showing how a safe and efficient intersection could be provided.	
T21		Please provide diagrams from the modelling software to confirm the layout(s) modelled.	
T22	Pedestrians and cyclists	Please provide an assessment of the need for pedestrian and cyclist facilities, both along and across roads.	The activities enabled by the proposed zoning are likely to attract walking and cycling trips, potentially including trips from Pukekohe Park. The ITA does not consider how these people could cross roads, or what crossing facilities may be required to provide for development of the land. Other improvements to the transport environment, such as the provision of footpaths, cycling facilities along the road, or street lighting, are not considered in the ITA.
T23	Access	Please provide data on Austroads SISD sight distances and operating speeds at various locations along the PCA frontage, along with other features such as queuing at intersections or access to Pukekohe Park, to demonstrate where safe access may or may not be possible.	The ITA expects activities in the PCA could obtain access either from the new collector road or directly from Buckland Rd, and recommends a flush median be installed on Buckland Rd to facilitate direct access. Given the arterial nature of Buckland Road, the relatively high operating speed, the curved alignment, the desire to distance property access from major access points and intersections with controls such as right turn bays or roundabouts, potentially queuing at nearby intersections and
T24		If safe access at any point is dependent on a change to the posted speed limit, please provide discussion on how safe access could be provided in the event a speed limit change is delayed or does not eventuate.	

T25		Please provide a concept design and/ or a series of road cross-section diagrams, showing how an appropriate flush median could be provided while also providing a safe road environment including sealed shoulders, existing features such as trees and streetlighting, and planned features such as pedestrian and cyclist facilities.	access points, and the planned presence of walking and cycling facilities along the corridor, it is expected that direct access from Buckland Rd would be minimised with most or all access being from the new collector road.
T26	Regional Policy Statement	Please provide an assessment of the walkable catchment that includes walking distances of 400m and 800m.	The ITA provides an assessment of the proposal against the Regional Policy Statement [RPS] which the ITA says was superseded by the Auckland Unitary Plan [AUP]. The RPS is now contained in Appendix B of the AUP. The RPS Policies listed under B3.3.2 (5) require development to, among other things, locate high trip generating activities (some of which are enabled by the BGBZ) so "they can be efficiently served by key public transport services and routes." The ITA is of the view the site is located within a walkable catchment of schools and local services and has good access by public transport, but this is predicated on walking distances well beyond those typically used for such assessments, and on the existing low frequency bus services.
T27		Please provide an assessment of how any high trip-generating activities that may locate in the PCA could be efficiently served by key public transport services, or how such activities could be controlled.	
T28	Implementation Plan	Please explain how development of the PCA is proposed to be controlled in the event the transport infrastructure identified in the ITA as being necessary for development is delayed or not provided and/ or a robust mechanism by which Council could ensure that the identified mitigation measures could be achieved prior to development operating.	The ITA makes several recommendations about the provision of transport infrastructure to provide for development of the land under the proposed zoning and summarises these in an Implementation Plan. The ITA has identified that providing for development of the land would require mitigation such as the construction of roundabouts at two intersections yet suggests the need for this mitigation be reassessed at time of resource consent. This can lead to difficulty in achieving suitable mitigation
T29		Please explain how the form and location of new or upgraded transport infrastructure would be well integrated	

		with development occurring on the site.	measures, particularly where development is fragmented or occurs in stages. The Implementation Plan notes that the installation of a flush median, the construction of footpaths, and a lowering of the speed limit on Buckland Rd should be triggered by any development on the site but does not propose a mechanism capable of ensuring such works are undertaken. The plan change provides no appropriate mechanism for preventing or controlling development in the absence of these measures being implemented.

11 May 2022

Issued via email: robert@scottwilkinson.co.nz

Dear Robert,

RE: Clause 23(2) Resource Management Act 1991 Further Information – Private Plan Change request by Pukekohe Limited

Pursuant to Clause 23(2) of the Resource Management Act 1991, Council requires additional information following consideration of responses to its request for further information dated 18 February 2022.

Additional information is sought in relation to:

- Transport (Wes Edwards – Arrive)

Please see attached memo for the request.

I can confirm that the requests for further information on planning and economics matters have been satisfied.

If you have any queries regarding the above, please do not hesitate to contact me at jimmy.zhang@aucklandcouncil.govt.nz.

Kind regards,

Jimmy Zhang | Planner
Plans and Places

arrive
your transportation advisors™

101173
11 May 2022

Plan Change. 301-303 Buckland Road, Pukekohe. Evaluation of additional transport information provided

Request	Response	Comment
T1. Please assess a more intensive development scenario for the site including greater building coverage with a high proportion of more intensive activities including LFR and little, if any, motor vehicle sales or industrial activities.	Additional scenario provided with 50% of land as LFR with 33% building coverage, remainder as per ITA.	The ITA scenario over-represented low-intensity activities such as vehicle sales and warehouse activities at 16% floor area ratio. The new scenario has additional moderate-intensity LFR activity at 33% coverage, taking the average floor area ratio to around 25% coverage, but still has a considerable proportion of low-intensity vehicle sales and warehousing. Drive-through restaurants and other food and beverage activities are permitted at any scale in the BGBZ. These activities can have high trip generation and are not accounted for in the assessment. The information provides no corroborating information, such as information from similar BGBZ areas, to justify the proposed floor area ratio, development intensity or overal trip generation on a per-hectare basis. It has not been demonstrated that the assumed level of development is a good match for what the proposed zoning would enable. There is still insufficient information to conclude that the two scenarios provided for analysis are sufficient. **Additional information required**

Request	Response	Comment
T2. Please adopt higher trip generation rates for retail and provide evidence to demonstrate the adopted trip generation rates represent the activities that could develop on the site.	Smaller retail, which typically has higher trip generation rates is discretionary or non-complying in the zone, and rates reasonable for permitted scale of retail.	The proposed rate is appropriate for the larger-scale retail activities permitted by the proposed zoning, provided food and beverage activities are accounted for separately. **Request satisfied**
T3. Please provide [trip generation] assessment of the weekend midday peak period.	Trip generation has been provided for the Saturday midday peak.	Sufficient information provided, subject to being updated in accordance with T1. **Request satisfied.**
T4. Please recalculate movements with directional splits based and provide evidence to support the splits used.	No evidence to support splits provided. Alternative splits tested.	The alternative splits provided for the assumed land uses are reasonable. Splits for other land uses are yet to be provided or reviewed. **Additional information required**
T5. Please provide an assessment with 90% of all trips generated by the site (and by the PC30 development) assigned to and from the north. (60% north/ 30% south/ 10% west used in ITA.)	90% north not realistic as existing traffic on Buckland Rd is split north/ south about 50/50 on Saturday and 60/40 on weekdays, and significant population located south of the site (Buckland, Tuakau, Pokeno). 70% north/ 30% south/ 0% west tested.	Most population growth is expected to the north of the site, so the north is likely to represent an increasing proportion of trips in future. Insufficient information has been provided to support the assumed north/ south splits. **Additional information required**
T6. Please provide analysis of the proposal against a future development environment such as 2036.	Not provided. PPSP ITA considers future environment, considered to be outside scope of this plan change. Analysis shows there is spare capacity at the roundabouts. Proposed zoning provides employment.	Large-scale ITA's such as PPSP are broader in scope and explicitly state subsequent smaller-scale ITA's such as this one need to provide more detail. While there may be spare capacity at current traffic volumes, the impact of the proposal on the future environment or the capacity of the proposed intersections in the future have not been demonstrated, regardless of how much employment may be provided, particularly as the proposed zoning differs from that assumed in the PPSP ITA. **Additional information required**
T7. Please assess the impact of the proposal on the transport environment in the weekend midday peak hour	Analysis of intersection peformance in Saturday midday peak period provided.	Sufficient information provided, subject to being updated in accordance with T1. **Request satisfied**

Request	Response	Comment
T8. Please assess the impact of the proposal on and during large events at the wider Pukekohe Park site, including on the temporary traffic management deployed for large events.	Not provided. Events are infrequent, and under control of Traffic Management Plans so additional assessment not appropriate.	While the events are infrequent, they have the potential to generate significant adverse effects. The impact of the proposal on the ability to implement appropriate Traffic Management Plans for events and potentially change the impact of the events remains unknown. The ability of activities on the site to operate safely and efficiently while events are occuring also remains unknown. **Additional information required**
T9. Please update the ITA to consider the planned public transport environment.	Acknowledgment that additional bus services may not be available. ITA not updated.	**Request satisfied**
T10. Please provide an assessment of how this [Manukau / Kitchener / Buckland/ Pukekohe Park Gate 2] intersection would operate during events at Pukekohe Park in the future.	See T8.	**Additional information required** (See T8)
T11. Please provide an assessment of how this [Manukau / Kitchener / Buckland/ Pukekohe Park Gate 2] intersection could operate under traffic signal control.	Auckland Transport assessed a roundabout as part of PC30. Roundabout preferred to reduce speed on urban-rural threshold. All other intersections [that do not have Give Way or Stop controls] in Pukekohe are roundabouts.	Insufficient information provided on relative merits of traffic signals and roundabouts on matters such as efficiency, safety, and pedestrian and cyclist safety and amenity, particulary considering future urbanised environment. No information assessing intersection choice considering safe system assessment framework. **Additional information required**
T12. Please provide concept drawings of intersection layout(s) showing how a safe and efficient intersection could be provided [at Manukau / Kitchener / Buckland/ Pukekohe Park Gate 2]	Concept intersection layout drawing provided.	**Request satisfied**
T13. Please provide diagrams from the modelling software to confirm the layout(s) modelled [at Manukau / Kitchener / Buckland/ Pukekohe Park Gate 2].	See Attachment B.	Diagrams not provided in Attachment B. **Additional information required**
T14. Please clarify the proposed location of the PU-NS-2 road alignment through the site, connections with Webb St, the location of the intersection with Buckland Rd, and the rationale for the proposed route and intersection location.	Proposed to be opposite Pukekohe Park Gate 3. The best location as can serve development on both sides of the road. Connection to Webb St inappropriate now but could occur in future.	**Request satisfied**

Request	Response	Comment
T15. Please clarify if this [Buckland / PU-NS-2] intersection will provide access to or from the racecourse site, and how any such access will be arranged. If the intersection will be separate to any Pukekohe Park access, please provide details on the proposed separation distances.	See T14.	**Request satisfied**
T16. Please demonstrate how the Buckland / PU-NS-2 intersection(s) could operate safely, particularly in relation to Pukekohe Park access.	See T14 and concept drawing.	**Request satisfied**
T17. Please provide information on the sight distances and operating speeds at the proposed [Buckland / PU-NS-2] intersection location(s).	Speeds provided. Available sight distance of 230m exceeds minimum desirable distance of 181m.	**Request satisfied**
T18. Please provide an assessment of how this intersection would operate during events at Pukekohe Park in the future.	See T8.	**Additional information required** (See T8)
T19. Please provide an assessment of how this intersection would operate under traffic signal control.	See T11.	**Additional information required** (See T11)
T20. Please provide concept drawings of the intersection layout(s) showing how a safe and efficient intersection could be provided.	Concept intersection layout drawing provided.	**Request satisfied**
T21. Please provide diagrams from the modelling software to confirm the layout(s) modelled.	See Attachment B.	Diagrams not provided in Attachment B. **Additional information required.**
T22. Please provide an assessment of the need for pedestrian and cyclist facilities, both along and across roads.	Comments on provision along roads provided. No assessment of crossing facilities provided.	Please provide information around selection of appropriate pedestrian (and cyclist) crossing facilities, particularly across Buckland Road, and how proposed provisions respond to the need for crossing facilities. **Additional information required**
T23. Please provide data on Austroads SISD sight distances and operating speeds at various locations along the PCA frontage, along with other features such as queuing at intersections or access to Pukekohe Park, to demonstrate where safe access may or may not be possible.	See T3. Information for one possible intersection location provided for T17.	No information provided to enable an assessment of the appropriateness of proposed direct property access to Buckland Road at other locations. **Additional information required**
T24. If safe access at any point is dependent on a change to the posted speed limit, please provide discussion on how safe access could be provided in the event a speed limit change is delayed or does not eventuate.	No information provided at locations other than the proposed intersection.	**Additional information required**

Request	Response	Comment
T25. Please provide a concept design and/ or a series of road cross-section diagrams, showing how an appropriate flush median could be provided while also providing a safe road environment including sealed shoulders, existing features such as trees and streetlighting, and planned features such as pedestrian and cyclist facilities.	Concept layout drawing provided showing sealed shoulder on southern side removed.	**Request satisfied**
T26. Please provide an assessment of the walkable catchment that includes walking distances of 400m and 800m.	Map with 400m and 800m isochrones provided, and acknowledgement that the walking catchment is limited.	**Request satisfied**
T27. Please provide an assessment of how any high trip-generating activities that may locate in the PCA could be efficiently served by key public transport services, or how such activities could be controlled.	There are existing bus services along Buckland Rd (currently no stops nearby), and a connector service within 800m walk. Standard E27.6.1 requires an assessment for high trip-generating activities (if triggered). No other control proposed.	Existing bus services not key services. The assessment criterion for activities exceeding the E27.6.1 threshold may not include consideration of RPS matters which are intended to be addressed at plan change stage. **Request satisfied**
T28. Please explain how development of the PCA is proposed to be controlled in the event the transport infrastructure identified in the ITA as being necessary for development is delayed or not provided and/ or a robust mechanism by which Council could ensure that the identified mitigation measures could be achieved prior to development operating.	Some infrastructure (flush median, footpaths, lower speed limit) required straight away. Roundabout likely triggered early but not straight away. Subdivision and/or any new building would require consent. Any development triggering the E27.6.1 threshold would require consent. No additional control proposed.	Confirmation that no control proposed, other than existing controls in AUP. **Request satisfied**
T29. Please explain how the form and location of new or upgraded transport infrastructure would be well integrated with development occurring on the site.	See T28.	Confirmation that no control proposed, other than existing controls in AUP. **Request satisfied**

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22 April 2022

Project Number: 4314.01

Auckland Council
Plans and Places Central/South

By Email: jimmy.zhang@aucklandcouncil.govt.nz

Attention: Jimmy Zhang - Planner

Dear Mr Zhang

301 AND 303 BUCKLAND ROAD PPC CLAUSE 23 - REQUEST FOR FURTHER INFORMATION RESPONSE 1 FROM REQUESTER

Further to your request for further information pursuant to clause 23 of the First Schedule of the Resource Management Act 1991 (**further information**), we are pleased to provide the following responses:

PLANNING, STATUTORY AND GENERAL MATTERS

#	Category of information	Specific Request	Reasons for request
P1	Shape files	Please provide shape files showing the proposed plan change area.	Shape files are required to show the extent of the Private Plan Change (PPC) request on the AUP(OP) GIS Viewer upon notification.

Response

Please see attached the shape files for the PPC area. They are in *.dwg and *.dxf format. Once extracted it should look like the following image

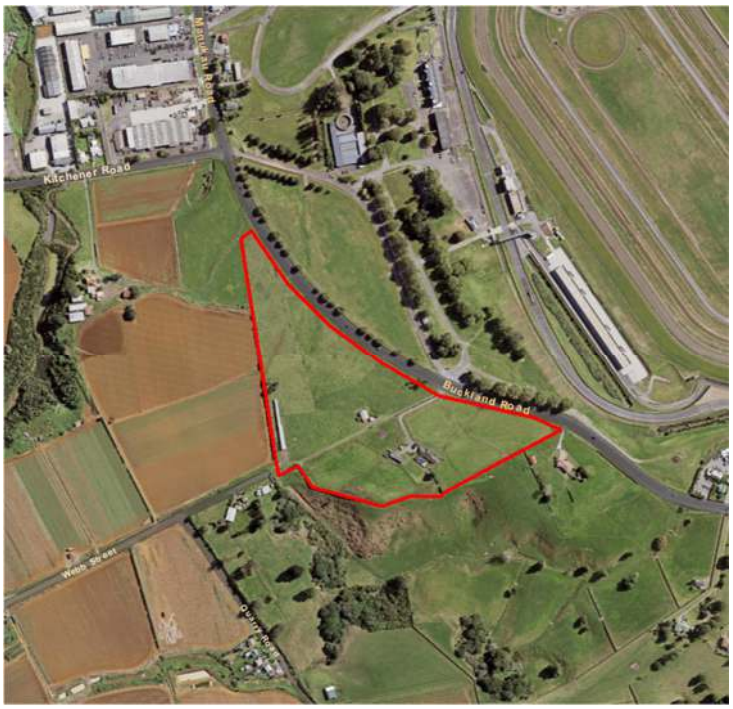

Figure 1: Shape file image

P2	Consultation	Please clarify whether Auckland Transport have been consulted with in the preparation of the PPC,and if so what the outcome of that consultation was.	Given the PPC will increase the number of trips generated on the current and future local and strategic network, it would be helpful to understand the extent of consultation undertaken with AT as the road controlling authority.

There has been no specific consultation with Auckland Transport (**AT**) for this PPC. This is primarily because AT were involved with the two previous consents granted on this site for activities that would be enabled under the zoning sought. Copies of the consents granted on 301 and 303 Buckland Road are annexed to the PPC Request documentation as Attachment 3.

Of particular note is the consent for a large Trade Supplier activity at 301 Buckland Road which AT had a significant involvement in with regard to road upgrades needed to establish the activity. We note that a number of conditions in this consent require AT certification and involvement.

We note that AT were also involved in the Plan Change to rezone open space land at Pukekohe Park to Business-Mixed Use Zone which became fully operative on 12 February 2021. The comments from AT from that process and the resulting traffic recommendation and upgrades were taken into consideration as part of the assessment of this PPC request. The current request is consistent with the traffic recommendations and upgrades approved as part of that plan change process. This has also been acknowledged in the Traffic Matters response to the RFI.

P3	Integrated Planning approach	Please provide an assessment of the potential effects of the zoning proposal on the future implementation of the Pukekohe-Paerata Structure Plan, as well as any other potential risks/issues associated with rezoning the land General Business ('GB').	In setting council's strategic direction for the FUZ surrounding Pukekohe-Paerata, the Pukekohe-Paerata Structure Plan has indicated a preference for the Light Industry ('LI') zone over the plan change area. The Urban Economics assessment notes that both the LI and GB zones are appropriate for the PC land. It appears that the GB zone is preferred due to the 'flexibility' it provides, as it enables a wider range of activities relative to the LI zone. The benefits of increased flexibility for a site needs to be considered alongside the strategic implications for the surrounding Future Urban zone ('FUZ') indicated for LI and the need to carefully manage the expansion of the GB zone.

Response

As set out in section 4.3 of the Request the Pukekohe-Paerata Structure Plan 2019 (**Structure Plan**) is intended to implement the strategic vision for the Pukekohe and Paerata area in the Auckland Plan 2050.

While this is a non-statutory document under the RMA, it will form the basis of future Auckland Council or privately initiated plan changes under it.

The Structure Plan has the broad goal of:

> *New growth areas will enhance Pukekohe as a focal point and place to further support the surrounding rural economy. These areas will offer a range of housing choice and employment opportunities for people at all stages of life. It will be well connected to the wider Auckland and Waikato regions, while protecting and enhancing the natural, physical and cultural values that contribute to Pukekohe's unique character and identity.*

With regard to the provision of business land section 3.3.2 of the Structure Plan provides for more land to be rezoned for business activity to support the planned urban growth. This is seen as vital to the functioning of Pukekohe as a satellite town which is intended to be self – sustaining in terms of providing employment for its new residents and reducing the need to commute to work outside the area was very important.

The Structure Plan broadly provides for employment to be provided for through the implementation of the BLIZ to provide for 80-100ha of new industrial land. The strategy in the Structure Plan is that the provision

of new business land could enable around 2,370 new jobs within the new industrial areas within the Structure Plan area, which in turn is expected to reduce the need for community and freight movement northwards, as aspect which affects congestion across Auckland as a whole.

The plan change area is located in Area H of the Structure Plan, and in 4.4.11 it states:

> *Area H west is shown as Light Industry in the Pukekohe Area Plan, and as business land in the 2017 consultation material. In the 2018 consultation material the extent of business land in this area was reduced in the very south to reflect the location of the stream and the three Significant Ecological Areas west of Buckland. The extent of this business land is the same as 2018 and it is now proposed to be zoned Light Industry. This zoning reflects access to transport routes and the proximity to the Pukekohe Park Raceway.*

The Structure Plan has indicated that Area H (which includes the plan change area) be rezoned BLIZ on the grounds that it has a favourable location including:

- good access to the existing and proposed road network, especially freight routes and routes that will limit the need for traffic to travel through the Pukekohe town centre;
- relatively flat land to reduce the need for future earthworks and to enable larger floor areas and outdoor storage areas often needed by industrial activities;
- proximity to existing areas zoned Light Industry, e.g. Manukau Road. Adjoining new industrial areas next to established industrial areas limits potential reverse sensitivity issues and allows the opportunity for the co-location of similar activities and businesses;
- proximity to existing "less sensitive" activities to limit potential reverse sensitivity issues, such as the Rural Production Zone and Special Purpose – Major Recreation Facility Zone (e.g. the Pukekohe Park Raceway), and
- reflection of existing land uses that are more suited to the Light Industry Zone, e.g. vegetable processing and packing sheds in Heights Road, and rural machinery sales and maintenance in Heights Road.

The merits of the Business – General Business Zone (**BGBZ**) over the Business – Light Industry Zone (**BLIZ**) are then discussed in section 2.1 - 2.3 of the section 32 assessment where it is stated that a key issue identified in the Auckland Unitary Plan – Operative in Part (**Unitary Plan**) (Issue B2.1) is the continued pressure to accommodate Auckland's population growth and provide access to housing and employment opportunities. This PPC responds to that issue with regard to providing a wide range of employment opportunity.

While this PPC does not involve residential development it provides much needed opportunities for employment growth within the community to support the residential growth already underway in Pukekohe.

The need for local employment to support growth is set out in the Structure Plan and the site included in the plan change area are in an area identified for business/employment zoning. The choice of a BGBZ will best achieve this objective as it is a zone that enables the broadest range of employment activities including light industry, office development and large format retail, all of which have a demonstrable demand in Pukekohe.

The Pukekohe-Paerata Structure Plan has identified the land to be zoned Business – Light Industry Zone (**BLIZ**). Section 3.3.2 discusses business land options and states:

> *Business land demand analysis was prepared for the structure plan. This estimates that approximately 80 to 100ha (net developable) of new industrial land is needed in Pukekohe-Paerata to meet future demand for employment. This assessment takes into account the capacity in existing zoned industrial areas. In addition to this 80 to 100ha, additional land will be needed for new roads, esplanade reserves, flood affected areas and any other constraints in industrial areas.*
>
> *The structure plan proposes approximately 95ha (net developable) of land to be zoned Light*

Industry to meet the demand discussed above. This could enable around 2370 new jobs within the new industrial areas in the structure plan area. Providing for business activities in the structure plan area can reduce the need for community and freight movement northwards, which affects congestion across Auckland as a whole.

The Light Industry Zone provides for a range of business activities that are less likely to fit within town centres. Some activities that support rural industries are also provided for in this zone. While this zone anticipates a lower level of amenity than the other business zones (except the Heavy Industry Zone), it does not anticipate activities that will generate objectionable odour, dust or noise.

The structure plan proposes new areas of Light Industry Zone in the north (part Area D), north west (part Area E) and to the east and south (part Areas F and H).

While this analysis is generally supported, the Urban Economics assessment has identified strong demand for Large Format Retail activity as well as demand for light industry and has identified this land (adjoining the existing light industry area in south Pukekohe) and opposite Pukekohe Park (with newly zoned land to BGBZ) as being particularly suitable for a wide range of business activities.

While the Urban Economics assessment concludes that the BGBZ and BLIZ are the only business zones suitable for this land it has concluded that the BGBZ is preferred due to its wider range of employment opportunities and flexibility to respond to market demand before the Structure Plan enables the release of additional land to facilitate growth. While there is clear demand for Large Format Retail to support growth in Pukekohe, the BGBZ still enables light industry as a permitted activity. On this basis, it is concluded that a BGBZ zone is also a light industry supporting zone but with additional activities enabled such as large format retail and limited office development. In that sense, the proposed zoning should not be seen as a binary choice of BGBZ or BLIZ but as a zone that enables light industry and other employment opportunities.

While the Structure Plan only identifies the BLIZ for employment growth, the BGBZ offers a wide range of business and employment related activities and the Urban Economics assessment has demonstrated that there is demand for new business land in Pukekohe to meet the current demand associated with a growing population. As set out in 5.1 of the effects assessment report the range of activities enabled in the BGBZ include light industry, office development, large format retail and food & beverage activity. The economic assessment in section 6.7 effects assessment report has shown that there is demand for both light industry and large format retail development in Pukekohe and the BGBZ is well suited to provide the flexibility of these business activities.

The proposed zoning would complement the existing business and light industry development along Manukau Road and will also complement the recently zoned BGBZ land opposite the plan change area. A BGBZ would also not inhibit the further introduction of BLIZ on FUZ land further to the south as those areas are brought into the urban fabric of Pukekohe. It is also noted that the Council has recently notified Plan Change 74 that involves 82.66 hectares of land in south-eastern Pukekohe, bounded by Golding Road, Station Road, Royal Doulton Drive, part of Yates Road and a stream that runs in a roughly southerly direction from Golding Road to Yates Road. This land is essentially on eastern side of Pukekohe Park. As part of this plan change is 19.97ha of land to be rezoned BLIZ in accordance with the Structure Plan. The proposed BGBZ zoning at Buckland Road will complement the BLIZ zoning included in Plan Change 74.

The purpose of the request to rezone the land to BGBZ is to provide a flexible and wide range of employment activities to support the planned and already established growth in Pukekohe. The BGBZ provides the most flexible and broadest range of employment activities in the Unitary Plan while also excluding or discouraging activities that are not suited to this locality (i.e. residential and small form retail).

P4	Integrated Planning approach	Please explain how the mitigation measures outlined in Table 1 of the Commute ITA can be implemented, and also delivered in a manner which ensures the safety and efficiency of the road network, if no precinct is proposed to sit over the land.	This information is required to better understand the transport effects and their management, particularly given the range of uncertainties including the future use of the land, the range and scale of activities enabled through the zoning and the potential for multiple landowners and future subdivision.

It is expected that the identified mitigation measures (or other measures identified by Auckland Council and/or Auckland Transport) would be required at the development stage either as part of the subdivision process and/or the land use consent process. For example, vacant sites require restricted discretionary activity consent if they comply with Standard E38.9.2.2 (Table E38.4.3(A34)) otherwise this subdivision is a discretionary activity or a non-complying activity.

All buildings in the BGBZ require assessment as a restricted discretionary activity.

Chapter E27 – transport has a standard (E27.6.1) with a trigger of higher trip generating activities which includes the following business activities:

(T7)	Office		5,000 m^2 GFA
(T8)	Retail	Drive through	333 m^2 GFA
(T8A)		Retail activities (non-drive through)	1667m2 GFA
(T9)	Industrial activities	Warehousing and storage	20,000 m^2 GFA
(T10)		Other industrial activities	10,000 m^2 GFA

Any activity that exceeds these thresholds requires consent for a restricted discretionary activity.

P5	Precinct provisions	Has consideration been given to the application of a SMAF:1 overlay over the plan change area?	The AUP states that for greenfield areas adverse effects of development shall be avoided as far as practicable or otherwise remedied or mitigated and this includes changes in hydrology (Policy E1.3.8).

Response

As part of both existing land use consents for 301 and 303 Buckland Road extensive assessments of hydrology were undertaken given that there is no reticulated stormwater system established. Both assessments determined that stormwater systems could be designed to achieve hydrologic neutrality.

The stormwater management assessment for the plan change area has already undertaken an equivalent SMAF-1 assessment for the likely impervious areas and has concluded the following (refer section 4 of the Stormwater Assessment in Attachment 9 of the Request assessment):

- *Provide for SMAF-1 equivalent hydrology treatment for all impervious areas.*
  - *Retention will be achieved using the following methods in order of preference*
    - *Ground Soakage if conditions permit*
    - *Reuse if practical and feasible*
    - *Added to Detention Volume*

- *For Roads and other access ways, should the ground soakage prove unsuitable, the detention volume will be increased by the retention component within the on-site or communal Raingarden or Wetland*
- *Attenuated and treated stormwater discharge points shall be to Stabilised and/or*

Green Outlets as best suits the discharge point and immediate receiving environment

- *Provide stormwater treatment at source or within centralised Raingardens or Wetlands.*
- *Inert Roofing Materials to be installed to all covered structures.*
- *Additional treatment may be required by future businesses to treat specific contaminants (eg Gross Pollutant Traps, Oil Grit Separators etc - depending upon actual site use).*
- *Provide attenuation to ensure peak runoff is not increased up to and including the 100yr ARI Rainfall event.*

That said, the PPC location has low impervious surface and stormwater ultimately discharges into local, albeit highly modified, stream systems. As part of the plan change the Council has the discretion to extend a SMAF classification over the site.

P6	Clarification	Please confirm if the upgrade of 'footpaths' in Table 1 of Commute's ITA will include kerb and channelling.	Point of clarification on whether upgrades to kerb and channelling are included in the provision of 'footpaths'.

It is expected that the upgrade of footpaths would also include the provision of associated kerb and channelling.

ECONOMIC MATTERS

Questions E1 through to E6 have all been answered by the Adam Thompson of Urban Economics and this is annexed as **Attachment 2.**

TRAFFIC MATTERS

Question T1 through to T29 have all been answered by Leo Hills of Commute and this is annexed as **Attachment 3.**

We trust this this response addressed the matters raised in information request. Please contact the undersigned if you require any further detail or clarification.

Yours faithfully

SCOTT WILKINSON PLANNING

Robert Scott
Planning Consultant

3 May 2022

To Jason Woodyard,

RE: 301 & 303 Buckland Road Response to Economic RFI

This memo provides responds to a request for further information by Auckland Council's consulting economist, Mr Derek Foy. Each request is responded to in order, as follows.

> *E1. Business land per capita ratio.*
>
> *Clarification as to the geographic area that the 108ha land (GBZ and Business Light Industry Zone "BLIZ") included in Figure 3 (of the Urban Economics report) relates to, and discussion about how relevant Auckland average ratios are to a peripheral location such as Pukekohe.*

The geographic area within which the 108ha of Light Industry and General Business zone land is the Pukekohe urban area as illustrated in Figure 1. Figures 3 and 4 of the report has been updated below (Figures 1 and 2). This includes the primary catchment population of 28,700 which results in a business land per capita ratio of 37.6m^2 per capita. This results in future demand for 21 hectares per decade over the next 20 years. This is marginally different to the previous demand forecast of 25 hectares per decade.

Figure 1: General Business & Light Industry Land Per Capita

		Land (Ha)			Land Per Capita (m^2)		
Sub-Region	Population 2021	General Business	Light Industry	Sub-total	General Business	Light Industry	Sub-total
Auckland Central	542,000	50	720	770	0.9	13.3	14.2
Franklin	59,000	30	220	250	5.1	37.3	42.4
Manukau	425,000	40	1,830	1,870	0.9	43.1	44.0
North Shore	263,000	100	460	560	3.8	17.5	21.3
Papakura	61,000	0	370	370	0.0	60.7	60.7
Rodney	127,000	30	370	400	2.4	29.1	31.5
Waitakere	239,000	30	470	500	1.3	19.7	20.9
Total Auckland	**1,716,000**	**280**	**4,440**	**4,720**	**1.6**	**25.9**	**27.5**
Primary Catchment	**28,700**	**35**	**73**	**108**	**12.3**	**25.4**	**37.6**

Source: Urban Economics

Figure 2: Primary Catchment General Business & Light Industry Land Demand (2021-2041)

Population	2021	2031	2041	2021-2031	2031-2041
Primary	28,700	34,220	39,710	5,520	5,490

Land Demand	2018	2028	2038	2018-2028	2028-2038
General Business	35	42	49	7	7
Light Industry	73	87	101	14	14
Total	**108**	**129**	**149**	**21**	**21**

Source: Statistics NZ, Urban Economics

Pukekohe is a large rural town with approximately 28,700 people and planned for 65,900 people. At this scale I anticipate that it would have a composition and per capita quantity of business land that reflects the regional average.

E2 Vacant business land

Please describe any areas of vacant business land that have been considered in the assessment of economic effects, that are located outside of the Pukekohe town centre. If this has not been considered, please provide an explanation as to the rationale for this.

This assessment has not been undertaken because it is not considered efficient for Pukekohe's business land demand to be meet outside of Pukekohe, such as in Manukau CBD, in particular because this would require residents to travel for example to access large format retail stores. The planned size of Pukekohe is 65,900 people (Pukekohe-Paerata Structure Plan 2019, page 19), which is a large rural town the size of for example Whanganui or Hastings. When its rural catchment is considered Pukekohe is notable larger. At this scale the town can be expected to support a full range of businesses locally and this would be the most efficient economic outcome.

E3 Business land prices

Please describe whether the trend of rapid increase in land prices shown in Figure 10 is unique to Pukekohe or is consistent with wider Auckland trends, and discuss the extent to which trends in Pukekohe are influenced by macroeconomic factors as opposed to local land supply constraints.

The rapid business land price increases over the past 40 years shown in Figure 10 are broadly consistent with the regional trend. The macroeconomic factors/trends, i.e. the national factors/trends, are quite different, with many cities and towns, such as Christchurch, having maintained much lower business land prices, as a result of strong supply relative to demand. More generally, business land prices in some locations are circa $200-250/m^2, which is near to the fundamental cost of producing this land (raw land plus development costs), and these location have an efficient or near to efficient market. Auckland business land prices are considerably above the fundamental cost of producing business land and this confirms an undersupply relative to demand or other inefficiency, such as market consolidation, exists.

E4 FLR Floorspace estimates

Please explain how the estimate of demand for an additional 64,000m+ LFR (p26 of the Urban economics report) were arrived at. That estimate is inconsistent with the estimate of 25,000-30,000m additional LFR demand presented on p29.

The report estimates demand for an additional 64,000m^2 of retail floorspace over the next two decades. This however is for total retail floorspace demand growth, and of this, approximately 65% (42,000m^2, is demand for LFR). The projections rely on the current per capita provision and expected future population growth.

E5 Economic effects

Please provide some assessment of the direct and indirect economic effects of on the Pukekohe Town Centre if the site was exclusively occupied by LFR. This assessment should explain what assumptions have been made about where spend resident in the catchment is directed, and the degree to which spend is likely to leak into the catchment from other places, or out of the catchment to competitor locations.

The economic impacts of LFR have generally already played out in the market. In this case, the impact of LFR on the Pukekohe town centre has already occurred, as all major LFR brands are within Pukekohe or south Auckland, and consumers can currently access these stores. Any additional LFR brands that enter Pukekohe would in large part retain current expenditure leakage to other LFR stores in south Auckland. Given the rapid growth in population expected in Pukekohe, and the general growth in demand for retail floorspace, the proposal is not considered to have any potential adverse economic effects relating to retail activity within the town centre. Such effects would be a concern primarily as they relate to new centres that include a large cluster of specialty retail, as this would complete more directly with a town centre, such as the recently consented shopping centre in Drury. However, given Pukekohe is a self contained large rural town, its residents would in large part prefer to use the local town centre, and this would offset any competitive impacts.

E6 Economic benefits

Please provide some assessment of the number of jobs that are likely to be supported on the PPC site, and the associated economic benefits.

The site is 7.9 hectares and would enable approximately 23,700sqm of business floor area. The development cost would be approximately $71.1 million. The total 'value added' to GDP is estimated to be $20.9 million (based on the construction sector value added rate of 29%). This would support approximately 160 Full Time Equivalent Employees (FTE) through the construction process, based on a value added rate of $133,000 per construction sector employee per annum.

In addition, there would be approximately 316 FTEs per annum generated by ongoing employment within the proposal. This is conservatively estimated at a rate of 75m^2 of GFA per FTE employee. This is to account for the range of uses that the General Business Zone enables.

Overall, given the current shortage of available land in Pukekohe, this can be considered to be in large part a net addition (i.e. economic activity that would not otherwise occur). This is a notable benefit that should be considered under s32 of the RMA.

Figure 3: Economic Contribution from Construction of Site

GFA Yield (m^2)	Development Cost ($M)	Value Added ($M)	FTE Employees
23,700	$71.1	$20.9	160

Source: Statistics NZ, Urban Economics

Figure 4: Ongoing FTE Employment Generated from Site

GFA Yield (m^2)	FTE Employee /GFA (m^2)	FTE Employees
23,700	75	316

Source: Statistics NZ, Urban Economics

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Mr R Scott
Scott Wilkinson Planning
PO Box 37-359, Parnell 1151
Auckland

11 April 2022

Copy via email: **robert@scottwilkinson.co.nz**

Dear Robert

301-303 BUCKLAND ROAD- CLAUSE 23 RESPONSE

Further to your recent instructions, we have reviewed the request for further information related to transport matters from Auckland Council and have responded as follows.

1 ITEM T1: INTENSIVE SCENARIO

Please assess a more intensive development scenario for the site including greater building coverage with a high proportion of more intensive activities including LFR and little, if any, motor vehicle sales or industrial activities.

Comment:

The trip generation in Table 3 of the ITA contains an assessment of traffic generation including a significant proportion as full retail (rather than large format retail) which typically has higher trip generation rates. This assessment was based on a realistic scenario based on the previously approved and accepted Plan Change (PC30) on the Pukekohe Racecourse (scaled due to larger size).

It is considered unrealistic for the entire site to be LFR. This is based on planning and economic assumptions that other activities enabled in the zone (such as light industry) are also in high demand in Pukekohe. An assessment has however been undertaken assuming the 50% of the site would be LFR has now also been undertaken with the following assumptions:

- 7.9ha total site
- 50% (4ha) of the site to be LFR
- LFR site coverage of 33% based on the Pukekohe Mega Centre on Manukau Road (previously consented). This equates to 13,000sqm GFA
- The remainder of the stie to be light industry / commercial as per the ITA
- Peak hour trip rates have been established from NZTA's Research Report 453. Section 5.5 (Large Format Retail) of NZTA 453 states that the surveys in the database indicate peak hour trip generation rates of 4.0 trips per 100m2 per hour during the weekday late afternoon peak, and 6.0 trips per 100m2 per hour during the midday peak on a Saturday.

Applying the 453 report rates yields a LFR trip generation of 520 trips in the evening peak and 780 trips on a Saturday.

From table 3 of the ITA, the other uses generate 59 trips in the evening peak. As they are office / industrial related they are not expected to generate noticeable / any traffic on a Saturday peak.

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As such under this LFR scenario the site is expected to generate 579 trips in the evening peak and 780 trip on a Saturday. The 579 trips is less than assesses in the evening peak in the ITA while the Saturday peak of 780 trips has been assessed below (item T3).

2 ITEM T2: TRIP GENERATION RATE

Please adopt higher trip generation rates for retail and provide evidence to demonstrate the adopted trip generation rates represent the activities that could develop on the site.

Comment:

The Business – General Business Zone enables retail greater than 450m² as a permitted activity, retail between 200-450sqm as a discretionary activity and all retail less than 200m² is a non-complying activity. In that regard the question has been addressed in the light of retail as a permitted and discretionary activity. As a general principle the smaller the tenancy the higher the traffic generation per sqm. Given the above, the adopted rates of 12.5/ 100m2 GFA for peak hour for retail as per the original ITA scenario, is considered appropriate.

It is also noted that all the traffic (both PPC and PC30) have all been assumed to be new "Primary" trips. As such no reduction has been made for either multi-purpose / linked trips (those that may also visit other stores on the same Plan Change or other plan Change) or pass-by traffic (ie those vehicles already on the road network that deviate into the site). As such the assessment is considered conservative.

3 ITEM T3: WEEKEND PEAK PERIOD

Please provide assessment of the weekend midday peak period.

Comment:

The weekend Saturday peak has been assessed. Traffic generation is based on the worst case LFR assessment above (780 trips per hour).

The distribution has been based on an entry / exit 50/50 split for weekend midday peak and a distribution to be 70% to north and 30% to the south (as per item T5 below). The increase in traffic is shown in Figure 3-1 below.

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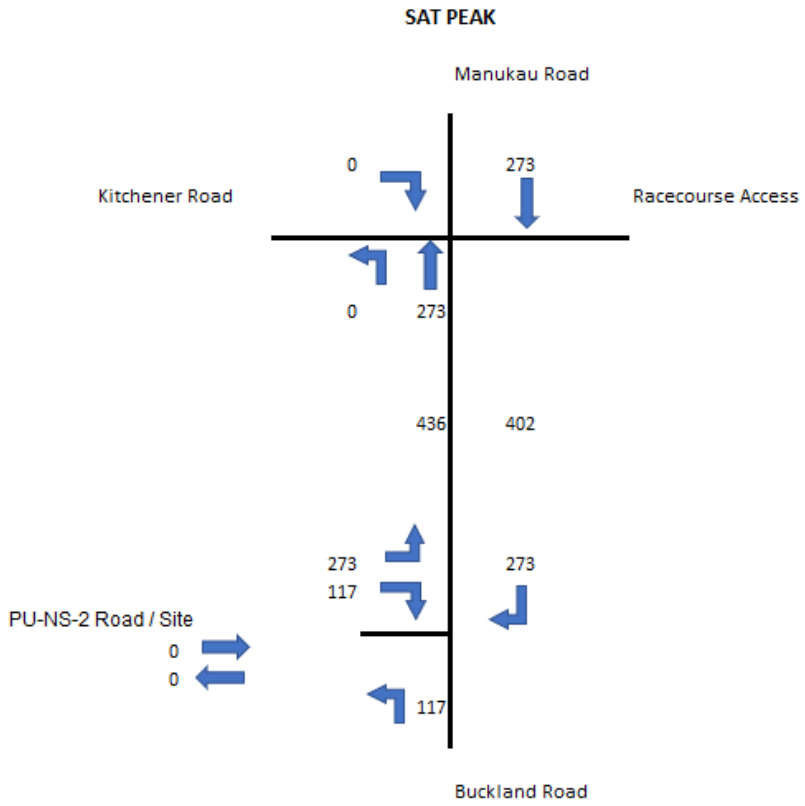
Figure 3-1: Weekday Peak Hour Trip Generation - Sat



The two intersections have been reviewed / assessed in SIDRA (as per the ITA) as follows.

Table 1: Proposed performance of the Manukau Road/ Kitchener Road/ Buckland Road roundabout Sat

Leg	Movement	Degree of Saturation (v/c)	Average Delay (s)	LOS	95th %ile Queue (m)
Buckland Road (South)	LT	0.793	14.4	B	97
	TH	0.793	14.6	B	97
	RT	0.793	20.3	C	97
Gate 2 (main site access) (east)	LT	0.587	16.8	B	45
	TH	0.587	16.9	B	45
	RT	0.587	22.6	C	45
Manukau Road (north)	LT	0.911	12.8	B	184
	TH	0.911	13.0	B	184
	RT	0.911	18.7	B	184
Kitchener Rd (west)	LT	0.827	33.3	C	101
	TH	0.827	33.3	C	101
	RT	0.827	33.9	D	101

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Table 2:Proposed performance of the PU-NS-2 Road / Buckland Road intersection Sat (Priority intersection)

Leg	Movement	Degree of Saturation (v/c)	Average Delay (s)	LOS	95th %ile Queue (m)
Buckland Road (South)	LT	0.312	5.6	A	0
	TH	0.312	0	A	0
	RT	0.009	7.1	A	0
Racecourse Gate	LT	0.163	7.8	A	1
	TH	0.163	37.7	E	1
	RT	0.163	30.0	D	1
Buckland Road (north)	LT	0.230	5.6	A	0
	TH	0.230	0	A	0
	RT	0.315	9.1	A	2
Site access (PU-NS-2 Road) (west)	LT	0.904	35.9	E	15
	TH	0.904	74.3	F	15
	RT	0.904	56.9	F	15

Table 3: Proposed performance of the PU-NS-2 Road / Buckland Road intersection Sat (roundabout)

Leg	Movement	Degree of Saturation (v/c)	Average Delay (s)	LOS	95th %ile Queue (m)
Buckland Road (South)	LT	0.578	7.2	A	40
	TH	0.578	7.5	A	40
	RT	0.578	12.2	B	40
Racecourse Gate	LT	0.055	10.2	B	3
	TH	0.055	10.5	B	3
	RT	0.055	15.2	B	3
Buckland Road (north)	LT	0.573	5.3	A	45
	TH	0.573	5.6	A	45
	RT	0.573	10.3	B	45
Site access (PU-NS-2 Road) (west)	LT	0.511	8.8	A	33
	TH	0.511	9.1	A	33
	RT	0.511	13.8	B	33

The above Saturday assessment shows that an upgrade of the Buckland Road / Manukau Road / Kitchener Road roundabout as proposed by PC30 is still appropriate to cater for the traffic generation associated with the proposed zoning. It is noted that this intersection is approaching capacity in this scenario however as noted previously all the traffic (both PPC and PC30) has all been assumed to be new “Primary” trips. No reduction has been made for either multi-purpose / linked trips (those that may also visit other stores on the same Plan Change or other plan Change) or pass-by traffic (ie those vehicles already on the road network that deviate into the site). As such the assessment is considered conservative.

As an example, a SIDRA sensitivity test of the Manukau Road/ Kitchener Road/ Buckland Road roundabout during the Saturday peak has been made assuming 20% of the traffic using just PCC is

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already on Manukau Road / Buckland Road. While the turning movements will remain the same, the through traffic will be reduced (as they will be turning in to the two sites rather than travelling straight through on Manukau Road. Table 4 summarises the result.

Table 4: Proposed performance of the Manukau Rd/ Kitchener Rd/ Buckland Rd roundabout Sat (20% pass by)

Leg	Movement	Degree of Saturation (v/c)	Average Delay (s)	LOS	95th %ile Queue (m)
Buckland Road (South)	LT	0.734	12.1	B	76
	TH	0.734	12.3	B	76
	RT	0.734	18.0	B	76
Gate 2 (main site access) (east)	LT	0.534	13.6	B	39
	TH	0.534	13.7	B	39
	RT	0.534	19.4	B	39
Manukau Road (north)	LT	0.866	10.0	B	140
	TH	0.866	10.2	B	140
	RT	0.866	15.8	B	140
Kitchener Rd (west)	LT	0.750	22.7	C	77
	TH	0.750	22.9	C	77
	RT	0.750	23.6	C	77

This sensitivity test shows noticeable improvement to the intersection, which will be even more noticeable once pass-by trips for PC30 and multi-purpose traffic (generally) is taken into account.

The assessment also shows the priority intersection of PU-NS-2 Road / Buckland Road is appropriate to cater for the traffic in the short term but nears capacity in the medium / long term. It is considered appropriate to allow for this intersection to be roundabout controlled in the future as a result of other development in the area including from the collector PU-NS-2 Road.

4 ITEM T4: DISTRIBUTION

Please recalculate movements with directional splits based and provide evidence to support the splits used.

Comment:

While we consider the distribution of traffic contained in the ITA to be appropriate, we have tested the suggested distribution.

- Commercial / office split is likely to be closer to 90/10 AM and 85/15 PM for both warehousing and office.
- Retail and motor vehicle sales to be around 60/40 AM (opposite in PM), and motor vehicle sales around 75/25 AM and 40/60 PM.
- Distribution to be 70% to north and 30% to the south (as per Item T5 below)

The resultant SIDRA assessment is outlines in the following tables.

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Table 5: Revised performance of the Manukau Road/ Kitchener Road/ Buckland Road roundabout AM

Leg	Movement	Degree of Saturation (v/c)	Average Delay (s)	LOS	95th %ile Queue (m)
Buckland Road (South)	LT	0.576	6.6	A	40
	TH	0.576	6.8	A	40
	RT	0.576	12.4	B	40
Gate 2 (main site access) (east)	LT	0.294	7.0	A	15
	TH	0.294	7.2	A	15
	RT	0.294	12.9	B	15
Manukau Road (north)	LT	0.505	4.8	A	35
	TH	0.505	4.9	A	35
	RT	0.505	10.6	B	35
Kitchener Rd (west)	LT	0.414	9.0	A	24
	TH	0.414	9.1	A	24
	RT	0.414	14.8	B	24

Table 6: Revised performance of the PU-NS-2 Road / Buckland Road intersection AM (roundabout)

Leg	Movement	Degree of Saturation (v/c)	Average Delay (s)	LOS	95th %ile Queue (m)
Buckland Road (South)	LT	0.493	5.4	A	31
	TH	0.493	5.7	A	31
	RT	0.493	10.4	B	31
Racecourse Gate	LT	0.036	6.8	A	2
	TH	0.036	7.2	A	2
	RT	0.036	11.8	B	2
Buckland Road (north)	LT	0.328	4.3	A	20
	TH	0.328	4.6	A	20
	RT	0.328	9.2	A	20
Site access (PU-NS-2 Road) (west)	LT	0.169	7.7	A	8
	TH	0.169	8.0	A	8
	RT	0.169	12.7	B	9

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Table 7: Revised performance of the Manukau Road/ Kitchener Road/ Buckland Road roundabout PM

Leg	Movement	Degree of Saturation (v/c)	Average Delay (s)	LOS	95th %ile Queue (m)
Buckland Road (South)	LT	0.730	11.3	B	75
	TH	0.730	11.5	B	75
	RT	0.730	17.2	B	75
Gate 2 (main site access) (east)	LT	0.435	11.1	B	27
	TH	0.435	11.3	B	27
	RT	0.435	16.9	B	27
Manukau Road (north)	LT	0.701	5.3	A	65
	TH	0.701	5.4	A	65
	RT	0.701	11.1	B	65
Kitchener Rd (west)	LT	0.525	12.9	B	37
	TH	0.525	13.1	B	37
	RT	0.525	18.7	B	37

Table 8: Revised performance of the PU-NS-2 Road / Buckland Road intersection PM (roundabout)

Leg	Movement	Degree of Saturation (v/c)	Average Delay (s)	LOS	95th %ile Queue (m)
Buckland Road (South)	LT	0.578	7.2	A	40
	TH	0.578	7.5	A	40
	RT	0.578	12.2	B	40
Racecourse Gate	LT	0.055	10.2	B	3
	TH	0.055	10.5	B	3
	RT	0.055	15.2	B	3
Buckland Road (north)	LT	0.573	5.3	A	45
	TH	0.573	5.6	A	45
	RT	0.573	10.3	B	45
Site access (PU-NS-2 Road) (west)	LT	0.511	8.8	A	33
	TH	0.511	9.1	A	33
	RT	0.511	13.8	B	33

The revised modelling confirms the ITA modelling.

5 ITEM T5: 90% TO THE NORTH

Please provide an assessment with 90% of all trips generated by the site (and by the PC30 development) assigned to and from the north.

Comment:

A distribution of 90% to the north is not considered to be realistic given the existing distribution of traffic at the intersection of Buckland Road with Kitchener Road. The volumes recorded at the Kitchener Road / Buckland Road intersection shows the direction of traffic along Buckland Road to be around 50/50 on a Saturday, and 60/40 on a weekday. This is due to a significant amount of population being south of Pukekohe (esp Buckland, Tuakau and also Pokeno which the shortest time

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to the site is via the south). We have however tested a revised scenario without Webb Street of having 70% to / from the north. This scenario has been assessed in item T4 above as requested.

6 ITEM T6: 2036 SCENARIO

Please provide analysis of the proposal against a future development environment such as 2036.

Comment:

The PPSP ITA provides an outline of both future development (including the subject site) and future upgrades in the local and wider area in future areas. These are extensive and considered to be outside the scope of one Plan Change. It is however noted that the SIDRA analysis shows there is still significant spare capacity in the roundabouts proposed indicating ability to cater for additional growth.

It is also noted that the proposed zoning is recognised in the Auckland Unitary Plan as an employment zone. Development of employment zones in the Pukekohe area is consider a positive outcome for the area as it makes Pukekohe more self-sufficient and reduces the need for residents to travel in the peak direction outside the area (eg towards Auckland). It is also noted that the Pukekohe Structure Plan recognises Pukekohe as being a "satellite town" being a town that provides for local employment opportunities to reduce commuter demand.

7 ITEM T7: WEEKEND PEAK

Please assess the impact of the proposal on the transport environment in the weekend midday peak hour.

Comment:

See item T3.

8 ITEM T8: PUKEKOHE PARK

Please assess the impact of the proposal on and during large events at the wider Pukekohe Park site, including on the temporary traffic management deployed for large events.

Comment:

The large events at Pukekohe Park are considered to be infrequent events and are required to be under control of Traffic Management Plans. Given they infrequent events, additional assessment is not considered appropriate. It is noted that the Business – General Business Zone has been selected for this land in part recognition of the nature of Pukekohe Park and the effects it generates on the immediate locality including large events.

9 ITEM T9: PUBLIC TRANSPORT

Please update the ITA to consider the planned public transport environment.

Comment:

We acknowledge that Auckland Transport is unlikely to have funding to enable additional services or increased frequency of services. This is however typical of greenfield development and outside the control of individual developers / owners and increase in public transport can only occur when surrounding development occurs.

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We also noted that Pukekohe-Paerata Structure Plan ITA provides a map of planned public transport services for the future and does not show a future bus route on Buckland Road even though there is a current route. However, even if the PPSP ITA public transport routes are implemented, there will be a connector public transport route on Kitchener Road / Manukau Road which is within 800m (walking distance) of the site.

Again, a single developer cannot control where and when a public transport route is proposed. This land is zoned Future Urban and as such is anticipated to be developed as urban in future.

10 ITEM T10: MANUKAU / KITCHENER / BUCKLAND/ PUKEKOHE PARK GATE 2 INTERSECTION #1 - EVENTS

Please provide an assessment of how this intersection would operate during events at Pukekohe Park in the future.

Comment:

See Item T8.

11 ITEM T11: MANUKAU / KITCHENER / BUCKLAND/ PUKEKOHE PARK GATE 2 INTERSECTION #2 – TRAFFIC LIGHTS

Please provide an assessment of how this intersection could operate under traffic signal control.

Comment:

This intersection has previously been assessed and approved (by Auckland Transport) as a roundabout as part of PC30. Further in previous discussions with Auckland Transport, a roundabout is preferred in this location due to them lowering speeds especially in areas which transition from rural and urban. It is also noted that in Pukekohe all other intersections are roundabouts.

12 ITEM T12: MANUKAU / KITCHENER / BUCKLAND/ PUKEKOHE PARK GATE 2 INTERSECTION #3 - DRAWINGS

Please provide concept drawings of intersection layout(s) showing how a safe and efficient intersection could be provided.

Comment:

See Attachment A which was taken from PC30 hearing. The roundabout is planned to be the same layout.

13 ITEM T13: MODELLING DIAGRAMS

Please provide diagrams from the modelling software to confirm the layout(s) modelled.

Comment:

See Attachment B for the detailed diagrams / summary.

14 ITEM T14: BUCKLAND / PU-NS-2 INTERSECTION LOCATION

Please clarify the proposed location of the PU-NS-2 road alignment through the site, connections with Webb St, the location of the intersection with Buckland Rd, and the rationale for the proposed route and intersection location.

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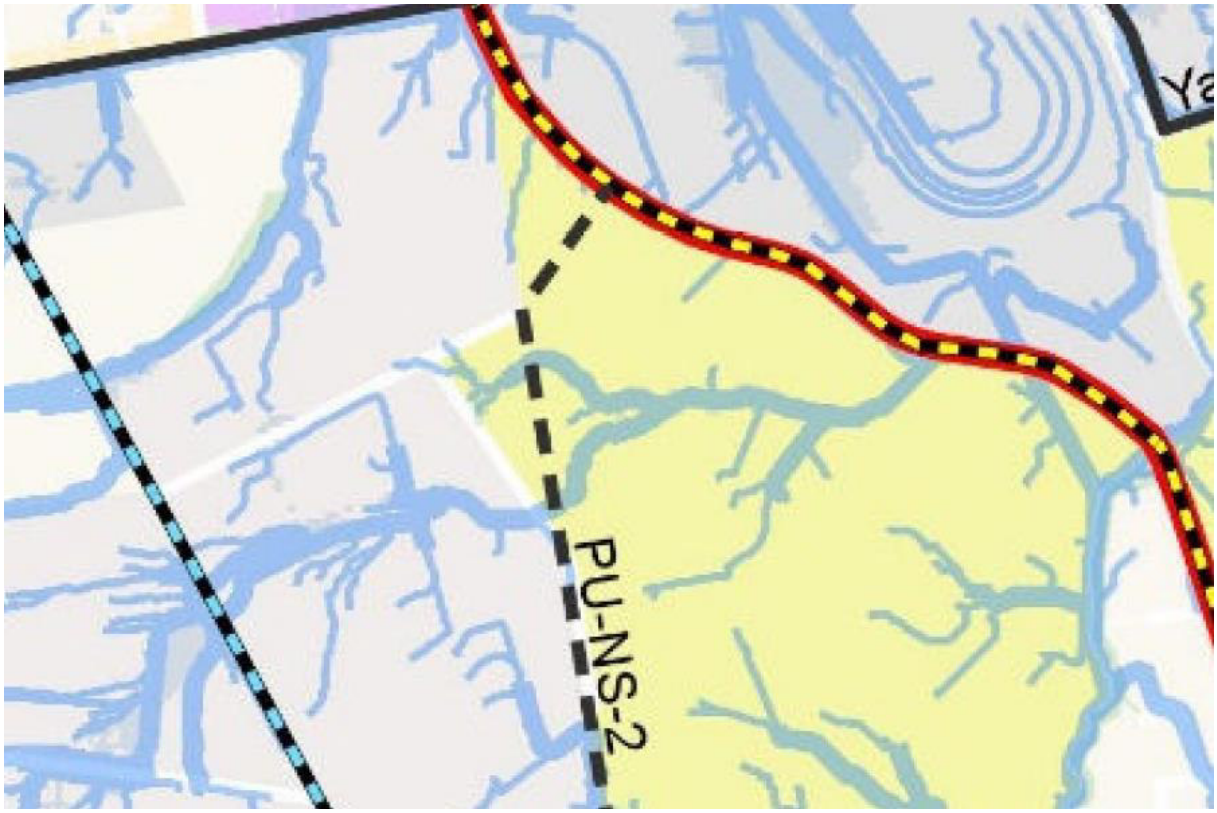
Comment:

The location proposed (as per Figure 11-1 "Implementation Plan") is opposite Gate 3 of Pukekohe Park. In this regard the location shown in the PPSP ITA is very much indicative and the exact point the new road (PU-NS-2) connects to Buckland Road is considered to be a matter for consideration in the development of the subject site. Figure 14-1 shows the diagram from the PPSP ITA. We agree that the PU-NS-2 road is shown in the PPSP ITA as being north of that proposed in the implementation plan for the subject site. In this regard the PU-NS-2 road and intersection could be moved north (to the exact location in the PPSP ITA) however the location recommended is considered to be more appropriate in that it better serves both sides of Buckland Road. In our view, some flexibility with regard to the future location of the road is considered a positive outcome at this stage.

In terms of Webb Street, the land-use along this road in the Unitary Plan is rural (ie existing land-use will remain). As such providing a connection of an industrial / business zone urban zone directly to this rural road is considered inappropriate at this time. This could however occur in the future.

Figure 14-1: PU-NS-2 road in PPSP ITA



15 ITEM T15: BUCKLAND / PU-NS-2 INTERSECTION (X-ROADS)

Please clarify if this intersection will provide access to or from the racecourse site, and how any such access will be arranged. If the intersection will be separate to any Pukekohe Park access, please provide details on the proposed separation distances.

Comment:

See T14. The location proposed is opposite Pukekohe Park Gate 3 and will be in the form of a roundabout. As such the intersection can also serve Pukekohe Park.

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16 ITEM T16: BUCKLAND / PU-NS-2 INTERSECTION (PARK ACCESS)

Please demonstrate how the intersection(s) could operate safely, particularly in relation to Pukekohe Park access.

Comment:

See item T14 and T15 and Appendix A.

17 ITEM T17: BUCKLAND / PU-NS-2 INTERSECTION (SIGHT DISTANCE)

Please provide information on the sight distances and operating speeds at the proposed intersection location(s).

Comment:

See previous comments. The proposal would be for a roundabout if formed as cross-roads and as such with the lowering of speeds due to the roundabout would occur.

The current 85th percentile operating vehicle speeds on Buckland Road were measured to be 71kph northbound and 77kph southbound. As such it is considered that an 80km/hr operating speed is appropriate for the area (currently). For arterial roads such as Buckland Road for a public road Austroads 4A is considered appropriate. Austroads recommends providing 181 m visibility for this approach speed (80km/hr) with 2 seconds reaction time and 3 seconds observation time.

The following two photographs show the available sight distance in either direction from the proposed new road.

Photograph 1: Sight Distance to the north

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Photograph 2: Sight Distance to the south

The available sight distance is over 230m in both directions and therefore exceeds the Austroads requirements.

With the roundabout in place it is anticipated the posted and operating speed would reduce to 50-60km/hr and thus the requirement would reduce to 90-120m (easily achieved).

18 ITEM T18: BUCKLAND / PU-NS-2 INTERSECTION

Please provide an assessment of how this intersection would operate during events at Pukekohe Park in the future.

Comment:

The large events at Pukekohe Park are considered to be infrequent events and are required to be under control of Traffic Management Plans.

19 ITEM T19: BUCKLAND / PU-NS-2 INTERSECTION (SIGNALS)

Please provide an assessment of how this intersection would operate under traffic signal control.

Comment:

In previous discussions with Auckland Transport, roundabouts in locations such as the one proposed are preferred due to them lowering speeds especially in areas which transition from rural and urban. It is also noted that in Pukekohe all other intersections are roundabouts.

20 ITEM T20: BUCKLAND / PU-NS-2 INTERSECTION (DESIGN)

Please provide concept drawings of the intersection layout(s) showing how a safe and efficient intersection could be provided.

Comment:

See Appendix A.

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21 ITEM T21: BUCKLAND / PU-NS-2 INTERSECTION (SIDRA)

Please provide diagrams from the modelling software to confirm the layout(s) modelled.

Comment:

See Attachment B for the detailed diagrams / summary.

22 ITEM T22: PEDESTRIANS/ CYCLISTS

Please provide an assessment of the need for pedestrian and cyclist facilities, both along and across roads.

Comment:

We agree with the comment that the site will likely attract walking and cycling trips, potentially including trips from Pukekohe Park. In this regard:

- The PPSP ITA identifies both the PU-NS-2 road and Buckland Road as a "secondary" active transport corridor. The PPC proposes construction of a footpath along Buckland Road. Additional measures are considered appropriate including:
  - The internal PU-NS-2 will need to be designed as a Supporting Growth Collector Road with pedestrian / cycling facilities (21m wide as per 8-20 of the PPSP ITA
  - Allowing provision (ie land set aside) for future cycling on Buckland Road (noting at present there are no cycling facilities on Buckland Road so construction of one would essentially be redundant
- The implementation measures include a roundabout which will lower speeds as well as a flush median and footpath which in detailed design will provide crossing facilities.

It is noted that all the above would be subject to further detailed design / Auckland Transport approval.

23 ITEM T23: ACCESS

Please provide data on Austroads SISD sight distances and operating speeds at various locations along the PCA frontage, along with other features such as queuing at intersections or access to Pukekohe Park, to demonstrate where safe access may or may not be possible.

Comment:

See item T3.

24 ITEM T24: SPEED LIMIT

If safe access at any point is dependent on a change to the posted speed limit, please provide discussion on how safe access could be provided in the event a speed limit change is delayed or does not eventuate.

Comment:

See item T17 for assessment of sight distance for current posted speed limit. It is however considered inappropriate to maintain a 80km/hr speed limit on Buckland Road with the proposed urbanisation of the road (as planned).

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25 ITEM T25: FLUSH MEDIAN

Please provide a concept design and/ or a series of road cross-section diagrams, showing how an appropriate flush median could be provided while also providing a safe road environment including sealed shoulders, existing features such as trees and streetlighting, and planned features such as pedestrian and cyclist facilities.

Comment:

See Appendix A.

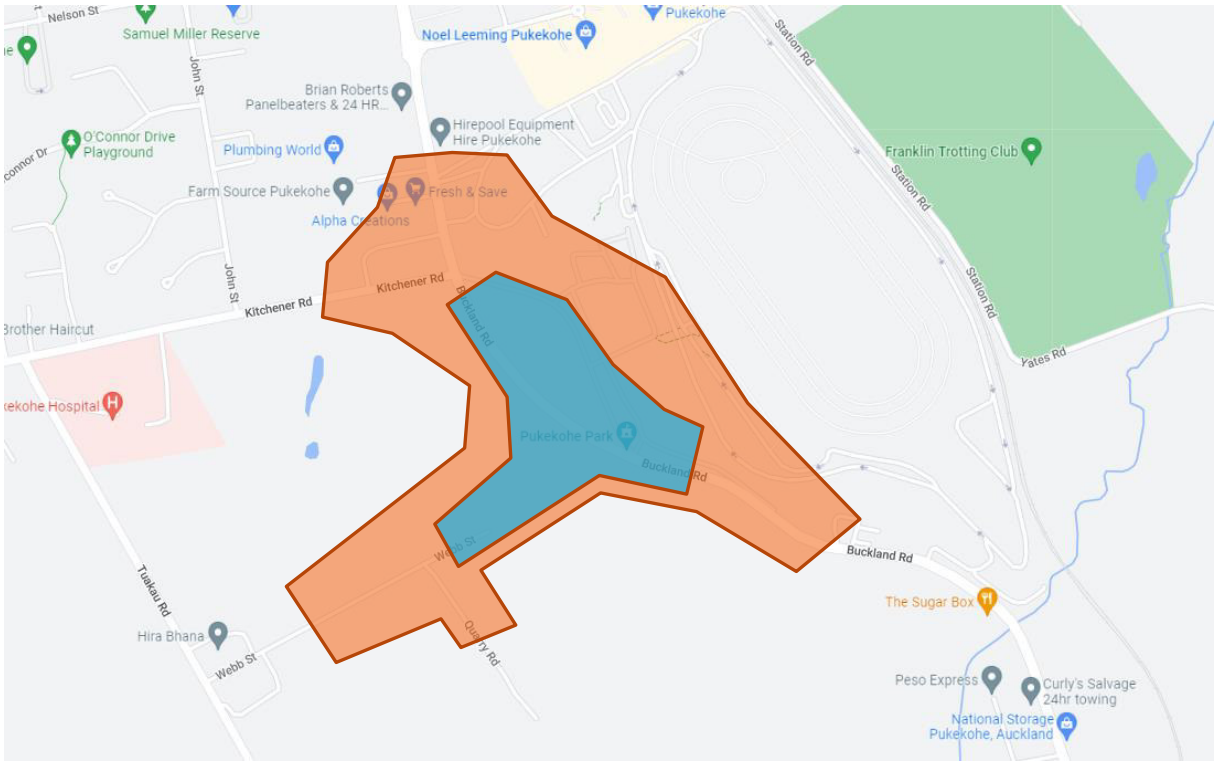
26 ITEM T26: RPS (WALKING)

Please provide an assessment of the walkable catchment that includes walking distances of 400m and 800m.

Comment:

Figure 26-1 shows the 400m and 800m catchment from approximately the centre of the site (assuming existing roads).

Figure 26-1: 400 / 800m catchment



It is recognised that the current walking catchment in this regard (400m / 800m) is limited. This will always be the case for Future Urban zoned land which is first to develop in an area. It is however noted that the site is in walking distance to Buckland Road (existing public transport route) and within PC30 site. Even if the PPSP ITA public transport routes are implemented, there will be a connector public transport route on Kitchener Road / Manukau Road which is within 800m of the site.

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27 ITEM T27: HIGH GENERATING ACTIVITIES

Please provide an assessment of how any high trip-generating activities that may locate in the PCA could be efficiently served by key public transport services, or how such activities could be controlled.

Comment:

The site is located within walking distance to Buckland Road which does have an existing public transport route. Generally all Future Urban zoned land will have limited public transport facilities as the land is typically rural in nature. As development occurs the public transport can be improved by Auckland Transport. In this regard Buckland Road (and the new collector road through the site) are both anticipated to have walking / cycling facilities in the future from the PPSP ITA.

In terms of public transport there is a bus route along the site (no bus stops as there is no reason for a bus to stop in a rural environment). If the PPSP ITA public transport routes are implemented, there will be a connector public transport route on Kitchener Road / Manukau Road which is within 800m of the site.

Further any High Generating activity would be also subject to E27 E27.6.1. "Trip generation" rule of the Unitary Plan. This rule (if triggered) requires an assessment of transport, traffic or trip-generation effects for the activity.

28 ITEM T28: IMPLEMENTATION PLAN

Please explain how development of the PCA is proposed to be controlled in the event the transport infrastructure identified in the ITA as being necessary for development is delayed or not provided and/ or a robust mechanism by which Council could ensure that the identified mitigation measures could be achieved prior to development operating.

Comment:

The ITA does not propose a planning mechanism relating to the works identified as this is considered outside the scope of an ITA. However, in our opinion the key items of infrastructure including the following are all triggered straight away:

- installation of a flush median,
- the construction of footpaths, and
- a lowering of the speed limit on Buckland Road

As noted in the ITA the roundabout is likely triggered early in development (but potentially not straight away).

Any new development on the site will essentially require a Resource Consent as any New Building in the Business – General Business Zone is a Restricted discretionary activity (A42). It is noted that under this activity status one of the matters of discretion in H14.8.1. Matters of discretion is 4(f) "the effects of creation of new roads and/or service lanes on the matters listed above". The assessment criteria in H14.8.2(5). Any new development involving industry or large format retail or office activity are also likely to the triggered by the Trip Generation thresholds under E27.6.1 and especially Activities T7-T10 below:

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(T7)	Office		5,000 m^2 GFA
(T8)	Retail	Drive through	333 m^2 GFA
(T8A)		Retail activities (non-drive through)	1667m2 GFA
(T9)	Industrial activities	Warehousing and storage	20,000 m^2 GFA
(T10)		Other industrial activities	10,000 m^2 GFA

29 ITEM T29: IMPLEMENTATION PLAN (INTEGRATION)

Please explain how the form and location of new or upgraded transport infrastructure would be well integrated with development occurring on the site.

Comment:

See item T28.

Yours sincerely

Commute Transportation Consultants

Leo Hills

Director

Leo@commute.kiwi

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APPENDIX A: ROADING LAYOUTS

Revision notes:		
Rev:	Date:	Notes:

Drawn by: LH
J002101 - 301-303 Buckland

Client:

Project: 301-303 BUCKLAND ROAD, PUKEKOHE
PROPOSED PRIVATE PLAN CHANGE

Drawing Title: INDICATIVE ROUNDABOUT / ROAD LAYOUT

Date: 6 April 2022

Scale @ A3: 1:2000 @ A3

Revision: 0 - FOR DISCUSSION

commute TRANSPORTATION CONSULTANTS

Figure: 1

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APPENDIX B: SIDRA PRINTOUTS

MOVEMENT SUMMARY

Site: 102v [Manukau Rd/ Kitchener Rd/ Buckland Rd intersection Proposed AM]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	107	5.0	0.576	6.6	LOS A	5.5	40.1	0.78	0.69	52.6
2	T1	481	5.0	0.576	6.8	LOS A	5.5	40.1	0.78	0.69	54.2
3	R2	32	5.0	0.576	12.4	LOS B	5.5	40.1	0.78	0.69	54.5
Approach		620	5.0	0.576	7.0	LOS A	5.5	40.1	0.78	0.69	54.0
East: Gate 2 (site main access)											
4	L2	25	5.0	0.294	7.0	LOS A	2.1	15.3	0.75	0.77	50.8
5	T1	53	5.0	0.294	7.2	LOS A	2.1	15.3	0.75	0.77	52.3
6	R2	182	5.0	0.294	12.9	LOS B	2.1	15.3	0.75	0.77	52.5
Approach		260	5.0	0.294	11.1	LOS B	2.1	15.3	0.75	0.77	52.3
North: Manukau Rd (north)											
7	L2	202	5.0	0.505	4.8	LOS A	4.8	35.1	0.59	0.53	53.4
8	T1	349	5.0	0.505	4.9	LOS A	4.8	35.1	0.59	0.53	55.1
9	R2	93	5.0	0.505	10.6	LOS B	4.8	35.1	0.59	0.53	55.3
Approach		644	5.0	0.505	5.7	LOS A	4.8	35.1	0.59	0.53	54.6
West: Kitchener Rd (west)											
10	L2	164	5.0	0.414	9.0	LOS A	3.2	23.7	0.89	0.87	51.1
11	T1	54	5.0	0.414	9.1	LOS A	3.2	23.7	0.89	0.87	52.6
12	R2	84	5.0	0.414	14.8	LOS B	3.2	23.7	0.89	0.87	52.9
Approach		302	5.0	0.414	10.6	LOS B	3.2	23.7	0.89	0.87	51.8
All Vehicles		1826	5.0	0.576	7.7	LOS A	5.5	40.1	0.73	0.67	53.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102v [Manukau Rd/ Kitchener Rd/ Buckland Rd intersection Proposed PM]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	111	5.0	0.730	11.3	LOS B	10.3	75.4	0.95	0.98	50.5
2	T1	576	5.0	0.730	11.5	LOS B	10.3	75.4	0.95	0.98	51.9
3	R2	25	5.0	0.730	17.2	LOS B	10.3	75.4	0.95	0.98	52.2
Approach		712	5.0	0.730	11.7	LOS B	10.3	75.4	0.95	0.98	51.7
East: Gate 2 (site main access)											
4	L2	16	5.0	0.435	11.1	LOS B	3.7	27.0	0.97	0.96	48.2
5	T1	55	5.0	0.435	11.3	LOS B	3.7	27.0	0.97	0.96	49.6
6	R2	194	5.0	0.435	16.9	LOS B	3.7	27.0	0.97	0.96	49.8
Approach		264	5.0	0.435	15.4	LOS B	3.7	27.0	0.97	0.96	49.6
North: Manukau Rd (north)											
7	L2	180	5.0	0.701	5.3	LOS A	8.9	65.0	0.77	0.57	52.4
8	T1	546	5.0	0.701	5.4	LOS A	8.9	65.0	0.77	0.57	54.0
9	R2	177	5.0	0.701	11.1	LOS B	8.9	65.0	0.77	0.57	54.3
Approach		903	5.0	0.701	6.5	LOS A	8.9	65.0	0.77	0.57	53.8
West: Kitchener Rd (west)											
10	L2	180	5.0	0.525	12.9	LOS B	5.1	37.0	0.99	1.03	48.5
11	T1	52	5.0	0.525	13.1	LOS B	5.1	37.0	0.99	1.03	49.9
12	R2	92	5.0	0.525	18.7	LOS B	5.1	37.0	0.99	1.03	50.1
Approach		323	5.0	0.525	14.6	LOS B	5.1	37.0	0.99	1.03	49.2
All Vehicles		2202	5.0	0.730	10.4	LOS B	10.3	75.4	0.89	0.82	51.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102v [Manukau Rd/ Kitchener Rd/ Buckland Rd intersection Proposed SAT]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	72	5.0	0.793	14.4	LOS B	13.3	97.2	1.00	1.10	48.4
2	T1	627	5.0	0.793	14.6	LOS B	13.3	97.2	1.00	1.10	49.7
3	R2	47	5.0	0.793	20.3	LOS C	13.3	97.2	1.00	1.10	49.9
Approach		746	5.0	0.793	14.9	LOS B	13.3	97.2	1.00	1.10	49.6
East: Gate 2 (site main access)											
4	L2	31	5.0	0.587	16.8	LOS B	6.2	45.3	1.00	1.10	45.2
5	T1	69	5.0	0.587	16.9	LOS B	6.2	45.3	1.00	1.10	46.4
6	R2	196	5.0	0.587	22.6	LOS C	6.2	45.3	1.00	1.10	46.6
Approach		296	5.0	0.587	20.7	LOS C	6.2	45.3	1.00	1.10	46.4
North: Manukau Rd (north)											
7	L2	327	5.0	0.911	12.8	LOS B	25.2	184.1	1.00	0.88	49.0
8	T1	616	5.0	0.911	13.0	LOS B	25.2	184.1	1.00	0.88	50.4
9	R2	193	5.0	0.911	18.7	LOS B	25.2	184.1	1.00	0.88	50.6
Approach		1136	5.0	0.911	13.9	LOS B	25.2	184.1	1.00	0.88	50.0
West: Kitchener Rd (west)											
10	L2	291	5.0	0.827	33.1	LOS C	13.9	101.3	1.00	1.41	38.7
11	T1	93	5.0	0.827	33.2	LOS C	13.9	101.3	1.00	1.41	39.6
12	R2	64	5.0	0.827	38.9	LOS D	13.9	101.3	1.00	1.41	39.7
Approach		447	5.0	0.827	33.9	LOS C	13.9	101.3	1.00	1.41	39.0
All Vehicles		2625	5.0	0.911	18.4	LOS B	25.2	184.1	1.00	1.06	47.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102v [Manukau Rd/ Kitchener Rd/ Buckland Rd intersection Proposed SAT - passby]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	72	5.0	0.734	12.1	LOS B	10.5	76.3	0.97	1.02	49.8
2	T1	569	5.0	0.734	12.3	LOS B	10.5	76.3	0.97	1.02	51.2
3	R2	47	5.0	0.734	18.0	LOS B	10.5	76.3	0.97	1.02	51.5
Approach		688	5.0	0.734	12.7	LOS B	10.5	76.3	0.97	1.02	51.1
East: Gate 2 (site main access)											
4	L2	31	5.0	0.535	13.6	LOS B	5.3	38.6	1.00	1.04	47.0
5	T1	69	5.0	0.535	13.7	LOS B	5.3	38.6	1.00	1.04	48.3
6	R2	196	5.0	0.535	19.4	LOS B	5.3	38.6	1.00	1.04	48.5
Approach		296	5.0	0.535	17.4	LOS B	5.3	38.6	1.00	1.04	48.3
North: Manukau Rd (north)											
7	L2	327	5.0	0.866	10.0	LOS B	19.1	139.6	1.00	0.81	50.8
8	T1	558	5.0	0.866	10.2	LOS B	19.1	139.6	1.00	0.81	52.3
9	R2	193	5.0	0.866	15.8	LOS B	19.1	139.6	1.00	0.81	52.6
Approach		1078	5.0	0.866	11.1	LOS B	19.1	139.6	1.00	0.81	51.9
West: Kitchener Rd (west)											
10	L2	291	5.0	0.750	22.7	LOS C	10.6	77.2	1.00	1.26	43.4
11	T1	93	5.0	0.750	22.9	LOS C	10.6	77.2	1.00	1.26	44.5
12	R2	64	5.0	0.750	28.6	LOS C	10.6	77.2	1.00	1.26	44.6
Approach		447	5.0	0.750	23.6	LOS C	10.6	77.2	1.00	1.26	43.8
All Vehicles		2509	5.0	0.866	14.5	LOS B	19.1	139.6	0.99	0.97	49.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102v [Manukau Rd/ PPC Road intersection AM]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	64	5.0	0.493	5.4	LOS A	4.2	30.7	0.55	0.54	53.0
2	T1	534	5.0	0.493	5.7	LOS A	4.2	30.7	0.55	0.54	54.3
3	R2	11	5.0	0.493	10.4	LOS B	4.2	30.7	0.55	0.54	54.2
Approach		608	5.0	0.493	5.8	LOS A	4.2	30.7	0.55	0.54	54.2
East: Gate 3											
4	L2	11	5.0	0.036	6.8	LOS A	0.2	1.5	0.61	0.62	51.9
5	T1	11	5.0	0.036	7.2	LOS A	0.2	1.5	0.61	0.62	53.2
6	R2	11	5.0	0.036	11.8	LOS B	0.2	1.5	0.61	0.62	53.1
Approach		32	5.0	0.036	8.6	LOS A	0.2	1.5	0.61	0.62	52.7
North: Bucklend Rd (north)											
7	L2	11	5.0	0.328	4.3	LOS A	2.7	19.6	0.29	0.48	53.2
8	T1	309	5.0	0.328	4.6	LOS A	2.7	19.6	0.29	0.48	54.6
9	R2	149	5.0	0.328	9.2	LOS A	2.7	19.6	0.29	0.48	54.5
Approach		469	5.0	0.328	6.1	LOS A	2.7	19.6	0.29	0.48	54.5
West: PPC Road											
10	L2	86	5.0	0.169	7.7	LOS A	1.1	8.1	0.72	0.73	51.7
11	T1	11	5.0	0.169	8.0	LOS A	1.1	8.1	0.72	0.73	52.9
12	R2	37	5.0	0.169	12.7	LOS B	1.1	8.1	0.72	0.73	52.8
Approach		134	5.0	0.169	9.1	LOS A	1.1	8.1	0.72	0.73	52.1
All Vehicles		1243	5.0	0.493	6.3	LOS A	4.2	30.7	0.47	0.54	54.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102v [Manukau Rd/ PPC Road intersection SAT]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	123	5.0	0.578	7.2	LOS A	5.5	40.3	0.78	0.72	52.1
2	T1	459	5.0	0.578	7.5	LOS A	5.5	40.3	0.78	0.72	53.4
3	R2	11	5.0	0.578	12.2	LOS B	5.5	40.3	0.78	0.72	53.3
Approach		593	5.0	0.578	7.5	LOS A	5.5	40.3	0.78	0.72	53.1
East: Gate 3											
4	L2	11	5.0	0.055	10.2	LOS B	0.4	2.7	0.83	0.74	49.8
5	T1	11	5.0	0.055	10.5	LOS B	0.4	2.7	0.83	0.74	51.0
6	R2	11	5.0	0.055	15.2	LOS B	0.4	2.7	0.83	0.74	50.8
Approach		32	5.0	0.055	12.0	LOS B	0.4	2.7	0.83	0.74	50.5
North: Bucklend Rd (north)											
7	L2	11	5.0	0.573	5.3	LOS A	6.1	44.5	0.62	0.58	51.8
8	T1	423	5.0	0.573	5.6	LOS A	6.1	44.5	0.62	0.58	53.1
9	R2	287	5.0	0.573	10.3	LOS B	6.1	44.5	0.62	0.58	53.0
Approach		721	5.0	0.573	7.5	LOS A	6.1	44.5	0.62	0.58	53.0
West: PPC Road											
10	L2	287	5.0	0.511	8.8	LOS A	4.6	33.2	0.86	0.86	50.9
11	T1	11	5.0	0.511	9.1	LOS A	4.6	33.2	0.86	0.86	52.1
12	R2	123	5.0	0.511	13.8	LOS B	4.6	33.2	0.86	0.86	52.0
Approach		421	5.0	0.511	10.2	LOS B	4.6	33.2	0.86	0.86	51.2
All Vehicles		1766	5.0	0.578	8.2	LOS A	6.1	44.5	0.73	0.70	52.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102v [Manukau Rd/ PPC Road intersection SAT]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	123	5.0	0.578	7.2	LOS A	5.5	40.3	0.78	0.72	52.1
2	T1	459	5.0	0.578	7.5	LOS A	5.5	40.3	0.78	0.72	53.4
3	R2	11	5.0	0.578	12.2	LOS B	5.5	40.3	0.78	0.72	53.3
Approach		593	5.0	0.578	7.5	LOS A	5.5	40.3	0.78	0.72	53.1
East: Gate 3											
4	L2	11	5.0	0.055	10.2	LOS B	0.4	2.7	0.83	0.74	49.8
5	T1	11	5.0	0.055	10.5	LOS B	0.4	2.7	0.83	0.74	51.0
6	R2	11	5.0	0.055	15.2	LOS B	0.4	2.7	0.83	0.74	50.8
Approach		32	5.0	0.055	12.0	LOS B	0.4	2.7	0.83	0.74	50.5
North: Bucklend Rd (north)											
7	L2	11	5.0	0.573	5.3	LOS A	6.1	44.5	0.62	0.58	51.8
8	T1	423	5.0	0.573	5.6	LOS A	6.1	44.5	0.62	0.58	53.1
9	R2	287	5.0	0.573	10.3	LOS B	6.1	44.5	0.62	0.58	53.0
Approach		721	5.0	0.573	7.5	LOS A	6.1	44.5	0.62	0.58	53.0
West: PPC Road											
10	L2	287	5.0	0.511	8.8	LOS A	4.6	33.2	0.86	0.86	50.9
11	T1	11	5.0	0.511	9.1	LOS A	4.6	33.2	0.86	0.86	52.1
12	R2	123	5.0	0.511	13.8	LOS B	4.6	33.2	0.86	0.86	52.0
Approach		421	5.0	0.511	10.2	LOS B	4.6	33.2	0.86	0.86	51.2
All Vehicles		1766	5.0	0.578	8.2	LOS A	6.1	44.5	0.73	0.70	52.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102vv [Manukau Rd/ PPC Road intersection SAT - priority - Conversion]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	123	5.0	0.312	5.6	LOS A	0.0	0.0	0.00	0.13	57.0
2	T1	459	5.0	0.312	0.0	LOS A	0.0	0.0	0.00	0.13	58.8
3	R2	11	5.0	0.009	7.1	LOS A	0.0	0.3	0.47	0.61	51.7
Approach		593	5.0	0.312	1.3	NA	0.0	0.3	0.01	0.13	58.3
East: Gate 3											
4	L2	11	5.0	0.163	7.8	LOS A	0.6	4.1	0.83	0.89	41.5
5	T1	11	5.0	0.163	37.7	LOS E	0.6	4.1	0.83	0.89	41.7
6	R2	11	5.0	0.163	30.0	LOS D	0.6	4.1	0.83	0.89	41.4
Approach		32	5.0	0.163	25.2	LOS D	0.6	4.1	0.83	0.89	41.5
North: Bucklend Rd (north)											
7	L2	11	5.0	0.230	5.6	LOS A	0.0	0.0	0.00	0.01	57.9
8	T1	423	5.0	0.230	0.0	LOS A	0.0	0.0	0.00	0.01	59.8
9	R2	287	5.0	0.315	9.1	LOS A	1.6	11.8	0.62	0.87	50.3
Approach		721	5.0	0.315	3.7	NA	1.6	11.8	0.25	0.36	55.6
West: PPC Road											
10	L2	287	5.0	0.904	35.9	LOS E	15.0	109.6	0.86	1.90	34.5
11	T1	11	5.0	0.904	74.3	LOS F	15.0	109.6	0.86	1.90	34.7
12	R2	123	5.0	0.904	56.9	LOS F	15.0	109.6	0.86	1.90	34.4
Approach		421	5.0	0.904	43.0	LOS E	15.0	109.6	0.86	1.90	34.5
All Vehicles		1766	5.0	0.904	12.7	NA	15.0	109.6	0.32	0.66	48.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Mr R Scott
Scott Wilkinson Planning
PO Box 37-359, Parnell 1151
Auckland

15 June 2022

Copy via email: **robert@scottwilkinson.co.nz**

Dear Robert

301-303 BUCKLAND ROAD- CLAUSE 23 RESPONSE

Further to your recent instructions, we have reviewed the evaluation of additional transport information from Auckland Council (via Arrive) and have responded. The items below only relate to the items noted as requiring additional information.

1 ITEM T1: INTENSIVE SCENARIO

The ITA scenario over-represented low-intensity activities such as vehicle sales and warehouse activities at 16% floor area ratio.

The new scenario has additional moderate-intensity LFR activity at 33% coverage, taking the average floor area ratio to around 25% coverage, but still has a considerable proportion of low-intensity vehicle sales and warehousing.

Drive-through restaurants and other food and beverage activities are permitted at any scale in the BGBZ. These activities can have high trip generation and are not accounted for in the assessment.

The information provides no corroborating information, such as information from similar BGBZ areas, to justify the proposed floor area ratio, development intensity or overall trip generation on a per-hectare basis. It has not been demonstrated that the assumed level of development is a good match for what the proposed zoning would enable.

There is still insufficient information to conclude that the two scenarios provided for analysis are sufficient.

Comment:

The likely estimates of the mix of likely activities and the traffic generation that results from the potential mix are highly subjective judgements. There are multiple factors in play given the range of activities that can be established in a BGBZ.

To summarise, the BGBZ enables a wide range of activities employment including office, LFR, all types of light industry, trade retail, commercial services, other forms of retail (including garden centres, marine retail motor vehicle sales and service stations). The mix of activities is subject to market forces and demand. The BGBZ is an employment focussed zone that is intentionally broad in the range employment activities enabled. On this basis, while it is possible that all the land would be developed as LFR, it is not considered realistic to assume that it would.

The transportation effects for the plan change approved recently for land adjoining Pukekohe Park (Plan Change 30) provided a similar methodology for land in the immediate proximity to the current PPC land to assessing the likely traffic demand split and this methodology was accepted by the

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Council. That same methodology has been updated and applied to the current site. We see no reason why the previous methodology (updated for this plan change) should not be adopted in this circumstance.

The applicant's economics expert has provided additional comment on the likely demand for the various activities should the requested BGBZ be confirmed on the site. His comments are as follows:

> *"I have reviewed the site size, dimensions, contour, location and surrounding uses. The site would be suitable for a range of activities enabled by the General Business zone, notably including large format retail, trade suppliers and industrial. It is not possible to accurately predict the mix of activities that eventuate on any site, as this would depend on the market at the time for different activities as well as the owner's preferences. There are also obscure activities that can occasionally use sites of this type. Within the context of these limitations, a potential outcome for the site would be one third large format retail (near the road), one third industrial (further back from the road) and one third other uses".*

We note that the site subject to this PPC has steeper terrain and that may have an impact on the viability of 100% or a very high percentage of LFR activity being established. In any case, we have undertaken an assessment of 100% LFR on the site as a possible (albeit highly unlikely) worst case scenario.

- 7.9ha total site
- 100% (7.9ha) of the site to be LFR
- LFR site coverage of 33% based on the Pukekohe Mega Centre on Manukau Road (previously consented). This equates to 26,000sqm GFA

Applying the 453 report rates yields a LFR trip generation of 1040 trips in the evening peak and 1560 trips on a Saturday. It is also noted that all the traffic (both PPC and PC30) have all been assumed to be new "Primary" trips. As such no reduction has been made for either multi-purpose / linked trips (those that may also visit other stores on the same Plan Change or other plan Change) or pass-by traffic (ie those vehicles already on the road network that deviate into the site). As such the assessment is considered conservative especially if the entire site is LFR.

The distribution has been based on the original Clause 23 response.

The results of this test (Appendix A) show:

- Both roundabouts operate at acceptable levels in the AM and PM peak weekday periods
- Both roundabouts experience pressure on a Saturday peak with the new PPC / PU-NS-2 Road roundabout just reaching typical capacity levels however the Kitchener Road / Manukau Road roundabout exceeding capacity.

While this analysis shows some traffic issues at peak flows on a Saturday (with all 100% LFR, no pass-by or multi-purpose reduction), the suggested roading layout will otherwise operate efficiently and safely. If, in the unlikely event that 100% LFR occupancy results, we are confident that there are additional traffic mitigation measures (such as Saturday peak spreading, multi-purpose trips, adding turning lanes) which will occur / can be implemented at the resource consent stage to address any additional traffic safety issues.

2 ITEM T4: DISTRIBUTION

The alternative splits provided for the assumed land uses are reasonable. Splits for other land uses are yet to be provided or reviewed.

Comment:

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We note the reviewer agrees that the alternative splits provided for the assumed land uses are reasonable. In terms of other land uses not being provided, the revised land uses provided represent a realistic scenario to be tested. When assessing Plan Changes the exact uses are never known. The scenarios modelled are considered to represent a realistic scenario for development.

It is also noted any future activity would be also subject to E27 E27.6.1. "Trip generation" rule of the Unitary Plan. This rule if triggered (which is generally over 100 movements so will likely be triggered) requires a further assessment of transport, traffic or trip-generation effects for the activity. At this time (Resource Consent) the exact land-use will be known and thus a re-assessment will need to be undertaken.

3 ITEM T5: 90% TO THE NORTH

Most population growth is expected to the north of the site, so the north is likely to represent an increasing proportion of trips in future.

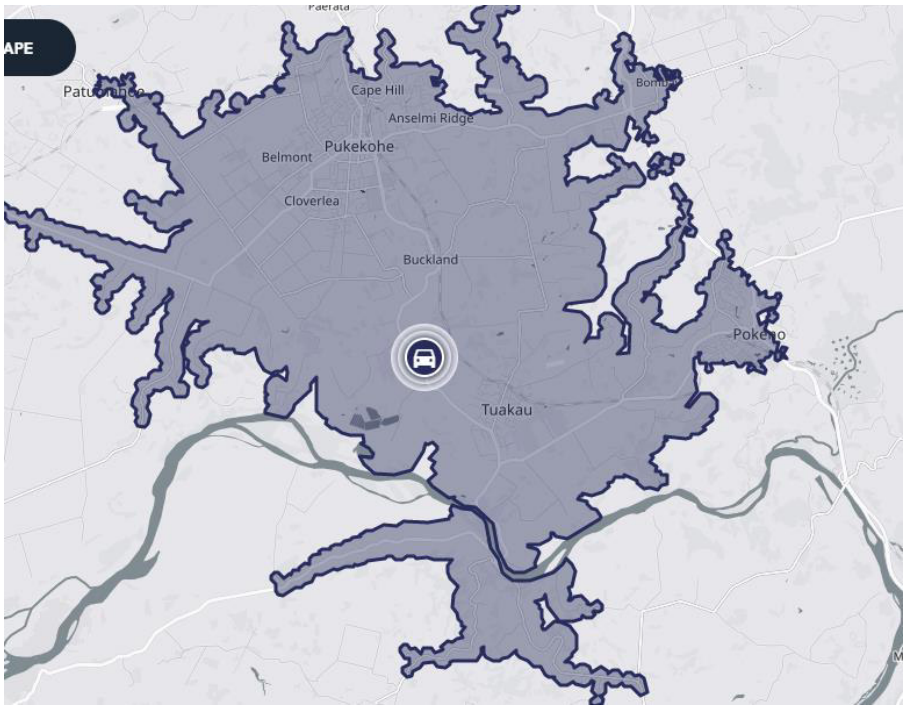
Insufficient information has been provided to support the assumed north/ south splits.

Comment:

A distribution of 90% to the north (as suggested by the reviewer) is not considered to be realistic given the existing distribution of traffic at the intersection of Buckland Road with Kitchener Road. As per the original response "*The volumes recorded at the Kitchener Road / Buckland Road intersection shows the direction of traffic along Buckland Road to be around 50/50 on a Saturday, and 60/40 on a weekday"*. This is due to a significant amount of population being south of Pukekohe (esp Buckland, Tuakau and also Pokeno which the shortest time to the site is via the south). We have however tested (in the response) a revised scenario of having 70% to / from the north.

We note the comment that the north is likely to represent an increasing proportion of trips in future. In this regard we have reviewed the existing and future population in the wider area. In this regard the map below shows the site and the estimated 15-minute travel time from the site.

Figure 1: 15 minute travel time



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Of note within 15 minutes travel time is Pukekohe, Tuakau and Pokeno.

Current populations of these towns are:

- Pokeno 5,545 (Statistics 2021)
- Pukekohe 26,900 (2021)
- Tuakau 5,090 (2021)

As such Tuakau and Pokeno currently represents 28% of total population in 15 driving distance of the site. The distribution of 30% from the south is reasonable.

In terms of future population projections

- Pokeno 9,791 (Retail and Office Space Projections for Centres: 'Huntly' and 'Pokeno' Town Centres - 2060)
- Pukekohe 40,000 (2040) – 65,883 over entire Pakekohe – Paerata Structure plan area
- Tuakau 11,108 (2046 - Tuakau Structure Plan)

As such Tuakau and Pokeno is proposed to represent 34% of total population in 15 minute driving time of the site. The distribution of 30% from the south is still considered reasonable.

ITEM T6: 2036 SCENARIO

Please provide analysis of the proposal against a future development environment such as 2036.

Large-scale ITA's such as PPSP are broader in scope and explicitly state subsequent smaller-scale ITA's such as this one need to provide more detail.

While there may be spare capacity at current traffic volumes, the impact of the proposal on the future environment or the capacity of the proposed intersections in the future have not been demonstrated, regardless of how much employment may be provided, particularly as the proposed zoning differs from that assumed in the PPSP ITA.

Comment:

We have reviewed the 'background" 2036 traffic volumes from the PPSP ITA. This contains no specific / detailed information in future traffic volumes on Buckland Road. It does provide some 2048+ (Figure 8-6) daily flows indicating a future flow of between 0-5,000 vehicle per day in each direction. This compares to 8,350 vpd in 2017 (both directions). The site (and the approved Plan Change across the road) is considered to in itself be traffic growth in the area especially to 2036.

We have also undertaken sensitivity testing as noted previously with a highly unlikely scenario of retail area.

4 ITEM T8: PUKEKOHE PARK

While the events are infrequent, they have the potential to generate significant adverse effects. The impact of the proposal on the ability to implement appropriate Traffic Management Plans for events and potentially change the impact of the events remains unknown.

The ability of activities on the site to operate safely and efficiently while events are occurring also remains unknown.

Comment:

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The large events at Pukekohe Park are considered to be infrequent events and are required to be under control of Traffic Management Plans. The events enabled are also highly variable in terms of numbers, intensity and hours of operation. On this basis there remains a high degree of uncertainty as to magnitude or frequency of events. Given this uncertainty, additional assessment is not considered appropriate or helpful as it would be based on highly variable assumptions. It is noted that the BGBZ has been selected for this land in part recognition of the nature of Pukekohe Park (including its reverse sensitivity effects) and the effects it generates on the immediate locality including large events.

It should also be noted that the Pukekohe Paerata Structure Plan has identified this area as an area for employment growth to support residential development in Pukekohe and this location is seen as an ideal place to establish employment related activities.

5 ITEM T10: MANUKAU / KITCHENER / BUCKLAND/ PUKEKOHE PARK GATE 2 INTERSECTION #1 - EVENTS

Please provide an assessment of how this intersection would operate during events at Pukekohe Park in the future.

Comment:

See Item T8.

6 ITEM T11: MANUKAU / KITCHENER / BUCKLAND/ PUKEKOHE PARK GATE 2 INTERSECTION #2 – TRAFFIC LIGHTS

Insufficient information provided on relative merits of traffic signals and roundabouts on matters such as efficiency, safety, and pedestrian and cyclist safety and amenity, particularly considering future urbanised environment. No information assessing intersection choice considering safe system assessment framework.

Comment:

This intersection has previously been assessed and approved (by Auckland Transport) as a roundabout as part of PC30. Further in previous discussions with Auckland Transport, a roundabout is preferred in this location due to them lowering speeds especially in areas which transition from rural and urban. It is also noted that in Pukekohe all other intersections are roundabouts.

We have however undertaken an assessment of roundabout vs signals using Safe System Assessment Framework (SSAF) in **Appendix B**. Of note the analysis only reviews the Buckland Road / Kitchener Road intersection as the Buckland Road / PU-NS-2 road will have essentially the same results. The results show similar results between the two options with the roundabout obtaining a lower score (and therefore consider safer especially for more venerable users).

7 ITEM T13: MODELLING DIAGRAMS

Please provide diagrams from the modelling software to confirm the layout(s) modelled.

Comment:

See **Attachment B** for the detailed diagrams / summary.

8 ITEM T18: BUCKLAND / PU-NS-2 INTERSECTION

Please provide an assessment of how this intersection would operate during events at Pukekohe Park in the future.

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Comment:

See Item T8.

9 ITEM T19: BUCKLAND / PU-NS-2 INTERSECTION (SIGNALS)

Please provide an assessment of how this intersection would operate under traffic signal control.

Comment:

In previous discussions with Auckland Transport, roundabouts in locations such as the one proposed are preferred due to them lowering speeds especially in areas which transition from rural and urban. It is also noted that in Pukekohe all other intersections are roundabouts.

We have however undertaken an assessment of roundabout vs signals using Safe System Assessment Framework (SSAF) in **Appendix B**. The results show similar results between the two options with the roundabout obtaining a lower score (and therefore consider safer).

10 ITEM T21: BUCKLAND / PU-NS-2 INTERSECTION (SIDRA)

Please provide diagrams from the modelling software to confirm the layout(s) modelled.

Comment:

See **Attachment C** for the detailed diagrams / summary.

11 ITEM T22: PEDESTRIANS/ CYCLISTS

Please provide information around selection of appropriate pedestrian (and cyclist) crossing facilities, particularly across Buckland Road, and how proposed provisions respond to the need for crossing facilities.

Comment:

We agree with the comment that the site will likely attract walking and cycling trips, potentially including trips from Pukekohe Park. It should however be stressed that the application is for a Plan Change rather than Resource Consent and as such the details of any such crossing facility would typically be considered at a later stage. However, in terms of the Plan Change crossing facilities:

- Both roundabouts will feature pedestrian crossing facilities on all approaches. The detail of these would be undertaken at detailed design stage however we note Auckland Transport recent preference for roundabouts over signals due to lower speeds and thus resulting lower impacts. This is reflected in Auckland Transport's Urban Streets and Roads Design Guide pg 187 "*Roundabouts are the preferred safe intersection type. This is because they reduce the number of potential conflicts between road users, and lower the driving speed*."
- As per the initial 11 April 2022 response (Appendix A), the concept layouts of Buckland Road includes a painted flush median along the entire frontage. This coupled with the two roundabouts then enables:
    - Informal crossing points using the median (potential with islands)
    - Potential of a signalised crossing located somewhere near the mid-point between roundabout
    - Potential of a raised zebra crossing located somewhere near the mid-point between roundabout

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The exact location can only be determined at future stages when lot / building layouts are known and thus pedestrian desire lines are able to be determined.

Again, it is noted that all the above would be subject to further detailed design / Auckland Transport approval.

12 ITEM T23: ACCESS

No information provided to enable an assessment of the appropriateness of proposed direct property access to Buckland Road at other locations.

Comment:

Any direct access to Buckland Road requires a Resource Consent under E27.6.4.1 "Vehicle Access Restrictions" as Buckland Road is an arterial. As such, like all other arterials in Auckland, any land use that requests access directly to an arterial is protected and requires assessment. We do not consider there is anything special regarding this land-use or arterial road that requires any further assessment / protection above that already contained in the unitary Plan.

The main access is intended to be provided via the new internal road network linking to the new proposed roundabout.

13 ITEM T24: SPEED LIMIT

If safe access at any point is dependent on a change to the posted speed limit, please provide discussion on how safe access could be provided in the event a speed limit change is delayed or does not eventuate.

Comment:

See Item T23. The speed limit at the time of any Resource Consent application would be taken into account in the assessment criteria within E27.8.2(10) (relating to E27.6.4.1 "Vehicle Access Restrictions") which includes effects of the location and design of the access on the safe and efficient operation of the adjacent transport network having regard to visibility and safe sight distances (which would include operating speed). Should the speed limit not be reduced, and the resulting sight distance not be achieved, then the proposed access will unlikely be approved (until the speed is reduced).

Of note the inclusion of the roundabouts (over signals) has been partly chosen because they reduce speeds on roads.

Yours sincerely

Commute Transportation Consultants

Leo Hills

Director

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APPENDIX A: 100% LFR RESULTS

MOVEMENT SUMMARY

Site: 102v [Manukau Rd/ PPC Road intersection SAT - 100%]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	246	5.0	1.038	82.7	LOS F	48.5	353.9	1.00	2.46	25.4
2	T1	459	5.0	1.038	83.0	LOS F	48.5	353.9	1.00	2.46	25.7
3	R2	11	5.0	1.038	87.7	LOS F	48.5	353.9	1.00	2.46	25.7
Approach		716	5.0	1.038	83.0	LOS F	48.5	353.9	1.00	2.46	25.6
East: Gate 3											
4	L2	11	5.0	0.122	20.4	LOS C	0.9	6.9	1.00	0.90	43.8
5	T1	11	5.0	0.122	20.7	LOS C	0.9	6.9	1.00	0.90	44.7
6	R2	11	5.0	0.122	25.4	LOS C	0.9	6.9	1.00	0.90	44.6
Approach		32	5.0	0.122	22.2	LOS C	0.9	6.9	1.00	0.90	44.4
North: Bucklend Rd (north)											
7	L2	11	5.0	0.937	21.4	LOS C	30.3	221.3	1.00	1.16	42.8
8	T1	423	5.0	0.937	21.7	LOS C	30.3	221.3	1.00	1.16	43.7
9	R2	575	5.0	0.937	26.4	LOS C	30.3	221.3	1.00	1.16	43.6
Approach		1008	5.0	0.937	24.4	LOS C	30.3	221.3	1.00	1.16	43.6
West: PPC Road											
10	L2	575	5.0	1.004	55.4	LOS E	43.5	317.7	1.00	2.02	31.0
11	T1	11	5.0	1.004	55.7	LOS E	43.5	317.7	1.00	2.02	31.5
12	R2	246	5.0	1.004	60.3	LOS E	43.5	317.7	1.00	2.02	31.4
Approach		832	5.0	1.004	56.8	LOS E	43.5	317.7	1.00	2.02	31.1
All Vehicles		2587	5.0	1.038	51.0	LOS E	48.5	353.9	1.00	1.80	33.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102v [Manukau Rd/ PPC Road intersection PM - 100% lfr]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	132	5.0	0.600	7.8	LOS A	6.3	45.7	0.83	0.77	51.8
2	T1	447	5.0	0.600	8.1	LOS A	6.3	45.7	0.83	0.77	53.1
3	R2	11	5.0	0.600	12.8	LOS B	6.3	45.7	0.83	0.77	53.0
Approach		589	5.0	0.600	8.2	LOS A	6.3	45.7	0.83	0.77	52.8
East: Gate 3											
4	L2	11	5.0	0.076	13.1	LOS B	0.5	4.0	0.94	0.82	47.9
5	T1	11	5.0	0.076	13.4	LOS B	0.5	4.0	0.94	0.82	49.0
6	R2	11	5.0	0.076	18.0	LOS B	0.5	4.0	0.94	0.82	48.9
Approach		32	5.0	0.076	14.8	LOS B	0.5	4.0	0.94	0.82	48.6
North: Bucklend Rd (north)											
7	L2	11	5.0	0.722	7.4	LOS A	9.9	72.5	0.87	0.72	50.8
8	T1	502	5.0	0.722	7.7	LOS A	9.9	72.5	0.87	0.72	52.0
9	R2	306	5.0	0.722	12.4	LOS B	9.9	72.5	0.87	0.72	51.9
Approach		819	5.0	0.722	9.4	LOS A	9.9	72.5	0.87	0.72	51.9
West: PPC Road											
10	L2	460	5.0	0.801	16.5	LOS B	13.4	97.5	1.00	1.14	46.0
11	T1	11	5.0	0.801	16.8	LOS B	13.4	97.5	1.00	1.14	47.0
12	R2	197	5.0	0.801	21.5	LOS C	13.4	97.5	1.00	1.14	46.9
Approach		667	5.0	0.801	18.0	LOS B	13.4	97.5	1.00	1.14	46.3
All Vehicles		2107	5.0	0.801	11.9	LOS B	13.4	97.5	0.90	0.87	50.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102v [Manukau Rd/ PPC Road intersection AM - 100% lfr]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	99	5.0	0.575	6.3	LOS A	5.2	38.0	0.70	0.64	52.3
2	T1	534	5.0	0.575	6.6	LOS A	5.2	38.0	0.70	0.64	53.6
3	R2	11	5.0	0.575	11.3	LOS B	5.2	38.0	0.70	0.64	53.5
Approach		643	5.0	0.575	6.7	LOS A	5.2	38.0	0.70	0.64	53.4
East: Gate 3											
4	L2	11	5.0	0.041	7.7	LOS A	0.2	1.8	0.68	0.66	51.4
5	T1	11	5.0	0.041	8.0	LOS A	0.2	1.8	0.68	0.66	52.7
6	R2	11	5.0	0.041	12.7	LOS B	0.2	1.8	0.68	0.66	52.5
Approach		32	5.0	0.041	9.5	LOS A	0.2	1.8	0.68	0.66	52.2
North: Bucklend Rd (north)											
7	L2	11	5.0	0.402	4.5	LOS A	3.6	26.2	0.39	0.52	52.6
8	T1	309	5.0	0.402	4.9	LOS A	3.6	26.2	0.39	0.52	53.9
9	R2	229	5.0	0.402	9.5	LOS A	3.6	26.2	0.39	0.52	53.8
Approach		549	5.0	0.402	6.8	LOS A	3.6	26.2	0.39	0.52	53.8
West: PPC Road											
10	L2	154	5.0	0.299	8.1	LOS A	2.2	15.7	0.79	0.79	51.4
11	T1	11	5.0	0.299	8.4	LOS A	2.2	15.7	0.79	0.79	52.7
12	R2	65	5.0	0.299	13.0	LOS B	2.2	15.7	0.79	0.79	52.6
Approach		229	5.0	0.299	9.5	LOS A	2.2	15.7	0.79	0.79	51.8
All Vehicles		1454	5.0	0.575	7.2	LOS A	5.2	38.0	0.60	0.62	53.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102v [Manukau Rd/ Kitchener Rd/ Buckland Rd intersection Proposed SAT - 100% lfr]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	72	5.0	1.070	93.1	LOS F	76.7	559.8	1.00	2.93	24.0
2	T1	915	5.0	1.070	93.2	LOS F	76.7	559.8	1.00	2.93	24.3
3	R2	47	5.0	1.070	98.9	LOS F	76.7	559.8	1.00	2.93	24.4
Approach		1034	5.0	1.070	93.5	LOS F	76.7	559.8	1.00	2.93	24.3
East: Gate 2 (site main access)											
4	L2	31	5.0	0.829	50.5	LOS E	12.5	91.4	1.00	1.41	32.3
5	T1	69	5.0	0.829	50.6	LOS E	12.5	91.4	1.00	1.41	32.9
6	R2	196	5.0	0.829	56.3	LOS E	12.5	91.4	1.00	1.41	33.0
Approach		296	5.0	0.829	54.4	LOS E	12.5	91.4	1.00	1.41	32.9
North: Manukau Rd (north)											
7	L2	327	5.0	1.087	92.7	LOS F	113.0	825.0	1.00	2.41	24.0
8	T1	903	5.0	1.087	92.9	LOS F	113.0	825.0	1.00	2.41	24.3
9	R2	193	5.0	1.087	98.6	LOS F	113.0	825.0	1.00	2.41	24.4
Approach		1423	5.0	1.087	93.6	LOS F	113.0	825.0	1.00	2.41	24.2
West: Kitchener Rd (west)											
10	L2	291	5.0	1.212	251.2	LOS F	69.1	504.1	1.00	3.35	11.7
11	T1	93	5.0	1.212	251.3	LOS F	69.1	504.1	1.00	3.35	11.8
12	R2	64	5.0	1.212	257.0	LOS F	69.1	504.1	1.00	3.35	11.8
Approach		447	5.0	1.212	252.0	LOS F	69.1	504.1	1.00	3.35	11.8
All Vehicles		3200	5.0	1.212	112.1	LOS F	113.0	825.0	1.00	2.62	21.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102v [Manukau Rd/ Kitchener Rd/ Buckland Rd intersection Proposed PM - 100% lfr]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	111	5.0	0.925	25.2	LOS C	26.8	195.9	1.00	1.40	42.6
2	T1	772	5.0	0.925	25.4	LOS C	26.8	195.9	1.00	1.40	43.6
3	R2	25	5.0	0.925	31.1	LOS C	26.8	195.9	1.00	1.40	43.8
Approach		907	5.0	0.925	25.5	LOS C	26.8	195.9	1.00	1.40	43.5
East: Gate 2 (site main access)											
4	L2	16	5.0	0.574	19.0	LOS B	5.9	43.4	1.00	1.12	43.9
5	T1	55	5.0	0.574	19.1	LOS B	5.9	43.4	1.00	1.12	45.0
6	R2	194	5.0	0.574	24.8	LOS C	5.9	43.4	1.00	1.12	45.2
Approach		264	5.0	0.574	23.3	LOS C	5.9	43.4	1.00	1.12	45.1
North: Manukau Rd (north)											
7	L2	180	5.0	0.808	6.5	LOS A	13.6	99.3	0.92	0.65	51.8
8	T1	689	5.0	0.808	6.6	LOS A	13.6	99.3	0.92	0.65	53.4
9	R2	177	5.0	0.808	12.3	LOS B	13.6	99.3	0.92	0.65	53.6
Approach		1046	5.0	0.808	7.6	LOS A	13.6	99.3	0.92	0.65	53.1
West: Kitchener Rd (west)											
10	L2	180	5.0	0.729	30.1	LOS C	9.5	69.3	1.00	1.27	39.7
11	T1	52	5.0	0.729	30.2	LOS C	9.5	69.3	1.00	1.27	40.6
12	R2	92	5.0	0.729	35.9	LOS D	9.5	69.3	1.00	1.27	40.7
Approach		323	5.0	0.729	31.8	LOS C	9.5	69.3	1.00	1.27	40.1
All Vehicles		2541	5.0	0.925	18.7	LOS B	26.8	195.9	0.97	1.05	46.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102v [Manukau Rd/ Kitchener Rd/ Buckland Rd intersection Proposed AM - 100% lfr]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	107	5.0	0.638	7.5	LOS A	7.1	51.9	0.83	0.76	52.3
2	T1	548	5.0	0.638	7.6	LOS A	7.1	51.9	0.83	0.76	53.9
3	R2	32	5.0	0.638	13.3	LOS B	7.1	51.9	0.83	0.76	54.2
Approach		687	5.0	0.638	7.9	LOS A	7.1	51.9	0.83	0.76	53.7
East: Gate 2 (site main access)											
4	L2	25	5.0	0.322	7.8	LOS A	2.4	17.3	0.81	0.81	50.3
5	T1	53	5.0	0.322	7.9	LOS A	2.4	17.3	0.81	0.81	51.8
6	R2	182	5.0	0.322	13.6	LOS B	2.4	17.3	0.81	0.81	52.0
Approach		260	5.0	0.322	11.9	LOS B	2.4	17.3	0.81	0.81	51.8
North: Manukau Rd (north)											
7	L2	202	5.0	0.566	4.9	LOS A	5.9	42.8	0.64	0.54	53.2
8	T1	429	5.0	0.566	5.1	LOS A	5.9	42.8	0.64	0.54	54.9
9	R2	93	5.0	0.566	10.7	LOS B	5.9	42.8	0.64	0.54	55.1
Approach		724	5.0	0.566	5.8	LOS A	5.9	42.8	0.64	0.54	54.4
West: Kitchener Rd (west)											
10	L2	164	5.0	0.456	10.7	LOS B	3.9	28.7	0.94	0.95	49.9
11	T1	54	5.0	0.456	10.9	LOS B	3.9	28.7	0.94	0.95	51.4
12	R2	84	5.0	0.456	16.6	LOS B	3.9	28.7	0.94	0.95	51.6
Approach		302	5.0	0.456	12.4	LOS B	3.9	28.7	0.94	0.95	50.7
All Vehicles		1974	5.0	0.638	8.3	LOS A	7.1	51.9	0.77	0.71	53.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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APPENDIX B: SAFE SYSTEM ASSESSMENT FRAMEWORK

14.1 GENERAL

The Safe System approach involves different elements of the system working together to help eliminate death and serious injury. It involves shared responsibility in reaching this objective, including road users and road managers each taking a role. A key objective is to ensure that when driver errors do occur, they do not result in high severity outcomes.

The framework published by Austroads (AP-R509-16) is used in assessing how closely road design and operation align with the Safe System objectives, and in clarifying which elements need to be modified to achieve closer alignment with Safe System objectives.

14.2 ASSESSMENT

The Safe System assessment framework as defined in Austroads (2016a) is completed by assigning a score of between zero and four to each cell in the matrix. A score of zero indicates that the system is fully aligned with the Safe System vision for that component of a given crash type. The higher the score, the further the project is from a Safe System condition. Scores are allocated considering the factors of interest shown in the matrix and the scoring system shown in Table B2 of the Austroads document (Appendix A of this document).

Once there is a score in each cell for the exposure, likelihood and severity rows, the product of each column is calculated and entered in the final row, labelled total. The purpose of this multiplicative approach is that if a score of zero has been given for any component of a crash type (i.e. exposure, likelihood or severity), that crash type receives a total of zero and is eliminated from the score (as it has reached a Safe System). The sum of the infrastructure total scores for each crash type is then added to the final cell on the right-hand side (with the bold border). This score is out of a possible 448 and represents the safer speeds, safer roads and roadsides pillars. The closer the score is to zero, the more the project in question is in alignment with Safe System principles.

The assessment is based on the “safe system scoring matrix” shown below.

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Table 4.4: Safe System matrix scoring system

Road user exposure	Crash likelihood	Crash severity
0 = there is no exposure to a certain crash type. This might mean there is no side flow or intersecting roads, no cyclists, no pedestrians, or motorcyclists).	0 = there is only minimal chance that a given crash type can occur for an individual road user given the infrastructure in place. Only extreme behaviour or substantial vehicle failure could lead to a crash. This may mean, for example, that two traffic streams do not cross at grade, or that pedestrians do not cross the road.	0 = should a crash occur, there is only minimal chance that it will result in a fatality or serious injury to the relevant road user involved. This might mean that kinetic energies transferred during the crash are low enough not to cause a fatal or serious injury (FSI), or that excessive kinetic energies are effectively redirected/dissipated before being transferred to the road user. Users may refer to Safe System-critical impact speeds for different crash types, while considering impact angles, and types of roadside hazards/barriers present.
1 = volumes of vehicles that may be involved in a particular crash type are particularly low, and therefore exposure is low. For run-of-road, head-on, intersection and 'other' crash types, AADT is < 1 000 per day. For cyclist, pedestrian and motorcycle crash types, volumes are < 10 units per day.	1 = it is highly unlikely that a given crash type will occur.	1 = should a crash occur, it is highly unlikely that it will result in a fatality or serious injury to any road user involved. Kinetic energies must be fairly low during a crash, or the majority is effectively dissipated before reaching the road user.
2 = volumes of vehicles that may be involved in a particular crash type are moderate, and therefore exposure is moderate. For run-of-road, head-on, intersection and 'other' crash types, AADT is between 1 000 and 5 000 per day. For cyclist, pedestrian and motorcycle crash types, volumes are 10–50 units per day.	2 = it is unlikely that a given crash type will occur.	2 = should a crash occur, it is unlikely that it will result in a fatality or serious injury to any road user involved. Kinetic energies are moderate, and the majority of the time they are effectively dissipated before reaching the road user.
3 = volumes of vehicles that may be involved in a particular crash type are high, and therefore exposure is high. For run-of-road, head-on, intersection and 'other' crash types, AADT is between 5 000 and 10 000 per day. For cyclist, pedestrian and motorcycle crash types, volumes are 50–100 units per day.	3 = it is likely that a given crash type will occur.	3 = should a crash occur, it is likely that it will result in a fatality or serious injury to any road user involved. Kinetic energies are moderate, but are not effectively dissipated and therefore may or may not result in an FSI.
4 = volumes of vehicles that may be involved in a particular crash type are very high, or the road is very long, and therefore exposure is very high. For run-of-road, head-on, intersection and 'other' crash types, AADT is > 10 000 per day. For cyclist, pedestrian and motorcycle crash types, volumes are > 100 units per day.	4 = the likelihood of individual road user errors leading to a crash is high given the infrastructure in place (e.g. high approach speed to a sharp curve, priority movement control, filtering right turn across several opposing lanes, high speed).	4 = should a crash occur, it is highly likely that it will result in a fatality or serious injury to any road user involved. Kinetic energies are high enough to cause an FSI crash, and it is unlikely that the forces will be dissipated before reaching the road user.

14.3 ASSESSMENT (GENERAL)

The SSAF assessment for the proposed Buckland Road / Kitchener Road cross-roads intersection:

For the purpose of the following assessment, it is assumed that the area to the northwest of the intersection is developed, and thus pedestrian / cycle facilities are also established. As such, the pedestrian and cyclist numbers have been assessed as 100+ per day.

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Assuming the AADT volumes at the intersection are in the order of greater 10,000 vpd and pedestrian, cyclist and motorcycle numbers are between

14.4 BUCKLAND ROAD / KITCHENER ROAD (SIGNALS)

The SSAF assessment for a future signalised intersection is detailed in Table 1 below. The assessment assumes dedicated pedestrian and cycling crossing facilities on all approaches. For the purpose of this assessment, no filter right turns are proposed.

Table 1: Buckland Road / Kitchener Road intersection signals SSAF

	Run off road	Head on	Intersection	Other	Pedestrian	Cyclist	Motorcyclist
Exposure	4/4	4/4	4/4	4/4	4/4	4/4	4/4
Likelihood	1/4	2/4	2/4	3/4	1/4	1/4	2/4
Severity	2/4	2/4	2/4	2/4	3/4	3/4	3/4
Product	**8 / 64**	**16 / 64**	**16 / 64**	**24 / 64**	**12 / 64**	**12 / 64**	**24 / 64**
						Total	**112/448**

As detailed above, the signals option i resulted in a total SSAF score of 112 / 448.

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14.5 BUCKLAND ROAD / KITCHENER ROAD (ROUNDABOUT)

The SSAF assessment for a new roundabout intersection is detailed in **Table 2** below. The roundabout design assessed assumed:

- Single lane roundabout
- No specific traffic calming on the approaches
- Pedestrian refuges and pram crossings on each approach

Table 2: Buckland Road / Kitchener intersection - roundabout SSAF

	Run off road	Head on	Intersection	Other	Pedestrian	Cyclist	Motorcyclist
Exposure	4/4	4/4	4/4	4/4	4/4	4/4	4/4
Likelihood	1/4	1/4	2/4	3/4	2/4	2/4	2/4
Severity	2/4	1/4	1/4	1/4	2 ½ /4	2 ½ /4	3/4
Product	**8/ 64**	**4/ 64**	**8/ 64**	**12/ 64**	**20/ 64**	**20/ 64**	**24/ 64**
						Total	**96/448**

As detailed above, the roundabout option resulted in a total SSAF score of 96 / 448.

14.6 TRAFFIC CALMING MEASURES

It is noted that no additional speed calming measures have been assessed at the intersections outlined above. The changes to the SSAF scores above resulting from additional traffic calming would depend on the exact measures and frequency of the calming. In general, the implementation of traffic calming on each approach at the intersection would likely reduce the severity of most crashes by reducing vehicle speeds.

14.7 CONCLUSION

From the Safe System Framework Assessment (SSFA) assessment for a proposed intersection upgrade at Buckland Road / Kitchener Road, it is concluded:

- The roundabout option scores slightly lower than the signals option and as such is closer to the "***Safe System vision***";
- the difference in scores between the roundabout and the signals in this location is however not considered significant (96 vs. 112). Further, while the signals option is considered to have a lower score for pedestrian and cyclists (dedicated phases for pedestrians and cyclists), the roundabout option will have less severe pedestrian and cyclist crashes and will have a lower score for vehicle related crashes (reduced speeds); and

  The introduction of traffic calming (if provided) at either intersection form has the potential to reduce the severity of most crashes.

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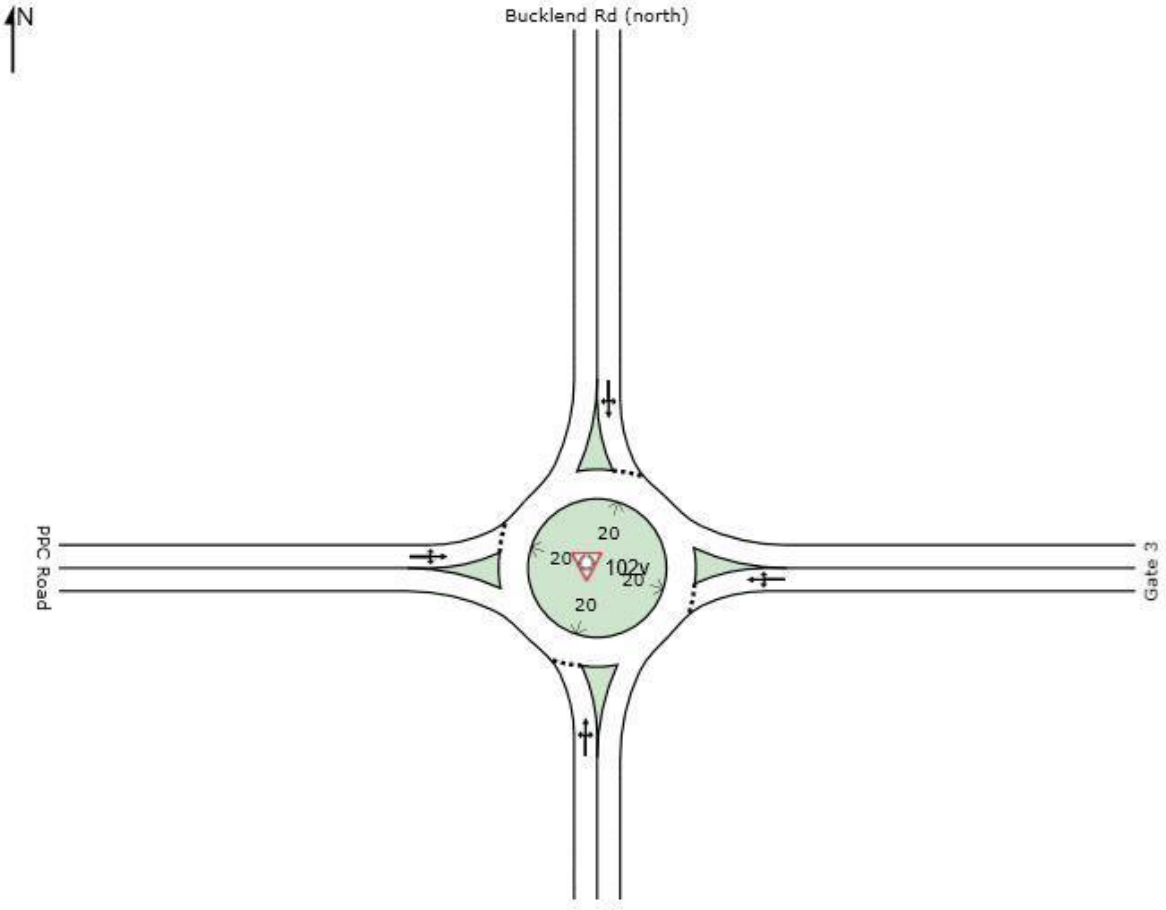
APPENDIX C: SIDRA LAYOUTS

SITE LAYOUT

Site: 102v [Manukau Rd/ PPC Road intersection AM]

New Site
Roundabout



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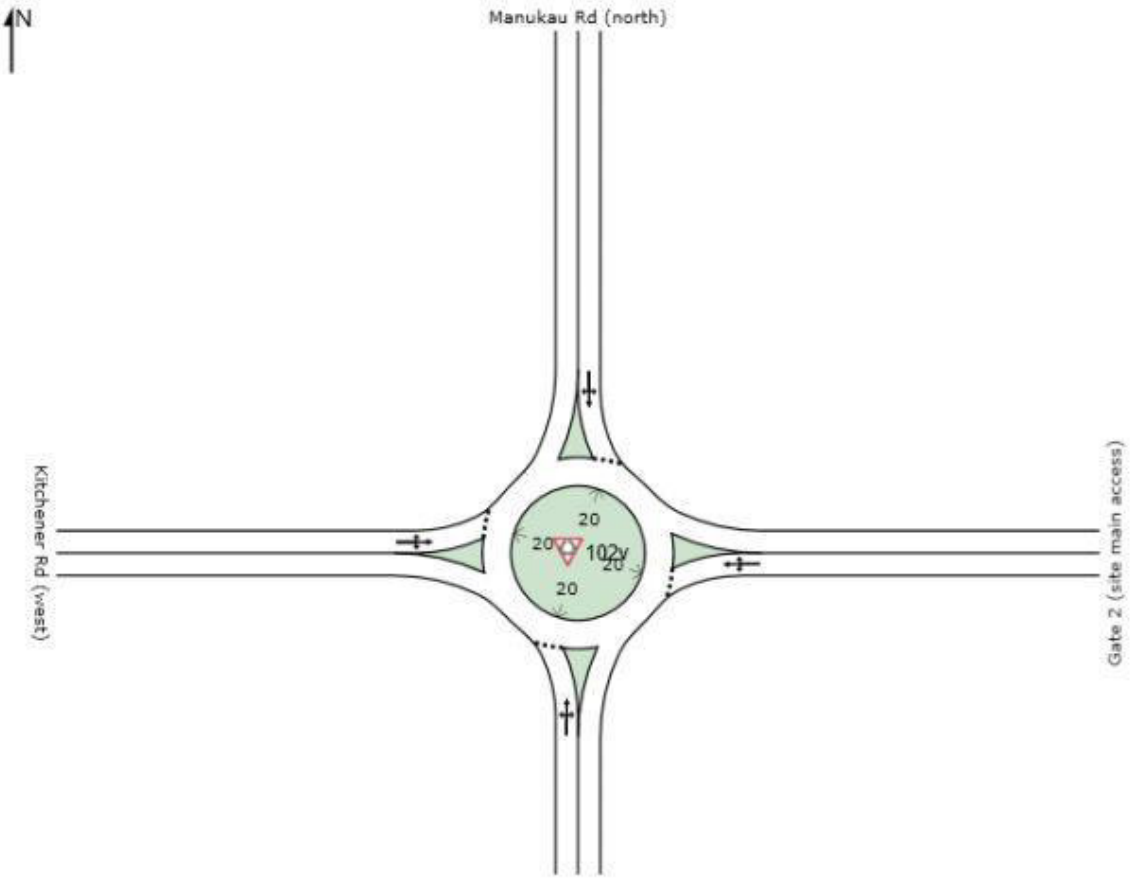
SITE LAYOUT

Site: 102v [Manukau Rd/ Kitchener Rd/ Buckland Rd intersection Proposed AM]

New Site
Roundabout



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Mr R Scott
Scott Wilkinson Planning
PO Box 37-359, Parnell 1151
Auckland

4 August 2022

Copy via email: **robert@scottwilkinson.co.nz**

Dear Robert

301-303 BUCKLAND ROAD- CLAUSE 23 RESPONSE (TRAFFIC ENGINEERS DISCUSSION)

Following production of Clause 23 responses, we have met with Council consultant Traffic Engineer (Mr Wes Edwards form Arrive). Following this meeting, Mr Edward has provided comments on the remaining items. The commentary below relates to the items noted as requiring additional information.

1 ITEM T1: INTENSIVE SCENARIO

You've noted one of the roundabouts may have poor performance and suggested an additional lane could sort that out. It would be good to have a concept design demonstrating that the additional lane is both practicable and effective.

Comment:

As noted in the previous response, with the 100% LFR both roundabouts experience pressure on a Saturday peak with the new PPC / PU-NS-2 Road roundabout just reaching typical capacity levels however the Kitchener Road / Manukau Road roundabout exceeding capacity. In this regard:

- As previously noted, we consider the 100% LFR scenario "highly unlikely". This is reinforced by the economic expert who has stated *"…Within the context of these limitations, a potential outcome for the site would be one third large format retail (near the road), one third industrial (further back from the road) and one third other uses".*
- The 100% LFR scenario has not allowed for multi-purpose / linked trips (those that may also visit other stores on the same Plan Change or other plan Change) or pass-by traffic (ie those vehicles already on the road network that deviate into the site)
- Any future activity would be also subject to E27 E27.6.1. "*Trip generation*" rule of the Unitary Plan. This rule if triggered (which is generally over 100 movements or in the case of retail anything over 1667sqm) requires a further assessment of transport, traffic or trip-generation effects for the activity. If the site is predominantly LFR this rule will be triggered. At this time (Resource Consent) the exact land-use will be known and thus a re-assessment will need to be undertaken.

Regardless of the above **Appendix A** shows the potential for increasing the number of lanes at the two roundabouts. Of note there is not the space for a full two-lane roundabout at Kitchener Road / Manukau Road roundabout.

Appendix A also shows an alternative of a signalised intersection at the Kitchener Road / Manukau Road intersection. A signalised intersection at this location (as shown) would provide considerable

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additional capacity than a single-lane roundabout. This is evidence in the results of this signalised intersection using the 100% LFR scenario.

ITEM T6: 2036 SCENARIO

Future/ Growth. As discussed, the historical AT traffic counts show growth of around 1.5% pa daily (average) with peak hours at between 1.2% and 3.2%. I can't see why growth over the next 10 years or so would be less than that, so we need to either assume similar growth or have some robust data to indicate why it would be anything different.

Comment:

For the critical Saturday peak period the growth over the last 6-7 years is equivalent to 1.5%. Over 10 years in the future this would add 15% to the existing traffic. We do note that the development of the site itself will contribute to this background growth. The 100% LFR scenario has been tested with this growth and is contained in Table 1 and 2 below. An alternative signalised intersection at Kitchener Road / Manukau Road has also been modelling in Table 3.

Table 1: Proposed performance of the Manukau Road/ Kitchener Road/ Buckland Road roundabout Sat 100% LFR 15% growth

Leg	Movement	Degree of Saturation (v/c)	Average Delay (s)	LOS	95th %ile Queue (m)
Buckland Road (South)	LT	1.149	156	F	855
	TH	1.149	156	F	855
	RT	1.149	162	F	855
Gate 2 (main site access) (east)	LT	0.873	64	E	107
	TH	0.873	64	E	107
	RT	0.873	70	E	107
Manukau Road (north)	LT	1.136	134	F	1114
	TH	1.136	134	F	1114
	RT	1.136	140	F	1114
Kitchener Rd (west)	LT	1.312	329	F	685
	TH	1.312	329	F	685
	RT	1.312	329	F	685

Table 2: Proposed performance of the PU-NS-2 Road / Buckland Road intersection Sat roundabout Sat 100% LFR 15% growth

Leg	Movement	Degree of Saturation (v/c)	Average Delay (s)	LOS	95th %ile Queue (m)
Buckland Road (South)	LT	1.127	146	F	586
	TH	1.127	146	F	586
	RT	1.127	151	F	586
Racecourse Gate	LT	0.138	23	C	8
	TH	0.138	23	C	8
	RT	0.138	28	C	8
Buckland Road (north)	LT	0.980	32	C	311
	TH	0.980	32	C	311
	RT	0.980	37	D	311

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Site access (PU-NS-2 Road) (west)	LT	1.031	72	F	378
	TH	1.031	72	F	378
	RT	1.031	77	F	378

Table 3: Proposed performance of the Manukau Road/ Kitchener Road/ Buckland Road signals Sat 100% LFR 15% growth

Leg	Movement	Degree of Saturation (v/c)	Average Delay (s)	LOS	95th %ile Queue (m)
Buckland Road (South)	LT	0.077	19	B	18
	TH	0.808	49	D	256
	RT	0.209	70	E	23
Gate 2 (main site access) (east)	LT	0.052	142	D	11
	TH	0.979	105	F	183
	RT	0.979	110	F	183
Manukau Road (north)	LT	0.490	18	B	64
	TH	0.957	82	F	405
	RT	0.973	109	F	150
Kitchener Rd (west)	LT	0.710	29	C	92
	TH	0.961	98	F	107
	RT	0.961	104	F	107

The results shows that the intersections will both be at / slightly over capacity on a Saturday peak period with these assumptions (again considered highly unlikely). The results do however show that the signalised option can cater for the traffic expected. As a result, there are upgrades possible within the road reserve and the site to appropriate serve the Plan Change even if essentially all worst-case scenarios occur (all development is LFR, growth occurs all in addition to the proposal, and no allowance is made for pass-by / multi-purpose trips). Note as per Item T8 below, this alanysis also already includes base survey traffic of Pukekohe Park's busiest horse racing event (Counties Cup).

The exact upgrade should be determined a Resource Consent time when the exact use of the site is known.

2 ITEM T8: PUKEKOHE PARK

Pukekohe Park Events. Pukekohe Park is a "nationally important venue" and we need to make sure it can continue to operate as such with development in place (and also know the proposed development site could operate well when events are on). This issue is made more significant as GBZ is proposed rather than LIZ as assumed previously, and GBZ activities are more likely to overlap with events (or even be busiest when events are on). As events for up to 5000 people are permitted without any TMP, I think we need to evaluate that scenario as a minimum, assuming the crowd is leaving such an event at a time coinciding with a busy period for GBZ activities (eg weekend midday or mid-afternoon).

Comment:

The large events at Pukekohe Park are considered to be infrequent events and are required to be under control of Traffic Management Plans. It should also be noted that the Pukekohe Paerata Structure Plan has identified this area as an area for employment growth to support residential development in Pukekohe and this location is seen as an ideal place to establish employment related activities.

It is however acknowledged that events under 5000 people do not require a TMP. In terms of context:

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- The original 2018 Saturday survey date was especially chosen as Counties Cup day, which from discussion with Counties Racing is currently the busiest day (around 3,500-5000 people).
- In the next 12 months a total of nine "events" are planned at the Racecourse (generally running November to March)
- If these 8 will occur on a Saturday. Given the start and end times of these events (starting at 11am) they most likely crossover is people arriving for the event early afternoon on a Saturday coinciding with retail customers peak.
- Information from Pukekohe Park has the "Counties Cup" as the Largest Horse Racing meeting and has had between 3-5000 over past years. For this event, a number of hospitality area patrons use buses and thus they typically have 10-12 buses onsite for the larger events.

As such having an event at around 5000 people on a Saturday afternoon without needing a TMP is considered a very rare event (maybe once a year at most).

The trip generation has been reviewed based on likely mode split as follows:

- 5,000 people
- Based on the survey information 33% arrive in one peak hour (noting the events tend to last for 6+ hours). This peak hour is assumed to be the same retail peak hour as a worst case.
- 75% arrive by car (50% in private car and 25% drop off such as taxi / uber)
- 20% by bus
- 5% other (walking / cycling)
- Average occupancy of 3 people per vehicle for private car, 2 people for uber, 50 for bus.
- Private car has all cars entering, taxi creates two trips (one entering, one exiting)
- Trip generation of 632 vehicles per hour.
- These vehicles likely to be split over the three entry gates, with the key gate 2 and 3 assumed to cater for 80% of the traffic (40% each) or 252 vph (177 in 75 out)

The 2018 survey as contained in the ITA has a total of 259 vehicles per hour in the peak at Gate 3 (211 in and 48 out). As such the surveyed Raceday is similar to the theoretical model split analysis and all Saturday modelling provided thus already considers a larger horse race event.

As such every other Saturday throughout the year will likely perform significantly better than the modelling results show as the other Horse Racing events will likely be smaller is size (or most likely not occur at all) and the motor racing will also no longer occur[1].

3 ITEM T22: PEDESTRIANS/ CYCLISTS

You have indicated that the roundabouts would have pedestrian crossings on all approaches in line with AT guidance. The AT guidance shows zebra crossings on raised tables which would have a significant effect on the saturation flows at the roundabout and reduce the intersection capacity significantly. I think this aspect needs some additional investigation.

Comment:

We agree with the comment that zebra crossings at the roundabout would potentially reduce capacity at the roundabout. However, in terms of the Plan Change crossing facilities:

[1] https://i.stuff.co.nz/sport/motorsport/300641696/motorsport-to-end-at-pukekohe-raceway-after-60-years-making-way-for-horse-racing

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- The exact pedestrian location / design can only be determined at future stages when lot / building layouts are known and thus pedestrian desire lines are able to be determined.
- As such the exact level of effect of pedestrians on the performance of the roundabout is difficult to accurately replicate at Plan Change level.
- Again, it is noted that all the above would be subject to further detailed design / Auckland Transport approval.
- The option of a signalised intersection at the Kitchener Road / Manukau Road intersection as modelled does have pedestrian phases included.
- There is the potential of a mid-block signalised pedestrian crossing.

Yours sincerely

Commute Transportation Consultants

Leo Hills

Director

Leo@commute.kiwi

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APPENDIX A: ROUNDABOUT ALTERNATIVE + SIGNALS

Revision notes:

Rev:	Date:	Notes:

Drawn by:
LH
J002101 - 301-303 Buckland

Client:

Project:
301-303 BUCKLAND ROAD, PUKEKOHE
PROPOSED PRIVATE PLAN CHANGE

Drawing Title:
INDICATIVE SIGNALS OPTION

Date:
7 July 2022

Scale @ A3:
1:2000 @ A3

Revision:
0 - FOR DISCUSSION

commute TRANSPORTATION CONSULTANTS

Figure:
1

Revision notes:

Rev:	Date:	Notes:

Drawn by:
LH
J002101 - 301-303 Buckland

Client:

Project:
301-303 BUCKLAND ROAD, PUKEKOHE
PROPOSED PRIVATE PLAN CHANGE

Drawing Title:
INDICATIVE ROUNDABOUT / ROAD LAYOUT
Alternative left turn lanes

Date:
4 August 2022

Scale @ A3:
1:2000 @ A3

Revision:
0 - FOR DISCUSSION

commute
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Figure:
1

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APPENDIX B: SIDRA RESULTS

MOVEMENT SUMMARY

Site: 102v [Manukau Rd/ Kitchener Rd/ Buckland Rd intersection Proposed SAT - 100% lfr 15%]

New Site
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	82	5.0	1.149	156.3	LOS F	117.2	855.9	1.00	4.14	17.1
2	T1	965	5.0	1.149	156.4	LOS F	117.2	855.9	1.00	4.14	17.3
3	R2	47	5.0	1.149	162.1	LOS F	117.2	855.9	1.00	4.14	17.3
Approach		1095	5.0	1.149	156.6	LOS F	117.2	855.9	1.00	4.14	17.2
East: Gate 2 (site main access)											
4	L2	31	5.0	0.873	63.9	LOS E	14.7	107.0	1.00	1.51	29.0
5	T1	69	5.0	0.873	64.1	LOS E	14.7	107.0	1.00	1.51	29.5
6	R2	196	5.0	0.873	69.7	LOS E	14.7	107.0	1.00	1.51	29.6
Approach		296	5.0	0.873	67.8	LOS E	14.7	107.0	1.00	1.51	29.5
North: Manukau Rd (north)											
7	L2	327	5.0	1.136	134.3	LOS F	152.7	1114.6	1.00	3.10	18.9
8	T1	953	5.0	1.136	134.5	LOS F	152.7	1114.6	1.00	3.10	19.1
9	R2	221	5.0	1.136	140.2	LOS F	152.7	1114.6	1.00	3.10	19.2
Approach		1501	5.0	1.136	135.3	LOS F	152.7	1114.6	1.00	3.10	19.1
West: Kitchener Rd (west)											
10	L2	334	5.0	1.312	328.9	LOS F	93.8	684.9	1.00	4.00	9.4
11	T1	93	5.0	1.312	329.0	LOS F	93.8	684.9	1.00	4.00	9.5
12	R2	74	5.0	1.312	334.7	LOS F	93.8	684.9	1.00	4.00	9.5
Approach		500	5.0	1.312	329.8	LOS F	93.8	684.9	1.00	4.00	9.4
All Vehicles		3392	5.0	1.312	165.0	LOS F	152.7	1114.6	1.00	3.43	16.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102v [Manukau Rd/ PPC Road intersection SAT - 100% +15%]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	246	5.0	1.127	146.4	LOS F	80.3	586.3	1.00	3.50	17.7
2	T1	522	5.0	1.127	146.7	LOS F	80.3	586.3	1.00	3.50	17.8
3	R2	11	5.0	1.127	151.4	LOS F	80.3	586.3	1.00	3.50	17.8
Approach		779	5.0	1.127	146.7	LOS F	80.3	586.3	1.00	3.50	17.8
East: Gate 3											
4	L2	11	5.0	0.138	23.1	LOS C	1.1	7.9	1.00	0.91	42.5
5	T1	11	5.0	0.138	23.4	LOS C	1.1	7.9	1.00	0.91	43.3
6	R2	11	5.0	0.138	28.0	LOS C	1.1	7.9	1.00	0.91	43.2
Approach		32	5.0	0.138	24.8	LOS C	1.1	7.9	1.00	0.91	43.0
North: Bucklend Rd (north)											
7	L2	11	5.0	0.980	31.7	LOS C	42.6	310.8	1.00	1.39	38.4
8	T1	482	5.0	0.980	32.0	LOS C	42.6	310.8	1.00	1.39	39.1
9	R2	575	5.0	0.980	36.7	LOS D	42.6	310.8	1.00	1.39	39.0
Approach		1067	5.0	0.980	34.5	LOS C	42.6	310.8	1.00	1.39	39.0
West: PPC Road											
10	L2	575	5.0	1.031	71.5	LOS F	51.7	377.5	1.00	2.34	27.3
11	T1	11	5.0	1.031	71.8	LOS F	51.7	377.5	1.00	2.34	27.6
12	R2	246	5.0	1.031	76.5	LOS F	51.7	377.5	1.00	2.34	27.6
Approach		832	5.0	1.031	73.0	LOS F	51.7	377.5	1.00	2.34	27.4
All Vehicles		2709	5.0	1.127	78.5	LOS F	80.3	586.3	1.00	2.28	26.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102vv [Manukau Rd/ Kitchener Rd/ Buckland Rd intersection Proposed SAT - 100% lfr - signals +15%]

New Site
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Buckland Rd (south)											
1	L2	82	5.0	0.077	19.2	LOS B	2.5	18.1	0.45	0.68	44.6
2	T1	965	5.0	0.808	49.4	LOS D	35.2	256.7	0.95	0.87	33.1
3	R2	47	5.0	0.209	69.7	LOS E	3.2	23.0	0.94	0.75	27.6
Approach		1095	5.0	0.808	48.0	LOS D	35.2	256.7	0.92	0.85	33.5
East: Gate 2 (site main access)											
4	L2	31	5.0	0.052	42.1	LOS D	1.5	10.9	0.71	0.70	34.9
5	T1	69	5.0	0.979	105.2	LOS F	25.1	183.3	1.00	1.12	21.5
6	R2	196	5.0	0.979	110.9	LOS F	25.1	183.3	1.00	1.12	21.4
Approach		296	5.0	0.979	102.4	LOS F	25.1	183.3	0.97	1.07	22.3
North: Manukau Rd (north)											
7	L2	327	5.0	0.490	18.4	LOS B	8.8	64.0	0.65	0.76	45.0
8	T1	953	5.0	0.957	82.0	LOS F	55.5	405.3	0.95	1.09	25.5
9	R2	221	5.0	0.973	109.8	LOS F	20.6	150.6	1.00	1.04	21.2
Approach		1501	5.0	0.973	72.2	LOS E	55.5	405.3	0.89	1.01	27.3
West: Kitchener Rd (west)											
10	L2	334	5.0	0.710	29.1	LOS C	12.7	92.7	0.86	0.81	39.8
11	T1	93	5.0	0.961	98.5	LOS F	14.7	107.0	0.91	1.07	22.7
12	R2	74	5.0	0.961	104.2	LOS F	14.7	107.0	0.91	1.07	22.5
Approach		500	5.0	0.961	53.0	LOS D	14.7	107.0	0.88	0.90	31.7
All Vehicles		3392	5.0	0.979	64.2	LOS E	55.5	405.3	0.91	0.95	29.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	68.3	LOS F	0.2	0.2	0.96	0.96
P2	East Full Crossing	53	39.0	LOS D	0.2	0.2	0.72	0.72
P3	North Full Crossing	53	60.9	LOS F	0.2	0.2	0.90	0.90
P4	West Full Crossing	53	39.0	LOS D	0.2	0.2	0.72	0.72
All Pedestrians		211	51.8	LOS E			0.83	0.83

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

APPENDIX 3

SUBMISSIONS AND FURTHER SUBMISSIONS

AUCKLAND UNITARY PLAN
OPERATIVE IN PART

PROPOSED PLAN CHANGE 87 (Private):

301 & 303 Buckland Road, Pukekohe

SUMMARY OF DECISIONS REQUESTED

Enclosed:

- **Explanation**
- **Summary of Decisions Requested**
- **Submissions**

Explanation

- You may make a “further submission” to support or oppose any submission already received (see summaries that follow).
- You should use Form 6.
- Your further submission must be received by 24 February 2023.
- Send a copy of your further submission to the original submitter as soon as possible after submitting it to the Council.

Summary of Decisions Requested

Plan Change 87 (Private): 301 and 303 Buckland Road, Pukekohe					
Summary of Decisions Requested					
Sub #	**Sub Point**	**Submitter Name**	**Address for Service**	**Theme**	**Summary of Decisions Requested**
1	1.1	Buckland Road Trustess Limited ATTN Ann Zhou	annzou@ymail.com	Approve the plan change	Approve the plan change as notified.
2	2.1	Auckland Thoroughbred Racing Inc C/- Glaister Ennor	vicki.toan@glaister.co.nz	Neither supports nor opposes the plan change	If the plan change is approved, Auckland Council shall require as a condition of that approval that: (a) if the submitter completes the upgrade to the intersection of Buckland Road, Manukau Road, and Kitchener Road, the registered owners of 301 and 303 Buckland Road be required to share the costs of the intersection upgrade.
2	2.2	Auckland Thoroughbred Racing Inc C/- Glaister Ennor	vicki.toan@glaister.co.nz	Neither supports nor opposes the plan change	If the plan change is approved, Auckland Council shall require as a condition of that approval that: (a) if the implementation of the proposal or the use of the land re-zoned under the proposal triggers an upgrade of the intersection of Buckland Road, Manukau Road, and Kitchener Road earlier than would be required under PC 30, that the registered owners of 301 and 303 Buckland Road carry out that intersection upgrade where the submitter with share the costs of the intersection upgrade.
3	3.1	Auckland Transport ATTN: Mathew Ford	Matt.Ford@at.govt.nz	Decline the plan change, but if approved make the amendment	Decline the plan change unless the matters raised within its submission (as set out in Attachment 1 of the submission) can be adequately addressed.
3	3.2	Auckland Transport ATTN: Mathew Ford	Matt.Ford@at.govt.nz	Decline the plan change, but if approved make the amendment	Decline the Plan Change or alternatively amend the plan change to include a precinct plan and precinct provisions for the plan change area. The precinct provisions should include specific transport mitigation mechanisms to ensure that the matters identified in the Applicant's ITA, further information responses and within this submission can be appropriately addressed.
3	3.3	Auckland Transport ATTN: Mathew Ford	Matt.Ford@at.govt.nz	Decline the plan change, but if approved make the amendment	Decline the Plan Change or alternatively amend the plan change to include a precinct plan and precinct provisions which provides for a collector road (PU-NS-2 Collector Road) with separate cycle and walking facilities linking to Buckland Road. The connection should be designed so that it does not preclude future development nor links to the south.
3	3.4	Auckland Transport ATTN: Mathew Ford	Matt.Ford@at.govt.nz	Decline the plan change, but if approved make the amendment	Decline the Plan Change or alternatively amend the plan change to provide certainty that the upgrade to the Buckland Road / Kitchener Road intersection will be delivered.
3	3.5	Auckland Transport ATTN: Mathew Ford	Matt.Ford@at.govt.nz	Decline the plan change, but if approved make the amendment	Decline the Plan Change or alternatively amend the plan change to ensure that the controlled access intersection on Buckland Road (roundabout or traffic signals) should be identified on a precinct plan and provisions specific to the plan change area.
3	3.6	Auckland Transport ATTN: Mathew Ford	Matt.Ford@at.govt.nz	Decline the plan change, but if approved make the amendment	Decline the Plan Change or alternatively amend the plan change to require subdivision and development to provide connections (for all modes) to adjacent sites, and connections through to Buckland Road.
3	3.7	Auckland Transport ATTN: Mathew Ford	Matt.Ford@at.govt.nz	Decline the plan change, but if approved make the amendment	Decline the Plan Change or alternatively amend the plan change to require the Buckland Road frontage to be upgraded to an urban standard with separated walking and cycling facilities in conjunction with subdivision and development of the site.

Plan Change 87 (Private): 301 and 303 Buckland Road, Pukekohe					
Summary of Decisions Requested					
Sub #	**Sub Point**	**Submitter Name**	**Address for Service**	**Theme**	**Summary of Decisions Requested**
3	3.8	Auckland Transport ATTN: Mathew Ford	Matt.Ford@at.govt.nz	Decline the plan change, but if approved make the amendment	Amend the plan change to include specific planning provisions (including objectives, policies and rules) to require subdivision and development to provide active mode connections along the frontage of 32 Kitchener Road and provide for pedestrian crossings on Buckland and Kitchener Roads. Furthermore, provision for bus stops should also be provided for along the west and east sides of Buckland Road. It is considered that these transport infrastructure mitigation requirements would require precinct plan and provisions to ensure they are provided for.
3	3.9	Auckland Transport ATTN: Mathew Ford	Matt.Ford@at.govt.nz	Decline the plan change, but if approved make the amendment	Amend the plan change to include specific planning provisions (including objectives, policies and rules) to include precinct provisions to include whole of life costs and effectiveness of treatment over time associated with publicly vested stormwater assets as a matter for discretion and policy.
3	3.10	Auckland Transport ATTN: Mathew Ford	Matt.Ford@at.govt.nz	Decline the plan change, but if approved make the amendment	Supports the Reduced speed limits on Buckland Road (past the site) to 50km/h
3	3.11	Auckland Transport ATTN: Mathew Ford	Matt.Ford@at.govt.nz	Decline the plan change, but if approved make the amendment	Amend the plan change to include specific planning provisions (including objectives, policies and rules) to require subdivision and development to limit or prevent direct vehicle access onto Buckland Road.
4	4.1	EnviroWaste Services Ltd ATTN: Kaaren Rosser	kaaren.rosser@environz.co.nz	Decline the plan change, but if approved make the amendment	Amend the proposed Business: General Business zone to the Business: Light Industry zone.
5	5.1	Nomita Singh C/- Mt Hobson Group	markb@mhg.co.nz	Approve the plan change	Approve the proposed Business: General Business zone.
5	5.2	Nomita Singh C/- Mt Hobson Group	markb@mhg.co.nz	Approve the plan change with amendment	If the plan change is approved, relevant infrastructure upgrades and extensions (public road, stormwater, wastewater, stormwater) to support the development of the plan change area should be the provided by the developer, and shall enable the future development of future surrounding land.
6	6.1	Hira Bhana & Co. C/- Bharat Hira Bhana	hira.bhana@xtra.co.nz	Approve the plan change with amendment	Implement buffer zones in the plan change area adjoining the submitter's land to protect against potential reverse sensitivity effects.
6	6.2	Hira Bhana & Co. C/- Bharat Hira Bhana	hira.bhana@xtra.co.nz	Approve the plan change with amendment	Implement measures to ensure that future development in the plan change area cannot complain about existing activities on the submitter's land.

Submissions

Submission on a notified proposal for policy statement or plan change or variation

Clause 6 of Schedule 1, Resource Management Act 1991
FORM 5

Auckland Council
Te Kaunihera o Tāmaki Makaurau

Send your submission to unitaryplan@aucklandcouncil.govt.nz or post to :

Attn: Planning Technician
Auckland Council
Level 24, 135 Albert Street
Private Bag 92300
Auckland 1142

For office use only
Submission No:
Receipt Date:

Submitter details

Full Name or Name of Agent (if applicable)

Mr/Mrs/Miss/Ms(Full Name) Mrs Ann Zou

Organisation Name (if submission is made on behalf of Organisation)

Buckland Road Trustees Limited

Address for service of Submitter

70A Selwyn Ave, Mission Bay, Auckland 1071

Telephone: 21629906 Fax/Email: annzou@ymail.com

Contact Person: (Name and designation, if applicable)

Scope of submission

This is a submission on the following proposed plan change / variation to an existing plan:

Plan Change/Variation Number: PC 87

Plan Change/Variation Name: 301 and 303 Buckland Road, Pukekohe

The specific provisions that my submission relates to are:
(Please identify the specific parts of the proposed plan change / variation)

Plan provision(s): Rezone to Business General Business 1.1

Or

Property Address:

Or

Map:

Or

Other *(specify)*

Submission

My submission is: (*Please indicate whether you support or oppose the specific provisions or wish to have them amended and the reasons for your views)*

I **support** the specific provisions identified above ☒

I **oppose** the specific provisions identified above ☐

I wish to have the provisions identified above amended Yes ☐ No ☐

The reasons for my views are:

Buckland Rd Trustees Ltd support the development of the land as Business - General Business Zone. Buckland Rd Trustees Ltd owns land adjoining the PC87 area, south of the Site, and is in the early stages of preparing a new PC for their land which will build off PC87, the Pukekohe-Paerata Structure Plan (PPSP) and FULSS

The proposed re-zoning to a business zoning is generally consistent with the PPSP. The timing of the proposed rezoning is consistent with the FULSS

(continue on a separate sheet if necessary)

I seek the following decision by Council:

Accept the proposed plan change / variation ☒

Accept the proposed plan change / variation with amendments as outlined below ☐

Decline the proposed plan change / variation ☐

If the proposed plan change / variation is not declined, then amend it as outlined below. ☐

I wish to be heard in support of my submission ☐

I do not wish to be heard in support of my submission ☒

If others make a similar submission, I will consider presenting a joint case with them at a hearing ☒

p.p. (Nick Hall - Agent) 11/25/2022

Signature of Submitter Date

(or person authorised to sign on behalf of submitter)

Notes to person making submission:

If you are making a submission to the Environmental Protection Authority, you should use Form 16B.

Please note that your address is required to be made publicly available under the Resource Management Act 1991, as any further submission supporting or opposing this submission is required to be forwarded to you as well as the Council.

If you are a person who could gain an advantage in trade competition through the submission, your right to make a submission may be limited by clause 6(4) of Part 1 of Schedule 1 of the Resource Management Act 1991.

I could ☐ /could not ☒ gain an advantage in trade competition through this submission.

If you <u>could</u> gain an advantage in trade competition through this submission please complete the following:

I am ☐ / am not ☐ directly affected by an effect of the subject matter of the submission that:

(a) adversely affects the environment; and

(b) does not relate to trade competition or the effects of trade competition.

SUBMISSION ON NOTIFIED PROPOSAL FOR POLICY STATEMENT OR PLAN, CHANGE OR VARIATION

Clause 6 of schedule 1, Resource Management Act 1991

To Planning Technician
Auckland Council
Level 24, 135 Albert Street
Auckland Central
Auckland 1010

Email: unitaryplan@aucklandcouncil.govt.nz

1 The submitter is Auckland Thoroughbred Racing Inc.

2 This is a submission on Plan Change 87 (Private): 301 and 303 Buckland Road, Pukekohe (**proposal**).

3 The submitter could not gain an advantage in trade competition through this submission.

4 This submission relates to the whole proposal.

5 The submission is:

(a) in 2020, the Auckland Council approved a private plan change request by The Counties Racing Club Inc (now Auckland Thoroughbred Racing Inc) to re-zone part of its land at 222-250 Manukau Road, Pukekohe from Special Purpose – Major Recreational Facility to Business – General Business. That plan change request, Plan Change 30 (Private): Pukekohe Park Raceway (**PC 30**), was made operative on 21 February 2021;

(b) as part of PC 30 it is necessary to upgrade the intersection of Buckland Road, Manukau Road, and Kitchener Road;

(c) the intersection upgrade will be triggered when the number of vehicles turning right out of the PC 30 Land exceeds a certain number of vehicles per hour; and

(d) the intersection upgrade will benefit any land rezoned under the proposal.

6 The submitter seeks that as a condition of any approval of the proposal the Auckland Council require that: 2.1, 2.2

(a) if the submitter completes the to upgrade the intersection of Buckland Road, Manukau Road, and Kitchener Road, the registered owners of 301 and 303 Buckland Road be required to share the costs of the intersection upgrade; and 2.1

(b) if the implementation of the proposal or the use of the land re-zoned under the proposal triggers an upgrade of the intersection of Buckland Road, Manukau Road, and Kitchener Road earlier than would be required under PC 30, that the registered owners of 301 and 303 Buckland Road carry out that intersection upgrade where the submitter with share the costs of the intersection upgrade. 2.2

7 The submitter wishes to be heard in support of its submission.

Date 1 December 2022

_____

V J Toan
Counsel for Auckland Thoroughbred Racing Inc

Address for Service:

Auckland Thoroughbred Racing Inc
C/- Glaister Ennor
PO Box 63, Shortland Street, Auckland 1140

For: Vicki Toan

Email: vicki.toan@glaister.co.nz

Telephone: +64 9 356 8243

Auckland Transport
An Auckland Council Organisation

20 Viaduct Harbour Avenue, Auckland 1010
Private Bag 92250, Auckland 1142, New Zealand
Phone 09 355 3553 **Website** www.AT.govt.nz

1 December 2022

Plans and Places
Auckland Council
Private Bag 92300
Auckland 1142

Attn: Planning Technician

Email: unitaryplan@aucklandcouncil.govt.nz

SUBMISSION ON PROPOSED PRIVATE PLAN CHANGE 87: 301-303 BUCKLAND ROAD, PUKEKOHE.

Please find attached Auckland Transport's submission on Proposed Private Plan Change 87 to the Auckland Unitary Plan (Operative in Part). The applicant is Pukekohe Limited.

Should you have any queries in relation to this submission, please contact me on 021 240 0159 or email me at matt.ford@at.govt.nz.

Yours sincerely

Matthew Ford
Planner, Land Use Policy & Planning Central

Cc: Robert@scottwilkinson.co.nz

SUBMISSION ON PROPOSED PRIVATE PLAN CHANGE 87 – 301 – 303 BUCKLAND ROAD, PUKEKOHE

To:	Auckland Council Private Bag 92300 Auckland 1142
Submission on:	Proposed Private Plan Change 87 from Pukekohe Limited to rezone 7.8 hectares of land at 301 and 303 Buckland Road, Pukekohe from the Future Urban Zone to the Business – General Business Zone.
From:	Auckland Transport Private Bag 92250 Auckland 1142

1. Introduction

1.1 Pukekohe Limited ('the applicant') has lodged a Private Plan Change ('PPC 87'or 'the Plan Change') to the Auckland Unitary Plan: Operative in Part ('AUP(OP)'). The Plan Change seeks to re-zone 7.8 ha from Future Urban Zone ('FUZ') to Business – General Business Zone ('BGBZ').

1.2 The proposed private plan change will rezone two parcels of land that are individually owned. The Plan Change documentation does not include any precinct plan or precinct provisions. There are two approved resource consents, one relating to each of the sites at 301 and 303 Buckland Road. The intention to develop these sites in accordance with the approved resource consents for a warehouse/trade supply depot at 301 Buckland Road and temporary industrial service storage yard at 303 Buckland Road is unclear/uncertain.

1.3 Auckland Transport is a Council-Controlled Organisation (CCO) of Auckland Council ('the Council') and the Road Controlling Authority for the Auckland region. Auckland Transport has the legislated purpose to contribute to an "*effective, efficient and safe Auckland land transport system in the public interest*"[1]. Auckland Transport is responsible for the planning and funding of most public transport; promoting alternative forms of transport (i.e. alternatives to the private motor vehicle); operating the local roading network; and developing and enhancing the local road, public transport, walking and cycling network for the Auckland Region.

1.4 Urban development on greenfield land not previously developed for urban purposes generates transport effects and the need for robust implementation investment plans in transport infrastructure and services to support construction, land use activities and the communities that will live and work in these areas. Auckland Transport's submission seeks to ensure that the transport related matters raised by PPC 87 are appropriately considered and addressed.

1.5 The Drury-Opāheke and Pukekohe-Paerata Structure Plans ("the Structure Plans") were prepared by the Council and went through a robust process, including four stages of consultation, before being adopted by the Council's Planning Committee in 2019. The Structure Plans set out a pattern of land uses and the supporting infrastructure network

[1] Local Government (Auckland Council) Act 2009, section 39.

for approximately 3,200 hectares of Future Urban zoned land around Drury-Opāheke and Pukekohe-Paerata.

1.6 The Plan Change site is identified in the Structure Plans as future Business – Light Industrial Zone. PPC 87 seeks to rezone the current Future Urban Zoned land (FUZ) to Business – General Business Zone (BGBZ). The proposed BGBZ zone is considered to be misaligned with the Structure Plan intent and careful consideration is needed to assess whether any adverse transport effects associated with this are able to be appropriately mitigated through the Plan Change. The proposed BGBZ zoning would provide for large format retail activities to establish as well as a range of business activities from light industry through to retail, office, food and beverage activities that would otherwise not be provided for by the anticipated Light Industrial Business Zone (LIBZ) in which the Pukekohe-Paerata Structure Plan and its associated ITA was predicated upon. The BGBZ generally has higher GFA threshold for activities, higher trip generation thresholds for activities and more intensive land use being proposed than the LIBZ. Auckland Transport is concerned that the higher intensity land use and its associated transport effects are appropriately avoided, remedied, or mitigated and that the existing and future transport network to serve the PPC87 site and the wider Pukekohe area is safeguarded and provided for. Furthermore, that active mode connections are provided beyond the site frontage to improve links to the Pukekohe Train Station and town centre located to the north.

1.7 In reviewing this Plan Change, Auckland Transport has had regard to the Integrated Transport Assessment ('ITA') completed by the Supporting Growth Alliance (SG) on behalf of Auckland Transport in 2019 to complement the Drury-Opāheke and Pukekohe-Paerata Structure Plans, as well as subsequent work by SGA on preparing a detailed business case ('DBC').

1.8 The ITA completed for the Drury-Opāheke and Pukekohe-Paerata Structure Plans ('the structure plan ITA') identified a new and upgraded arterial and collector road network, including a number of transport projects adjacent to or through the Plan Change site that are required to support the urbanisation of the area. These include:

- New indicative collector road PU-NS-2 crossing the Plan Change area and connecting Buckland Road to Quarry Road.

  This is noted in the structure plan ITA as delineating the western edge of the future industrial area and providing additional connectivity between Buckland and Tuakau Roads. The structure plan ITA identifies a natural constraint - two stream crossings and steep land around each stream and suggests alignment may require refinement to avoid (e.g. by utilising existing Quarry Road).

- Safety upgrades/improvements to Buckland Road (as well as Logan Road and Harrisville Road).

1.9 Auckland Transport's position is that collector and local roads, both new and where upgrading existing rural standard roads, are the responsibility of developers to provide. Developers are also responsible for providing intersection works which are required to access their development. Auckland Transport is then generally responsible for progressing any additional costs and elements associated with wider arterial standard roads. Developers are still expected to contribute to the frontage works associated with arterial roads such as footpaths, kerbs, cycle paths, berms and the required collector carriageway.

1.10 It is important that PPC 87 addresses the effects from development enabled by it and additionally that the form, function and alignment of the Structure Plan ITA identified collector road is also aligned to enable or provide for internal local road connections through the Plan Change area so as to avoid or reduce the need for additional road connections to Buckland Road (which is an existing arterial road).

1.11 Auckland Transport is not a trade competitor for the purposes of section 308B of the Resource Management Act 1991.

1.12 Auckland Transport is available and willing to work through the matters raised in this submission with the Applicant.

2. Strategic context

2.1 The key overarching considerations and concerns for Auckland Transport are described below.

Auckland Plan 2050

2.2 The Auckland Plan 2050 ('Auckland Plan') is a 30-year plan for the Auckland region outlining the long-term strategy for Auckland's growth and development, including social, economic, environmental and cultural goals. The Auckland Plan is a statutory spatial plan required under section 79 of the Local Government (Auckland Council) Act 2009. The Auckland Plan provides for between 60 and 70 per cent of total new dwellings to be built within the existing urban footprint. Consequently, between 30 and 40 per cent of new dwellings will be in new greenfield developments, satellite towns, and rural and coastal towns. The Auckland Plan also recognises that the demand for business land and floorspace is an important consideration in planning for growth.

2.3 The transport outcomes identified in the Auckland Plan to enable this growth includes providing better connections, increasing travel choices, and maximising safety. To achieve these outcomes, focus areas outlined in the Auckland Plan include targeting new transport investment to the most significant challenges; making walking, cycling and public transport preferred choices for many more Aucklanders; and better integrating land use and transport. The high-level direction contained in the Auckland Plan informs the strategic transport priorities to support growth and manage the effects associated with this plan change.

Managing Auckland-wide growth and rezoning

2.4 The high-level spatial pattern of future development is represented at a regional level in the Auckland Plan and by the Future Urban Zone (FUZ) in the AUP(OP). It is further defined through sub-regional level planning including the Pukekohe-Paerata Structure Plan, to then be enabled through appropriate plan change processes. Development in the greenfield areas contributes to the overall growth in transport demands in parallel with the on-going smaller scale incremental growth that is enabled through the AUP(OP).

2.5 Wide scale growth across the region places greater pressure on the available and limited transport resources that are required to support the movement of additional people, goods, and services. In order to align the growth enabled by the AUP(OP) and plan changes with the provision of transport infrastructure and services, there needs to be a high level of certainty about the funding, financing and delivery of the required

infrastructure and services. Without this certainty, there will continue to be a significant deficiency in the transport network in terms of providing and coordinating transport responses to the dispersed growth enabled across the region. This will result in poor transport outcomes including lack of travel choice and car dependency as there will not be the transport infrastructure and services in place to support growth and the demands from development.

Sequencing growth and aligning with the provision of transport infrastructure and services

2.6 The Future Urban Land Supply Strategy 2017 (**FULSS**) provides guidance on the sequencing and timing of future urban land identified in the Auckland Plan (i.e. 'unzoned' greenfield areas of development). This guidance was incorporated into the updated Auckland Plan in 2018. The FULSS sets out the anticipated timeframes for 'development ready' areas over a 30-year period. The FULSS helps to inform infrastructure asset planning and funding priorities, and to support development capacity to ideally be provided in a coordinated and cost-efficient way via the release of ‘development ready’ land.

2.7 The site is identified in the FULSS as part of Pukekohe which is intended to be ‘development ready’ between 2023 and 2027. Land is considered development ready once the following four steps are complete:

- Future urban zoned land identified in the Unitary Plan
- Structure planning completed
- Land rezoned for urban uses; and
- Bulk infrastructure provided.

2.8 Plan changes which propose to allow future urban land to be urbanised before the wider staging and delivery of planned transport infrastructure and services has occurred need to be carefully considered. Any misalignment between the timing for providing infrastructure and services and the urbanisation of greenfield areas brings into question whether the proposed development area is ‘development ready’. The matters that need to be carefully considered include:

- Whether the Plan Change requires applicants to mitigate the transport effects associated with their development and to provide the transport infrastructure needed to service their development
- Whether the development means that the strategic transport infrastructure being planned to service the wider growth area identified in the FULSS needs to be provided earlier
- Whether the development impacts the ability to provide the strategic transport infrastructure identified to service the wider growth area, for example, will it foreclose route options or hinder future upgrades of existing infrastructure.

2.9 The above considerations need to be resolved regardless of the FULSS timeframe indications as to development readiness.

2.10 Adverse effects arise when development occurs before the required transport network improvements and services have been provided. Appropriate connections between jobs, housing, services including by way of public or active transport is a minimum requirement to achieve a well-functioning urban environment (Policy 1 NPS-UD). This cannot be addressed without providing clarity around the implementation of the network. There is a need to assess and clearly define the responsibilities for the required infrastructure and the delivery mechanisms. This includes considering the role of

applicants / developers, and taking into account the financially constrained environment that the Council and Auckland Transport operate within.

2.11 The need to coordinate urban development with infrastructure planning and funding decisions is highlighted in the objectives of the National Policy Statement on Urban Development 2020 (NPS-UD). Those objectives are quoted below (with emphasis in bold):

> 'Objective 3: Regional policy statements and district plans enable more people to live in, and more businesses and community services to be located in, areas of an urban environment in which one or more of the following apply:
>
> (a) the area is in or near a centre zone or other area with many employment opportunities
>
> (b) the area is well-serviced by existing or planned public transport
>
> (c) there is high demand for housing or for business land in the area, relative to other areas within the urban environment.'
>
> 'Objective 6: Local authority decisions on urban development that affect urban
>
> environments are:
>
> (a) **integrated with infrastructure planning and funding decisions;** and
>
> (b) strategic over the medium term and long term; and
>
> (c) responsive, particularly in relation to proposals that would supply significant development capacity.'

2.12 The Regional Policy Statement (RPS) objectives and policies in the AUP(OP) place similar clear emphasis on the efficient provision of infrastructure and on the integration of land use and development with infrastructure, including transport infrastructure. Refer, for instance, to Objectives B2.2.1(1)(c) and (5) and B3.3.1(1)(b), and Policies B2.2.2(7)(c) and B3.3.2(5)(a). For example, Policy B3.3.2(5)(a) is to: *'Improve the integration of land use and transport by… ensuring transport infrastructure is planned, funded and staged to integrate with urban growth').* The alignment of infrastructure to support growth is essential to achieving a well-functioning urban environment.

Mitigation of adverse transport effects

2.13 A critical issue is whether the Plan Change includes appropriate provisions to require development and subdivision proposals to mitigate adverse transport effects and to provide the transport infrastructure and services needed to serve it. This is addressed further in Attachment 1. The Pukekohe-Paerata Structure Plan and its associated ITA identifies a need to safeguard and provide for a future collector road connection across the Plan Change area. Auckland Transport is of the view that the potential alignment south of the plan change area is constrained and that therefore consideration through this process of access from the noted collector road and local access connections off that are important to safeguard or prevent reliance on additional connections to Buckland Road.

2.14 Auckland Transport is of the view that greater clarity is needed regarding the proposed transport infrastructure mitigation outlined in the Applicant's supporting documents (AEE

and ITA as well as their responses to further information requests) in terms of their scope, form, and function. This would better inform where potential differences may lie between the Auckland Transport and the Applicant providing all parties with more certainty in terms of safeguarding and delivery. Auckland Transport is of the view that precinct provisions and a precinct plan would provide an improved level of clarity and guidance for subsequent resource consent and engineering approvals processes as to responsibility for the identified transport network infrastructure upgrades and mitigation.

2.15 As mentioned above, adverse transport effects that arise when development occurs without required transport infrastructure and services being provided at an appropriate time and cannot be addressed without funding to support the planning, design, consenting and construction them. There is a need to assess and clearly define responsibilities relating to the required infrastructure and the potential range of funding and delivery mechanisms. This includes a consideration of what infrastructure is required at various stages of development.

3. Specific parts of the plan change that this submission relates to:

3.1 The specific parts of the plan change that this submission relates to are set out in **Attachment 1**. In keeping with Auckland Transport's purpose, the matters raised relate to transport, and include:

- The need for specific planning provisions, including a precinct plan to address matters raised in this submission;
- safeguarding and provision for the future transport network (PU-NS-2);
- Providing for active modes including connections to existing network;
- Ensuring an effective and future-proofed internal transport network which provides connections to future development on adjacent sites;
- Consideration of whole of life costs and effectiveness of public vested assets (including for public roads and stormwater assets);
- Implications for Buckland Road including:
    - frontage upgrades in conjunction with enabled subdivision and development;
    - vehicle access restrictions / flush median;
    - upgrade to the Buckland Road / Kitchener Road intersection; and
    - provision of a controlled access intersection on Buckland Road (providing for the future collector road connection and access to the internal road network for this plan change area).

4. The decisions sought by Auckland Transport are:

4.1 Auckland Transport **opposes** PPC 87 and seeks that it be declined unless the matters raised within this submission can be adequately addressed. The decisions which Auckland Transport seeks from the Council are set out in **Attachment 1**.

4.2 In the event that the Private Plan Change is accepted, the matters / concerns raised in this submission (including the main body and Attachment 1) should be appropriately addressed by amendments to the Plan Change, and any adverse effects of the proposal on the transport network adequately avoided or mitigated.

3.1

4.3 In all cases where amendments to the Plan Change are proposed, Auckland Transport would consider alternative wording or amendments which address the reasons for Auckland Transport's submission. Auckland Transport also seeks any consequential amendments required to give effect to the decisions requested.

5. Appearance at the hearing:

5.1 Auckland Transport wishes to be heard in support of this submission at a hearing.

5.2 If others make a similar submission, Auckland Transport will consider presenting a joint case with them at the hearing.

Name: Auckland Transport

Signature:

Sarah Wilson
Team Manager, Land Use Policy and Planning South

Date: 1 December 2022

Contact person: Matthew Ford
Planner, Land Use Policy and Planning Central

Address for service: Auckland Transport
Private Bag 92250
Auckland 1142

Telephone: 021 240 0159

Email: Matt.Ford@at.govt.nz

Attachment 1

Topic	Support / Oppose	Reason for submission	Decision requested
Lack of PPC 87 specific transport provisions to provide for identified transport infrastructure mitigation	Oppose	Auckland Transport cannot be certain that the reliance on Auckland Unitary Plan (AUP(OP)) zone and Auckland-wide provisions will secure the delivery of required transport upgrades. These matters need to be addressed before Auckland Transport can be satisfied that the transport mitigation required to support the needs of development enabled by this Plan Change can be provided. Auckland Transport considers that the scope at the subdivision stage in the development process is limited due to the potential incremental nature of consenting programmes / staging and, depending on the reasons for consent, the potential lack of scope for matters outside lot development to be addressed. There are no Precinct provisions proposed relating to the transport infrastructure identified as mitigation in the Applicant's ITA. Precinct provisions will help provide sufficient guidance to the downstream consenting processes (e.g., resource consents and engineering approvals). It is noted that risks to all parties should be reduced if there is some agreed guidance rather than none. The indicative triggers identified in the Applicant's Implementation Plan (within the ITA) should provide clearer definition of the staging for transport upgrades that is linked to both subdivision and development applications for any proposal under the proposed zone.	Decline the Plan Change unless a precinct plan and precinct provisions applying to this Plan Change area are provided, for incorporation into the Auckland Unitary Plan (Operative in Part). The precinct provisions should include specific transport mitigation mechanisms to ensure that the matters identified in the Applicant's ITA, further information responses and within this submission can be appropriately addressed.

3.2

Future alignment of PU-NS-2 Collector Road	Oppose in part	The Auckland Unitary Plan (Operative in Part) has a number of relevant objectives and policies such as, B2.2. Urban growth and form B2.2.1. Objectives (1) A quality compact urban form that enables all of the following: (a) a higher-quality urban environment; (b) greater productivity and economic growth; (c) better use of existing infrastructure and efficient provision of new infrastructure; Furthermore, B2.5. Commercial and industrial growth and the following policy is relevant: Policy B2.5.2 (6) Enable commercial activities, where appropriate, in business zones in locations other than the city centre, metropolitan and town centres and identified growth corridors, having regard to all of the following: (a) the matters listed in Policy B2.5.2(5)(a) to Policy B2.5.2(5)(h). Of those, b, d and e are provided below as being of particular relevance. **b)** adverse effects on the quality compact urban form including the existing and planned location of activities, facilities, infrastructure and public investment; **c)** the efficient use and integration of land and infrastructure; **d)** effects on the safe and efficient operation of the transport network; There are no roading plans proposed as part of the Plan Change. The Integrated Transport Assessment (ITA) accompanying the Plan Change identifies a collector road connection to go through the Plan Change area, to ultimately connect with Buckland Road. This is consistent with the Pukekohe-Paerata Structure Plan. Auckland Transport suggests that there is benefit in considering PU-NS-2 as part of the Plan Change in terms of safeguarding the alignment and providing for part of this future connection where it affects the Plan Change area. In this regard the section of the proposed PU-NS-2 route to the eastern end of Webb Street connecting to Buckland Road is relevant. Auckland Transport considers that the scope to require this part of the planned road connection at the subdivision stage in the development process is limited due to the potential incremental nature of consenting programmes / staging and depending on the reasons for consent and the potential lack of scope for matters outside of lot development to be addressed. The Auckland Unitary Plan's regional policies stated above are relevant and it is the view of Auckland Transport that to give proper effect to those policies greater certainty for this planned collector road is needed which are most appropriately secured through precinct provisions and plan.	Decline the plan change unless, a precinct plan and precinct provisions establish a requirement to provide for and form a collector road (PU-NS-2 Collector Road) with separate cycle and walking facilities linking to Buckland Road. This collector road should be readily capable of being extended to the west from Buckland Road as illustrated on Map 5 of the Pukekohe-Paerata Structure Plan 2019. The connection should be designed so that it does not preclude future development nor links to the south.

3.3

Topic	Support / Oppose	Reason for submission	Decision requested
		The collector road alignment will need to be agreed with the Applicant to ensure the alignment and location of the connection point to Buckland Road will operate safely, that the alignment results in a workable site configuration for future development, and because there is known responsibility that developers are to form collector roads. Auckland Transport recognises that this connection (at least in its ultimate form) may not be directly needed to service the proposed development, but by virtue of its location in relation to the future planned transport network. It needs to be safeguarded and provided for to ensure that development enabled by this Plan Change is supported by appropriate infrastructure that is well connected by all modes to the existing urban edge to the north of the site and capable of becoming a well-functioning urban environment. The Applicant's ITA indicates that this collector road will be a 21m wide road as per the Pukekohe-Paerata Structure Plan ITA. However, this should be 22m based on current design standards as reflected within Design and Standards Table dimensions agreed as part of recent greenfield plan change precinct provisions. This width will safeguard future walking and cycling network infrastructure as per the Pukekohe-Paerata Structure Plan. Section 7.6 of the Applicant's ITA states Webb Street is not appropriate for significant additional traffic without a significant upgrade. The PPC 87 area does not have any direct frontage to Webb Street. Auckland Transport seeks further discussion regarding the most likely and appropriate future alignment of the collector road identified in the Structure Plan ITA. Given the constraints (also noted in the Structure Plan ITA) a connection to Webb Street may be determined as the most suitable. If a connection is made to Webb Street there may need to be some interim safety works to support any interim use of Webb Street in terms of the staging of delivery of the PU-NS-2 collector road.	

Topic	Support / Oppose	Reason for submission	Decision requested	
Upgrade to the Buckland Road / Kitchener Road intersection	Support in part	Auckland Transport notes that the Applicant's response to further information requests identify that an upgrade to the Buckland Road / Kitchener Road intersection to a roundabout or traffic signals may be needed to mitigate development enabled by this plan change. Auckland Transport supports the inclusion of the above additional infrastructure upgrades / mitigation. However, to provide certainty that this upgrade / mitigation can be provided for in conjunction with subdivision and development of the land, Auckland Transport is of the view that specific precinct provisions should be included as part of this Plan Change to provide for this infrastructure upgrade.	Auckland Transport seeks resolution of the matters raised in this submission to provide certainty that the transport infrastructure identified as improvements / mitigation in the applicant's Integrated Transport Assessment (or associated responses to requests for further information) will be provided in conjunction with subdivision and development of the land included in the PPC 87. This could include site-specific amendments to the plan change and/or methods to ensure such transport effects are addressed.	3.4
Buckland Road intersection	Support in part	Auckland Transport notes that accessing future lots directly off Buckland Road should be limited and supports the introduction of a roundabout on Buckland Road. However, the application material provided by the Applicant suggests that the upgrade will be addressed through future resource consents. Auckland Transport considers that the scope at the resource consent stage in the development process is limited due to staging and the potential incremental nature of consenting strategies adopted. Other yet to be determined considerations include the reasons for consent/activity status and relevant matters of assessment, in this regard, an appropriate mechanism needs to be identified to guarantee the delivery of the roundabout as the ITA does not provide clear direction on timing, nor responsibility for delivery.	Auckland Transport seeks resolution of the matters raised in this submission to provide certainty that the transport infrastructure identified as improvements / mitigation in the applicant's Integrated Transport Assessment (or associated responses to requests for further information) will be provided in conjunction with subdivision and development of the land included in the PPC 87. Specifically, a controlled access intersection on Buckland Road (roundabout or traffic signals) should be identified as a site-specific amendment to the Plan Change (identified on a precinct plan and provisions).	3.5

Topic	Support / Oppose	Reason for submission	Decision requested
Internal transport network	Oppose	The proposal will enable urban development of a small site with no certainty that a road network will be provided within the site in a manner that enables connections to adjacent sites for future development. In addition, there is no certainty that all development within the site will be provided with good pedestrian access through to Buckland Road to access public transport services. Furthermore, given the presence of natural constraints on land south of the plan change area, a lack of consideration of wider local connections could necessitate further access from Buckland Road to provide for cul-de-sac road networks which would not be considered to deliver a well- functioning urban environment.	Amend the plan change to include specific planning provisions (including objectives, policies and rules) to require subdivision and development to provide connections (for all modes) to adjacent sites, and connections through to Buckland Road. This is expected to require precinct provisions.

3.6

Topic	Support / Oppose	Reason for submission	Decision requested
Frontage upgrade for – Buckland Road	Part support	The existing roads adjoining the Plan Change area are only built to a rural standard and there is a need for them to be upgraded to an appropriate urban standard at the time of subdivision or development of the adjoining land. Required upgrades could include, without limitation, provision of footpath, cycle paths, kerbs and channels, earthworks to integrate with development levels, streetlights, undergrounding of overhead lines, berm and street trees, and stormwater treatment and conveyance. Auckland Transport seeks that the frontage of the Plan Change area along Buckland Road is upgraded as development occurs to an urban standard, with separated walking and cycling facilities. Auckland Transport notes that the Plan Change only proposes to provide frontage upgrade including pedestrian infrastructure. No cycling infrastructure is proposed as mitigation for the plan change which Auckland Transport does not support. PPC 87 does not include any frontage upgrade provisions as it doesn't include a precinct plan and relies on the resource consent process. Auckland Transport does not consider this approach appropriate to adequately support growth, mitigate adverse transport effects nor achieve a well-functioning urban environment. Section 2.3.4 of the ITA states that the site "*offers excellent cycling connectivity to a wider range of activities*". However, this is solely because of its location (within 3km of key destinations), not because safe cycle facilities are proposed to provide for connectivity by this mode. Auckland Transport also notes that section 2.5 of the ITA states that a cyclist was seriously injured on Buckland Road. This finding supports separated cycling facilities on Buckland Road. The Cycle and Micro Mobility Network in AT's Future Connect portal, includes Manukau Road and Buckland Road as supporting cycle routes, indicating that they serve a local connectivity function. In addition to this, the Pukekohe and Paerata Structure Plan Map 5 identifies a proposed walking and cycling network on Buckland Road. The network includes primary cycle routes along all arterial roads for the Pukekohe-Paerata area. Furthermore, the boundary-to-boundary width on Buckland Road is approximately 30m which is sufficient space to accommodate safe cycling facilities.	Amend the plan change to include specific planning provisions (including objectives, policies and rules) to require the Buckland Road frontage to be upgraded to an urban standard with separated walking and cycling facilities in conjunction with subdivision and development of the site. This is likely to require precinct provisions.

3.7

Topic	Support / Oppose	Reason for submission	Decision requested
Active mode connections beyond the site	Support in part	In order to meet the requirements of the RPS and the objective to achieve a well-functioning urban environment, good accessibility and travel choice needs to be provided, which includes access to safe active mode and public transport infrastructure and services. Inadequate provision for active modes will combine to result in a dependence on private motor vehicles resulting in development that has a high total vehicle kilometres (VKT) and greenhouse gas emissions. Active mode connections are needed to connect development on the site to the existing footpath network north of Kitchener Road. In addition to site frontage upgrades (addressed in other submission points) active mode connections are necessary along the front of 32 Kitchener Road which is a rural zoned parcel of land that separates this PPC 87 site from the established urban development north of Kitchener Road. Crossing points on Buckland Road and Kitchener Road to ensure that development enabled by this Plan Change is effectively connected to existing bus routes and can be served by appropriately cited bus stops on Buckland Road. The Applicant's response to further information requests also suggests that a crossing on Buckland Road is proposed which is supported, however a mechanism to provide for it is necessary.	Amend the plan change to include specific planning provisions (including objectives, policies and rules) to require subdivision and development to provide active mode connections along the frontage of 32 Kitchener Road and provide for pedestrian crossings on Buckland and Kitchener Roads. Furthermore, provision for bus stops should also be provided for along the west and east sides of Buckland Road. It is considered that these transport infrastructure mitigation requirements would require precinct plan and provisions to ensure they are provided for.

3.8

Topic	Support / Oppose	Reason for submission	Decision requested	
Stormwater management	Support in part	Auckland Transport in-principle supports stormwater proposals which are efficient and cost-effective in managing stormwater, and appropriate for the site constraints. It is noted that a suite of proposed methodologies has been identified for stormwater disposal including providing stormwater treatment at source or within centralised raingardens or wetlands. Should the applicant at later stages seek to locate raingarden devices in the road corridor, attenuation of flood events in roadside raingardens would not be appropriate due to the extensive sizing requirements. Auckland Transport requests further information on the downstream system capacity be provided to demonstrate the effects on Auckland Transport's network of roadside drains. Auckland Transport seeks stormwater provisions which requires consideration of whole of life costs and effectiveness over time and the use of communal devices to treat road runoff.	Auckland Transport requests an assessment of the potential downstream system capacity effects on Auckland Transport's network of roadside drains. Amend the plan change to include specific planning provisions (including objectives, policies and rules) to include precinct provisions to include whole of life costs and effectiveness of treatment over time associated with publicly vested stormwater assets as a matter for discretion and policy.	3.9
Reduced speed limits on Buckland Road (past the site) to 50km/h	Support in part	Auckland Transport supports the speed on Buckland Road being reduced to 50km/h past the site as the speed limit along Buckland Road is currently 80km/hr. There is a need to ensure there are threshold treatments to support a 50km/hr speed limit.	Noting this is an action for Auckland Transport in the event that the Plan Change is supported.	3.10
Buckland Road access / flush median	Oppose	The provision of a painted flush median offered by the Applicant in the ITA requires further consideration. The Buckland Road site frontage as noted above should be upgraded to an urban standard. It should also have limited vehicle accessways owing to its arterial road function and a flush median would allude to creating additional options for access into sites from Buckland Road. Given its arterial road classification access from Buckland Road should be limited.	Amend the plan change to include specific planning provisions (including objectives, policies and rules) to require subdivision and development to limit or prevent direct vehicle access onto Buckland Road.	3.11

Submission on a notified proposal for policy statement or plan change or variation

Clause 6 of Schedule 1, Resource Management Act 1991
FORM 5

Auckland Council
Te Kaunihera o Tāmaki Makaurau

Send your submission to unitaryplan@aucklandcouncil.govt.nz or post to :

Attn: Planning Technician
Auckland Council
Level 24, 135 Albert Street
Private Bag 92300
Auckland 1142

For office use only
Submission No:
Receipt Date:

Submitter details

Full Name or Name of Agent (if applicable)

Mr/Mrs/Miss/Ms(Full Name) Kaaren Rosser

Organisation Name (if submission is made on behalf of Organisation)

EnviroWaste Services Ltd

Address for service of Submitter

Private Bag 92810, Penrose, Auckland 1642

Telephone: 275541065 Fax/Email: kaaren.rosser@environz.co.nz

Contact Person: (Name and designation, if applicable)

Scope of submission

This is a submission on the following proposed plan change / variation to an existing plan:

Plan Change/Variation Number: PC 87

Plan Change/Variation Name: 301 and 303 Buckland Road, Pukekohe

The specific provisions that my submission relates to are:
(Please identify the specific parts of the proposed plan change / variation)

Plan provision(s): Change Proposed Zoning from Future Urban to General Business 4.1

Or
Property Address:

Or
Map:

Or
Other *(specify)*:

Submission

My submission is: (*Please indicate whether you support or oppose the specific provisions or wish to have them amended and the reasons for your views)*

I **support** the specific provisions identified above ☐

I **oppose** the specific provisions identified above ☒

I wish to have the provisions identified above amended Yes ☒ No ☐

The reasons for my views are:

The Pukekohe-Paerata Structure Plan recommended that this land and a large area of land surrounding be Light Industrial.

It is the submitters view that the new zoning should be Light Industrial to be contiguous with future area of Light Industrial and to

reduce reverse sensitivity effects from permitted large retail, office, food and beverage and commerical services activities *See attached

(continue on a separate sheet if necessary)

I seek the following decision by Council:

Accept the proposed plan change / variation ☐

Accept the proposed plan change / variation with amendments as outlined below ☐

Decline the proposed plan change / variation ☒

If the proposed plan change / variation is not declined, then amend it as outlined below. ☐

Change zoning to Light Industrial

I wish to be heard in support of my submission ☐

I do not wish to be heard in support of my submission ☒

If others make a similar submission, I will consider presenting a joint case with them at a hearing ☒

Signature of Submitter
(or person authorised to sign on behalf of submitter)

12/01/2022
Date

Notes to person making submission:

If you are making a submission to the Environmental Protection Authority, you should use Form 16B.

Please note that your address is required to be made publicly available under the Resource Management Act 1991, as any further submission supporting or opposing this submission is required to be forwarded to you as well as the Council.

If you are a person who could gain an advantage in trade competition through the submission, your right to make a submission may be limited by clause 6(4) of Part 1 of Schedule 1 of the Resource Management Act 1991.

I could ☐ /could not ☐ gain an advantage in trade competition through this submission.

If you could gain an advantage in trade competition through this submission please complete the following:

I am ☐ / am not ☐ directly affected by an effect of the subject matter of the submission that:

(a) adversely affects the environment; and

(b) does not relate to trade competition or the effects of trade competition.

PC 87 EnviroWaste Submission continued

...on future adjacent industrial activities and adjacent cropping land. The Light Industrial zone is a better zone in this regard, as the range of uses allowed are less sensitive to adjacent rural activities and allows for more suitable activities in relation to the existing waste management site in Austen Place.

The piecemeal approach to the rezoning of the FUZ land is not preferred, as integration with surrounding area does not result. The rezoning request should be declined until the larger proposed industrial area is rezoned.

In addition, with the potential for large format retail to occur under the General Business zoning, large format retailing should be aggregated in one location to reduce traffic load on Buckland Road.

SUBMISSION ON PROPOSED PLAN CHANGE 87 (PRIVATE): 301 AND 303 BUCKLAND ROAD, PUKEKOHE

To: Auckland Council ("**the Council**")

Submitter Name: Nomita Singh **("the submitter")**

1. INTRODUCTION

1.1. This submission relates to Private Plan Change 87 (PC87) which seeks to rezone land at 301 and 303 Buckland Road in Pukekohe from the Future Urban zone to Business - General Business.

1.2. The submitter owns land at 1 Webb Street in Pukekohe as shown in Figure 1 below. This land is located southwest of the PC87 land.

1.3. The submitter is directly affected by an effect of the subject matter of the submission that adversely affects the environment and does not relate to trade competition or the effects of trade competition.

Figure 1: Aerial view of the Plan Change land and submitters land

2. SCOPE OF SUBMISSION

2.1. The submission relates to the proposed rezoning of the property under Plan Change 87 (PC87).

3. NATURE OF SUBMISSION

3.1. The submitter supports the proposed rezoning of the land to Business – General Business and seeks that the plan change be approved.

4. REASONS FOR SUBMISSION

4.1. The submitter supports the intent of PC87 in terms of the rezoning of land to enable additional commercial development.

4.2. The rezoning of the land is considered to:

a) promote sustainable management of resources and to help achieve the purpose of the Resource Management Act 1991 (RMA);

b) Be consistent with the Pukekohe-Paerata Structure Plan;

c) support the intended outcomes envisaged by the NPS-UD;

d) enable the social and economic wellbeing of the community in Auckland Region; and

e) represent an appropriate means of exercising the Council's functions, having regard to the efficiency and effectiveness of the provisions relative to other means.

4.3. In particular, and without limiting the generality of the above:

a) The submitter considers the rezoning would be generally consistent with the outcomes anticipated by the Pukekohe-Paerata Structure Plan ("Structure Plan") in terms of rezoning the land for commercial activity.

b) The submitter supports the proposed General Business zoning as being more flexible and accommodating of a wider range of business activities than the Light Industry zone identified in the Structure Plan.

c) The submitter also supports the clear information provided as part of the plan change application that a public road extension will be formed through the plan change land to connect/extend Webb Street to Buckland Road. It would be beneficial if this could

be addressed with clarity within any decision to ensure that this link is provided in any future development on the land.

d) The submitter also supports the public wastewater extension shown along the new public road. The Birch Surveyor's drawing[1] entitled 'Proposed Wastewater Supply' shows the public network being extended to the current end of Webb Street which is considered appropriate to provide for the eventual development of surrounding land.

e) In terms of water supply, the submitter supports the layout shown on Birch drawing "Proposed Water Supply" which, consistent with the wastewater drawing, shows a new watermain extending up this new road reserve. Again, this is considered appropriate to provide for the eventual development of surrounding land.

5. SPECIFIC RELIEF SOUGHT

5.1. The submitter therefore seeks that the zoning of the land as Business – General Business be confirmed. 5.1

5.2. The submitter seeks that any decision makes clear the obligation that the land developer will extend the relevant public networks (roading, water, wastewater, stormwater (where appropriate) through the plan change land to enable the future development of other surrounding land. 5.2

5.3. The submitter also seeks such further or other consequential relief as may be necessary to fully give effect to the relief sought in this submission.

6. OTHER MATTERS

6.1. The submitter could not gain an advantage in trade competition through its submission.

6.2. The submitter wishes to be heard in support of its submission and will consider presenting a joint case with other who may make a similar submission.

Date: 1 December 2022

[1] Wastewater and Water Supply Report dated 10 November 2021 prepared by Birch Surveyors

Signature

Mark Benjamin on behalf of the submitter

Submitter Name: Nomita Singh

Contact Person: Mark Benjamin

Address for Service: Nomita Singh
C/- Mt Hobson Group
PO Box 37964
Parnell
Auckland 1151

Telephone: 09 950 5107

Email: markb@mhg.co.nz

In the matter of:	Plan Change 87
Site Address:	301 and 303 Buckland Road, Pukekohe
Applicant:	Pukekohe Limited
Submitter:	Hira Bhana and Co. Limited
Contact Person:	Bharat Hira Bhana
	Hira Bhana & Co. Ltd
	71 Tuakau Road, Pukekohe 2120
	Mobile: 0274828305
	Email: hira.bhana@xtra.co.nz

1. This submission is on behalf of Hira Bhana and Co. Limited (Hira Bhana's) in relation to the publicly notified Plan Change 87 to rezone Future Urban Zone land at 301 and 303 Buckland Road, Pukekohe to General Business Zone.

2. Hira Bhana and Co. Limited will gain no competitive advantage through the lodgment of this submission.

3. Hira Bhana's is a family owned and run business based in Pukekohe, devoted to growing, packing and distributing fresh produce throughout New Zealand and the world. Hira Bhana are wholesale suppliers within New Zealand to Turner's and Growers, Fresh Direct, Market Gardeners, Primor Produce, Foodstuffs and Fruit World as well as other individual vegetable outlets across New Zealand. Produce is also exported worldwide with onions going to Europe, UK, Japan, Asia, USA and Fiji and carrots and potatoes to the Pacific Islands. The company was established in 1957 and is currently run by second and third generation family members, employing up to 90 staff members. Hira Bhana & Co has grown significantly over the last 50 years, their cropping area now spans well over 1,500 acres of land and is spread over several farms across the Auckland and Northern Waikato Regions. Hira Bhana's also support their local community by donating fresh

produce to local schools and community groups for fundraising events and hosting student groups on farm tours.

4. Cropping responsibly and sustainably is an important part of the company's philosophy. All of the farms employ the latest harvesting planting, ground preparation and spraying techniques, including GPS technology, which is used for planting and drilling. Practices such as water runoff management, wheel track ripping after planting, reducing cultivation through minimum tillage practices, the use of cover crops, fertiliser and irrigation management and mulching are well established across all farms.

5. Hira Bhana's commercial vegetable production activities occur on the land immediately to the west of the proposed Plan Change area. This land remains in rural production zone and is used for rural productive activities. This land use has been further cemented by the introduction of the National Policy Statement for Highly Productive Land which will prevent any future rezoning or development of this productive land. The plan change area is separated from the rural production zone by the rural urban boundary with no identified buffer zones in between.

6. Hira Bhana support the Plan Change provided adequate buffer zones can be put in place on the land subject to the Plan Change and conditions can be enforced to ensure that the future development of the land at 301 and 303 Buckland Road, Pukekohe will not impact on the ability of the rural production zoned land to be used for rural productive activities, with reverse sensitivity being a major concern.

7. The proposed activity is to be located on a site adjoining our operations in the rural production zone, where we commercially grow vegetables. It is important that buffer zones are put in place and that new development cannot complain about the existing and ongoing commercial vegetable production operation which is located within the designated zoning. We adhere to Good Management Practices, however, this does not prevent people coming to the rural environment and complaining about our operations. In this case, the development is being intentionally placed abutting the rural productive land. We believe that mitigation strategies can prevent tension from occurring between the two zones. R

8. Hira Bhana is of the opinion that the issue of reverse sensitivity is becoming an increasing concern within the Pukekohe Hub as a result of Auckland's increasing sprawl into existing vegetable producing areas, which threatens commercial vegetable growers right to farm. Complaints from neighbours can compromise a lawful rural operation in the following manner:
    - Restricting when or how it can operate
    - Imposition of economic burdens that reduce operational viability.

9. Hira Bhana requests that the plan change be approved subject to the implementation of:
    a. buffer zones

b. conditions that protect the ability to commercially grow vegetables in this location without complaint, provide Good Management Practices are being adhered to.

10. Hira Bhana's wish to be heard in support of their submission.

Auckland Transport
An Auckland Council Organisation
20 Viaduct Harbour Avenue, Auckland 1010
Private Bag 92250, Auckland 1142, New Zealand
Phone 09 355 3553 Website www.AT.govt.nz

24 February 2023

Plans and Places
Auckland Council
Private Bag 92300
Auckland 1142
Attn: Planning Technician

Email: unitaryplan@aucklandcouncil.govt.nz

Re: Further Submission by Auckland Transport on Proposed Private Plan Change 87 301-303 Buckland Road, Pukekohe

Please find attached Auckland Transport's further submission to the submissions lodged on Proposed Private Plan Change 87 301-303 Buckland Road.

If you have any queries in relation to this further submission, please contact me on +64 21 240 0159 or email at Matt.Ford@at.govt.nz.

Yours sincerely

Matt Ford
Planner, Land Use Policy and Planning Central

cc: Scott Wilkinson Planning
Via email - robert@scottwilkinson.co.nz

Encl: Auckland Transport's further submission on Proposed Private Plan Change 87 301-303 Buckland Road.

Further Submission by Auckland Transport on Proposed Private Plan 87 301-303 Buckland Road, Pukekohe

To:	Auckland Council Private Bag 92300 Auckland 1142
Further submission on:	Submissions to Proposed Private Plan Change 87 from Pukekohe Unlimited to rezone approximately 7.9ha from Future Urban Zone in the Auckland Unitary Plan to Business – General Business zoning.
From:	Auckland Transport Private Bag 92250 Auckland 1142

Introduction

1) Auckland Transport represents a relevant aspect of the public interest and also has an interest in the proposal that is greater than the interest that the general public has. Auckland Transport's grounds for specifying this are that it is a Council-Controlled Organisation of Auckland Council ('the Council') and Road Controlling Authority for the Auckland region.

2) Auckland Transport's legislated purpose is "to contribute to an effective, efficient and safe Auckland land transport system in the public interest."

Scope of further submission

3) The specific parts of the submissions supported, opposed or where Auckland Transport has a neutral position provided that any transport implications arising from accepting a submission are addressed, and the reasons for Auckland Transport's position are set out in **Attachment 1**.

4) The decisions which Auckland Transport seeks from the Council in terms of allowing or disallowing submissions are also set out in **Attachment 1**.

Appearance at the hearing

5) Auckland Transport wishes to be heard in support of this further submission.

6) If others make a similar further submission, Auckland Transport will consider presenting a joint case with them at the hearing.

_____

Signed for and on behalf of Auckland Transport

Sarah Wilson

Manager Land Use Policy and Planning, South

Address for service of further submitter:

Matt Ford, Planner

Growth and Urban Planning Integration

Auckland Transport

Private Bag 92250

Auckland Central

Auckland 1142

Email: Matt.Ford@at.govt.nz

Auckland Transport
An Auckland Council Organisation
20 Viaduct Harbour Avenue, Auckland 1010
Private Bag 92250, Auckland 1142, New Zealand
Phone 09 355 3553 Website www.AT.govt.nz

Attachment 1

Submitter	Submission point	Summary of submission	Support or oppose	Reason for Auckland Transport further submission	Decision sought
Auckland Thoroughbred Racing	2.2	If the plan change is approved, Auckland Council shall require as a condition of that approval that: (a) if the implementation of the proposal or the use of the land rezoned under the proposal triggers an upgrade of the intersection of Buckland Road, Manukau Road, and Kitchener Road earlier than would be required under PC 30, that the registered owners of 301 and 303 Buckland Road carry out that intersection upgrade where the submitter with share the costs of the intersection upgrade.	Neutral	Auckland Transport's primary submission identified the need to determine if any upgrades to this intersection would be required to mitigate Private Plan Change 87 transport effects.	Disallow the submitter's relief if it is determined that mitigation is not required to address transport effects of Private Plan Change 87. Only allow the submitter's relief if it is determined that mitigation is required to address transport effects of Private Plan Change 87.
6. Hira Bhana & Co	6.1	Implement buffer zones in the plan change area adjoining the submitter's land to protect against potential reverse sensitivity effects.	Neutral	Auckland Transport is concerned that the submitter's proposal may impact on the delivery of necessary transport infrastructure needed to support the enabled development and mitigate its effects on the transport network.	Disallow the submitter's relief if the provision of such a buffer zone will have an impact on the ability of the applicant to mitigate any transport effects.

APPENDIX 4

STATUTORY MATTERS

APPENDIX 5

STATUTORY MATTERS

1. Private plan change requests can be made to the council under Clause 21 of Schedule 1 of the RMA. The provisions of a private plan change request must comply with the same mandatory requirements as council-initiated plan changes, and the private plan change request must contain an evaluation report in accordance with section 32 and clause 22(1) in Schedule 1 of the RMA.[1]

Resource Management Act 1991

2. Sections of the RMA relevant to private plan change decision making are recorded in the following table.

RMA Section	Matters
Part 2	Purpose and intent of the Act
Section 31	Outlines the functions of territorial authorities in giving effect to the RMA
Section 32	Requirements preparing and publishing evaluation reports. This section requires councils to consider the alternatives, costs and benefits of the proposal.
Section 67	Contents of regional plans – sets out the requirements for regional plan provisions, including what the regional plan must give effect to, and what it must not be inconsistent with
Section 72	Sets out that the purpose of district plans is to assist territorial authorities to carry out their functions in order to achieve the purpose of this Act.
Section 73	Sets out Schedule 1 of the RMA as the process to prepare or change a district plan
Section 74	Matters to be considered by a territorial authority when preparing a change to its district plan. This includes its functions under section 31, Part 2 of the RMA, national policy statement, other regulations and other matter.
Section 75	Contents of district plans – sets out the requirements for district plan provisions, including what the district plan must give effect to, and what it must not be inconsistent with.
Section 76	Provides that a territorial authority may include rules in a district plan for the purpose of (a) carrying out its functions under the RMA; and (b) achieving objectives and policies set out in the district plan.
Schedule 1	Sets out the process for preparation and change of policy statements and plans by local authorities. It also sets out the process for private plan change applications.

3. The mandatory requirements for plan preparation are comprehensively summarised by Environment Court in *Long Bay-Okura Great Park Society Incorporated and Others v North Shore City Council* (Decision A078/2008), 16 July 2018 at [34] and updated in subsequent cases including *Colonial Vineyard v Marlborough District Council* [2014] NZEnvC 55 at [17]. When considering changes to district plans, the RMA sets out a wide range of issues to be addressed. The relevant sections of the RMA are set out in **Error! Reference source not found.** above and the statutory tests that must be considered for PC74 are set out 1 below.

[1] Clause 29(1) Schedule 1 of the RMA provides *"except as provided in subclauses (1A) to (9), Part 1, with all necessary modifications, shall apply to any plan or change requested under this Part and accepted under clause 25(2)(b)".*

A. General requirements

1. A district plan (change) should be designed to accord with, and assist the territorial authority to carry out its functions so as to achieve, the purpose of the Act.

2. When preparing its district plan (change) the territorial authority must give effect to any national policy statement or New Zealand Coastal Policy Statement.

3. When preparing its district plan (change) the territorial authority shall:
(a) have regard to any proposed regional policy statement;
(b) not be inconsistent with any operative regional policy statement.

4. In relation to regional plans:
(a) the district plan (change) must not be inconsistent with an operative regional plan for any matter specified in section 30(1) [or a water conservation order]; and
(b) must have regard to any proposed regional plan on any matter of regional significance etc.;.

5. When preparing its district plan (change) the territorial authority must also:
- *have regard to any relevant management plans and strategies under other Acts, and to any relevant entry in the Historic Places Register and to various fisheries regulations; and to consistency with plans and proposed plans of adjacent territorial authorities;*
- *take into account any relevant planning document recognised by an iwi authority; and*
- *not have regard to trade competition;*

6. The district plan (change) must be prepared in accordance with any regulation (there are none at present);

7. The formal requirement that a district plan (change) must also state its objectives, policies and the rules (if any) and may state other matters.

B. Objectives [the section 32 test for objectives]

8. Each proposed objective in a district plan (change) is to be evaluated by the extent to which it is the most appropriate way to achieve the purpose of the Act.

C. Policies and methods (including rules) [the section 32 test for policies and rules]

9. The policies are to implement the objectives, and the rules (if any) are to implement the policies;

10. Each proposed policy or method (including each rule) is to be examined, having regard to its efficiency and effectiveness, as to whether it is the most appropriate method for achieving the objectives of the district plan taking into account:
(a) the benefits and costs of the proposed policies and methods (including rules); and
(b) the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods.

D. Rules

11. In making a rule the territorial authority must have regard to the actual or potential effect of activities on the environment.

E. Other statutes:

12. Finally territorial authorities may be required to comply with other statutes. Within the Auckland Region they are subject to:
- *the Hauraki Gulf Maritime Park Act 2000;*
- *the Local Government (Auckland) Amendment Act 2004.*

APPENDIX 5

SPECIALIST PEER REVIEW REPORTS

Memo

Date: 28 July 2023

To: Jimmy Zhang – Senior Policy Planner, Plans and Places

From: Hillary Johnston – Consultant Specialist
Bridget Kelly – Consultant Specialist

Subject: 301 & 303 Buckland Road, Pukekohe – Private Plan Change 87, Stormwater Memorandum

1. Introduction

The proposed private plan change seeks to rezone two parcels of land at 301 & 303 Buckland Road, Pukekohe from *Future Urban* to *Business – General Business Zone* under the operative Auckland Unitary Plan shown in Figure 1 below. The sites predominantly comprise of grass pasture, rural dwellings, and associated rural ancillary buildings. The combined subject site area is approximately 7.58 hectares.

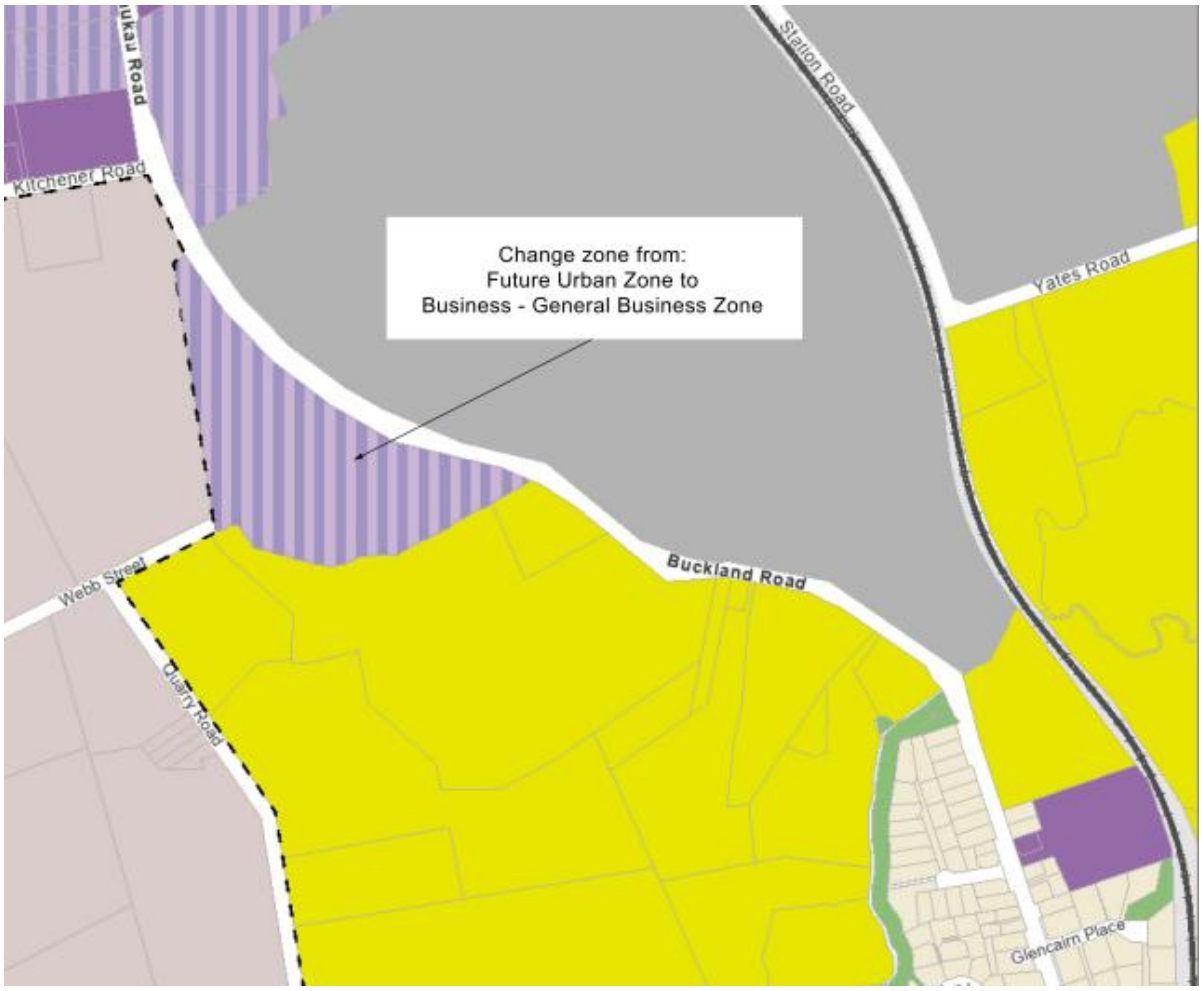

Figure 1. Proposed Plan Change Area

2. Scope and Purpose of Memo

This memo provides an assessment of the proposed private plan change as it relates to stormwater management, specifically hydrology mitigation.

In preparing this memo the following documents were reviewed:

- *Pukekohe Limited, Proposed Private Plan Change from Future Urban Zone to Business – General Business Zone, 301 and 303 Buckland Road, Pukekohe, Assessment of Environmental Effects* dated January 2022 (Revision 2) and prepared by Scott Wilkinson Planning
- *Stormwater Report, Buckland Road Plan Change – 301 & 303 Buckland Road Pukekohe dated* 16 December 2021 (Revision B) and prepared by Birch Surveyors
- *301 & 303 Buckland Rd, Geotechnical Report – For Land Use Change* dated September 2021 (Revision 0) and prepared by Initia Geotechnical Specialists
- *301 and 303 Buckland Road PPC Clause 23 – Request for Further Information Response 1 From Requester* dated 22 April 2022
- Proposed Plan Change 87 (Private): 301 & 303 Buckland Road, Pukekohe, Summary Of Decisions Requested – Submissions

3. Assessment of Proposal

Site and catchment context

The site is within the Tutaenui Stream catchment which eventually discharges into the Waikato River, outside the Auckland Region. The subject site can be separated into two catchments. The Stormwater Report describes that 301 Buckland Road is located at the top end of a small catchment (16.1 hectares) which drains to Manukau Road and 303 Buckland Road is at the upper end of a separate stormwater catchment (7.0 hectares) which drains to the south. The surrounding area does not include any public stormwater infrastructure.

Hydrology mitigation

The increase in impervious area due to the proposed plan change has potential implications on the downstream receiving environment due to subsequent changes in hydrology. Typically, in Auckland the effects of increases in imperviousness on stream environments is managed through the provision of hydrology mitigation as described in GD01[1]. The Auckland Unitary Plan (AUP) includes the application of Stormwater Management Area – Flow (SMAF) overlays which are administered through the objectives, policies, and rules within Chapter E10. The provisions within this section include requirements for hydrology mitigation.

The Chapter E10 provisions specifically address links between the creation of impervious surfaces associated with development, and acceleration of river and stream erosion and bank instability. SMAF areas are defined throughout urban zoned areas within the AUP overlay maps, and capture streams in the region that are particularly susceptible to the effects of development. SMAF 1 areas are identified as catchments with relatively low levels of existing impervious area which discharge to sensitive or high value streams. Catchments contributing to SMAF 2 areas typically have more significant levels of existing impervious area which discharge stormwater runoff to streams with moderate to high values and sensitivity.

Section E10.1 of the Auckland Unitary Plan outlines:

The creation of impervious surfaces in a catchment undergoing development increases the flow rate and volume of stormwater runoff. This change in hydrology, unless managed, can have a significant adverse effect on streams within the catchment, including accelerating river and stream erosion and bank instability, particularly in steeper upper catchment areas, and creating hydrological conditions that do not support healthy aquatic ecosystems. In developed urban catchments with large areas of impervious surface, increased runoff is one of the primary

[1] Stormwater Management Devices in the Auckland Region: December 2017 (Guideline Document 2017/001)

causes of degraded river and stream health, and also causes loss of land (including the undermining buildings) and amenity values.

The guiding policies in E10 seek to minimise stormwater runoff from erosive, high frequency rainfall events to streams in order to retain, and where possible enhance, stream habitat and bank stability. The standards within this section require hydrology mitigation measures to be applied on sites which are within SMAF areas, aiming to reduce the flows impacting streams.

Within the policies included under Chapter E10 there is a directive to '*Manage stormwater runoff from impervious areas in Stormwater management area – Flow 1 and Flow 2 areas to minimise the adverse effects of stormwater runoff on rivers and streams to retain, and where possible enhance, stream naturalness, biodiversity, bank stability and other values*'. This implies that any development requiring a consent should manage the effects of stormwater to minimise impacts on the streambank. There is also opportunity to explore whether enhancement is appropriate.

Technical basis of contaminant and volume management requirements – TR2013/035

As part of the development of the Auckland Unitary Plan the requirements for the management of stormwater in the Auckland Region were investigated in detail, the results of which are discussed within TR2013/035[2]. The publication provides detailed justification for the application of hydrology mitigation as specified within Table E10.6.3.1.1 (*Hydrological mitigation requirements*) of the AUP.

The Tutaenui Stream and contributing catchments, which includes the subject site, was assessed as meeting the criteria for a SMAF 1 control overlay (TR2013/035 – Appendix E) however, throughout the hearings process for the AUP the application of the SMAF overlay was limited to existing urban zoned areas, with the expectation that the application of the overlay within undeveloped greenfield areas would be consider at the time of a plan change.

Structure Plan

The Stormwater Management Plan which suports the Paerata Pukekohe Structure Plan identifies that 'active erosion' is prevalent in the Tutaenui Stream and that there is potential for ongoing erosion. The Structure plan SMP outlines '*Development in the Future Urban Zone will exacerbate stream erosion if unmitigated. These watercourse assessments demonstrate that mitigation of hydrological adverse effects from erosive flows will be needed to provide stream bank stability, as well as associated effects on stream habitat and receiving environments.'*

In responding to the effects of urbanisation and development on stream erosion, the SMP recommends the '*Application of hydrological mitigation is required for the Paerata Pukekohe Structure Plan area to minimise hydrological impacts on streams within and downstream of the Future Urban Zone'*.

Proposed Stormwater Management – Hydrology Mitigation

The Stormwater Report prepared in support of the PPC proposes that it is intended to provide hydrology mitigation in accordance with SMAF 1 requirements, however the application of the overlay is not proposed.

This matter was raised as part of Section 23 further information requests (P5). It does not appear that the Applicant's Agent objects to the application of the SMAF overlay area.

[2] Auckland Unitary Plan stormwater management provisions: Technical basis of contaminant and volume management requirements (TR2013/035)

4. Review of Submissions and Further Submissions

Stormwater related submissions have been reviewed as part of preparation of this assessment. No stormwater related submissions raise matters that are relevant to hydrology mitigation or the application of a SMAF area overlay.

5. Recommendations

The application materials for the PPC do not include the application of a SMAF area overlay across the site. As the site is largely pervious consideration of SMAF 1 hydrology mitigation is necessary. Given the PPC is for a change in zoning only and does not included an associated precinct plan, hydrology mitigation for the PPC area can only be required through the application of a SMAF 1 overlay.

This omission of the application of a SMAF overlay is considered inconsistent to the application of SMAF overlays for other remaining urban zoned areas within the Region and hinders the implementation of the related cascade of hydrology mitigation provisions within E10 – objectives, policies, rules, and standards.

In respect of the management of stormwater as it relates to hydrology mitigation, provided recommendations in relation to hydrology mitigation are adopted the Private Plan Change can be supported.

It is recommended that:

1. SMAF 1 area overlay is applied to the subject site. The associated policies, objectives, and rules described in E10 of the Auckland Unitary Plan (Operative in Part) will then also apply to any future development within the site.

Private Plan Change 87

301-303 Buckland Road, Pukekohe

Technical Specialist Report - Transport

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Private Plan Change 87
301-303 Buckland Road, Pukekohe
Technical Specialist Report- Transport

for

Auckland Council

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File Ref: 101173
Issue: A 24/07/2023

1 Introduction

Auckland Council has received a request to change the Auckland Unitary Plan – Operative in Part [**AUP**] to rezone land at 301 and 303 Buckland Road in Pukekohe, referred to as Private Plan Change 87 [**PPC87**].

Auckland Council has asked Arrive to review the transport aspects of the plan change to assist the reporting planner in preparing the s42A report and assist the hearings panel in deciding on the plan change.

This report has been prepared by Wes Edwards, Transportation Advisor and Director of Arrive Ltd, a specialist traffic and transport consulting practice. A summary Curriculum Vitae is appended.

In drafting this report, I have reviewed the following documents:

- Private Plan Change Request, Assessment of Environmental Effects [**AEE**] and s32 Analysis, where relevant to transport;
- Attachment 2 Proposed Zoning Plan;
- Attachment 9 Transportation Assessment [**TA**];
- Further information provided by the requestor in relation to transport including:
  - Letter from Commute dated 11 April 2022;
  - Letter from Commute dated 15 June 2022;
  - Letter from Commute dated 4 August 2022;
  - Letter from Commute dated 20 April 2023[1];
  - Letter from Commute dated 20 April 2023, provided on 16 May 2023[2];
  - Letter from Commute dated 24 May 2023
- Submissions;

1.1 Key Transport Issues

This report is structured around the key transport issues for this plan change which are:

1. Consistency with transport planning policy and structure planning.

2. Effects from additional traffic movements enabled by the zoning on the transport environment including events at Pukekohe Park.

3. The methods for ensuring adequate provision of transport infrastructure to address effects.

1.2 Summary

As the remainder of this report will show, the available information demonstrates that the local transport environment has sufficient capacity to accommodate development enabled by the proposed Business – General Business [**B-GB**] zoning in the short to medium term.

Some submitters prefer the Business – Light Industrial [**B-LI**] zone be applied to the land. No specific information to support that zoning has been provided, but the most likely outcome would be similar trip generation during weekday peak periods and lower trip generation on weekends compared to the B-GB

[1] Heading 1 is "Existing Traffic"
[2] Heading 1 is "Growth"

zone. In that case, with respect to the transport environment the B-LI zone would likely have fewer adverse effects.

Pending a review of additional material provided for and at the hearing, my recommendation at this time is that the plan change be approved.

2 Context

The site of 7.9 hectares is located at 301 and 303 Buckland Road and is well-described in the material provided by the Requestor. It is currently zoned Future Urban. The Rural Urban Boundary lies on the western boundary of the site.

The site is bounded by Buckland Road on the eastern side. The site is located on the outside of a broad bend in the road with a series of reverse curves located south of the site.

Buckland Road carries traffic between Pukekohe and areas to the south including Buckland, Tuakau, Pokeno and beyond. Buckland Road is classified as an Arterial Road by the Auckland Unitary Plan – Operative in Part [**AUP**]. It is also classified as an Arterial Road by the national One Network Road Classification [**ONRC**]. The road has a rural formation with a 10.4m wide sealed carriageway providing one movement lane in each direction. The speed limit is 80km/h, with measured operating speeds of 71km/h northbound and 77km/h southbound[3] . A parking restriction prohibits vehicles stopping (or parking) along the site frontage on "Race Days."

A short distance north of the site, Buckland Road runs into Manukau Road at the intersection with Kitchener Road. Manukau Road has the same classification as Buckland Road but is in an urban form with a 50km/h speed limit.

Kitchener Road is classified as a Primary Collector by the ONRC and has a 50km/h speed limit.

Webb Street adjoins the western boundary of the site. Webb Street is a minor unsealed rural road, classified Low Volume by the ONRC.

2.1 Nearby Landuse

Pukekohe Park is located on the opposite side of Buckland Road. It is zoned Special Purpose – Major Recreation Facility and is managed by the Pukekohe Park Precinct (AUP Chapter I434). Pukekohe Park Gate 2 is located opposite Kitchener Road, and Gate 3 is located opposite the PPC87 site.

Pukekohe Park has been used for large events including motor sports and equestrian sports, in addition to having an event centre used for events including weddings and conferences. The Pukekohe Park website[4] provides an events calendar with categories including concert, conference, expo, race meeting, wedding, and other.

Private Plan Change 30 [**PPC30**], operative from 12 February 2021, modified the Pukekohe Park Precinct to rezone land in the north-western corner of the precinct to B-GB zone and remove it from the precinct. Development of that land is likely to require changes to the Buckland Rd/ Manukau Rd/ Kitchener Rd / Gate 2 intersection to accommodate an increase in the number of vehicles using that intersection to access the PPC30 land.

In August 2021 the Counties Racing Club based at Pukekohe Park merged with the Auckland Racing Club based at Ellerslie and became Auckland Thoroughbred Racing Inc. Information supplied to members voting

[3] Page 11, April additional information
[4] https://pukekohepark.co.nz/

on the merger indicated that the merger would allow some consolidation, an increase in events at Ellerslie, and the establishment of a training facility at Pukekohe.

The August 2022 additional information response from the PPC87 Requestor provided a link to a July 2022 media article. The article quoted Auckland Thoroughbred Racing Chief Executive who said motor sport events would cease in 2023 "*to make way to develop the grounds for gallops*."

While motor sports events may no longer be held at Pukekohe Park, the site remains zoned as one of a few major recreation facilities, and the nature and scale of events in the precinct in future is subject to change.

2.2 Traffic Volumes

The TA provides a summary of traffic count data from the area collected by Auckland Transport in 2017 and 2019. More recent data is now available and is included in the following table.

Table 1: Traffic Counts from Auckland Transport Database

Location	Date	Average Daily			Peak Hours					
		5 Days	7 Days	Sat	a.m.		midday		p.m.	
Buckland Rd, South of Kitchener Rd	Mar 2015	7,869	7,349	6,791	734	@08:15	682	@12:15	788	@16:30
	Mar 2018	8,188	7,739	7,362	772		745		846	
	Mar 2020	8,462	7,928	7,402	783		794		881	
	May 2022	8,029	7,467	7,467	769	@08:15	869	@11:45	814	@15:00
Manukau Rd, North of Kitchener Rd	Jun 2015	11,347	10,603	9,606	1028	@08:15	1146	@10:45	1169	@16:30
	Mar 2018	12,087	11,380	10,342	985	@08:30	1129		1138	
	Mar 2019	11,983	11,109	10,058	1017		1197		1152	
	Mar 2020	12,333	11,430	10,414	976		1182		1224	
	May 2021	12,037	11,159	10,206	957	@08:45	1139	@13:00	1208	@15:00
	May 2022	11,302	10,626	10,089	979	@08:15	1251	@11:45	1196	@16:15
	Nov 2022	12,777	12,035	12,261	1062	@08:15	1368	@11:00	1225	@16:15

It is interesting to note that the counts undertaken in May 2022 recorded lower volumes than recorded in all previous years since 2015 at both sites. That could be due to seasonal variation, but may also be due to economic factors or a residual effect of the changes in transport patterns generated by the Covid-19 Health Orders. The Manukau Road count in November 2022 is higher than all previous counts, which could be due to seasonal variation and the other factors mentioned above.

Prior to the changes in traffic volumes caused by the Covid-19 Health Orders, the average daily traffic volume on Buckland Road increased at 1.2% to 1.8% per year, and the Saturday daily volume increased by 2.8% per year. Weekday a.m. and p.m. peak-hour counts increased between 0.8 and 2.5%. Weekday midday peak hour counts increased by 3.1-3.3% prior to the Health Orders. Peak-period data for the Saturday midday peak hour is not contained in the AT traffic count summaries.

The only recent counts on Kitchener Road were undertaken in 2021 west of the hospital and Tuakau Road with a 5-day average of 7,487 vehicles per day.

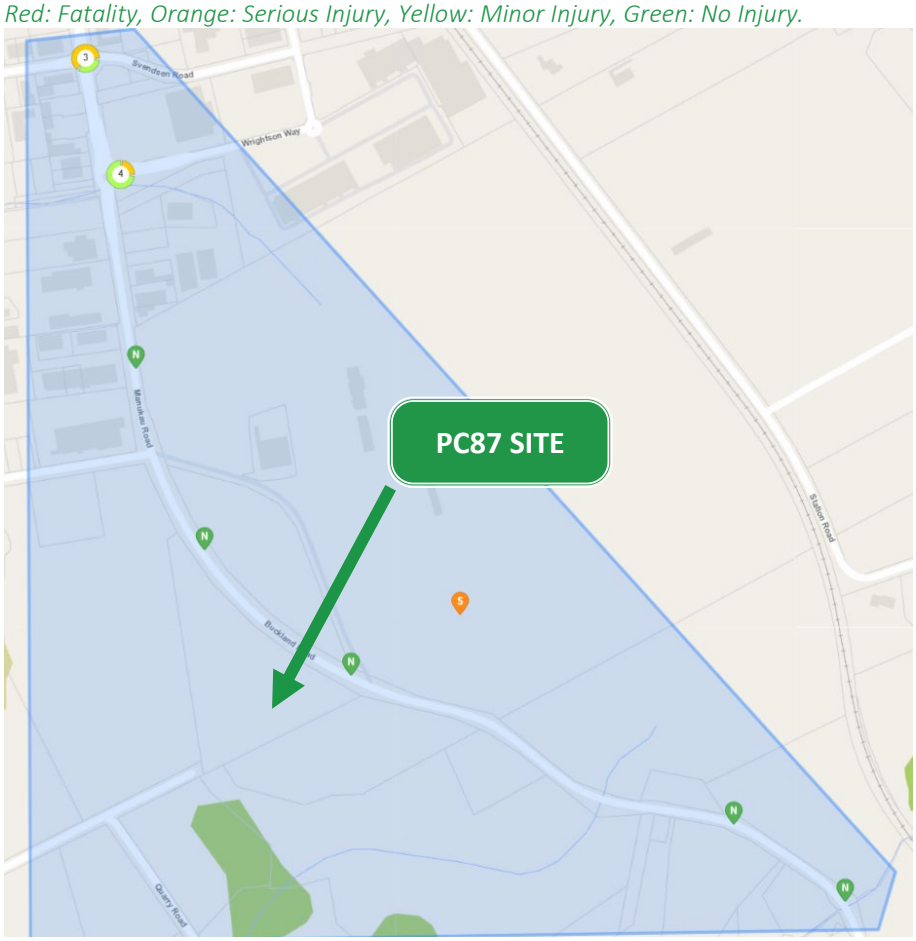
The TA contains the results of peak-hour turning movements at the Buckland Rd/ Manukau Rd/ Kitchener Rd/ Gate 2 intersection from November 2018, including a count on a Saturday when a horse racing meeting was in progress. Additional information (20 April 2023) has provided turning movements at the intersection on Saturday 1 April 2023 when no race meeting was held.

2.3 Crash History

In urban areas the crash history is typically reviewed over a five-year period to strike a balance between a sufficient time period to show crash patterns and trends, and a short enough time period to avoid significant changes in the environment.

The TA includes a description of the crash history in the area for the 2015-2019 period. I have reviewed the crash history for the 2018-2022 period[5] for the same area.

Figure 1: Map showing location of reported crashes 2015-19.
Red: Fatality, Orange: Serious Injury, Yellow: Minor Injury, Green: No Injury.



In that time two non-injury crashes were reported along Buckland Road near the site. One crash on a Saturday afternoon in July 2018 involved a vehicle U-turning in front of a southbound vehicle resulting in a collision near the northern end of the site frontage. The second crash, also on a Saturday in July 2018, but in the early hours of the morning, involved a southbound vehicle leaving the road.

The crash record does not indicate there is a significant road safety issue in the area.

2.4 Public Transport

Public transport services are classified as “Rapid” (rail and busway services), “Frequent” (usually on dedicated lanes running at least every 15 minutes), “Connector” (at least every 30 minutes), “Local”, “Peak-Only”, and “Limited”.

[5] Crash database queried on 9 March 2023. Given the three-month target for data-entry of non-injury crashes some recent non-injury crashes may not be represented.

2.4.1 Bus Services

The TA notes that bus routes 398 and 399 pass the site on Buckland Road. Auckland Transport Route 398 is no longer shown on the Auckland Transport schedule. Auckland Transport Route 399 is a limited service that runs from Pukekohe Station to Tuakau and Port Waikato and back once on Thursday mornings and once on Thursday afternoons.

Auckland Transport Route 393 (Wellington St Loop) is a Local service that runs around Pukekohe in a clockwise loop. It travels south and west along Manukau Road, Nelson St, John St, and Kitchener Road.

Waikato Route 44 is a Local service that runs between Pukekohe and Pokeno on weekdays and weekends, with service frequency varying from 30 to 150 mins on weekdays and around 120 mins on weekends.

Waikato route 21 Northern Connector is a service that travels between Pukekohe and Hamilton on weekdays. It travels from Hamilton to Pukekohe once in the morning (arriving at 11:30am) and returns once in the afternoon (departing at 2:15pm).

2.4.2 Bus Stops

The TA states that bus stops are located on Manukau Road outside #153, 800m north of the site.

The Auckland Transport Journey Planner service[6] provides a list of options for journeys between an origin and destination. All journeys to and from the PPC87 site use the 393 service. Trips to Tuakau on a Thursday morning use the 393 service transferring to the 393 service at Pukekohe Station. The nearest bus stop for the Auckland Transport 393 service is Stop 2910 Trevors Place, on John Street, 1.2km (approximately 17 minutes) walk from the site. Stop 2120 on Kitchener Road outside Pukekohe Hospital, is approximately 1.3km from the site.

The Waikato public transport journey planner service[7] utilises the Google Maps Directions service, and that shows a pair of bus stops on Manukau Road (Stops 1281 and 2120) near The Warehouse outside #136 and #145 Manukau Road, a 1.3km, 17-minute walk from the site. The next-nearest pair of bus stops is located in Buckland, a 1.6km, 19-minute walk from the site. From the information available, it appears the only bus services to utilise the bus stops near The Warehouse are the Waikato services.

2.5 Anticipated Changes

2.5.1 Development

As noted earlier, PPC30 recently rezoned part of the Pukekohe Park Precinct to B-GB. At the time of writing that land has not been developed. As the PPC30 land was removed from the Pukekohe Park Precinct there are no site-specific standards or controls in the AUP. I understand that a private agreement between AT and the PPC30 requestor about the provision of transport infrastructure was reached but am not aware of its content.

2.5.2 Southern Motorway

Work is currently underway widening the Southern Motorway (State Highway One – SH1) between Papakura and Drury as Stage One of the Papakura to Bombay project. Stages Two and Three to upgrade the motorway between Drury and Bombay currently have funding for route protection and notices of requirement are intended to be lodged this year. The implementation timeframe for Stages Two and Three is unknown.

[6] https://at.govt.nz/bus-train-ferry/journey-planner
[7] https://www.busit.co.nz/

2.5.3 Pukekohe-Paerata Structure Plan

The Te Tupu Ngātahi Supporting Growth Alliance [**SGA**], an alliance between Auckland Council, Auckland Transport [**AT**] and Waka Kotahi New Zealand Transport Agency [**NZTA**], has prepared the Pukekohe-Paerata Structure Plan [**PPSP**] to inform and guide development and growth in the area.

The PPSP includes proposed zoning patterns and transport links. The structure plan, building on the 2014 Pukekohe Area Plan, shows the PPC87 site and other land to the south as zoned Business – Light Industry [**B-LI**]. It also shows an Indicative New Collector Road labelled PU-NS-2 running north-south and connecting with Buckland Road through the site.

The PPSP also includes several new and/ or upgraded arterial roads around Pukekohe, between Pukekohe and Drury, and between Pukekohe and Bombay. SGA is preparing to lodge notices of requirement in late 2023.

The structure plan was informed by an Integrated Transport Assessment [**ITA**] published in September 2019, and this was based on transport modelling work assuming development would be in accordance with the zoning shown in the PPSP, and that the proposed roads would be provided.

The PPSP also contains maps showing public transport services and infrastructure for active modes (walking and cycling). Future public transport services shown in the PPSP ITA include a bus route along Kitchener Road and Manukau Road. Future active mode infrastructure shown in the PPSP ITA includes secondary routes along Buckland Road and the PU-NS-2 collector road.

Figure 2: Extract from PPSP map showing the PPC87 site is planned to be zoned Business – Light Industry

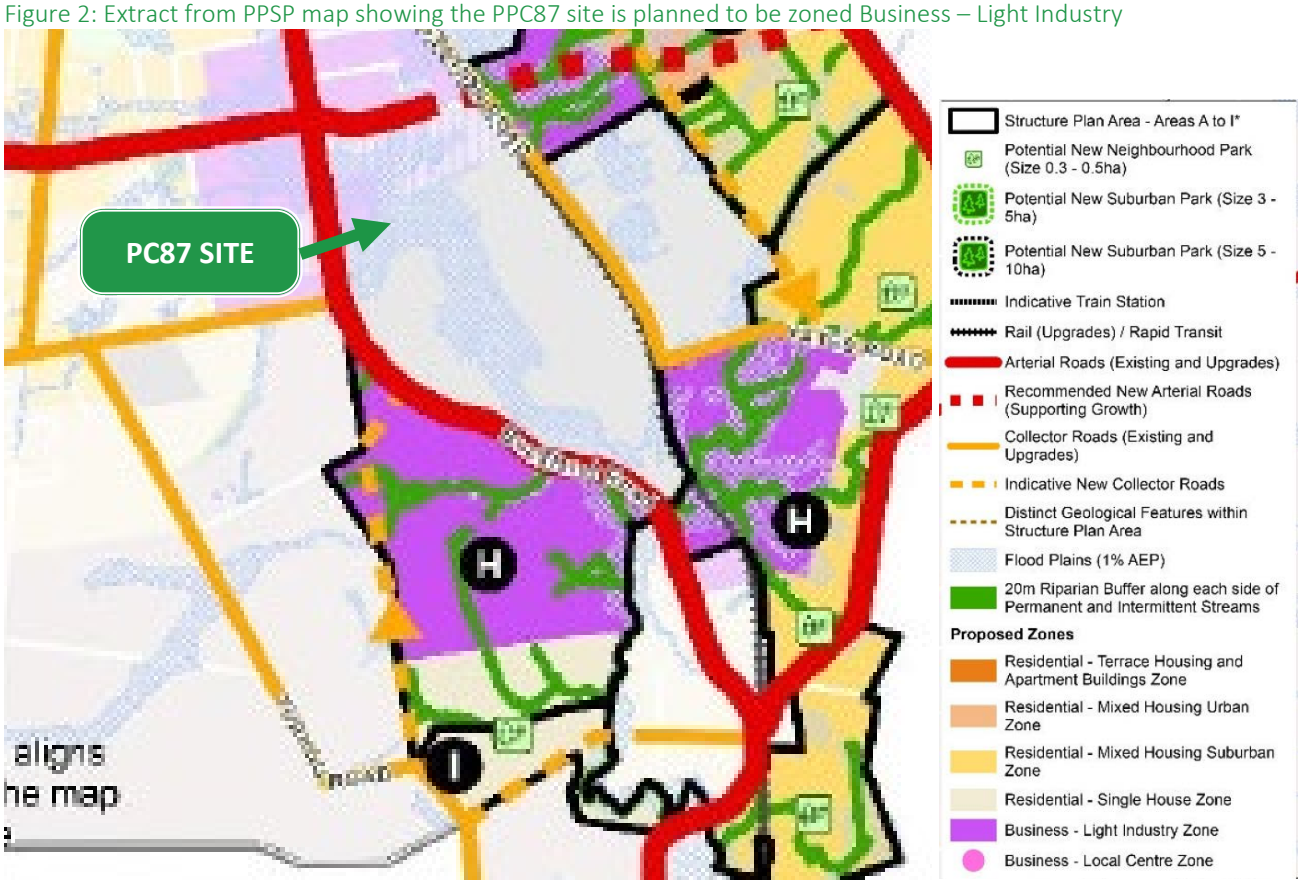


Figure 3: Extract from PPSP ITA map showing planned road network

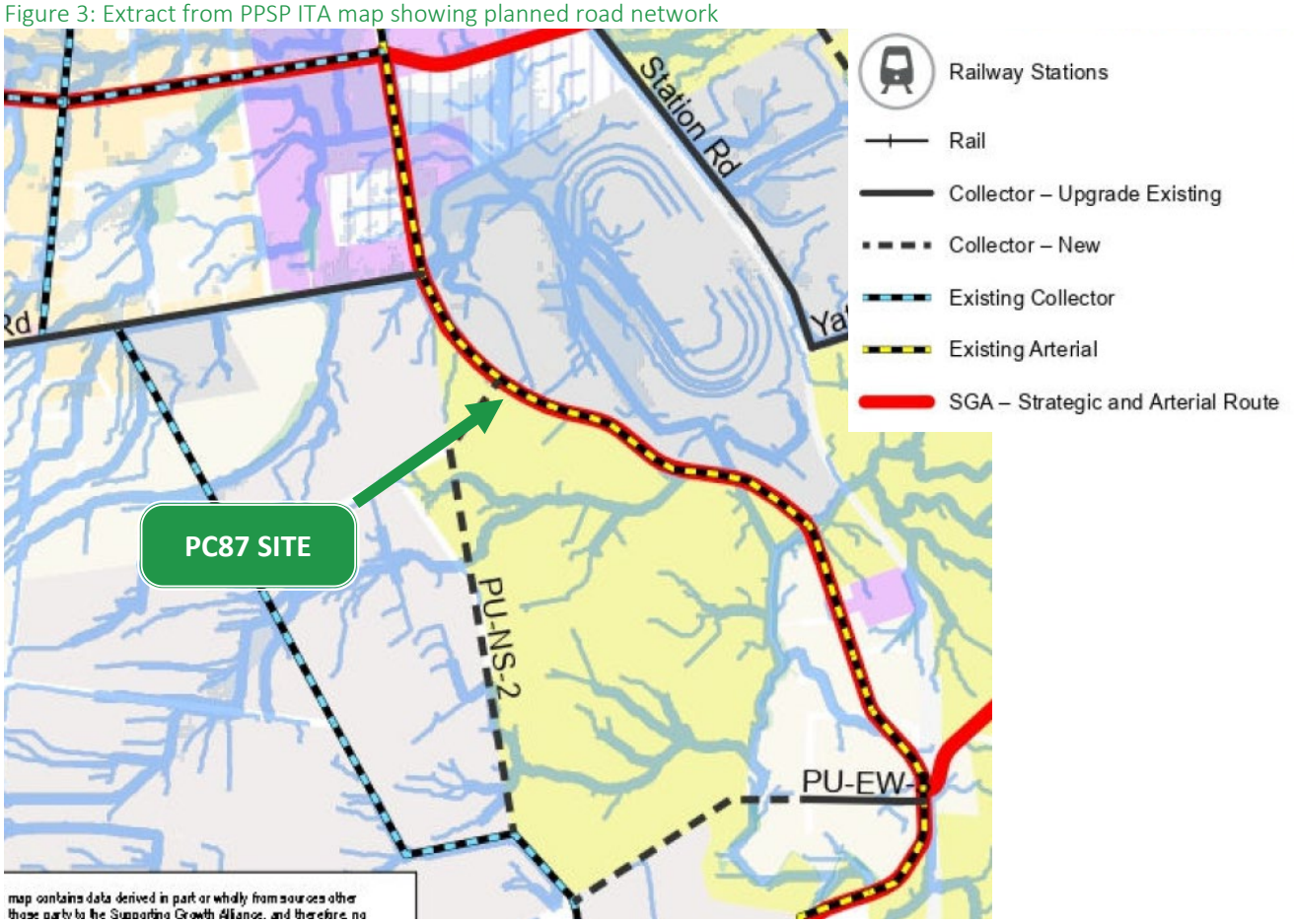
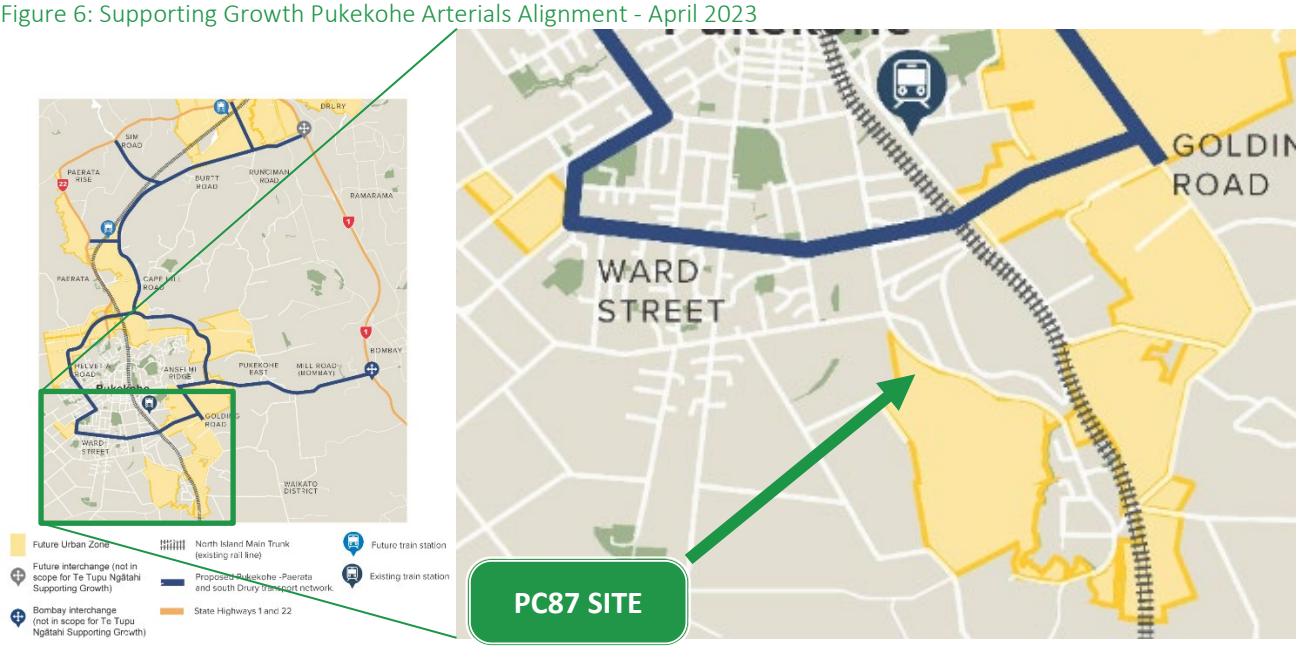


Figure 4: Extract from PPSP ITA map showing planned public transport network.

Figure 5: Extract from PPSP ITA map showing planned active modes network

Figure 6: Supporting Growth Pukekohe Arterials Alignment - April 2023



3 Proposed Plan Change

3.1 Zoning and Yield

PPC87 seeks to rezone the site from Future Urban Zone to Business – General Business [**B-GB**] zone.

3.1.1 Business – General Business Zone

The B-GB zone is described in the AUP as follows (bold emphasis added):

> *The Business – General Business Zone **provides for business activities from light industrial to limited office, large format retail and trade suppliers**. Large format retail is preferred in centres but it is recognised that this is not always possible, or practical. These activities are appropriate in the Business – General Business Zone only when they do not adversely affect the function, role and amenity of the Business – City Centre Zone, Business – Metropolitan Centre Zone and Business – Town Centre Zone.*
>
> *Although the application of the zone within Auckland is limited, it is an important part of this Plan's strategy to provide for growth in commercial activity and manage the effects of large format retail.*
>
> *The establishment of small retail activities in the zone should be limited as the presence of these activities, in combination with large format retail, can effectively create an unplanned centre. Residential activity is also not envisaged due to the potential presence of light industrial activities and the need to preserve land for appropriate commercial activities.*
>
> *The zone is **located primarily in areas close to** the Business – City Centre Zone, Business – Metropolitan Centre Zone and **Business – Town Centre Zone** or within **identified growth corridors**, **where there is good transport access** and exposure to customers.*

Permitted activities in the B-GB zone include the following:

- Commercial services (e.g., veterinary clinics, banks, hairdressers)
- Drive-through restaurants
- Entertainment facilities (excludes cinemas)
- Food and beverage (e.g., cafés, restaurants, bars, fast-food without drive-through)
- Garden centres
- Marine retail
- Motor vehicle sales
- Offices up to 500m^2 gross floor area per site
- Retail greater than 450m^2 per tenancy (i.e., large format retail)
- Trade suppliers (e.g., plumbing, electrical, or paint suppliers, automotive parts)
- Industrial activities
- Marae complex

Identified Growth Corridor

The zone description refers to "*identified growth corridors*" and Part D22 of the AUP contains policy for the Identified Growth Corridor Overlay. The overlay applies to a small number of sites, none of which are in Pukekohe.

The overlay description reads:

> *The Identified Growth Corridor Overlay is applied to a limited number of significant road corridors or significant segments of these corridors. The purpose of the overlay is to provide additional opportunity to those retail activities (predominantly large format retail) that:*
> - *may not be appropriate for, or are not able to locate in centres due to the size, scale or nature of the activity; and*
> - *are not typically provided for in the underlying zone.*

The overlay is intended to enable Large Format Retail [LFR] where it is not provided for in the underlying zone. The B-GB zone does provide for LFR, but the B-GB zone it is intended to be applied to areas close to centres or within an Identified Growth Corridor.

3.1.2 Yield

The actual type and scale of activity on the land will be determined at the time of subdivision and/ or development, noting that the activities listed above do not require resource consent provided they comply with the relevant standards.

Three possible development scenarios are assessed in the PPC87 transport material, and these are discussed later in this report.

4 Consistency with Planning Provisions

4.1 Zone and Site Location

The B-GB zone is intended to be located close to larger centres or within identified growth corridors which are expected to have good transport access. The only larger centre in the area is the Pukekohe Town Centre, and I do not consider the site to be close to that centre. There are no identified growth corridors in the area.

The site is remote from the town centre and residential areas and has a limited walkable catchment. The TA has assessed the walking catchment based on a distance of 1.5km, almost double the distance used in best-practice assessments and used in all Auckland Council measures of walkable catchment.

The site is well over 800m from the nearest bus stop, and public transport in the area is limited. Planned improvements to public transport would place the nearest route with regular service at Kitchener Road with the location of the nearest bus stops a considerable distance away.

Adding a pair of bus stops outside the site would only provide improved access to the Waikato services which run at relatively low frequency.

The PSP has planned secondary active mode facilities (likely a cycle lane or cycle path) through the site, so in time cycling access is expected to be improved, although the site is still some distance from the town centre.

The site has reasonably good access by private vehicle from Buckland Road.

I consider the site to be a poor match with the intended location as contained in the zone description.

4.2 National Policy Statement on Urban Development

The National Policy Statement on Urban Development 2020 [**NPS-UD**] sets out several objectives and policies and obliges Council to take several matters into account when deciding to zone land. Following direction from the Environment Court, I understand Council's current position is that Policies 3 and 4 should not be applied in the processing of private plan changes.

NPS-UD Policy 2 requires Council to provide sufficient development capacity for housing and business land, and that development capacity must be "infrastructure ready".

Council must also be satisfied that additional infrastructure (not controlled by Council) to service the development capacity is likely to be available. With respect to transport this could include the provision of state highway infrastructure by NZTA and rail infrastructure by KiwiRail.

The NPS-UD has infrastructure requirements for short term (3 years), medium term (3 to 10 years), and long term (10 to 30 years). The short and medium terms are within the 10-year planning horizon of the AUP and are more relevant to the zoning of land for development, with the long-term period being of greater relevance to FUZ land.

With respect to the short term, development capacity is infrastructure-ready if there is adequate existing development infrastructure. The existing transport infrastructure is not adequate to support development of PPC87, but if improvements to Buckland Road and nearby intersections were funded and provided by private developers the local infrastructure could be made adequate.

The PU-NS-2 collector road connection is expected to be delivered by private parties as the land is developed. Development of the land would typically include upgrading the Buckland Road frontage with piped drains, kerb and channel, footpaths, and street lighting.

If the provision of the necessary infrastructure by private parties could be made certain, the site could be considered infrastructure-ready in the short-term; however there are some elements of transport infrastructure that would need to be delivered, and no mechanism for securing their delivery is included in the plan change.

For medium-term capacity, existing infrastructure must be adequate or funding for adequate infrastructure is to be identified in a long-term plan. There are expected to be significant deficiencies in the wider transport infrastructure in the district, which is why the PPSP has identified a number of changes to the arterial road network. The PPSP arterials are not identified in the RLTP so are not funded, and these are projects that are required for the full build-out of the wider PPSP, although some may only be required in the longer term.

4.3 Regional Policy Statement

Relevant objectives and policies are identified below.

4.3.1 B2.2 Urban Growth and Form

Objective B2.2.1 (1) A quality compact urban form that enables all of the following:

…

(c) better use of existing infrastructure and efficient provision of new infrastructure;

(d) improved and more effective public transport;

…

PPC87 proposes the B-GB zone be applied to the land. That zone is similar to the B-LI zone in that it facilitates larger buildings and sites.

In my view the site is not within a walkable catchment of any public transport services, centres, or other higher-density environments; however, the proposal could be consistent with the objective in that it may allow other land closer to public transport to be developed in a more intensive and compact manner. Other lower-density zones, such as B-LI could achieve the same outcome.

4.3.2 B2.3 A Quality Built Environment

B2.3.2. Policies

(1) Manage the form and design of subdivision, use and development so that it does all of the following:

…

(b) contributes to the safety of the site, street and neighbourhood;

(c) develops street networks and block patterns that provide good access and enable a range of travel options;

(d) achieves a high level of amenity and safety for pedestrians and cyclists;

…

(2) Encourage subdivision, use and development to be designed to promote the health, safety and well-being of people and communities by all of the following:

(a) providing access for people of all ages and abilities;

(b) enabling walking, cycling and public transport and minimising vehicle movements; and

…

PPC87 as notified does not propose a precinct or any other form of site-specific control and must therefore rely on the existing city-wide AUP rules to achieve the built environment policies relating to access, and street connections.

4.3.3 B2.5. Commercial and Industrial Growth

Policy B2.5.2

*(1) Encourage commercial growth and development in the city centre, metropolitan and town centres, and **enable retail activities on identified growth corridors**, to provide the primary focus for Auckland's commercial growth.*

*(5) Enable retail activities, where appropriate, **on identified growth corridors** in business zones, having regard to all of the following:*

(a) adverse effects on the function, role and amenity of the city centre, metropolitan and town centres, beyond those effects ordinarily associated with trade effects on trade competitors;

*(b) **adverse effects on the quality compact urban form including the** existing and **planned location of activities**, facilities, infrastructure and public investment;*

(c) effects on community social and economic wellbeing and accessibility;

(d) the efficient use and integration of land and infrastructure;

*(e) **effects on the safe and efficient operation of the transport network;***

(f) effects of the development on the efficient use of any industrial land, in particular opportunities for land extensive industrial activities and heavy industry;

(g) avoiding conflicts between incompatible activities; and

(h) the effects on residential activity.

*(6) **Enable commercial activities, where appropriate, in business zones in locations other than** the city centre, metropolitan and town centres and identified growth corridors, **having regard to all of the following**:*

(a) the matters listed in Policy B2.5.2(5)(a) to Policy B2.5.2(5)(h) above;

(b) the extent to which activities would compromise the achievement of policies B2.5.2(1) and B.2.5.2(2): and

(c) the extent to which activities would compromise the hierarchy of locations identified in policies B2.5.2(1) to B.2.5.2(5).

The PPC87 site is not located on an identified growth corridor.

The B-GB zone provides for employment, commercial (including office and retail), and industrial activities, as do other zones including the B-LI zone.

The effects of the proposal on the transport network are addressed later in this report.

4.3.4 B3.3 Transport

Objective B3.3.1

(1) Effective, efficient and safe transport that:

(a) supports the movement of people, goods and services;

(b) integrates with and supports a quality compact urban form;

(c) enables growth;

(d) avoids, remedies or mitigates adverse effects on the quality of the environment and amenity values and the health and safety of people and communities; and
(e) facilitates transport choices, recognises different trip characteristics and enables accessibility and mobility for all sectors of the community.

Policy B3.3.2
…
Integration of subdivision, use and development with transport
(5) Improve the integration of land use and transport by:
(a) ensuring transport infrastructure is planned, funded and staged to integrate with urban growth;
*(b) encouraging **land use development and patterns that reduce the rate of growth in demand for private vehicle trips**, especially during peak periods;*
*(c) **locating high trip-generating activities** so that they can be **efficiently served by key public transport services** and routes and complement surrounding activities by supporting accessibility to a range of transport modes;*
*(d) **requiring proposals for high trip-generating activities which are not located in centres or on corridors or at public transport nodes to avoid, remedy or mitigate adverse effects on the transport network**;*
(e) enabling the supply of parking and associated activities to reflect the demand while taking into account any adverse effects on the transport system; and
(f) requiring activities adjacent to transport infrastructure to avoid, remedy or mitigate effects which may compromise the efficient and safe operation of such infrastructure.

PPC87 has poor access other than by private vehicle, so would increase the demand for private vehicle trips.

The proposed zone provides for high trip-generating activities such as LFR, fast-food outlets, and the like. If established on this site, they would not be efficiently served by key public transport routes. Such activities may be required to address effects on the transport network at the time of development if they exceed the E27.6.1 trip generation threshold. In my view it is appropriate to consider that matter at this time, particularly with respect to the RPS.

To summarise, the proposal is not entirely consistent with the RPS.

5 Transport Effects

5.1 Pedestrians and Cyclists

The development of the PPC87 land is expected to generate additional walking and cycling trips in the area.

The TA recommends a footpath is provided along the western side of Buckland Road linking to Kitchener Road to connect with an existing footpath. Provided that is undertaken, the TA concludes the site would be well connected and would provide a safe environment.

I agree that footpath connection is required to provide for development of the land. The site to the north is outside the Rural Urban Boundary and is not zoned for urban development, so I would not expect that section of footpath to be provided unless provided by developer(s) of the PPC87 land. The plan change provides no mechanism for securing provision of the footpath. The subdivision and/ or development resource consent process would typically allow for a footpath to be provided along the frontage of the site, but may not be sufficient to require a footpath to be provided further north.

Development of the land is also likely to result in an increase in demand for pedestrians and cyclists to cross Buckland Road. This demand could be high during events at Pukekohe Park, and the April additional information agrees with that view, recommending that some form of crossing be installed.

There are multiple options for addressing the demand for pedestrians crossing Buckland Road including pedestrian crossing facilities at either or both intersections if controlled by traffic signals, or at a mid-block crossing point. The subdivision and/ or development resource consent process may not be sufficient to ensure adequate outcomes, and this is often managed through a precinct-specific control.

5.2 Public Transport

While Auckland Transport plans to make some changes to bus services in future, no bus routes or stops are located within a convenient distance of the site. Given the limited services passing the site and the distance from bus stops, the site is currently poorly served by public transport. Providing additional bus stops on the Buckland Road frontage may provide improved access to the Waikato services, but I would expect the majority of travel to and from the site would be by private vehicle.

5.3 Vehicle Access

When evaluating a rezoning plan change it is important to consider if the land is capable of being developed in accordance with the proposed zoning, and this includes considering if safe and efficient access could be provided.

The PPC87 TA notes the PPSP PU-NS-2 collector road is planned to run through the site, and that the location of the road and its intersection with Buckland Road is yet to be determined. Elsewhere in the TA and additional information, that intersection is modelled as a crossroads at Pukekohe Park Gate 3. The assessment assumes this intersection would initially be priority controlled (Give Way or Stop) and would later be controlled by a roundabout. Additional information (24 May 2023) demonstrates how this intersection could be controlled by traffic signals. A decision on the form of intersection control would usually be made at the time of subdivision and/ or development.

The TA also expects development on the site could access Buckland Road directly, via individual driveways. It recommends that a flush median be installed on Buckland Road to improve safety for turning vehicles.

Priority intersections and driveways require sufficient sight distance along the road to allow safe operation. Sightline requirements are determined by the speed of vehicles passing along the road. The TA suggests that the speed limit on Buckland Road would be reduced from 80km/h to 50km/h and recommends the PU-NS-2 intersection would be an appropriate location for the change in speed limit.

A speed limit of 80km/h would typically be associated with an operating speed of around 92km/h[8]. The additional information provides observed operating speeds of 71km/h northbound and 77km/h southbound. The Austroads Safe Intersection Sight Distance [**SISD**] for those speeds are 154m and 172m. The TA states that the available sight distance exceeds 230m in both directions at a point opposite Gate 3.

There is therefore sufficient sight distance available for a safe intersection to be provided at Gate 3; however, the sight distances at other points along the site frontage may have poorer visibility and not be suitable for vehicle access. That is a matter that could be, and should be, assessed at the time of resource consent for subdivision or development.

I am satisfied that at least one safe and efficient method for providing road access for development of the land is available.

The provision of a roundabout or traffic signals at the PU-NS-2 intersection may require some PPC87 land. If the initial development of the land included lower trip generating activities that do not require the higher-capacity controls, there is a possibility that initial subdivision and development could frustrate the later

[8] The operating speed for sight distance purposes is the 85th percentile speed (15% of vehicles travel faster), which is typically 15% above the posted speed limit.

provision of a roundabout or signals. This matter would most reliably be managed through a precinct that required all subdivision or development to provide a suitable land footprint to accommodate a larger intersection.

5.4 Trip Generation and Distribution

An estimate of the trip generation from development of the site is provided in the TA at section 5. Additional estimates are provided in the additional information.

5.4.1 Assumed Development

Original Transport Assessment Scenario

This scenario assessed a combination of light-industrial activity, retail activity, and commercial activity. The TA assessment is based on an expected yield, with an average floor area ratio [**FAR**] (to land area) of 16% consisting of:

- 4,900 m^2 gross floor area [**GFA**] of retail (all assessed as a typical shopping centre)
- 3,250 m^2 GFA of motor vehicle sales
- 3,250 m^2 GFA of light industrial activity (assessed as warehousing)
- 1,000 m^2 GFA of commercial (all assessed as offices)

The TA did not estimate the trip distribution and effects for a weekend period when retail activities, including motor vehicle sales, tend to be busiest.

The original development scenario includes a high proportion of motor vehicle sales and warehousing activity that generate low volumes of traffic. While the assumed mix of activities is one development outcome, there are many other outcomes that could include larger quantities of more intensive activities.

April 22 Scenario

A second development scenario and trip generation estimate were provided in April 2022. That scenario assumed half of the land was developed with 13,000m^2 GFA of LFR activity, and the other developed with the same light industrial (motor vehicle sales and warehousing) and commercial (office) activity as the original development scenario. This information also provided an estimate of weekend peak-hour travel.

June 22 Scenario

A second further information request requested additional data and analysis to support the assumed land use development scenario, noting that high trip generating activities such as drive-through and fast-food restaurants were permitted in the B-GB zone.

The June 2022 additional information chose to represent a higher-generation scenario with 26,000m^2 GFA of LFR activity and no other activity. The information included the following comments (emphasis added):

> *The likely estimates of the mix of likely activities and the traffic generation that results from the potential mix **are highly subjective judgements**. There are **multiple factors in play given the range of activities that can be established in a BGBZ**.*
>
> *To summarise, the **BGBZ enables a wide range of activities** employment including office, LFR, all types of light industry, trade retail, commercial services, other forms of retail (including garden centres, marine retail motor vehicle sales and service stations). The mix of activities is subject to market forces and demand. The BGBZ is an employment focussed zone that is intentionally broad in the range employment activities enabled. On this basis, **while it is possible that all the land would be developed as LFR, it is not considered realistic to assume that it would**.*

Further comments are made, including material from the economic assessment, to suggest that a development consisting entirely of large format retail is considered so unlikely as to be unrealistic.

There are several sites around Auckland that have been developed entirely with LFR activity, so I do not consider it is unrealistic in general, but there may be some local factors that could make that less likely.

Irrespective of the proportion of LFR, there are a number of other feasible development scenarios with a different mix of activities that could generate a similar volume of traffic as the 100% LFR estimate. A site developed with LFR and activities such as a fast-food and drive-through restaurants, cafés, a sports bar, and the like, is capable of generating as much traffic as the estimate prepared for the June scenario, particularly as the trip generation rates for LFR are subject to a high degree of variation.

For that reason, I consider traffic volumes estimated for the June scenario are a realistic and reasonable outcome for this site, even if it is unlikely that 100% of development would be LFR . Development scenarios that would produce less traffic are also possible, but in order to be confident that development enabled by the zoning could be accommodated, it is my view that the higher volume should be assessed.

5.4.2 Trip Generation Rates

The number of vehicle movements generated by a development is typically estimated by combining the scale of the activity (typically measured in GFA) and trip generation rates derived from surveys of similar sites (typically measured in vehicles per hour per 100m^2 GFA).

The trip generation rates adopted in the PPC87 TA for activities other than LFR are taken from recommendations in a 2002 New South Wales guideline. In relation to LFR, referred to as "Retail – Bulky Goods", that guideline noted "*The trip generation rates varied so widely that average generation rates cannot be recommended.*"

The TA adopted LFR rates from a 2011 New Zealand research report which recommended that application of the rates provided for "Bulk Retail" be tempered with a thorough review, and used for guidance only, pending more detailed analysis. The report states the provided rates are intended to be 85-th percentile rates (so only 15% of sites have higher rates), but a review of survey data from New Zealand sites shows the provided rates are lower than the survey average.

In my view, the trip generation rates used to represent Large Format Retail activities are lower than some forms of large format or bulky goods retailing, but higher than other types, and overall a reasonable estimate for a LFR centre, which often has a few higher-generation anchor stores and a variety of smaller and less intensive activities.

In my view, the Original and April scenarios represent possible development scenarios, but they are not representative of many higher-generation development scenarios that could establish on the PPC87 land if zoned B-GB. For example, they include large areas of low trip-generating activities such as motor-vehicle sales and warehousing when other light-industrial activities such as manufacturing and trade sales could be present. Alternatively, those low trip-generating activities could be displaced by higher trip-generating activities such as LFR, drive-through, or fast-food restaurants. In addition, for the April scenario the light industrial and commercial activities are assumed to generate no traffic on the weekend. While that may be appropriate for most warehouses and offices, there are some light industrial and commercial activities that could generate some traffic on the weekend, albeit at lower levels.

The June information estimates the land could generate 1,040 vehicle movements in the weekday p.m. peak hour and 1,560 vehicle movements in the Saturday peak hour. I consider those values to be reasonable estimates of the average and appropriate for considering the impact of the zoning.

5.4.3 Trip Distribution

Entering / Exiting Ratio

The TA analysis provides assumed splits between entering and exiting traffic in the peak hours, and these values are updated in the (April) additional information. I consider the updated assumptions to be reasonable.

Internal Capture

When developments consist of multiple activities on the same site, is common for some people to visit more than one activity during their time on the site. For example, when in a town centre, someone may visit a bank, café, and hairdresser. This behaviour is variously referred to as internal capture or multi-purpose or linked trip-making. The additional information notes that the assessment makes no allowance for this and is therefore conservative.

In my view, not allowing for internal capture is appropriate in this case as the retail and LFR trip rates are derived from surveying vehicle movements in and out of large centres, so the trip rates are for external traffic and already reflect internal capture.

Pass-By and Diverted Traffic

The trip generation of an activity can be separated into Primary and Secondary trips. Primary trips are made as a special-purpose trip to the activity. Secondary trips are made by vehicles already travelling on the road network, either directly past the site (pass-by) or on a nearby route (diverted).

The TA notes no adjustment has been made for secondary trips, so considers the analysis to be conservative. This is true to a limited extent given the site is on the outskirts of Pukekohe so a small proportion of trips would be already passing the site on Buckland Road. Any conservatism would only apply to the analysis of the Buckland Road / PU-NS-2 intersection.

Directional Distribution

The original TA analysis assumed that 60% of the generated traffic would travel to and from the north, with 30% travelling south and the remaining 10% travelling west on Webb Street.

Given the site is located on the southern fringe of its primary catchment of Pukekohe with most growth located in the north, the proportion of traffic arriving and departing to and from the north was thought to be under-represented in the analysis.

The additional information supplied in April suggested the turning movements recorded at the Buckland Rd/ Kitchener Rd intersection supported the adopted trip distribution. That is not accepted as traffic travelling between western and northern parts of Pukekohe have multiple routes to use that were not included in the survey. Considering only the Kitchener Road intersection would naturally show a higher proportion travelling to and from the south as that is one of the primary routes for traffic travelling south of Pukekohe.

The information supplied in June included a map showing the area that could be reached within 15 minutes of car travel, and this was noted to include Pokeno and Tuakau which represented 28% of the population living in the three main towns in the catchment.

While the 15-minute travel time for the catchment is arbitrary as many people working on or visiting the land may travel from further away, the 70/30 north/south split is not unreasonable, but in my view, it could equally be a 75 / 25 split or an 80 / 20 split.

To summarise, I consider the trip distribution assumptions to be reasonable, noting the significant uncertainties.

5.4.4 Traffic Volumes

The supplied estimates of traffic volume for each of the development scenarios for each of the critical time periods is summarised in the following table.

Table 2: Summary of traffic volume estimates by development scenario

		Original	April	June
Total floor area (m^2 g.f.a)		12,400	20,500	26,000
Floor area ratio		16%	26%	33%
Daily traffic (vehicle movements per day)	weekday	6,389		
	weekend			
Peak Hour (vehicle movements per hour)	weekday a.m.	261		
	weekday p.m.	671	579	1040
	weekend		780	1560

5.5 Traffic Growth

The assessment in the TA added the estimated trip generation to the traffic volumes observed at the Buckland Rd/ Manukau Rd/ Kitchener Rd / Gate 2 intersection in November 2018 (including a race day Saturday), and added estimated volumes generated by development of the PPC30 land, making no allowance for traffic growth.

Analysis of a future development environment, such as 2036, including forecast growth in traffic volumes was requested. The June response stated the PPSP ITA forecast a daily traffic volume of up to 5,000 v/day in each direction on Buckland Road beyond 2048. My inspection of the ITA forecast shows that Buckland Road is outside the diagram extents, but that Manukau Road is forecast to have between 10,000 and 15,000 vehicles per day in each direction, so between 20,000 and 30,000 vehicles per day. That level of traffic is consistent with a four-lane cross-section.

The August additional information stated, "*For the critical Saturday peak period the growth over the last 6-7 years is equivalent to 1.5%.*"

The traffic count data contained in Table 1 shows that prior to 2018 the daily volume on Buckland Road on Saturday increased by 2.8% per year. Hourly data for Saturday has not been provided, but the weekday midday peak hour increased by 3.1-3.3% over the same period as the average weekday daily traffic increased by 1.2-1.8%. Over the 2020-2022 (Covid) period, the average weekday volume decreased by 2.3% but the weekday midday peak hour increased by 4.3%. From that data I conclude it is possible and likely the growth in the Saturday midday peak hour could exceed the daily growth figure.

The May 2023 information includes analysis and modelling based on a non-race-day Saturday and allowing for 10 years of growth at 3.0% per year. I consider that rate is towards the lower end of the likely growth rate range for the Saturday midday hour, and on that basis the updated analysis is appropriate.

5.6 Pukekohe Park

As noted earlier, Pukekohe Park is opposite the site, is zoned Special Purpose – Major Recreation Facility, and able to be used for large events. It is one of a few such sites in the region. In my view the effect of the proposal on the operation of major recreation events at Pukekohe Park is a potential transport issue for this plan change.

The TA assessment did not explicitly consider events at Pukekohe Park and how they may affect, or be affected by, the proposed development. The April additional information expressed the view that the events were infrequent and under the control of Traffic Management Plans [**TMP**s], implying no assessment was necessary. It also stated the B-GB zoning had been selected recognising the nature of Pukekohe Park.

The June 22 additional information reiterated those points and stated there is a high degree of uncertainty around the magnitude and frequency of events. It noted the PPSP identified the PPC87 site as an area to support employment growth.

The August 22 additional information acknowledged events at Pukekohe Park for fewer than five thousand people can be held without a TMP. It also provided some information about racecourse events scheduled to occur at the park over the following year. That schedule included nine planned events, of which eight would occur on a Saturday. The information acknowledged those events would coincide with peak retail activity on the PPC87 site.

I do not know if Covid-19 had an impact on the event schedule or attendance.

The August 22 additional information noted that the 2018 Saturday traffic count of the Gate 2 intersection was chosen to coincide with a Counties Cup horse-racing event which typically attracts 3,500 to 5,000 people. As the analysis was based on that count, the information stated the analysis already considers a horse-racing event.

Motor sports events are not planned to be held at Pukekohe Park in the future, and I understand their removal will allow for some redevelopment of the site. The potential for an increased number of events, and/ or increased attendance at events is not stated, other than the provided information stating there is a high degree of uncertainty about events.

An event for fewer than five thousand people is permitted without a TMP. Larger events do require a TMP, and a TMP can implement additional controls to help manage traffic and parking. These controls could include, for example, a temporary lower speed limit, parking restrictions, detours, Manual Traffic Control (stop/ go), and the like. None of these measures increase the capacity of the network, and they often reduce capacity.

5.6.1 Alternative Zoning

The notified Section 32 assessment considers alternative zonings including B-LI and B-GB. The assessment focuses on economic matters and transport effects are not mentioned.

As noted earlier, RPS Policy B2.5.2 (5)(b) requires regard to:

> *"adverse effects on the quality compact urban form including the existing and **planned location of activities**, facilities, infrastructure and public investment;"*

The PPSP land-use and infrastructure planning is based on the B-LI zoning being applied to the PPC87 land, and others land to the south. The additional traffic information posits that both the B-LI and B-GB zones provide for employment and implies that makes both zones zone equally suitable with respect to the PPSP. As noted above, the trip generation potential of B-LI land is significantly lower than the potential of B-GB land, particularly on weekends. The PPC87 analysis assumes no trip generation from the light-industrial and commercial activities during the weekend peak hour. In contrast, the LFR activities are expected to generate high volumes of traffic on the weekend, as could other activities permitted in the B-GB zone.

The following table compares the main activities permitted in the B-LI and B-GB zones. As noted in the additional information, both zones provide employment. The primary differences relevant to transport are that the B-GB zone provides for commercial services of any scale, entertainment facilities, food and beverage outlets of any scale, offices up to 500m^2, large format retail, and recreation facilities.

Table 3: Activities permitted in Business-Light Industry and/ or Business-General Business zones.

Activity		B-LI	B-GB
Accommodation	Workers Accommodation	Y	
Commerce	Commercial Services		Y
	Dairies up to 100m^2 g.f.a.	Y	
	Drive-through restaurants	Y	Y
	Entertainment facilities		Y
	Food and Beverage up to 120m^2 g.f.a	Y	Y
	Food and Beverage over 120m^2 g.f.a		Y
	Garden Centres[a]	Y	Y
	Motor Vehicle Sales[a]	Y	Y
	Marine Retail[a]	Y	Y
	Offices up to 100m^2 g.f.a		Y
	Offices 100-500m^2 g.f.a		Y
	Retail - Factory Shop	Y	
	Retail over 450m^2 g.f.a. (excluding supermarkets)		Y
	Service Stations	Y	
	Show Homes	Y	
	Trade Suppliers	Y	Y
Community	Artworks		Y
	Emergency Services	Y	
	Recreation facility		Y
Industry	Industrial activities	Y	Y
	Wholesaler	Y	
	Storage and lock-up	Y	
Rural	Animal breeding or boarding	Y	
	Horticulture	Y	
Manu Whenua	Marae complex		Y
Development	New buildings	Y	

a) further than 100m from Business-Heavy Industrial Zone

With the exception of offices, all of the commerce activities permitted in the B-GB zone and not in the B-LI zone typically have relatively high trip generation, with the peak occurring around midday on the weekend, and often significant trip generation in the evening.

Larger events at Pukekohe Park events also typically occur on weekends, or weekday evenings. The effects of B-GB zoning on events at Pukekohe Park could be significantly more adverse than the effects of B-LI zoning.

5.7 Traffic Modelling

5.7.1 Methodology

The TA has modelled the Buckland Rd/ Manukau Rd/ Kitchener Rd/ Gate 2 intersection and the Buckland Rd/ PU-NS-2/ Gate 3 intersection using *Sidra Intersection v6* software, which is considered to be sufficient for this level of assessment.

5.7.2 Buckland Rd/ Manukau Rd/ Kitchener Rd/ Gate 2 Intersection

The TA assumes that a single-lane roundabout would have been constructed at this intersection in conjunction with development of the PPC30 land prior to PPC87 development.

Give Way

The intersection is currently controlled by a give way control on Kitchener Road. No analysis of this option is provided.

Roundabout

The TA and additional information provide the results of analysis of this intersection controlled by a one-lane roundabout.

For the 2018 scenario with PPC30 developed and PPC87 undeveloped, the roundabout is modelled to operate at good levels of service with minimal delay in the weekday a.m. and p.m. peak hours. No analysis is provided for the existing Saturday flows. The baseline analysis is not repeated for forecast traffic volumes.

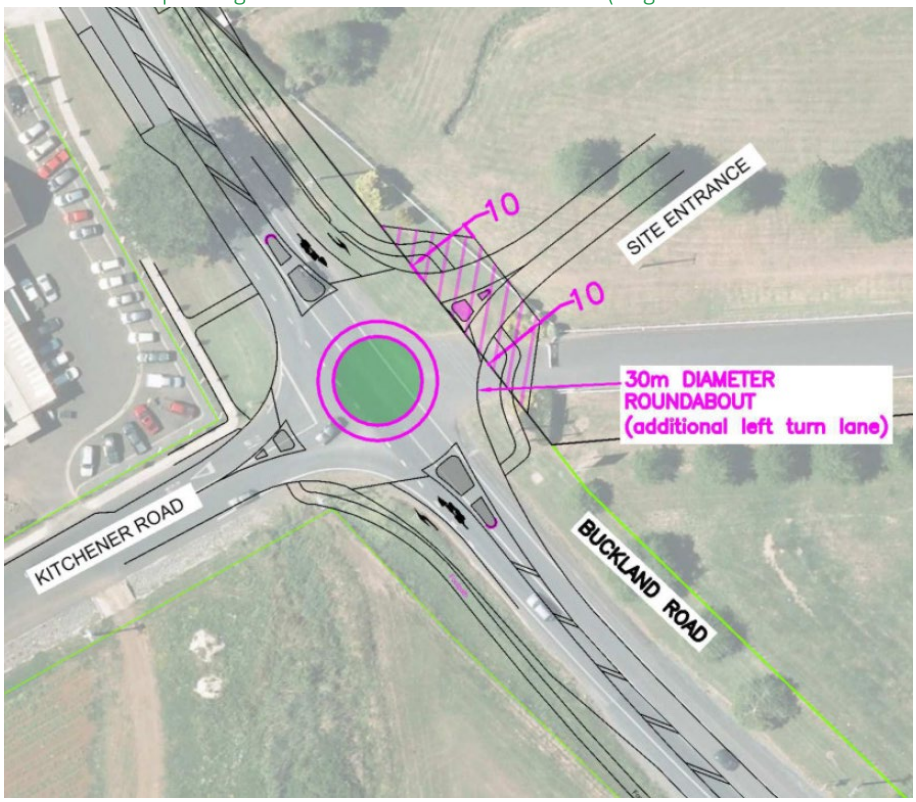
The June additional information provides the results of modelling the June development scenario with no allowance for growth other than development of PPC30 and PPC87. The information states the intersection would operate at acceptable levels in the weekday a.m. and p.m. peak hours, but that the capacity of the intersection would be exceeded during the Saturday peak hour.

The August additional information provides the results of modelling the June development scenario on Saturday only, adding 15% growth in existing traffic volumes (1.5% p.a. for 10 years). As noted above, I consider that level of growth to be an underestimate, particularly for Saturday. In my view, a 15% increase could occur within six years based on previous growth rates.

The August model results show the assumed single-lane roundabout, with an additional lane for traffic turning left into Gate 2, would have insufficient capacity to accommodate growth and development of PPC30 and PPC87 under the June scenario during the Saturday peak hour on a race day. The traffic demand exceeds the available capacity on all approaches resulting in long delays and queues of over 1km along Manukau Road.

The August 22 information also noted that there was insufficient room to provide additional lanes at the intersection. A concept design drawing for the roundabout shows some private land on the eastern side of the road is required to construct the design. That suggests it may not be possible to construct the roundabout to mitigate the effects of PPC87 unless PPC30 is developed prior, or with the agreement of the owner of the land.

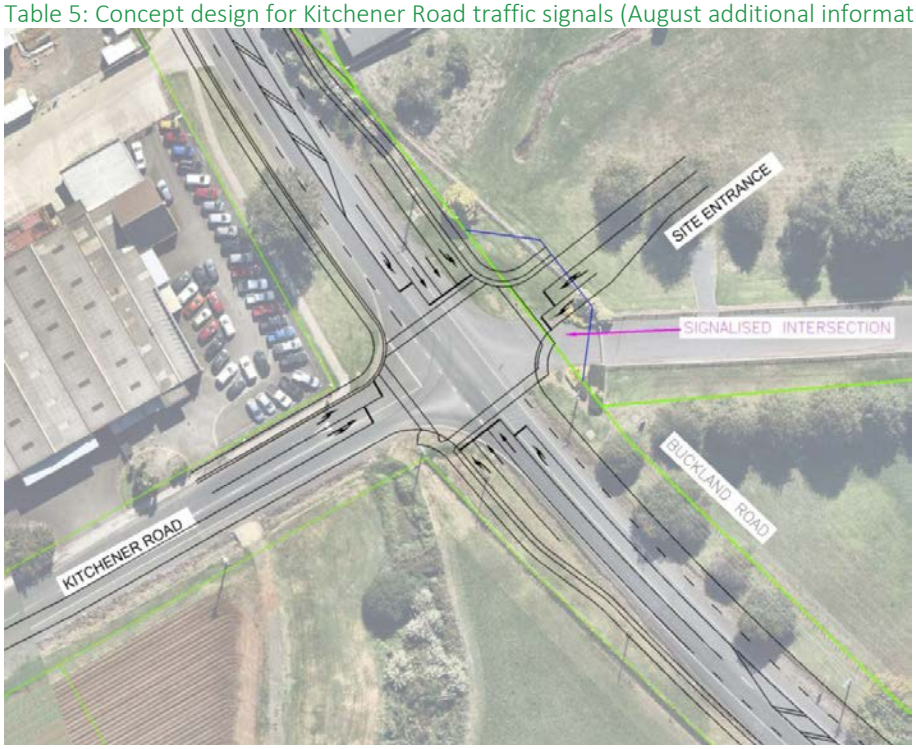
Table 4: Concept design for Kitchener Road roundabout (August 22 additional information)



Traffic Signals

The August 22 information added analysis of the intersection controlled by traffic signals under the June development scenario with 15% growth included for the Saturday peak hour.

Table 5: Concept design for Kitchener Road traffic signals (August additional information)



The 2023 additional information provided the results of analysing traffic signal operation of this intersection for all key time periods including Saturdays without a race, and allowing for 30% growth. The results are summarised in the following table.

Table 6: Model results summary - Manukau/ Buckland/Kitchener (with 30% growth)

Measure		Weekday peak hour a.m.	Weekday peak hour p.m.	Saturday midday peak hour without racing
Signal cycle time (seconds)		70	110	110
Whole intersection	Degree of Saturation (%)	86.2	91.2	89.5
	Average Delay (s/veh)	29.8	46.1	41.0
	Level of Service - vehicles	C	D	D
Worst movements	Average Delay (s/veh)	45.0	70.9	65.3
	Level of Service - vehicles	D	E	E
	Highest delay movement	Manukau right	Gate 2 right	Gate 2 right
	Queue length (m, 95%-ile)	107.1	232.7 South T	232.0
	Longest queue movement	Buckland through	Buckland through	Buckland through
Number of vehicle movements at LOS E or F		0	5	5

Notes:

Signal cycle time: the time taken (in seconds) for the signal controller to execute a full set of movements. Cycle times over 100 seconds generally indicate intersections approaching capacity, and cycle times over 120 seconds generally indicate intersections near or at capacity with longer delays and queues.

Degree of Saturation: the ratio of demand: capacity for the worst movement. Practical capacity is generally 90-95 for signals and 80-85 for roundabouts

Average Delay: the total delay for the intersection or movement divided by the number of vehicles (in seconds per vehicle).

Level of Service: an indication of performance from A to F, with LOS A and B representing good conditions, LOS C and D being design targets for overall and individual movements respectively, LOS E representing capacity, and LOS F representing over-capacity. For roundabouts and signals the LOS is determined from the average delay.

No analysis for a Saturday race day with 30% growth has been provided. The 24 May 2023 additional information stated this was due to the number of racing events now being lower than before, and possibly only once per year.

The previous additional information provided model results for both Saturdays (race in August 2022 and no-race in April 2023), but with only 15% growth and different signal settings.

Table 7: Modelling results comparing Saturday peak hour on Race and No-Race days (Only 15% growth)

Measure		Without racing	With racing	Difference
Signal cycle time (seconds)		?	?	
Whole intersection	Degree of Saturation (%)	89.7	97.9	+8.2
	Average Delay (s/veh)	44.2	?	
	Level of Service - vehicles	D	?	
Worst movement	Average Delay (s/veh)	65.3	142	+76.7s
	Level of Service - vehicles	E	LOS F	Worse
	Highest delay movement	Gate 2 right	Gate 2	
	Queue length (m, 95%-ile)	246.4	405m	+158.6m
	Longest queue movement	Manukau through	Manukau through	
Number of vehicle movements at LOS E or F		3	7	+4

With an allowance for 15% growth the intersection performance during the midday peak hour on a race day Saturday is significantly worse than when there is no race, and in my view the with-racing results show the intersection operating beyond its practical capacity.

If the modelling results for a race day with allowance for 30% growth had been provided by the applicant as requested, the results would undoubtedly be worse, and in my view would demonstrate the intersection would operate extremely poorly.

A concept design is also provided showing how the intersection could be controlled by traffic signals. This design includes widening on the eastern side of the road and realignment of the Pukekohe Park Gate 2 access. It appears this design could not be implemented without the agreement of the Pukekohe Park landowner.

In my view the analysis demonstrates that some more intensive development scenarios enabled by the proposed zoning would operate at a satisfactory level in the short to medium term on most days. When a large event is held at Pukekohe Park the development enabled by the proposed zoning would have a significant adverse effect on the efficient operation of the local road network and Pukekohe Park. Those significant adverse effects are moderated by the expected rarity of such events.

5.7.3 Buckland Rd / PU-NS-2 / Gate 3 Intersection

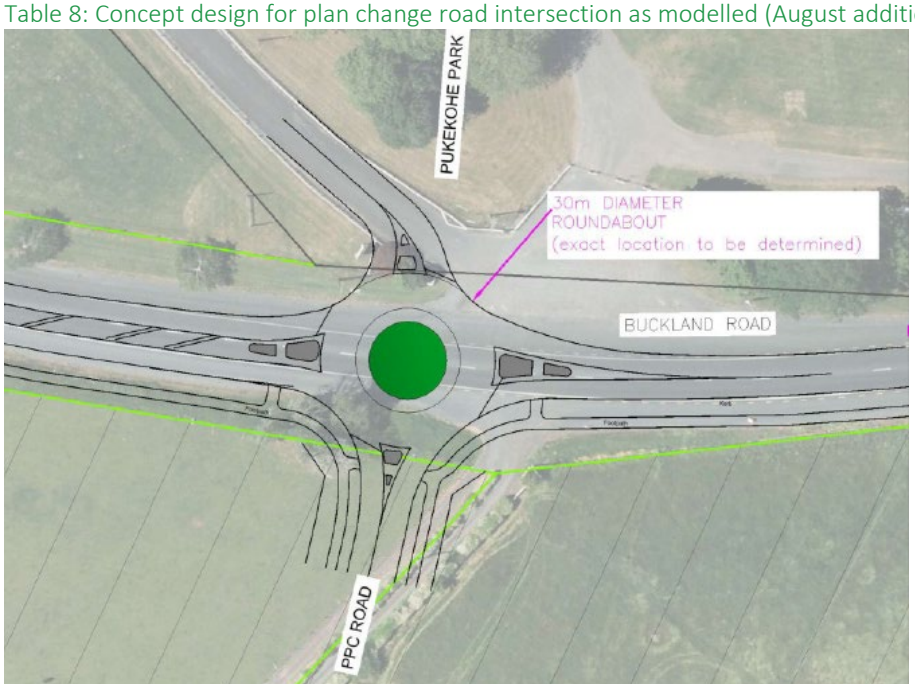
The TA provided model outputs for this intersection under priority control (give way) for the initial development in the weekday a.m. and p.m. peak periods with no allowance for growth. Under those conditions the intersection would operate well in the a.m. peak, but poorly in the p.m. peak hour, which the TA described as *"essentially at capacity"* and noted the assessment "*assumes minimal traffic on the Racecourse Gate opposite this intersection."*

The TA also provided model outputs for a one-lane roundabout in the weekday p.m. peak period. The roundabout was predicted to operate well for the original development scenario with no allowance for growth and minimal Gate 3 traffic.

The June information provided model output for the June development scenario and noted the new PU-NS-2 roundabout was "*just reaching typical capacity levels*" in the Saturday peak hour. That analysis was based on 2018 volumes with no growth.

The August information provided a concept design for the roundabout, and model output for the Saturday peak hour for the June development scenario and allowed for 15% growth.

Table 8: Concept design for plan change road intersection as modelled (August additional information)



The one-lane roundabout is predicted to operate at poor levels of service in the Saturday peak hour. Both the southern and western approaches are over-capacity with lengthy delays and queues up to 586m long are forecast along Buckland Road to the south.

The 2023 additional information provides model results with an allowance for 30% growth, and those options require the use of additional turning lanes on each Buckland Road approach. The results are summarised in the following table and show that a roundabout would operate reasonably well, although on Saturday the peak hour could have moderate queuing back towards Kitchener Road.

Table 9: Concept design for plan change road intersection showing possible additional lanes.

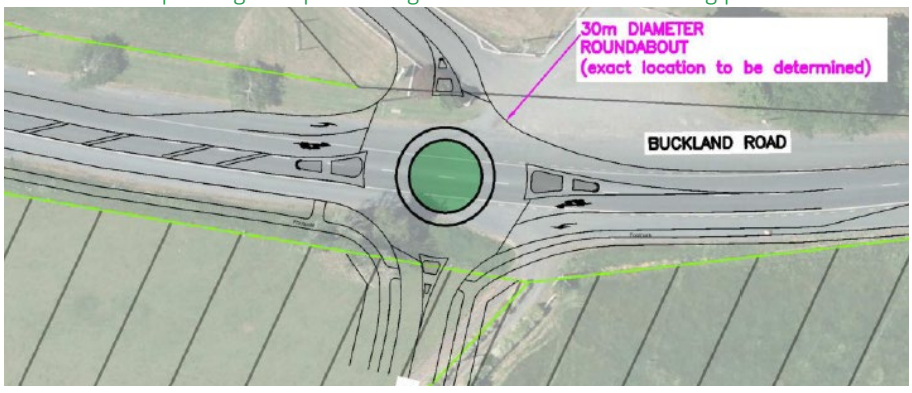


Table 10: Model results summary for Buckland/ PPC intersection - Roundabout

Measure		Weekday peak hour a.m.	Weekday peak hour p.m.	Saturday midday peak hour without racing
Whole intersection	Degree of Saturation (%)	52.5	70.9	87.6
	Average Delay (s/veh)	6.9	8.4	12.7
	Level of Service - vehicles	A	A	B
Worst Movement	Average Delay	14.2	21.8	32.7
	Level of Service - vehicles	B	C	C
	Highest delay movement	PPC Rd right	Gate 3 right	Gate 3 right
	Queue length (m, 95%-ile)	33.9	65.4	149.1
	Longest queue movement	Buckland N through+right	Buckland N through+right	Buckland N through+right
Number of vehicle movements at LOS E or F		0	0	0

The PPC87 transport material recommends that facilities for pedestrians crossing Buckland Road are incorporated into the roundabout design, and recommended that this be done in accordance with Auckland Transport guidelines. The AT guidelines provide for such pedestrian facilities to be on raised tables. Raised tables across the roundabout approaches are likely to lead to a significant reduction in the capacity of the approach which has not been accounted for in the modelling.

The May 2023 information provided the modelling results for this intersection under signal control with pedestrian movements incorporated, and those results are summarised in the following table. The results show the intersection operating well during weekday peaks, but approaching capacity in the Saturday midday peak hour.

These results show that a suitable option is available for providing access to the site, incorporating the PPC collector road, and providing for pedestrian movements across Buckland Road.

Table 11: Model results summary for Buckland/ PPC intersection - Signals

Measure		Weekday peak hour a.m.	Weekday peak hour p.m.	Saturday midday peak hour without racing
Signal cycle time (seconds)		85	85	120
Whole intersection	Degree of Saturation (%)	77.7	82.0	89.4
	Average Delay (s/veh)	32.5	32.6	42.7
	Level of Service - vehicles	C	C	D
	Level of Service - pedestrians	D	D	E
Worst Movement	Degree of Saturation	77.7	82.0	E
	Average Delay	47.6	47.6	67.6
	Level of Service - vehicles	D	D	E
	Highest delay movement	Buckland S right	Buckland S right	Buckland S right
	Queue length (m, 95%-ile)	104.7	98.6	272.9
	Longest queue movement	Buckland S through	Buckland S through	Buckland N right
Number of vehicle movements at LOS E or F		0	0	4

5.7.4 Summary

Development Scenarios

The transport material includes assessment of three development scenarios, with multiple assumptions. Results for the higher-intensity development scenarios are only provided for the weekend peak hour as that is when the site is expected to generate the most traffic. In my view information on performance during the weekday commuter peak hours is also required, and that has not been provided to date.

A summary of the analysis provided is contained in the following table.

Table 12: Summary of modelling scenarios

Document	Development	Weekday peak		Weekend peak		Growth
		Weekday a.m.	Weekday p.m.	With racing	Without racing	
Transport Assessment	Original	Y	Y	N	N	0%
April 22 information	50% LFR	N	N	Y	N	0%
June 22 information	100% LFR	N	N	Y	N	0%
August 22 information	100% LFR	N	N	Y	N	15%
April 23 information	100% LFR	Y	Y	N	Y	15%
May 23 information	100% LFR	Y	Y	N	Y	30%

Intersection Performance

The material demonstrates that development enabled by the proposed zoning could be accommodated by the Buckland Rd/ Kitchener Rd intersection and the Buckland Rd/ PU-NS-2 intersection in the short to medium term, provided appropriate upgrades of those intersections are undertaken. For the Kitchener intersection, that would almost certainly need to be traffic signals.

When larger events occur at Pukekohe Park the local road network, and the Buckland/ Manukau/ Kitchener intersection in particular, would operate poorly generating significant congestion. Those significant adverse effects are offset to some degree by events occurring infrequently; however, the proposal would reduce the ability of that special purpose zone to fulfil it's purpose.

In contrast, if the land were to be zoned B-LI as requested by some submitters it is expected the trip generation on weekends and evenings would be significantly lower. As a result the alternative zoning would have fewer adverse impacts and little impact on events at Pukekohe Park.

Additional Mitigation

The June additional information stated:

> *"we are confident that there are additional traffic mitigation measures (such as Saturday peak spreading, multi-purpose trips, adding turning lanes) which will occur / can be implemented at the resource consent stage to address any additional traffic safety issues"*

Peak-spreading is a term used to describe an increase in the duration of the peak period due to people travelling at a different time as there is insufficient capacity to travel at their desired time. It was first observed in Auckland on the Harbour Bridge where increasing travel demand encountered fixed capacity. The presence of peak-spreading is an indicator of congestion and is not a mitigation measure.

Multi-purpose trips are a type of either internal capture or secondary trip-making. As described above these are adequately accounted for in the assessment and are not a mitigation measure.

Assessment at time of resource consent

The PPC87 transport assessment material suggests that the June development scenario is unrealistic, and that "*The exact upgrade should be determined [at] Resource Consent time when the exact use of the site is known.*"

In discussing the poor intersection performance, the August information noted *"Any future activity would be also subject to [the E27.6.1. Trip generation] rule of the Unitary Plan,"* so be subject to resource consent and additional assessment.

While E27.6.1 (1) does include a consent trigger relating to trip generation, part (2) of that standard lists a number of exemptions (emphasis added, and notified PC79 changes marked):

> *(2) Standard E27.6.1(1) does not apply where:*
>
> *…*

(b) ***development is being undertaken*** *in accordance with a consent or provisions approved* ***on the basis of an Integrated Transport Assessment*** *where the land use and the associated trip generation and transport effects are the same or similar in character, intensity and scale to those identified in the previous assessment;*

…

(d) *there are requirements to assess ~~transport, traffic or~~ trip-generation effects for the activity in ~~the~~ any applicable precinct rules for any controlled or restricted discretionary land use activities.*

As a Transport Assessment has been provided for PPC87, any development that is similar to that identified in the TA would be exempt from assessment under E27.6.1 (2)(b).

That resource-consent approach also favours the first development(s) on the site, potentially taking up all available capacity in the transport network and leaving residual land only able to accommodate low-intensity activity.

Summary

The analysis has provided the local transport environment could accommodate development enabled by the proposed B-GB zoning, providing suitable intersection upgrades are undertaken, except when events are held at Pukekohe Park.

When events are held at Pukekohe Park the local transport network would operate poorly as a result of traffic generated by development of the site.

If the plan change is approved, it is recommended that there be some means of ensuring that the appropriate infrastructure is provided at time of consent. It may be possible for this to be secured by way of an agreement between the landowner(s) and Auckland Transport, or preferably by way of a Precinct with site-specific provisions.

5.8 Parking

With respect to the question of zoning, there appears to be no reason why a supply of parking sufficient to address the effects of parking demand generated by activity could not be provided on the site.

6 Submissions

This section addresses submissions that raise transport related matters, with similar submission points grouped into topic areas. PPC87 was notified on 27 October 2022, and attracted six submissions.

Submitter 1 Buckland Road Trustees Ltd (BRTL) supports PC87 unconditionally.

Submitter 2 Auckland Thoroughbred Racing Inc (ATRI) requests that cost sharing for upgrading the Buckland Rd/ Manukau Rd/ Kitchener Rd/ Gate 2 intersection be imposed.

Submitter 3 AT opposes PC87, but in the event it is approved, seeks a number of changes.

Submitter 4 EnviroWaste Services Ltd (EWSL) opposes PC87 and the proposed Business-General Business zone.

Submitter 5 Nomita Singh supports the proposed zoning but seeks the developer be required to extend infrastructure including roading.

Submitter 6 Hira Bhana and Co Ltd (HBCL)supports PC87 provided some amendments are made which are not transport related.

6.1 Zoning

Submitters 1 BRTL and 5 Nomita Singh support the proposed Business – General Business (B-GB) zoning. Submitters 3 AT and 4 EWSL oppose it. EWSL prefers the Business – Light Industrial (B-LIZ) zoning shown in the Structure Plan.

With respect to transport aspects of the zoning, AT is of the view that the B-GB zone would permit a wide range of activities with more intensive traffic characteristics than the B-LI zone enables, and the potential impact of the additional traffic generation was not represented in the Structure Plan transport assessments, or adequately assessed in the plan change assessments. I agree with that statement. Additional information has now been provided that provides a clearer view of the potential impact, but I agree with the submitters that a B-LI zoning would have less intensive traffic, particularly on weekends and evenings when events at Pukekohe Park are more likely to occur.

EWSL is of the view the zoning should be B-LID. No analysis has been presented to show that development enabled by the B-LI zone could be accommodated. While the PPSP ITA undertook high-level modelling with the land zoned B-LI, that work did not study the local area at a higher level of detail appropriate for rezoning. As I expect B-LI development would generate less traffic I expect B-LI development could be accommodated with fewer adverse effects than the proposed B-GB zoning.

EWSL is of the view that large format retail (LFR) activities should be aggregated in one location to reduce traffic load on Buckland Road. A location is not identified. Aggregation may or may not reduce the traffic load on any particular part of the road network, so I do not agree with that statement by EWSL.

6.2 Specific Provisions

The AT submission expresses their view that the resource consent process for subdivision and/ or development is insufficient to adequately control the nature or form of development or provide sufficient certainty that appropriate mitigation will be provided.

I note that, for example, it may be possible for development fronting Buckland Road to receive consent (or potentially be a permitted activity), only for that development to preclude or frustrate the best form of later development. It could also be the case that piecemeal development results in one later small-scale development being required to carry the entire cost of a piece of infrastructure when that is required.

Many plan changes to the AUP introduce a precinct which provides a convenient means for specific planning provisions to be applied to subdivision and development, and these provisions often include one or more Precinct Plans that are intended to illustrate the location of infrastructure to be provided as the land is developed.

While the inclusion of precinct provisions does not provide complete certainty around these matters, they do provide more certainty than relying entirely on the city-wide provisions, and it is difficult to see how all of the issues raised by AT and Nomita Singh could be readily addressed without specific provisions of some kind.

For that matter, the PPC87 transport material also recommends particular items of transport infrastructure be provided as part of "*the implementation measures*" , and others are considered pre-requisites for a safe environment. Such implementation measures could be detailed and managed by a precinct.

There may be some alternate means of providing the requested certainty, but the inclusion of a precinct is a popular and reasonably effective means. For that reason, I support the requests to include specific provisions in some form, preferably a precinct.

6.3 Provision of Transport Infrastructure

Submitters request that a number of transport features are provided, and these include:

1. Structure Plan Collector Road PU-NS-2 in an appropriate form and location (3.3, 5.2);
2. Interim safety works on Webb St (3.3) if a connection is made;
3. Upgrade of Buckland/ Manukau/ Kitchener intersection (3.4);
4. Access intersection on Buckland Road (3.5);
5. Vehicular connections within and beyond the PC87 land (3.6, 5.2);
6. Upgrade of Buckland Road along PC87 frontage and extending to Kitchener Road (3.7);
7. Active mode connections within and beyond the PC87 land (3.8);
8. Pedestrian crossings on Buckland Road and Kitchener Road (3.8);
9. Bus stops on both sides of Buckland Road (3.8);
10. Limitations on property access to Buckland Road (3.11);

The plan change documentation discusses many of these features suggesting that they may be provided as development occurs. There appears to be general agreement that at least some of these features are required, but no agreement on how the provision of those items can be made sufficiently certain in the absence of precinct provisions or an equivalent method.

I support the provision of all of the above features.

6.4 Cost Sharing of Transport Infrastructure

The ATRI submission relates solely to how the cost of upgrading the Buckland Rd/ Manukau Rd/ Kitchener Rd / Gate 2 intersection is shared between the owners of the PPC30 land and the PPC87 land.

From a transport effects perspective, the critical matter is that the intersection is upgraded to an appropriate form at the appropriate time, noting the appropriate form and time may be different for development of each plan change area, and two separate upgrades could eventuate.

If PPC87 had introduced a precinct, I would have expected the precinct provisions to include infrastructure upgrade requirements linked to development triggers, which may require different or additional upgrades of the same intersection to those required by a trigger in a different precinct.

For example, I understand that development of the PC30 land requires a roundabout to be constructed at the Buckland/ Manukau/ Kitchener intersection. Depending on the scale of development on the PPC87 land, it may be necessary to change the intersection to traffic signal control, either upon subdivision or at a later date.

As PPC87 as notified does not include a precinct, the upgrading or provision of any item of infrastructure would depend on the nature of the development and the conditions of consent imposed (if any), potentially involving many separate landowners.

There are several complexities inherent in cost-sharing arrangements, and I am not aware of any such arrangements being included in the Auckland Unitary Plan or other planning instruments. In my experience these matters are usually addressed in separate agreements outside the plan. For those reasons I do not support the ATRI submission.

7 Conclusion

The 7.9-hectare site is currently zoned Future Urban and the proposed change seeks to zone the land Business – General Business.

The site has modest public transport service and is not within walking distance of services, so travel to and from the site would be dominated by private cars. The site is therefore unsuited to intensive development; however, the proposed zoning is not considered to be intensive as it is intended to provide for larger-footprint buildings.

There is at least one location where safe vehicular access to the site could be provided, and this is expected to incorporate the planned Pukekohe Paerata Structure Plan PU-NS-2 collector road and probably Pukekohe Park Gate 3. Development of the land could be facilitated through that intersection.

If the proposed plan change were approved, and appropriate infrastructure including intersection upgrades were provided, I expect the adverse effects on the safe and efficient operation of the transport network in the short to medium term would be moderate, except for when larger events are held at Pukekohe Park.

On days when larger events are being held at Pukekohe Park I consider development of the land as enabled by the proposed B-GB zoning would generate significant adverse traffic effects on the transport network. Those effects may constrain the ability of the Pukekohe Park Major Recreation Facility to host larger events.

In my view, if measures to ensure appropriate infrastructure is provided are included, the primary matter for this plan change is determining if the adverse effects of the proposed rezoning on the ability to hold events at Pukekohe Park are acceptable.

I have considered three potential options for addressing this, and there may be other options.

7.1 Business – General Business Zone

An option is to zone the site B-GB and manage the transport effects such that Pukekohe Park could still operate events without significant adverse effects. Such management should limit the development intensity of the site so that the traffic generated by the site is able to be absorbed into a suitably upgraded local transport environment. I have identified two ways of implementing this option.

7.1.1 B-GB with General AUP Provisions

The first method, as contained in PPC87, relies on the general AUP provisions to manage development, and that would include the E27.6.1 trip generation standard. Development on the basis of an ITA is exempt from that standard, and in any case piecemeal smaller-scale development exempt from the standard could incrementally produce poor cumulative outcomes. It could also produce poor outcomes where developing the last parts of the site could be uneconomic due to the costs of upgrading transport infrastructure. For those reasons I do not recommend this option.

7.1.2 B-GB with Site-Specific Provisions

The second method would rely on site-specific controls, preferably contained in a precinct. This method has been adopted for many recent plan changes.

Such controls could include one or more trip generation thresholds that could not be exceeded unless particular items of transport infrastructure are provided. Controls like this could be used to ensure that footpaths, cycle facilities, pedestrian crossings, bus stops, and roundabout or signal-controlled intersections are provided at appropriate traffic levels. The precinct could also contain a maximum number of vehicle movements in order to constrain high trip-generating development.

Two difficulties with this option in this case are firstly that no precinct or similar method has been proposed, although the Auckland Transport submission requests such a method. The primary difficulty with this option at this point is that no analysis material has been provided to determine the maximum level of trip generation could be adequately accommodated on race days.

While model outputs for two less intensive development scenarios have been provided, none of those outputs are from models that included any allowance for traffic growth, so they do not provide sufficient evidence that any particular level of development could be accommodated when growth is considered.

If a site-specific Precinct is adopted, I recommend that it provide objectives, policies, activity statuses, standards, matters of discretion and assessment criteria addressing the following, preferably by requiring subdivision and development to be in accordance with a Precinct Plan:

a) requiring the Collector Road between Webb and Buckland to be provided;
b) requring the upgrading of the Buckland Road frontage to current Auckland Transport standards for an urban arterial including the provision of stormwater conveyance and treatment, kerb and channel, paths, and street lighting;
c) requiring the provision of a footpath to the intersection of Buckland Road/ Kitchener Road;
d) requring the provision of a zebra or signla-controlled pedestrian crossing facility across Buckland Road;
e) requiring that no sites access Buckland Road directly (all access via new Collector road); and
f) a standard that requires the performance of the Buckland/ Kitchener intersection to be assessed, and an upgrade provided if necessary.

7.2 Option 2 – Less Intensive Zone

A second option is to use a zone that enables development with less traffic. This is particularly important for the weekend as that is when the majority of larger events at Pukekohe Park occur.

The EnviroWaste submission includes a request to zone the site as Business – Light Industry. In general, I would expect that zone is likely to generate less traffic, particularly on weekends, and for that reason alone it is a zoning that is more likely to be accommodated by the local transport network with appropriate infrastructure and intersection designs.

7.3 Status Quo

There is sufficient information to determine the traffic generated by development of the land is able to be accommodated by the local transport network without significant adverse effects, except when larger events are being held at Pukekohe Park.

If it is determined the effects of B-GB zoning on Pukekohe Park are unacceptable, and the B-LIZ zone is not suitable, a possible option is to retain the status quo by declining the plan change.

7.4 Summary

At this time, subject to information provided at the hearing, my preliminary recommendation on transportation matters is that the plan change should be amended to zone the land Business – Light Industry, and introduce a precinct with provisions to require appropriate transport infrastructure to be provided in response to development.

Appendix A- Curriculum Vitae

Wes Edwards is Managing Director of Arrive Limited, a specialist traffic engineering and transportation planning practice he founded in 2002. Wes specialises in assessing the transport implications of projects, integrating transport with planning and urban design, and the master-planning and design of residential streets and suburbs, particularly in relation to liveable neighbourhoods, and has participated in providing for over 14,000 new dwellings.

Wes is an Engineering New Zealand Fellow and Chartered Professional Engineer. He has over thirty-eight years engineering experience with over thirty-one of those as a traffic specialist in local authorities and independent consulting companies working on a wide range of engagements including, strategic structure plans, plan changes, notices of requirement, residential areas, infrastructure projects, and commercial developments.

He is a road safety auditor, is accredited by KiwiRail as a Level Crossing Safety Impact Assessor, has former experience as a collision investigator, and was formerly accredited by Waka Kotahi New Zealand Transport Agency as a Traffic Controller, Inspector, and Site Traffic Management Specialist.

Wes has served as an expert witness in mediations, council hearings, arbitrations, tribunals, EPA Board of Inquiry, Environment Court, District Court, and High Court. He was previously accredited as an RMA hearings commissioner.

Qualifications

- Chartered Professional Engineer
- International Professional (APEC) Engineer
- Bachelor of Engineering (Civil)
- New Zealand Certificate in Engineering (Civil)
- Accredited Level Crossing Safety Impact Assessor

Associations

- Fellow of Engineering New Zealand
- Chartered Member of Engineering New Zealand
- Member of Institute of Transportation Engineers (USA)
- Member of Association of Consulting and Engineering, New Zealand.

Specialisations

- Strategic transportation inputs into structure plans, plan changes, and notices of requirement
- Traffic Impact Assessments and Integrated Transportation Assessments
- Street and street network design
- Computer modelling of traffic networks and intersections.
- Design of transport infrastructure such as roundabouts, traffic signals, parking areas, and streets
- Analysis of crash data, road safety improvements, road safety audits, crash investigations
- Preparation and presentation of expert evidence in transport planning and traffic engineering

Experience

Plan Changes, Masterplans, Structure Plans, District Plans, Notices of Requirement

Wes has participated in master planning of over 14,000 homes plus several retirement villages, town centres, business parks, and industrial developments. Clients include a variety of private and government parties, and Wes often provides advice to Councils with respect to resource management matters. He has been involved in several Plan Change and Notice of Requirement processes and in the preparation of District Plans.

Project	Client	Scale	Period
NoRs Pukekohe Arterials	Auckland Council	Arterial road designations	2023-
PC91 McLarin Rd, Glenbrook	Auckland Council	Residential, 8ha	2021-
PC88 Beachlands South	Auckland Council	Residential and commercial, 307ha	2022-
NoR KiwiRail Drury West Station*	Auckland Council	Rail station, facilities, access	2021-
NoR NZTA SH1/ SH29*	Landowner	Large roundabout	2022
PC59 Albany North	Kristin School	Residential and commercial, 13ha	2021
AT Designation Lincoln Rd	Auckland Council	Road widening designation	2021
PC61 Waipupuke, Drury West	Auckland Council	Residential and commercial, 56 ha	2020-21
Proposed Waikato District Plan	Pokeno Village Holdings	Additional zoning around Pokeno	2020-21
PC43 McLaughlins Quarry	Auckland Council	Industrial, 24.9ha	2020-21
NoR KiwiRail Wiri – Quay Park	Auckland Council	Rail corridor widening designation	2020-21
NoR NZTA SH1 Warkworth*	Landowner	Road widening designation	2019-21
PC45 Clevedon-Kawakawa Rd	Auckland Council	Countryside Living, 9.9 ha	2019-21
PC55 Patumahoe	Auckland Council	Residential, Industrial, 34.5ha	2019-21
PC25 Warkworth North*	Landowner	Residential, business, centre, 99ha	2019-21
NoR NZTA East-West Link*	Landowner	New road designation	2017
Waste Management HQ	Stride Property	5.2ha light industrial	2016-17
SHA Plan Variation, Paerata Rise	Grafton Downs	294ha, 5000 homes, town centre	2013-19
Plan Change Snells Beach	Auckland Council	7.9ha residential	2013-15
Waipa Proposed District Plan	Waipa District Council	Rezoning near Hamilton Airport	2012
NoR NZTA SH1 Whangarei*	Whangarei District Council	Road widening designation	2010-15
Plan Change Hingaia 1b	Landowners	600 homes	2009-11
Plan Change Kingseat Village	Landowners	5000 population village.	2009-11
Subdivision, Waiata Shores	Fletcher Residential	500 homes	2011-17
Plan Change Waterside	Trans-Tasman Properties	26ha business park	2008-09
Plan Changes Pokeno Village	Pokeno Village Holdings	5900 population, 1880 jobs	2007-21
Plan Change Belmont	Landowners	600 homes and school	2007-10
East Urban Lands (Taupo)	Taupo District Council	2000 homes, town centre	2007-09
Plan Change McLennan	Housing New Zealand	450 homes and school	2006-07
Kohimarama Retirement	Landowners	200 retirement units	2006-08
Subdivision Anselmi Ridge	McConnell Property	500 homes	2005-08
Plan Change Addison	McConnell Property	1500 homes, town centre.	2005-17
Plan Change Cosgrave	Landowners	800 homes	2004-08
Plan Change Kirikiri	Landowners	500 homes	2004-08
Plan Change Hingaia 1a	Landowners	1300 homes, shopping centre	2003-06

*Environment Court / Land Valuation Tribunal / Board of Inquiry. Proposed changes that are not yet notified are not included.

Appendix B – Recommendations on Submissions

Submitter Name	Theme	Point	Summary of Decisions Requested	Recommendation
1. Buckland Road Trustees Limited	Approve the plan change	1.1	Approve the plan change as notified.	Not supported
Auckland 2. Thoroughbred Racing Inc	Neither supports nor opposes the plan change	2.1	If the plan change is approved, Auckland Council shall require as a condition of that approval that: (a) if the submitter completes the upgrade to the intersection of Buckland Road, Manukau Road, and Kitchener Road, the registered owners of 301 and 303 Buckland Road be required to share the costs of the intersection upgrade.	Not supported
		2.2	If the plan change is approved, Auckland Council shall require as a condition of that approval that: (b) if the implementation of the proposal or the use of the land re-zoned under the proposal triggers an upgrade of the intersection of Buckland Road, Manukau Road, and Kitchener Road earlier than would be required under PC 30, that the registered owners of 301 and 303 Buckland Road carry out that intersection upgrade where the submitter with share the costs of the intersection upgrade.	Not supported
3. Auckland Transport	Decline the plan change, but if approved make the amendment	3.1	Decline the plan change unless the matters raised within its submission (as set out in Attachment 1 of the submission) can be adequately addressed.	Supported
		3.2	Decline the Plan Change or alternatively amend the plan change to include a precinct plan and precinct provisions for the plan change area. The precinct provisions should include specific transport mitigation mechanisms to ensure that the matters identified in the Applicant's ITA, further information responses and within this submission can be appropriately addressed.	Supported
		3.3	Decline the Plan Change or alternatively amend the plan change to include a precinct plan and precinct provisions which provides for a collector road (PU-NS-2 Collector Road) with separate cycle and walking facilities linking to Buckland Road. The connection should be designed so that it does not preclude future development nor links to the south.	Supported
		3.4	Decline the Plan Change or alternatively amend the plan change to provide certainty that the upgrade to the Buckland Road / Kitchener Road intersection will be delivered.	Supported
		3.5	Decline the Plan Change or alternatively amend the plan change to ensure that the controlled access intersection on Buckland Road (roundabout or traffic signals) should be identified on a precinct plan and provisions specific to the plan change area.	Supported
		3.6	Decline the Plan Change or alternatively amend the plan change to require subdivision and development to provide connections (for all modes) to adjacent sites, and connections through to Buckland Road.	Supported
		3.7	Decline the Plan Change or alternatively amend the plan change to require the Buckland Road frontage to be upgraded to an urban standard with separated walking and cycling facilities in conjunction with subdivision and development of the site.	Supported

Submitter Name	Theme	Point	Summary of Decisions Requested	Recommendation
		3.8	Amend the plan change to include specific planning provisions (including objectives, policies and rules) to require subdivision and development to provide active mode connections along the frontage of 32 Kitchener Road and provide for pedestrian crossings on Buckland and Kitchener Roads. Furthermore, provision for bus stops should also be provided for along the west and east sides of Buckland Road. It is considered that these transport infrastructure mitigation requirements would require precinct plan and provisions to ensure they are provided for.	Supported
		3.9	Amend the plan change to include specific planning provisions (including objectives, policies and rules) to include precinct provisions to include whole of life costs and effectiveness of treatment over time associated with publicly vested stormwater assets as a matter for discretion and policy.	Outside the scope of this report
		3.10	Supports the Reduced speed limits on Buckland Road (past the site) to 50km/h	Supported
		3.11	Amend the plan change to include specific planning provisions (including objectives, policies and rules) to require subdivision and development to limit or prevent direct vehicle access onto Buckland Road.	Supported
4. EnviroWaste Services Ltd	Decline the plan change, but if approved make the amendment	4.0	Decline the plan change	Supported
		4.1	Amend the proposed Business - General Business zone to the Business: Light Industry zone.	Supported
5. Nomita Singh	Approve the plan change	5.1	Approve the proposed Business - General Business zone.	Not Supported
		5.2	If the plan change is approved, relevant infrastructure upgrades and extensions (public road, stormwater, wastewater, stormwater) to support the development of the plan change area should be the provided by the developer, and shall enable the future development of future surrounding land.	Supported
6. Hira Bhana & Co.	Approve the plan change with amendment	6.1	Implement buffer zones in the plan change area adjoining the submitter's land to protect against potential reverse sensitivity effects.	Outside the scope of this report
		6.2	Implement measures to ensure that future development in the plan change area cannot complain about existing activities on the submitter's land.	Outside the scope of this report

Memo: Technical specialist report to contribute towards Council's section 42A hearing report

24 March 2023

To: Jimmy Zhang, Policy Planner, Plans & Places, Auckland Council

From: Derek Foy, Director, Formative Limited

Subject: Private Plan Change – Plan Change 87 301 and 303 Buckland Road, Pukekohe – Economic Assessment

1.0 Introduction

1.1 I have undertaken a review of the private plan change, on behalf of Auckland Council in relation to economic effects.

1.2 I am a Director of Formative, an independent consultancy specialising in social, economic, and urban form issues. Prior to this, I was an Associate Director of Market Economics Limited, a research consultancy for six years, and was employed by Market Economics for 18 years.

1.3 I have 23 years consulting and project experience, working for commercial and public sector clients. I specialise in retail analysis, assessment of demand and markets, the form and function of urban economies, the preparation of forecasts, and evaluation of outcomes and effects.

1.4 I have applied these specialties in studies throughout New Zealand, across most sectors of the economy, notably assessments of housing, retail, urban form, land demand, commercial and service demand, tourism, and local government. I have been involved in assessments for greenfields developments around Auckland, including in the north-west (Kumeu-Huapai, Redhills and Whenuapai), Warkworth, Silverdale and Drury.

1.5 In writing this memo, I have reviewed the application materials as notified for the Private Plan Change request – Plan Change 87 301 and 303 Buckland Road, Pukekohe ("PC87", or the "PPCR"), and in particular the following documents:

- "Economic Cost Benefit Analysis of Proposed Plan Change, 301 and 303 Buckland Road, Pukekohe" (1 October 2021), Urban Economics Limited (the "UE report").
- "Proposed Private Plan Change from Future Urban Zone to Business – General Business Zone 301 And 303 Buckland Road, Pukekohe Section 32 Evaluation", January 2022, Scott Wilkinson Planning Limited (the "s32 report").
- "Proposed Private Plan Change from Future Urban Zone to Business – General Business Zone 301 And 303 Buckland Road, Pukekohe Assessment of Environmental Effects", January 2022, Scott Wilkinson Planning Limited (the "AEE").
- "301 and 303 Buckland Road Response to Economic RFI", 3 May 2022, Urban Economics Limited (the "UE RFI response").
- The Pukekohe-Paerata Structure Plan, Auckland Council, August 2019

2.0 Key economics issues

2.1 The key economic issues associated with the proposal are:

- Demand for and supply of Business – General Business Zone ("BGBZ") land in Auckland generally, and Pukekohe in particular.
- The appropriateness of the PPCR area as a location for BGBZ development.
- Potential retail distribution effects arising from the PPCR

3.0 Applicant's assessment

3.1 I accept and adopt the site description provided in the AEE, including the zoning and description of existing activities.

3.2 I generally accept the methodology applied in the applicant's economic assessment (the UE report). That report provided an assessment of the demand for and supply of BGBZ and Business - Light Industry Zone ("BLIZ") land in Pukekohe, the role of the BGBZ generally, provision of retail space in Pukekohe, suitability of the Site for various business zones, and the benefits of enabling BGBZ on the PPCR area.

3.3 I agree with the UE report's assessment of:

- The distribution and role of business zones in Pukekohe.
- Pukekohe's projected population, and the need for some additional commercial land, including BGBZ, to accommodate the needs of the growing population.
- The catchments defined as a basis for the assessment.
- The very limited amount of BGBZ and BLIZ land in Pukekohe that is either vacant or for sale.
- The very limited amount of centre-zoned land in Pukekohe that is either vacant or for sale.
- The appropriate zones that could be applied to the Site, namely BLIZ and BGBZ, and that those two zones enable a range of activities that have a significant overlap.
- Both BLIZ and BGBZ would be appropriate zones for the Site due to the presence of both of those zones to the north, in the existing Manukau Road business area.
- There would be positive effects of residential development of the PPCR area, including increased supply of BGBZ land to provide for the future community's needs, and the ability to accommodate employment activities and contribute to employment self-sufficiency.

3.4 A core issue of the suitability of the BGBZ requested for the Sie is the potential effects on centres of new activities establishing on the Site, through the retail distribution effects the new activities might generate. The UE report does not quantify the magnitude of those potential effects, but rather points to requirements of the BGBZ that it concludes will limit the potential effects. I agree with the UE report's conclusions that:

- The BGBZ rules include provisions that seek to limit the type and magnitude of retail distribution effects on other centres of BGBZ activities.

- In the BGBZ retail tenancies that are smaller than 450m^2 require some assessment of effects, because tenancies of less than 200m^2 are non-complying, and those that are 200-450m^2 are discretionary activities. Further, department stores and supermarkets larger than 1,000m^2 are restricted discretionary activities, and the effect of those activities on other centre zones would be required under their Restricted Discretionary status (rule H14.8.1(5).
- Offices are permitted up to 500m^2 per site, beyond which they are a discretionary activity.
- These maximum size limits will limit the scale of distribution effects able to establish as permitted activities, and the requirement to assess effects on centres provides the opportunity to understand, I the resource consenting phase, the effects of activities that are not permitted.

3.5 I disagree with the UE report that other activities that are permitted in the BGBZ (which include commercial services, entertainment facilities, food and beverage tenancies, and healthcare facilities) are not considered to be "core town centre activities".[1] Those activities are all permitted in the town centre zone, and (with the possible exception of recreation services) are common activities in the Pukekohe town centre. Nevertheless, I agree with the UE report's implication that those types of activities would not establish in the BGBZ to a degree that is likely to have more than minor adverse effects on the town centre, because of the very dominant role of retail (rather than services and recreation etc.) activities within the BGBZ.

3.6 The AEE identifies[2] as a benefit that there would be a wide range of employment activities enabled on the Site if a BGBZ is approved. I agree with that, and note that these activities include light industry, large format retail, entertainment facilities, commercial services and trade suppliers. I note that the BGBZ accommodates on average (across Auckland) a greater average employment density to the BLIZ, at around 50 workers/ha in the BGBZ compared to 37 in the BLIZ.[3] For that reason, I agree with the AEE's assessment that there would be employment benefits of the requested BGBZ zoning, and I suggest that it is likely that employment on the Site could be greater under a BGBZ than a BLIZ zoning.

3.7 There are some aspect of the UE report's assessment with which I disagree, including:

- Catchment population growth relative to current levels.
- Additional large format retail ("LFR") floorspace required to support catchment demand.
- Benefits of infrastructure provision.

3.8 I do not further expand on the matters in the application with which I agree, but describe in the next section why I disagree with some aspects of the economic assessment.

4.0 Assessment of economic effects and management methods

4.1 In this section I identify the parts of the economic assessment with which I disagree or wish to make points of clarification, and explain the reasons for my disagreement and the likely effects on the environment of the PPCR. The key matters discussed below are:

[1] UE report, p28
[2] Page 16
[3] From business land modelling undertaken for the Unitary Plan hearings

a. Catchment population and LFR growth; and

b. Infrastructure.

Catchment population and LFR growth

4.2 While not strictly points of disagreement, there are several inconsistencies and points of clarification I wish to make on the UE report, in relation to stated growth rates.

4.3 The UE report states that "With the Pukekohe population forecast to double over the next few decades there will be ongoing demand for this type of retail space."[4] However the UE report numbers do not indicate that the population will anywhere near double. Figure 4 indicates that the population of Pukekohe (equivalent to the UE report's primary catchment) will increase from 25,550 people in 2018 to 36,940 in 2038. That is 45% growth over 20 years, with 48% growth projected in the secondary catchment, and 47% in the two catchments combined. That approximate 50% increase is referred to elsewhere in the UE report: "the Pukekohe population is forecast to have rapid growth, of an approximate 50% increase over the next two decades".[5]

4.4 Nevertheless, I accept UE's point that there is projected to be significant population growth in and around Pukekohe for the foreseeable future, and that that growth will require and sustain a significant increase in LFR space in Pukekohe.

4.5 A related issue is the assessment of the amount of LFR floorspace required in Pukekohe over the next two decades to support the needs of the catchments' (primary and secondary) needs. The UE report states that there will be demand for an additional 64,000m^2 of retail floorspace (arising from the catchments, presumably), and the UE RFI response clarifies that to say that approximately 42,000m^2 of that is demand for LFR. Two contradictory figures of current LFR supply are presented in the UE report: "there is approximately 52,500m^2 of large format retail in Pukekohe" (page 29), and "there is approximately 80,000m^2-85,000m^2 of large format retail in Pukekohe" (page 26).

4.6 In order for the stated 42,000m^2 of LFR demand growth to be consistent with both a stable per capita LFR provision,[6] and approximately 50% growth in the next two decades, then current supply is indicated to be in the order of 80,000-85,000m^2, not the lower (52,500m^2) amount in the UE report. I also estimate current LFR supply to be in the order of 80,000-85,000m^2, and that the Site cold accommodate about 24,000m^2 of LFR floorspace.[7] If demand growth is around 42,000m^2, that means that the Site (if rezoned) could provide for about to provide for just over half of additional LFR supply supported by the (primary and secondary) catchments for the next two decades.

4.7 That level of provision would be an appropriate share of catchment demand to accommodate on the Site for three reasons:

- The Site would be (if approved) the next major LFR destination to be able to be developed in Pukekohe, and therefore should be a primary focus of future LFR growth in the town.

[4] UE report, p10
[5] UE report, page 29
[6] As the UE RFI response states on page 2 to be an assumption of its assessment
[7] Given the approximately 24,000m^2 of GFA yield from the Site, which is consistent with the UE RFI response's statement that the Site will enable approximately 23,700m^2 of floor area

- Pukekohe is and is anticipated to remain the primary and largest LFR destination within the primary and secondary catchments.
- There would remain opportunity for other LFR space to establish elsewhere in the catchment, probably in Pukekohe given its primacy. That avoids a situation where there is only a single LFR development required in the catchment, which will provide some opportunity for competitors to also establish, encouraging a competitive land market.

Infrastructure

4.8 The UE report states that the zone change requested would "utilise existing infrastructure with a value of $10.3m"and that "this is a substantial economic benefit to weigh up in the rezoning decision".[8]

4.9 In my opinion the UE report presents a simplistic generalisation of this benefit, and it is not accurate to conclude the bulk infrastructure utilised will be worth $10.3m. As the UE report notes, the $10.3m number comes from the Future Urban Land Supply Strategy, and so refers to residential and non-residential developments in future urban areas, and so the cost of developing the Site for GBZ-type activities will inevitably be different from this average, because the cost of providing bulk infrastructure for 8ha of new dwellings will be much different to 8ha of large format retail stores (for example).

4.10 Further, costs of providing for infrastructure vary spatially, and the UE report does not take into account site-specific costs. These considerations do not make any material difference to the conclusions reached in either UE report, or my review.

5.0 Submissions

5.1 In this section I identify matters raised in submissions that are relevant to this statement, and provide my opinion on the submission points, in light of the assessment of effects provided above in section 4.0.

5.2 I have reviewed the six submissions lodged, of which three[9] do not contain any submission points that require response on economics matters, and three (submissions 4, 5 and 6) do. I do not respond to the two further submissions from Auckland Transport, which were both neutral.

5.3 The three submissions that require some response on economics matters contain two economics issues: reverse sensitivity, and the ability to accommodate a wider range of business uses.

Reverse sensitivity

5.4 Submissions 4 (Envirowaste, which operates the Pukekohe Refuse and Recycling Transfer Station in Austen Place, some 800m north-east of the Site) and 6 (Hira Bhana, which owns land to the immediate west of the Site) both raise the issue of potential reverse sensitivity effects as a result of the PPCR.

5.5 Submission 6 supports the PPCR subject to buffer zones being required within the Site, to avoid reverse sensitivity effects arising. Buffer zones are requested so as to avoid potential

[8] UE report, page 25
[9] #1 Buckland Road Trustees Limited, #2 Auckland Thoroughbred Racing Inc, and #3 Auckland Transport

complaints from future occupants of the Site in relation to the submitter's agricultural operations. The submitter is concerned that a BGBZ could compromise a lawful rural operation by seeking restrictions on when and how that operation can operate, or imposing "economic burdens" that could reduce operational viability.

5.6 In my opinion those are legitimate concerns that have the potential to constrain the submitter's permitted rural operations. However, these concerns are complicated by the fact that the Site is zoned Future Urban Zone, and is therefore intended to become an urban zone at some point in the future, subject to appropriate planning processes. The Pukekohe-Paerata Structure Plan 2019 indicates that the Site is anticipated to become BLIZ.

5.7 That means that the issue of reverse sensitivity is likely to need to be addressed at some point in the near future. The policy direction put in place by the National Policy Statement on Highly Productive Land ("NPS-HPL") gives weight to the need to avoid or mitigate such reverse sensitivity effects, partly due to recognition of the economic benefits of primary production on highly productive land.

5.8 No evidence has been presented to quantify the magnitude of the constrained production that might arise out of reverse sensitivity effects, and so from an economics perspective it is difficult to know whether any buffer is required, or what form it should take. So while I recognise the potential for reverse sensitivity effects arising from the PPCR, and support the potential need for some mitigation to avoid those effects arising, I would need to hear other evidence to make any recommendations about the actual need for mitigation measures such as a buffer.

5.9 Submission 4 opposes the PPCR and suggests that BLIZ would be a more appropriate zoning for the Site than BGBZ on the basis that other FUZ land in the area is recommended to be BLIZ, and applying a single BLIZ zoning across the entire FUZ area, as anticipated in the Structure Plan would avoid reverse sensitivity effects arising.

5.10 There are two aspects to this potential reverse sensitivity. First is the reverse sensitivity between rural activities and the non-industrial activities (e.g. commercial services, offices, retail) that would be permitted in the BGBZ. Commercial activities on the Site may be more sensitive to than industrial activities to reverse sensitivity effects, and therefore a BGBZ on the Site may be at greater risk of generating reverse sensitivity issues than a BLIZ would.

5.11 The second aspect of the reverse sensitivity issue is the sensitivity to BLIZ effects by activities in the BGBZ. The BGBZ and the BLIZ zones both have permitted activity status for most industrial activities, differing only for waste management facilities (permitted in BLIZ, but non complying in BGBZ). That similarity means that most of the industrial activities that would be permitted in the BLIZ are also permitted in the BGBZ, and so there is potential for the sort of reverse sensitivity effects raised in submission 4 to occur even within a single contiguous area of BGBZ.

5.12 Further, most of Auckland's BGBZ zones are adjacent to a BLIZ, including the large area of operative BGBZ in Pukekohe just north of the Site. I am not aware of any widespread reverse sensitivity effects arising from that adjacency of the BGBZ and BLIZ. On the contrary, the two zones appear to be deliberately applied in many places as a buffer to the BLIZ, or because of the similarity of activities and built form in the two zones.

5.13 For those reasons I do not consider that there would be a likelihood of reverse sensitivity effects arising from the BGBZ-BLIZ interface, due to the similarity of activities in those two

zones. I do consider that there could be potential for reverse sensitivity effects to arise as a result of the BGBZ-rural zone interface, and have responded to that issue in relation to submission 6 (above).

Activities enabled

5.14 Submission 5 is made by the landowner of 1 Webb Street, which has its north-eastern corner around 7 metres from the site's south-western corner, making the two sites almost adjacent. The submitter supports the PPCR on the grounds it would be generally consistent with the Structure Plan, and would provide for a more flexible and wider range of business activities than the BLIZ anticipated in the Structure Plan.

5.15 As I have stated previously, I agree that the BGBZ enables a similar range of permitted activities to the BLIZ, while also being more permissive of activities such as commercial services, offices and retail. That limits to some degree the similarity of the two zones, although I agree with the submission's point that the BGBZ requested would be generally consistent with the Structure Plan's anticipated BLIZ. I refer back to observations made about the similarity of the two zones under my response to submission 4 (above), including the adjacency of the two zones in many parts of Auckland.

5.16 Overall I agree with the thrust of submission 5 in that it supports the PPCR's enablement of a range of business activities.

6.0 Conclusions and recommendations

6.1 In my opinion the applicant has adequately assessed the potential economic effects of the PPCR, and has appropriately identified the range of negative and positive economic effects.

6.2 In my opinion the PPCR is generally consistent with the Pukekohe-Paerata Structure Plan and the type of activity anticipated to establish in the FUZ south of Pukekohe.

6.3 I believe that the PPCR would support a well-functioning urban environments in the context of the NPS-UD, which seeks to provide employment opportunities near where people live, and allows for co-location of commercial and retail activities on the Site with those in the established Manukau Road BGBZ and BLIZ area, which would be an efficient outcome in economics terms.

6.4 The PPCR would yield a number of positive economics outcomes, such as providing additional retail/commercial capacity and employment outcomes. I agree with the UE report that it is unlikely that any more than minor retail distribution effects would arise on centres, because the BGBZ limits the type of retail activity that can establish as a permitted activity, and requires assessment of effects on centres for activities that are not permitted.

6.5 Overall I do support the PPCR because of it would provide additional business land in a location that is central to an area of significant projected future growth, and would help to provide for the future needs of Pukekohe and surrounding areas' population.