LANDMATTERS

SUBMISSION – Porirua Proposed District Plan PUKERUA BAY–WAIRAKA

Pukerua Bay West, Porirua

Client: Carrad - November 2020

LANDMATTERS

SUBMISSION FOR: John Carrad

Prepared by:

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LANDMATTERS

RMA FORM 5

Submission on publicly notified Proposed Porirua District Plan

Clause 6 of the First Schedule, Resource Management Act 1991

To: Porirua City Council

1. **Submitter details:**

Full Name			
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2. This is a ***submission*** on the **Proposed District Plan** for Porirua.

3. I 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 point four below:

4. I am 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.

Note:
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.

5. I wish to be heard in support of my submission.

6. I will not consider presenting a joint case with other submitters, who make a similar submission, at a hearing.

Please complete section below (insert additional boxes per provision you are submitting on):

The specific provision of the proposal that my submission relates to:
See part 3.
Do you: Support? Oppose? Amend?
See part 3.
What decision are you seeking from Council? **What action would you like: Retain? Amend? Add? Delete?**
Reasons: See part 3.

1. BACKGROUND AND INTRODUCTION

Porirua City Council (PCC) has reviewed its Growth Strategy to guide how the City changes over the next 30 years. The Growth Strategy includes a review of the Northern Growth Area 2014 (NGA). Porirua City Council is looking to implement its Growth Strategy through its new District Plan. This document is a submission on Porirua's Proposed District Plan on behalf of the Carrad family who own land between Pukerua Bay, the coast, Coroglen Rise and the North Island Main Trunk Rail Line.

The land has aspect to the north and western hills on the property. The land has a number of public services laid across it including bulk water mains and sewer pipes draining wastewater from the Pukerua Bay township. These services have registered easements for the benefit of the local authorities.

The main area covered by this submission is the 'flatter' part of the land that has access from the end of Rawhiti Road and heading to the south. It does not address the steeper slopes of the property and excludes the current woolshed.

This document briefly describes the land, the general parts of the draft District Plan the submitter wish to have amended, and gives reasons for the requested amendments.

2. THE LAND

The land is located south of Pukerua Bay in Porirua. The property details are:

- Address: End of Rawhiti Road, Pukerua Bay
- Legal Description: none specified
- Certificates of Title: none specified
- Area: 272.9793ha.

3. THE SUBMISSION AND CHANGES SOUGHT

The submitter generally **supports** the following parts of the Proposed District Plan:

1. Showing part of the land as appropriate for **Urban Development** on the Planning Maps.

The submitter generally **opposes** the following parts of the Proposed District Plan:

1. Identification of the land as part of the Future Urban Zone (FUZ);
2. The location of the Stream Corridor and ponding Flood Hazards;
3. Removal of the Significant Amenity Landscape Area (SALA) from the land **or** amendment to the Natural Features and Landscape (NFL) provisions to provide a less restrictive planning framework for subdivision and development within a SALA. Amendment to the RLZ rules and standards to reinstate a 1ha minimum lot size and an average lot size of 2ha across the subdivision area;

4. The restrictive nature of the planning provisions in the FUZ including the objectives, policies, and rules.

The submitter **seek** the following general amendments to the document to better achieve the Purpose of the RMA and the Principles of the Growth Strategy:

A. **Amendments to the planning maps** to either identify part of the subject land as General Residential Zone (GRZ) or create a Specific Precinct (Wairaka) within the General Residential Zone to give effect to the Structure Plan prepared by Land Matters on behalf of the submitter.

Reasons: *The submitter has undertaken appropriate research consistent with the intent of policy FUZ-P2 1 and the guidelines in APP22 that has culminated in a structure plan prepared by Land Matters.*

The submitter has commissioned appropriate planning, ecological, transportation, and infrastructure experts to prepare its structure planning for the land. The structure plan is ***attached*** *to this submission. The land has been identified for many years as a future residential area and its development will compliment and expand on the existing Pukerua Bay settlement.*

B. **Amend or remove the FUZ provisions** to provide for a more flexible approach to development including the possibility of consenting new residential areas (discretionary activity) and a more flexible approach under policy FUZ-P1.

Reason: *A key principle in policy FUZ-P1 is to ensure residential areas are serviced by existing or planned infrastructure. However, the Proposed District Plan does not provide for flexibility and private investment into servicing. The land can be effectively serviced according to Council. The policy direction to require landowners to go through a second plan change process to enable urban expansion is inefficient and will 'sterilise' investment for growth and giving effect to the Growth Strategy.*

C. **Without limiting the general opposition in A and B above,** the specific parts of the plan the submitter seeks.

Plan Provision	Support/ Oppose	Reason	Relief Sought
Part 2 – Strategic Objectives: UFD-02 and UFD-04	**Support**	**It is important for Council to make provision for new urban development where it can be serviced.**	***Retain the objectives as proposed.***
Part 2 – Natural Environment Values	**Oppose**	**The submitter opposes this section of the Proposed District Plan as it relates to SALA's. If a SALA is to be identified within the District Plan, the provisions need to reflect that they exist within context of a growing city.**	*Amend the provisions of the Natural Environment Values part of the plan to the following (or similar intent):* ***NFL-02*** ***The identified characteristics and values of the Special Amenity Landscapes are maintained and, where***

			practicable, enhanced <u>within context of growth of the City.</u> ***NFL-P3*** ***Except … where it:*** *1. Avoids significant adverse effects … Outstanding Natural Features and Landscapes ~~and SCHED 10 – Special Amenity Landscapes~~; and* *2. Can demonstrate …* *e. How buildings …* *ii. Maintain the identified characteristics and values in SCHED10 – Special Amenity Landscapes <u>within context of anticipated growth of the City;</u>* ***NFL-P5*** ***Subdivision in the Rural Lifestyle Zone, <u>Settlement Zone, or a Precinct Area and</u> within a Special Amenity Landscape*** *Control subdivision in the Rural Lifestyle Zone, <u>Settlement Zone or a Precinct Area and</u> within a Special Amenity Landscape to ensure that the size of any allotment and the location of a building platform:* *1. Maintains the identified characteristics and values of the Special Amenity Landscape described in SCHED10 – Special Amenity Landscapes <u>within context of form and anticipated growth of the City.</u>* ***NFL-P5 Subdivision in the Rural Lifestyle Zone, <u>Settlement Zone or Precinct Area</u> within a Special Amenity Landscape*** *Control subdivision in the Rural Lifestyle Zone,*

			Settlement Zone or Precinct Area within a Special Amenity Landscape to ensure that the size of any allotment and the location of a building platform: *1. Maintains the identified characteristics and values of the Special Amenity Landscape described in SCHED10 – Special Amenity Landscapes within context form of the City and anticipated growth;* ***NFL-P6 Earthworks*** *~~Only~~ allow earthworks …* ***NFL-P8 Special Amenity Landscapes (in the coastal environment)*** *~~Only~~ allow subdivision … having regard to:* *1. The compatibility of scale, location and design of built form with the identified characteristics and values within context form of the City and anticipated growth;* ***NFL-R1 Earthworks or land disturbance within … or Special Amenity Landscape*** ***~~All Zones~~** ~~3. Activity Status: Non-complying~~* *Delete this non-complying rule and replace it with a discretionary activity rule for Special Amenity Landscape Areas.* ***~~NFL-R12 Any activity not otherwise listed as permitted, controlled, restricted discretionary, discretionary or non-complying~~*** ***~~All zones~~** ~~1. Activity Status:~~*

			~~***Non-complying***~~ *Delete this non-complying rule and replace it with a discretionary activity rule for Special Amenity Landscape Areas.*
Part 2 – Subdivision: SUB-04	**Oppose**	**If Council is going to continue with a FUZ the objectives and policies need to provide for flexibility for investment/funding options for landowners/developers. The objective should also reflect that services can be provided where the impact on current infrastructure can be minimized.**	***Amend Objective SUB-04 to (or similar intent):*** *Subdivision within the Future Urban Zone to support investment and funding of new urban development including ~~does not result in the fragmentation of sites that would compromise the potential of~~: 1. The Judgeford Hills and Northern Growth Areas of the Future Urban Zone to accommodate ~~integrated~~ service~~d~~s ~~and~~ primarily for residential urban development:*
Part 2 – Subdivision	**Oppose**	**There will be situations where landform and natural features dictate the pattern of subdivision layout. The policy wording needs to reflect this.** **The removal of a 1ha minimum lot size in the RLZ will limit the ability of subdivision design for landscape values. A 1ha minimum lot size in the RLZ is an appropriate method for innovative subdivision design.**	*Amend the provisions of the subdivision part of the plan to the following (or similar intent):* ***SUB-P9 Subdivision in the General Rural Zone, Rural Lifestyle Zone and Settlement Zone*** *Provide for subdivision where it does not compromise the purpose, character and amenity values of the Zone, having particular regard to:* *1. Enabling cluster development, where it ensures the retention of a large balance lot;* *~~2. Discouraging the layout of lots in a linear pattern along roads;~~* ***SUB-S1*** *Rural Lifestyle Zone* *All allotments created must have a minimum allotment size of ~~2~~1ha and an average allotment size of 2ha across the subdivision site.*

Part 2 – Subdivision: SUB-P5	**Oppose**	**Parts 1, 3 and 5 of the policy do not promote innovation or alternate means of infrastructure provision. The policy would be improved with some flexibility.**	***Amend Policy SUB-P5*** *to (or similar intent): ~~Require~~ Encourage infrastructure to be provided in an integrated and comprehensive manner by: 1. Ensuring infrastructure meets Council standards and has the capacity to accommodate the development or anticipated future development in accordance with the purpose of the zone, and is in place, provided for or funded at the time of allotment creation; 3. Generally Requiring reticulated wastewater, reticulated water and stormwater management systems in all Urban Zones to meet the performance criteria of the Wellington Water's Regional Water Standard May 2019. Alternatives solutions for infrastructure will be supported where information is provided that proposals meet a similar level of performance. 5. Ensuring telecommunications and power supply is provided to all allotments, including consideration of wireless solutions for telecommunication.*
Part 2 – Subdivision: SUB-P7	**Oppose**	**The policy has been formulated in a rigid manner and is can be improved through provision of flexibility.**	***Amend Policy SUB-P7 to (or similar intent): ~~Avoid~~ Manage subdivision within the Future Urban Zone so that ~~may result in~~ one or more of the following does not occur: 2. The need for significant upgrades, provisions or extensions to the reticulated wastewater, reticulated water supply or stormwater networks, or other infrastructure in advance of integrated urban development where that infrastructure is not otherwise provided for within the development and/or***

			contributed to through fair funding;
Part 2 – Subdivision: SUB-R1 & SUB-S1 Future Urban Zone 7.	**Oppose**	**A non-complying activity rule and the standards requiring a 40ha minimum lot size is restrictive and will not provide a planning frameworks to encourage necessary investment for development funding.**	***Amend** the rules and standards for the FUZ to match the General Rural Zone. Delete non-complying activities as they relate to the FUZ and replace with Discretionary Activity rules.*
Part 3 – Future Urban Zone (FUZ). Entire Chapter provisions FUZ-01 to FUZ-S7. Including APP11 – Future Urban Zone Structure Plan Guidance and planning maps as they relate to the land that the submitter has an interest in.	**Oppose**	**The suite of provisions relating to the FUZ are essentially monopolizing future urban land supply to one area of the City. This approach does not provide appropriate market forces and choice on the land supply side.**	***Delete** the Future Urban Zone provisions from the District Plan and provide for the submitters land interest in the General Residential Zone: **or** (in the alternative);* *Identify the submitters land interest as 'The Wairaka Precinct' and adopt provisions similar to Proposed Plan Change 18 for the precinct for relevant parts of the land: **or** (in the alternative): amend the objectives, polices and rules to provide a resource consenting path for urban development in the FUZ including (but not limited to)-* ***FUZ-01*** ***The Future Urban Zone allows ...*** *1. The ... Northern Growth Area to accommodate ~~integrated~~, serviced and primarily residential urban development;* ***FUZ-02*** *The Future Urban Zone supports appropriate rural use and development, and maintains the character and amenity values of the General Rural Zone until such time as it is rezoned or consented for urban purposes.* *FUZ-P1* *Identify areas for future urban development as the Future Urban Zone where these:* *2. Are of a size, scale and*

			location which could accommodate comprehensive and integrated future development that: 1. *Is serviced by infrastructure or planned to be serviced by infrastructure in the Council's Long Term Plan or the effects on existing infrastructure can be mitigated through provision of new services within the development site;* 2. *Is connected to or planned to be connected to the transportation network where the effects on the network are minor and/or can be mitigated.* ***FUZ-P2*** ***~~Only~~ provide for urban development within a Future Urban Zone when:*** *1. A comprehensive structure plan for the area has been developed in general accordance with the guidelines contained in APP11 – Future Urban Zone Structure Plan Guidance ~~and adopted by Porirua City Council~~; and* *2. The area has been rezoned or consented as a Development Area which enables urban development.* ***FUZ-R16A Subdivision and Development in the Wairaka Precinct Area*** *1. Activity Status: Discretionary* *Notification and Natural Hazards:* • *An application under this rule is precluded from being publicly*

			notified in accordance with section 95A of the RMA. • Activities considered under this rule are exempt from the rules relating to Natural Hazards (NH) and those District Wide Matters will be considered under section 106 of the RMA. *APP11 – Future Urban Zone Structure Plan Guidance* *Where applicable, relevant and appropriate a structure plan is to identify, investigate and address the matters set out below.*
Part 3 – Area Specific Matters Rural Lifestyle Zone – entire chapter	**Support.**	**The RLZ will provide for opportunities for people to live in a rural setting but within a small allotment size. The submitter requests the RLZ retained.**	*Retain the RLZ*
Part 4 Appendices and Schedules SCHED10 – Special Amenity Landscapes	**Oppose**	**The submitter opposes this schedule of the Proposed District Plan as it relates to SALA's. If a SALA is to be identified within the District Plan, the provisions need to reflect that they exist within context of a growing city.**	*Amend SCHED10 (007) as it relates to the SALA over the land to reflect the landscape values are within a broader context of a growing City.*

In general, there is an opportunity to master plan the Carrad (Wairaka) property for the benefit of Council and stakeholders with an interest in the area. We consider the opportunity to manage over 25ha of the Taupo Swamp catchment through a structure plan is a strategic decision in line with the overall intent of the Growth Strategy. Potential outcomes can include catchment protection, environmental enhancement through planting, and controls on future land use to manage the urban form of this area. The general thrust of this submission to enable the subject land as part of the residential zone is supported by the following technical information (also **attached**):

Appendix 1: *Wairaka Structure Plan – Land Matters Limited*

Appendix 2: *Vehicular Access Assessment (Tim Kelly Transportation Planning)*

Appendix 3: *Carrad – Preliminary Ecology Survey (RMA Ecology)*

APPENDIX 1


LEGEND
ROAD CARRIAGEWAY
POTENTIAL OFFSET STORAGE AREA
WETLAND AND STREAM OFFSET
RESIDENTIAL DEVELOPMENT AREA
WATERMAIN TO RESERVOIR
ROAD LEGAL BOUNDARY
EXISTING PARCELS
EXISTING STREAM
INDUCED WETLAND
EXISTING WATERMAIN TO RESERVOIR
PROPOSED SUBDIVISION BOUNDARY
RAWHITI ROAD
BLOCK 4 1.32 HECTARES
BLOCK 8 0.62 HECTARES
BLOCK 12 1.05 HECTARES
BLOCK 5 0.90 HECTARES
BLOCK 1 0.33 HECTARES
STORMWATER OFFSET STORAGE 0.69 HECTARES
BLOCK 7 0.64 HECTARES
Pt Lot 1 A 831 WN228/279
Future Road Connection (south)
BLOCK 15 0.82 HECTARES
BLOCK 13 0.43 HECTARES
BLOCK 6 0.52 HECTARES
BLOCK 3 0.23 HECTARES
BLOCK 2 0.56 HECTARES
BLOCK 11 0.88 HECTARES
BLOCK 14 1.13 HECTARES
BLOCK 9 0.82 HECTARES
BLOCK 10 0.55 HECTARES
STORMWATER OFFSET STORAGE 0.38 HECTARES
STORMWATER OFFSET STORAGE
N.I.M.T.
N.I.M.T
PREPARED BY
LANDMATTERS
CLIENT
JOHN CARRAD
PROJECT
PUKERUA BAY
DRAWING TITLE
INDICATIVE NEW RESIDENTIAL DEVELOPMENT - CARRAD STRUCTURE PLAN - WAIRAKA
DATE 19/11/20
PROJECT NO. J531
SCALE 1:1000 @ A1
1:2000 @ A3
DRAWING NO. J531-SK-PL-001-B
REV

APPENDIX 2

9 May 2019

c/o Land Matters
20 Addington Road
RD1, OTAKI 5581

For the attention of: **John Carrad**

tim kelly
transportation
planning
limited

John

Potential Residential Subdivision
Review of Traffic Issues

Background

The Porirua City Council (**PCC**) has identified land in its Growth Strategy for potential residential development, including land to the south of Pukerua Bay.

Accessibility to residential development in this area will be an important consideration in the potential re-zoning of the land and the development of a masterplan to guide development. While the opening of the Transmission Gully (**TG**) project in 2020 will provide significant traffic relief to the existing State Highway (**SH1**) route, the provision of safe and efficient vehicular access to/from the former SH1 route will be essential to service the land.

This document reviews issues associated with the provision of vehicular access to land located on the western side of SH1.

Existing Road & Traffic Environment

Location

The potential development land is shown by **Figure 1**. This is located on the southern side of the Pukerua Bay urban area, with the rail corridor and SH1 on its eastern side.

Road Environment

The existing legal access to this land is by means of Rawhiti Road, which provides access to SH1 via Teihana Road West.

Rawhiti Road runs to the north and south of the Teihana Road West intersection, with both branches being cul-de-sacs. The section to the south is 390m in length and residential in character with frequent driveways. Within a road reserve of 20m, this provides a single carriageway 9-9.5m in width with footpaths and unrestricted kerbside parking to both sides. Intersections with Kapekape Place and Kotipu Place are both uncontrolled.

The Rawhiti Road / Teihana Road West intersection is priority controlled, with movements from Teihana Road West required to give-way. The sight-lines available for turning movements are good, with this section of Rawhiti Road being straight.

tim kelly transportation planning limited
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web: www.tktpl.co.nz

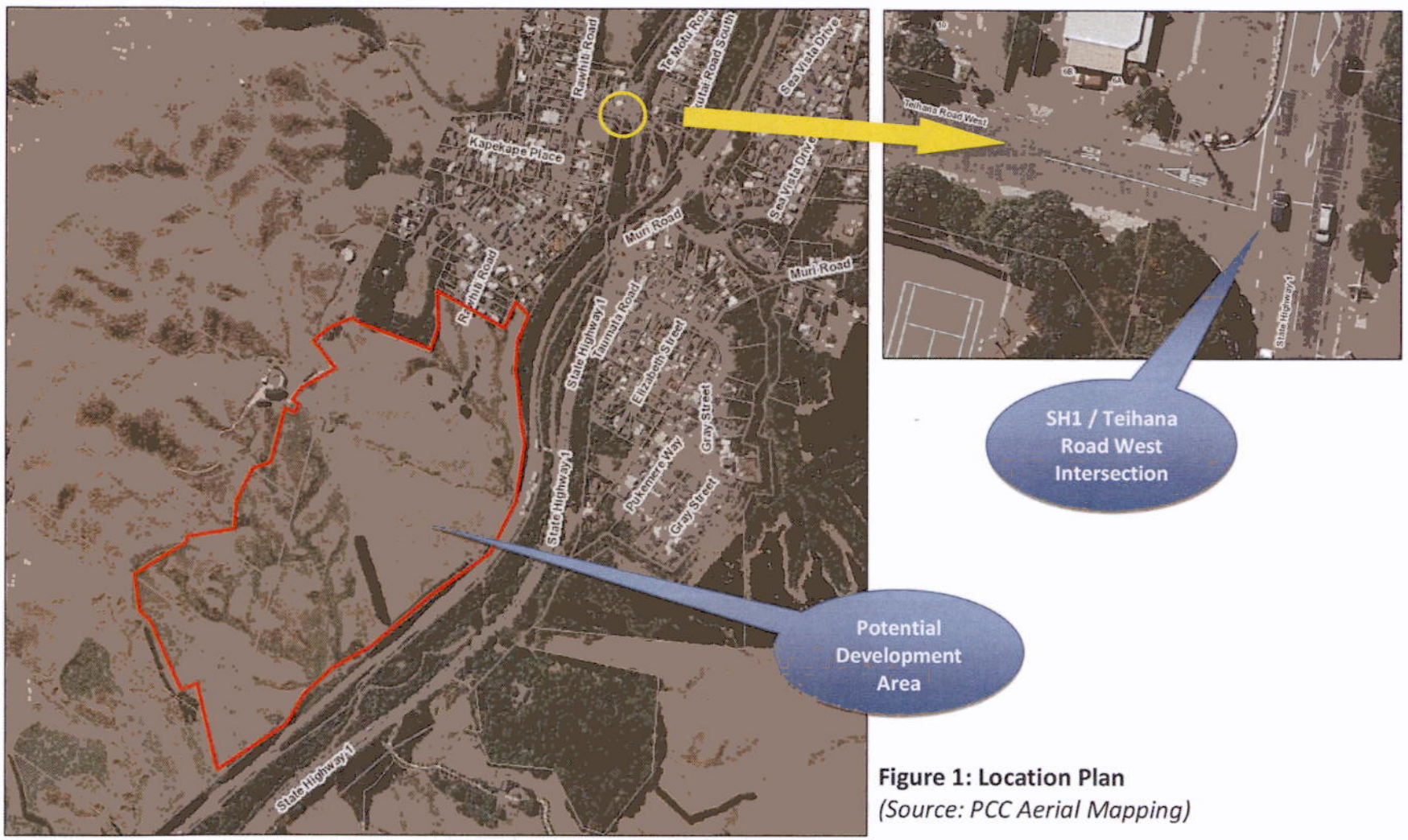


Figure 1: Location Plan
(Source: PCC Aerial Mapping)

Teihana Road West is under 100m in length and connects Rawhiti Road with SH1 at its eastern end. Teihana Road West has a carriageway 9.7m wide with footpaths to both sides. Kerbside parking is unrestricted on the south side but prohibited on part of the northern side by broken yellow lines.

The SH1 / Teihana Road West intersection is priority controlled with movements from Teihana Road West being subject to give-way controls. A short (17m) ancillary lane is provided for vehicles turning right from SH1 (north) with a similarly short holding area for southbound vehicles from Teihana Road West to merge into the southbound traffic stream. The available sightlines to the north (left) and south (right) are approximately 90m and 130m respectively.

All roads in this area are subject to a 50 km/hr speed limit and street lighting is provided.

Photographs at **Annexure A** show the general road conditions in this area.

Existing Traffic Volumes

PCC supplied summary count information indicating that Teihana Road West had a typical daily volume of 1,100 vehicles/day in March 2012.

Surveys of vehicle turning movements at the SH1 / Teihana Road West intersection were undertaken during representative weekday AM and PM peak periods on Tuesday 9 April 2019. The results, summarised at **Annexure B, Table B1**, indicate that the predominant movements are the turns to/from the south (right turn exit / left turn entry), with up to 101 vehicles using Teihana Road West during in a 30-minute period. Peaks in traffic activity are associated with commuters and vehicle movements associated with the Pukerua Bay primary school.

For SH1, detailed count information for a recording station to the north of Pukerua Bay has been obtained from the NZ Transport Agency (**NZTA**). This information relates to a typical week in March 2019.

Typical daily two-way traffic volumes are 27,200 vehicles/day (5 weekday average) and 26,900 vehicles/day (7-day average). Peak volumes are 1,800 – 2,400 vehicles/hour, with the highest volumes occurring during a Friday mid-afternoon period.

Heavy vehicles form around 9% of the average daily flows.

A comparison of combined two-way traffic profiles over an average weekday, Saturday and Sunday is shown by **Figure B1, Annexure B**. Weekdays exhibit morning and afternoon peaks associated with commuter activity, while weekends sustain high volumes during the late morning to mid-afternoon period.

A directional profile of this count for a full one-week period is shown by **Figure B2, Annexure B**. This shows the uniformity of traffic patterns Monday – Thursday. Travel associated with the weekend is evident in higher northbound peaks on Friday afternoon, and southbound peaks on a Sunday afternoon.

Crash History

The crash history for this area (Rawhiti Road, Teihana Road West and SH1 to either side of the intersection) since January 2014 has been obtained from the database maintained by the NZTA and is summarised at **Annexure C, Table C1**.

The causes of the 10 incidents recorded in this area have been:

- a failure to stop on SH1 for slow moving or stationary traffic (4);
- a failure to give-way when exiting Teihana Road West to SH1 (2);
- a loss of control on SH1 (1 due to fatigue, 1 due to excess alcohol);
- a loss of control at the Rawhiti Rd / Kotipu Place intersection; and
- a cycle on SH1 changing lanes.

A number of these crashes are symptomatic of the high traffic densities on SH1, resulting in drivers from the side roads taking small gaps in approaching traffic and frequent stopping / slowing of the main traffic movements. The significant reductions in traffic densities on this route arising from the opening of the TG project (described below) can be expected to result in proportionate reductions in crash frequencies in this area.

By law, only those crashes involving personal injuries are required to be reported. Accordingly, it is possible that a number of other non-injury crashes may have occurred which have not been included in these records.

Future Traffic Environment

Transmission Gully

The Transmission Gully (**TG**) motorway project is currently programmed to open to traffic in mid-2020. This will connect MacKays Crossing to the north with Linden to the south, providing a 27kms four-laned route which will bypass Paekakariki, Pukerua Bay, Plimmerton, Paremata and Mana.

The application of tolls to the TG route is under consideration, both as a means of funding the project and also as a potential means of controlling levels of private vehicle use.

SH1 Revocation

The new route will become SH1 with the existing state-highway status likely to be revoked from the current route. This route would then become the responsibility of PCC as a local road, though this is currently understood to be the subject of negotiations between PCC and the NZTA, linked to the possibility of tolls being applied to the TG route.

Logically, the standard of the road would be changed to reflect its change in status and reduced traffic volumes. Again, this would be affected by any decision regarding tolls.

For assessment purposes, traffic modelling of the TG project in 2011 assumed that a package of measures would be applied to the existing SH1 route. This package, which was agreed with PCC and the NZTA at the time, included:

- a lowering of the speed limit to 80km/hr (Plimmerton – Pukerua Bay);
- retention of two lanes in each direction (Plimmerton – Pukerua Bay); and
- traffic signals to control side road intersections in Pukerua Bay (incorporating pedestrian crossing phases).

These measures were regarded as a means of improving safety on this route as well as providing a further incentive for through traffic to use TG.

Forecast Traffic Volumes

The 2011 traffic modelling of the TG project was undertaken as part of the Assessment of Environmental Effects (**AEE**) in support of applications for the Notice of Requirement (**NoR**) and consents for the project.

This modelling[1] reported forecast traffic volumes in 2026 for scenarios without TG (the 'Do-Nothing') and with TG, for representative AM (7-8am), Inter (11am-1pm average) and PM (5-6pm) peak periods for a typical weekday, in addition to Annual Average Daily Traffic (**AADT**) volumes. The assessments assumed no tolls were to be applied to the TG route.

Forecasts for the section of SH1 to the south of Pukerua Bay are summarised by **Table 1**. Reductions in traffic volumes of 69 – 81% were forecast, depending upon the time period and direction of travel.

The rate of traffic growth in this corridor has been higher than expected when these forecasts were made in 2011. As a result, the existing daily volume (27,200 vehicles/day for March 2019 reported above) is higher than the forecast daily volume for 2026 without the TG project in place (24,100 vehicles/day). Although the forecast percentage reductions in traffic volumes can be expected to remain valid, the absolute reductions will be larger than those forecast in 2011.

Scenario	Period	Northbound	Southbound	2-Way
2026 Do-Nothing	AM	570	1,280	1,850
	IP	670	660	1,330
	PM	1,210	720	1,930
	AADT	11,900	12,200	24,100
2026 TG	AM	140	400	540
	IP	150	170	320
	PM	310	140	450
	AADT	2,790	3,140	5,930
2026 Effect of TG	AM	-75%	-69%	-71%
	IP	-78%	-74%	-76%
	PM	-74%	-81%	-77%
	AADT	-77%	-74%	-75%

TABLE 1: Forecast Traffic Volumes, 2026

(AM/IP/PM are vehicles/hour, AADT is vehicles/day)

Potential Development

Concept

At this stage, no specific development proposal has been prepared. The general concept is for a residential development comprising at most 300 dwellings.

[1] *Transmission Gully Project: Assessment of Traffic & Transportation Effects. Technical Report 4 of AEE. SKM. June 2011.*

Vehicular Access

The provisional proposal is for the development to be serviced by a single vehicular access point connecting to the southern termination point of Rawhiti Road.

The purpose of this assessment is to determine the ability of the road network in this area, particularly the SH1 / Teihana Road West intersection, to accommodate the additional vehicle movements associated with residential development.

Assessment of Future Road Network with Development

Assessment Periods

The periods of peak vehicular activity on SH1 have formed the basis of the assessment:

- weekday AM peak (8 - 9am); and
- weekday PM peak (4 - 5pm).

Conditions have been assessed for the year 2025.

Background Traffic Volumes

Future through movements on SH1 at the Teihana Road West intersection have been estimated by the application of the forecast reductions resulting from the TG project to the existing (March 2019) traffic volumes. These have been factored to 2025 at an assumed growth rate of 1% per annum.

Traffic Generation & Distribution

For the purposes of estimating the generated vehicle movements associated with the residential development, it has been assumed that:

- each dwelling generates an average of 8 vehicle movements/day;
- 10% of these vehicle movements occur in each of the weekday AM and PM peak periods;
- during the weekday AM peak period, two-thirds of these vehicle movements are outbound and one-third inbound, with the opposite for the weekday PM peak period; and
- 15% of the vehicle movements are to/from the north, with 85% to/from the south[2].

On this basis, a development of 300 dwellings would generate an additional 2,280 vehicle movements a day, with 228 vehicle movements an hour in the weekday peak periods.

Rawhiti Road & Teihana Road West

These roads have wide cross sections and would be easily capable of accommodating the additional traffic activity with only minor impacts upon conditions experienced by existing users. The introduction of 'give-way' controls may be required at the existing uncontrolled side roads on Rawhiti Road.

SH1 / Teihana Road Intersection Performance

As described above, the signalisation of this intersection was included as part of a package of measures assumed to be applied to the SH1 route post-TG, for the purposes of the original modelling. However, the removal of large volumes of through traffic by TG will itself

[2] *Based upon the observed directional distribution of turning movements at the Teihana Road (west) intersection.*

significantly reduce the delays experienced by vehicles turning at this location and signalisation might be used primarily to provide a safe pedestrian crossing facility.

For a 'worst-case' assessment, retention of the intersection in its current form has been assumed. The performance of the intersection has been assessed using the computer program SIDRA[3] for the weekday AM and PM peak periods in 2025. These results (summarised at **Annexure D**) indicate that:

- all vehicle movements on SH1 in would operate at Level of Service (**LOS**[4]A); and
- low levels of delay (12 – 15 seconds, LOS B) would be experienced by the right-turn exit movement from Teihana Road West.

Sensitivity Testing

The original 2011 modelling for the TG project recognised that the split of future traffic volumes between the TG and existing SH1 routes could be sensitive to assumptions made relating to the treatment applied to the existing route. A tested scenario which assumed no changes were made to the existing route indicated that the residual volumes would be 48% higher to the south of Pukerua Bay. This is because the higher speeds possible on the existing route would attract some trips which would otherwise use TG.

For this assessment, the following sensitivity tests have been undertaken:

- residual traffic volumes 50% higher than forecast; and
- residual traffic volumes 100% higher than forecast.

Results for these tests indicate that:

- the through movements on SH1 and the left-turn entry movement would continue to be unaffected (as these have priority);
- the right-turn entry movement from the north would operate at LOS A with low levels of delay, except for the PM peak under the 100% test, when this deteriorates to LOS B with delays of 12 seconds;
- the left-turn exit movement from Teihana Road West would operate at LOS A with low levels of delay (up to 9 seconds); and
- the right-turn exit movement from Teihana Road West is sensitive to levels of through traffic, deteriorating to LOS E (50% test) or F (100% test) with high associated levels of delay.

These results are considered to represent a 'worst-case', for a number of reasons:

- the number of additional residential units assumed, 300, is the upper limit upon development and lower levels of 200 – 250 units are more likely;
- vehicle movements associated with the transportation of children between the development and the primary school would not be required to exit to the state highway;
- the critical right-turn exit movement from Teihana Road West has been assumed to be required to secure gaps in both the northbound and southbound traffic streams at the same time – but in practice, the availability of a holding area in the centre of the

[3] *Signalised and Un-signalised Intersection Design and Research Aid.*

[4] *Level of Service is a six-point scale used to describe traffic conditions, in which LOS A represents free-flow conditions and LOS F represents heavily congested conditions.*

intersection means that some drivers will undertake the manoeuvre in two parts, with associated lower levels of delay; and

- the 100% test represents a very pessimistic scenario in terms of the expected diversion of vehicle trips to the TG route.

Two further tests were undertaken for the AM peak period with an assumed 100% increase in the residual traffic volumes on SH1:

- with all development related traffic removed - the critical right-turn movement from Teihana Road West would still be subject to high levels of delay and LOS E;
- with full development and control of the intersection by two-phase traffic signals (incorporating a pedestrian crossing) - while delays would be introduced to the SH1 through movements, all approaches would operate with satisfactory levels of delay (overall LOS B and average delay 14 seconds).

These results suggest that the need for traffic signals at this intersection will be determined primarily by levels of residual traffic activity on SH1 and the need for a pedestrian crossing facility which is both safe and convenient, rather than the effects of development. The delays to SH1 through movements would provide an incentive to drivers to use the TG route and the signal timings could be used as a tool to discourage through traffic movements.

Construction Access

Earthworks and construction activity within the development area could (depending upon the cut/fill balance for the site as a whole) generate a significant number of heavy vehicle movements to and from the site. Potential effects associated with the use of the local road network by such vehicles would need to be managed through appropriate controls in a Construction Traffic Management Plan (**CTMP**).

Compliance with District Plan & NZTA Requirements

District Plan

The relevant plan is the Porirua City District Plan (**PCDP**). The site lies within the 'Rural' zone but adjoins the 'Suburban' zone (which includes the existing sections of Rawhiti Road and Teihana Road West).

Part H of the PCDP classifies this section (Plimmerton to Pukerua Bay) of SH1 as a 'Major Rural Arterial'. This status may eventually be reviewed as part of the revocation process. Teihana Road West and Rawhiti Road are both classified as 'local' roads.

While the development itself is subject to design, there appears to be no reason why the external access arrangements could not comply with the relevant objectives, policies and rules relating to the rural zone and district-wide transportation matters.

NZTA

The NZTA One Network Road Classification (**ONRC**) system categorises this part of SH1 as a 'National / High Volume / Rural' road, as this currently carries more than 20,000 vehicles/day, with more than 1,200 heavy vehicles a day. Categorisation after the opening of TG will be governed by the level of residual traffic, which in turn will be determined by any tolling applied to TG. Without tolling, and based on the expected traffic reductions, it is likely that an 'Arterial' or 'Regional' categorisation would be appropriate.

Any modifications to the SH1 / Teihana Road West intersection would form part of the revocation package of works applied to the existing SH1 route and would be governed by residual traffic activity post-TG and the need to ensure the convenience and safety of pedestrians and exiting traffic movements, irrespective of development.

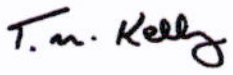
Conclusions

This assessment has addressed the ability to provide vehicular access to land currently accessed from Rawhiti Road in Pukerua Bay, and concludes that:

- any development of this area would follow the opening to traffic of the Transmission Gully (**TG**) route, resulting in a significant diversion of traffic away from the existing SH1 corridor;
- the local road network (Rawhiti Road and Teihana Road West) within Pukerua Bay is constructed to a high standard and would be easily capable of accommodating additional traffic associated with development, with only a possible need for the introduction of controls at currently uncontrolled intersection;
- with the currently forecast levels of traffic diversion to the TG route, this intersection in its current form can accommodate the additional development traffic with acceptable levels of delay during the weekday peak periods; and
- the need for signalised control of the existing SH1 / Teihana Road West intersection will be primarily governed by the level of residual traffic on SH1 (which in turn may be determined by the application of tolls to the TG route) and the need to provide for safe and convenient pedestrian crossing facilities, irrespective of the development.

Overall, vehicular access is able to be formed in a manner which would avoid any significant adverse effects upon either the safety or efficiency of the existing SH1 route in the post-TG operating environment.

Yours sincerely,



Tim Kelly
Tim Kelly Transportation Planning Limited
(Phone: 027-284-0332, E-mail: tim@tktpl.co.nz)

ANNEXURE A: EXISTING ROAD ENVIRONMENT - PHOTOGRAPHS

Photo 1

View to N of SH1 / Teihana Road West intersection

(November 2018)

Photo 2

View to S of SH1 / Teihana Road West intersection

(November 2018)

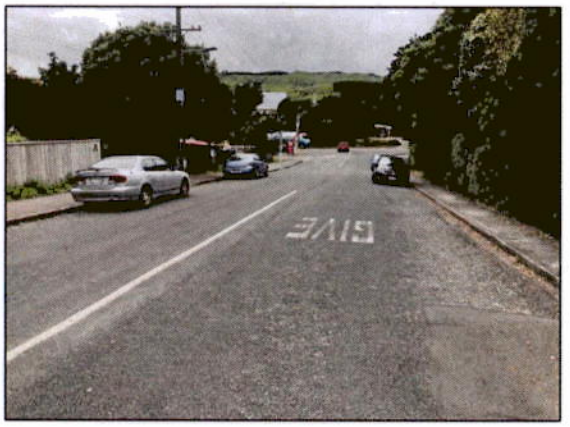


Photo 3

View to SE along Teihana Road West towards SH1 intersection

(November 2018)

Photo 4

View to N along Rawhiti Road towards Teihana Road West intersection

(November 2018)

Photo 5

View to S along Rawhiti Road

(November 2018)

Photo 6

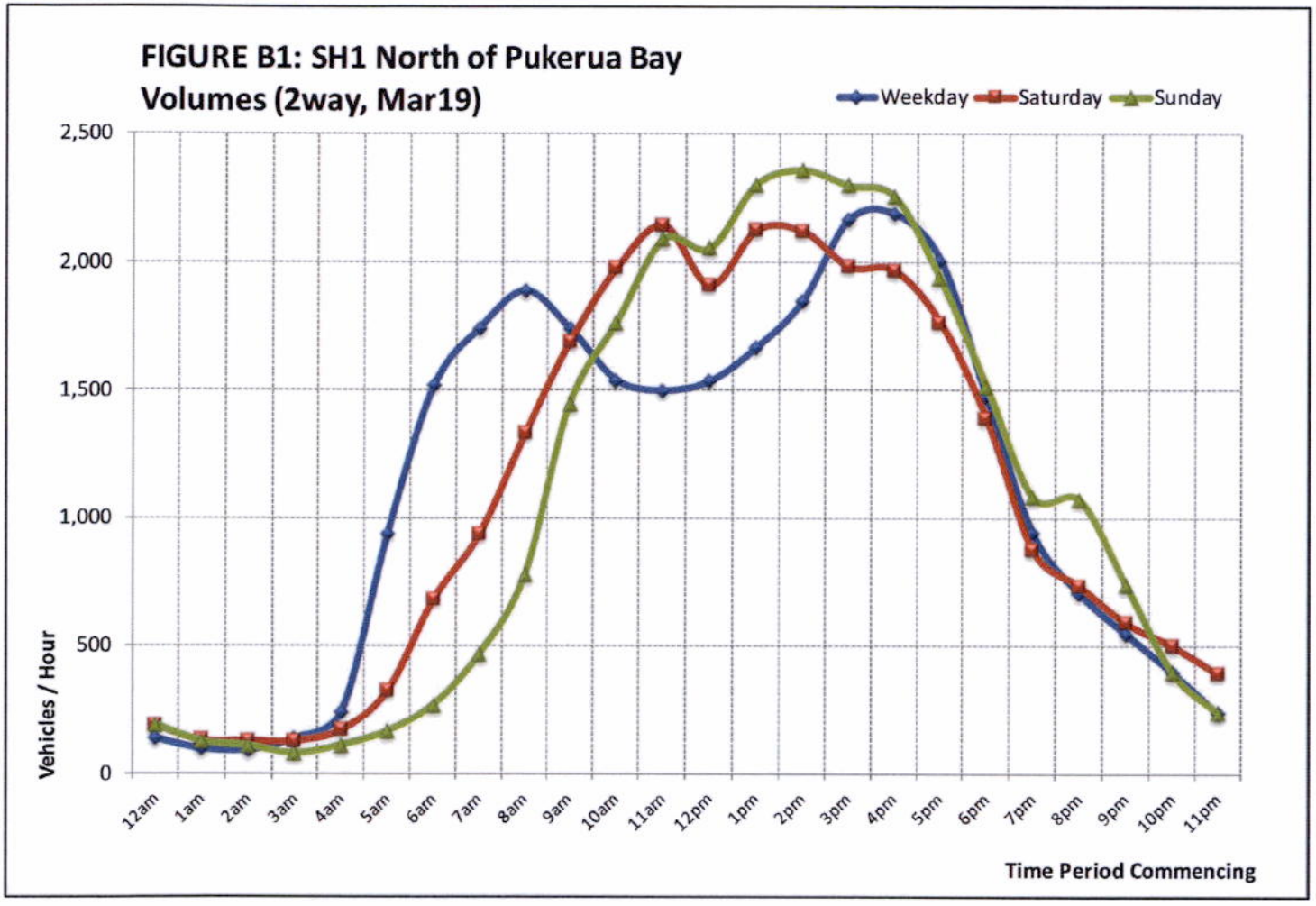
View to S along Rawhiti Road close to road-end

(November 2018)

ANNEXURE B: EXISTING TRAFFIC VOLUMES

FROM:	From: Teihana Road (west)						From: State Highway 1 (North)			From: State Highway 1 (South)			TOTAL
TO:	State Highway 1 (North)			State Highway 1 (South)			Teihana Road (West)			Teihana Road (West)			
Movement	A			B			C			D			
	LEFT TURN			RIGHT TURN			RIGHT TURN			LEFT TURN			
Time Period	Light Vehs	Heavy Vehs	Total	Light Vehs	Heavy Vehs	Total	Light Vehs	Heavy Vehs	Total	Light Vehs	Heavy Vehs	Total	
06.30 - 07.00	2	0	2	24	1	25	0	0	0	1	0	1	28
07.00 - 07.30	3	0	3	21	2	23	2	0	2	3	0	3	31
07.30 - 08.00	2	0	2	38	2	40	1	0	1	8	0	8	51
08.00 - 08.30	1	0	1	46	0	46	7	1	8	16	0	16	71
08.30 - 09.00	7	0	7	55	0	55	7	0	7	32	0	32	101
09.00 - 09.30	4	0	4	18	0	18	2	0	2	24	0	24	48
TOTAL	19	0	19	202	5	207	19	1	20	84	0	84	330
14.30 - 15.00	5	0	5	27	1	28	8	0	8	21	0	21	62
15.00 - 15.30	7	0	7	46	1	47	7	0	7	39	1	40	101
15.30 - 16.00	4	0	4	9	0	9	3	0	3	17	0	17	33
16.00 - 16.30	5	0	5	21	0	21	2	0	2	29	0	29	57
16.30 - 17.00	6	0	6	13	0	13	6	0	6	40	0	40	65
17.00 - 17.30	4	0	4	9	0	9	2	0	2	27	0	27	42
17.30 - 18.00	2	0	2	8	0	8	5	0	5	26	0	26	41
TOTAL	33	0	33	133	2	135	33	0	33	199	1	200	401

TABLE B1: Teihana Road West / State Highway 1, Pukerua Bay (Tuesday 9 April 2019) [Turning Movements Only]



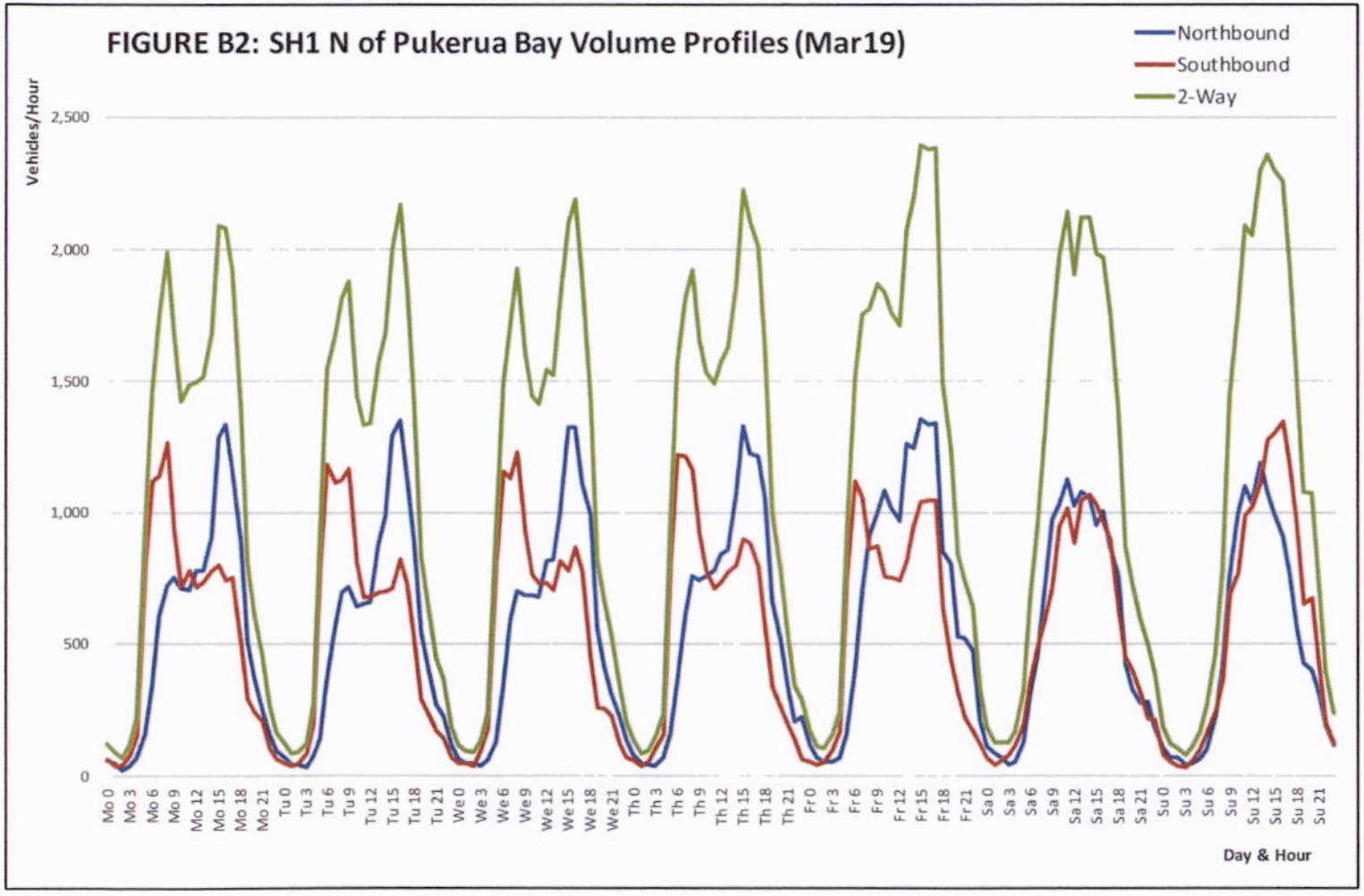


FIGURE B2: SH1 N of Pukerua Bay Volume Profiles (Mar19)
Northbound
Southbound
2-Way
Vehicles/Hour
2,500
2,000
1,500
1,000
500
0
Mo 0
Mo 3
Mo 6
Mo 9
Mo 12
Mo 15
Mo 18
Mo 21
Tu 0
Tu 3
Tu 6
Tu 9
Tu 12
Tu 15
Tu 18
Tu 21
We 0
We 3
We 6
We 9
We 12
We 15
We 18
We 21
Th 0
Th 3
Th 6
Th 9
Th 12
Th 15
Th 18
Th 21
Fr 0
Fr 3
Fr 6
Fr 9
Fr 12
Fr 15
Fr 18
Fr 21
Sa 0
Sa 3
Sa 6
Sa 9
Sa 12
Sa 15
Sa 18
Sa 21
Su 0
Su 3
Su 6
Su 9
Su 12
Su 15
Su 18
Su 21
Day & Hour

ANNEXURE C: CRASH HISTORY

Date	Day	Time	Location	Description	Factors	Casualties
Jul 2014	Sun	1:10 PM	SH 1N 100 S TEIHANA ROAD	Car/Wagon1 NDB on SH 1N hit rear end of Car/Wagon2 stop/slow for queue	CAR/WAGON1, following too closely	None
Sep 2014	Sun	2:20 AM	KOTIPU PLACE I RAWHITI ROAD	Car/Wagon1 SDB on KOTIPU PLACE lost control turning right, Car/Wagon1 hit parked vehicle	CAR/WAGON1, lost control when turning, speed entering corner/curve	None
Oct 2014	Sat	2:00 PM	SH 1N 5 S TEIHANA ROAD	Car/Wagon1 SDB on SH 1N hit rear end of Car/Wagon2 stopped/moving slowly	CAR/WAGON1, following too closely	None
May 2015	Tue	6:40 PM	SH 1N I TEIHANA ROAD	Motorcycle1 NDB on SH 1N hit Car/Wagon2 turning right onto AXROAD from the left	CAR/WAGON2, didnt look/notice other party - visibility obstruc, failed to give way at priority traffic control	1 Serious
Aug 2015	Thu	3:30 PM	SH 1N I TEIHANA ROAD	Motorcycle1 NDB on SH 1N hit Car/Wagon2 turning right onto AXROAD from the left	CAR/WAGON2, didnt look/notice other party - visibility obstruc, failed to give way at priority traffic control	1 Minor
Mar 2016	Mon	2:08 PM	SH 1N I TEIHANA ROAD	Van1 SDB on SH 1N lost control; went off road to left, Van1 hit guide/guard rails, kerbing	VAN1, other fatigue, other lost control	None
Sep 2016	Thu	1:45 PM	SH 1N 50 S TEIHANA ROAD	SUV1 NDB on State Highway One hit rear end of SUV2 stop/slow for queue	SUV1, speed on straight	None
Oct 2016	Sat	4:00 AM	SH 1N I TEIHANA ROAD	Car/Wagon1 NDB on State Highway One Pukerua Bay lost control; went off road to left, Car/Wagon1 hit fences, street furniture	CAR/WAGON1, alcohol test above limit or test refused	2 Minor
Jan 2017	Tue	12:35 PM	SH 1N 20 S TEIHANA ROAD	Cycle1 SDB on State Highway One changing lanes/overtaking to right hit Bus2	CYCLE1, did not check/notice another party behind	1 Minor
Sep 2017	Thu	5:20 PM	SH 1N I TEIHANA ROAD	Van1 SDB on State Highway One hit rear end of Car/Wagon2 stop/slow for queue	CAR/WAGON2, following too closely VAN1, following too closely	None

TABLE C1: Observed Crash History for Area, Period from January 2014 *(Source: NZTA Crash Analysis System)*

ANNEXURE D: SIDRA RESULTS

Period	Approach	Movement	Movement					Approach					Intersection				
			Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS	Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS	Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS
AM Peak Base Scenario, 2025	SH1 South	Left	122	4.6	18%	0	LOS A	334	1.7	18%	0	LOS NA	1,040	4.5	52%	21	LOS NA
		Through	212	0.0	18%	0	LOS A										
	SH1 North	Through	391	0.0	21%	0	LOS A	420	0.4	21%	1	LOS NA					
		Right	29	5.7	2%	1	LOS A										
	Teihana West							286	13.6	52%	21	LOS B					
		Left	34	5.2	3%	1	LOS A										
		Right	253	14.7	52%	21	LOS B										

Period	Approach	Movement	Movement					Approach					Intersection				
			Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS	Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS	Veh/hr	Average Delay (secs)	RFC %	95% Queue (m)	LOS
PM Peak Base Scenario, 2025	SH1 South	Left	216	4.6	32%	0	LOS A	597	1.7	32%	0	LOS NA	946	2.8	32%	6	LOS NA
		Through	381	0.0	32%	0	LOS A										
	SH1 North	Through	185	0.0	10%	0	LOS A	219	1.1	10%	1	LOS NA					
		Right	34	7.1	4%	1	LOS A										
	Teihana West							131	10.5	23%	6	LOS B					
		Left	24	5.9	2%	1	LOS A										
		Right	106	11.6	23%	6	LOS B										

TABLE D1: SIDRA RESULTS FOR SH1/TEIHANA ROAD WEST INTERSECTION - BASE SCENARIO

APPENDIX 3

RMA ECOLOGY LTD

Memo

To:	**Bryce Holmes, Landmatters**	**Job No:**	**1905**
From:	**Tony Payne & Graham Ussher**	**Date:**	**9 May 2019**
cc:			
Subject:	**John Carrad Station – Preliminary Ecology Survey**		

Dear Bryce,

This memorandum details the preliminary ecological survey results undertaken on 12 March 2019, by Senior Ecologist Tony Payne (Nelmac Ltd). We understand that the project team for the John Carrad Station development intends to use this memorandum for internal project planning purposes.

1 Areas of Ecological Importance

The site survey involved a broad scale assessment of the ecological values on site, with a particular focus on identifying the ecological constraints and opportunities for the proposed development.

We have identified the streams on site based on the definition of an 'Active Bed' and in conjunction with the definition of an ephemeral watercourse, both of which are included in the Wellington Region Proposed Natural Resources Plan (PNRP).

We have differentiated the streams onsite between ones with an average active bed width >1 m wide, and <1 m wide in case there is planning significance to relies upon active bed width.

We have also mapped areas of terrestrial vegetation that likely meet the ecological significance criteria listed in the Wellington Regional Policy Statement (RPS) - Policy 23.

1. Representativeness
2. Rarity
3. Diversity
4. Ecological Context

All streams and notable areas considered to be of ecological relevance and/or significance are provided in a dwg. file. A figure depicting the relevant ecological features is attached below.

2 Streams

There is one permanently flowing unnamed stream with an 'Active Bed' generally <1 m wide. The stream has been extensively modified and degraded, through a loss of canopy cover, increased sedimentation, stock damage and bank mass wasting. In addition, there is an overhanging perched culvert beneath the farm track along the western boundary of the survey site. This culvert is perched such that it is likely preventing upstream migration for native fish.

The stream is 'hard-bottomed' with a mixed cobbles and gravels and a variety of instream habitats (pools, riffles, runs) suitable for native fish. One eel approximately 300 mm in length was observed in the lower reach of the stream.

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P: 027 272 7930

Figure 1: (left) The lower reach of the stream onsite (right) the perched culvert beneath the farm track.

There is a significant opportunity for restoration and enhancement of the stream through the exclusion of stock, recontouring of the banks, appropriate riparian planting, and remedying the perched culvert.

3 Wetlands

The historic agricultural activities have likely resulted in significant modification of the catchments onsite, such that there has likely been a shift from small forested streams, to induced grassland wetlands. This is most likely through increased sedimentation into watercourses during land clearance and subsequent farming, over time. Furthermore, this process has been exacerbated by the installation of undersized

culverts within the farm track and railway line running along the eastern boundary of the site, which are likely to cause backflowing.

The areas that are identified as 'wetlands' include areas that are either permanently or intermittently wet that are dominated by plant species that are adapted (obligate or facilitative plant species) to wet conditions. These are novel systems (i.e. not natural) and thus it is unclear whether they should meet the definition of a 'Natural wetland' in the Proposed Natural Resources Plan. This should be a future point of discussion with Council; for now, we have taken a conservative approach and mapped areas that may meet this criterion, instead of omitting them in this planning and design stage.

For clarification, we have not included areas that are permanently or intermittently wet and which are dominated by pasture grass, as they clearly meet one the exceptions listed in the RPS of a natural wetland, that wetlands do not include *"damp gully heads, or wetted pasture, or pasture with patches of rushes"*.

Where we consider that induced grassland wetlands would have naturally supported an intermittent steam, we have mapped a stream, as well as mapping the wetland around it. This is because, even if an induced wetland is not considered a 'wetland' under the PNRP, the underlying hydrological feature is likely to be a stream, and should be recognised as such for the purposes of an effects assessment or prediction of potential future state if restored through riparian planting. The wetlands onsite are highly degraded through stock damage, and their biodiversity values are low (botanically and in terms of wildlife). However, they all retain some function in terms of regulating water flow and quality, and offer an opportunity for enhancement. Despite their degraded state, due to a regional scarcity of wetlands, all wetlands onsite meet the 'Rarity' criteria under the RPS, and are therefore considered ecologically significant.

Where areas of the site are determined to be wetlands and streams, and where Council determines that removal of them is able to take place, it is likely that Council will require some form of ecological offsetting. That is most likely to involve protection, stock exclusion, revegetation and enhancement in general of wetlands and/or streams elsewhere.

The balance areas of John Carrad Station that are not subject to this development proposal offer a range of opportunities in this regard. The identification of specific opportunities and the likely quantum needed will be dependent on the scale and nature of the streams and wetlands removed from within the project area.

Figure 2: (upper) A representation of the lower gully slopes throughout the site which are dominated by the bright green Isolepis prolifera, a wetland obligate plant species. (lower) A large area within the central gully wetland dominated by Raupo (Typha orientalis) with relatively more vegetation succession and more ecological value.

4 Terrestrial Vegetation

Due to the agricultural context, the site is completely devoid of areas that qualify as ecologically significant vegetation under the RPS. There is a small area of remnant native trees (ngaio [*Myoporum laetum*] and kaikomako [*Pennantia corymbosa*]), however this area does not have an intact understory and is too small and degraded to meet the RPS significance criteria.

There are some relatively small areas of rank grass, and debris that provide suitable habitat for native skinks. All New Zealand lizards are absolutely protected under the Wildlife Act 1953 and consequently a

Wildlife Act Authority from Department of Conservation is required to undertake activities within New Zealand herpetofauna habitat that may result in a significant impact on a species or habitat.

Given the possible presence of native lizards, a lizard survey to assess the importance of the site for native lizards in general should be conducted as part of any future assessment of ecological effects.

Figure 3: Rank grass and farm debris – habitat for native grassland skinks.

We trust that this information provides the initial basis for further strategic planning to ensure the proposed development appropriately avoids, minimises or mitigates any significant ecological effects.

Yours sincerely,

Tony Payne
Senior Ecologist
Nelmac Ltd

Graham Ussher
Principle Ecologist[1]
RMA Ecology Ltd

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[1] This report has been prepared for the benefit of our 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. Any use or reliance by a third party is at that party's own risk. Where information has been supplied by the Client or obtained from other external sources, it has been assumed that it is accurate, without independent verification, unless otherwise indicated. No liability or responsibility is accepted by RMA Ecology Limited for any errors or omissions to the extent that they arise from inaccurate information provided by the Client or any external source.

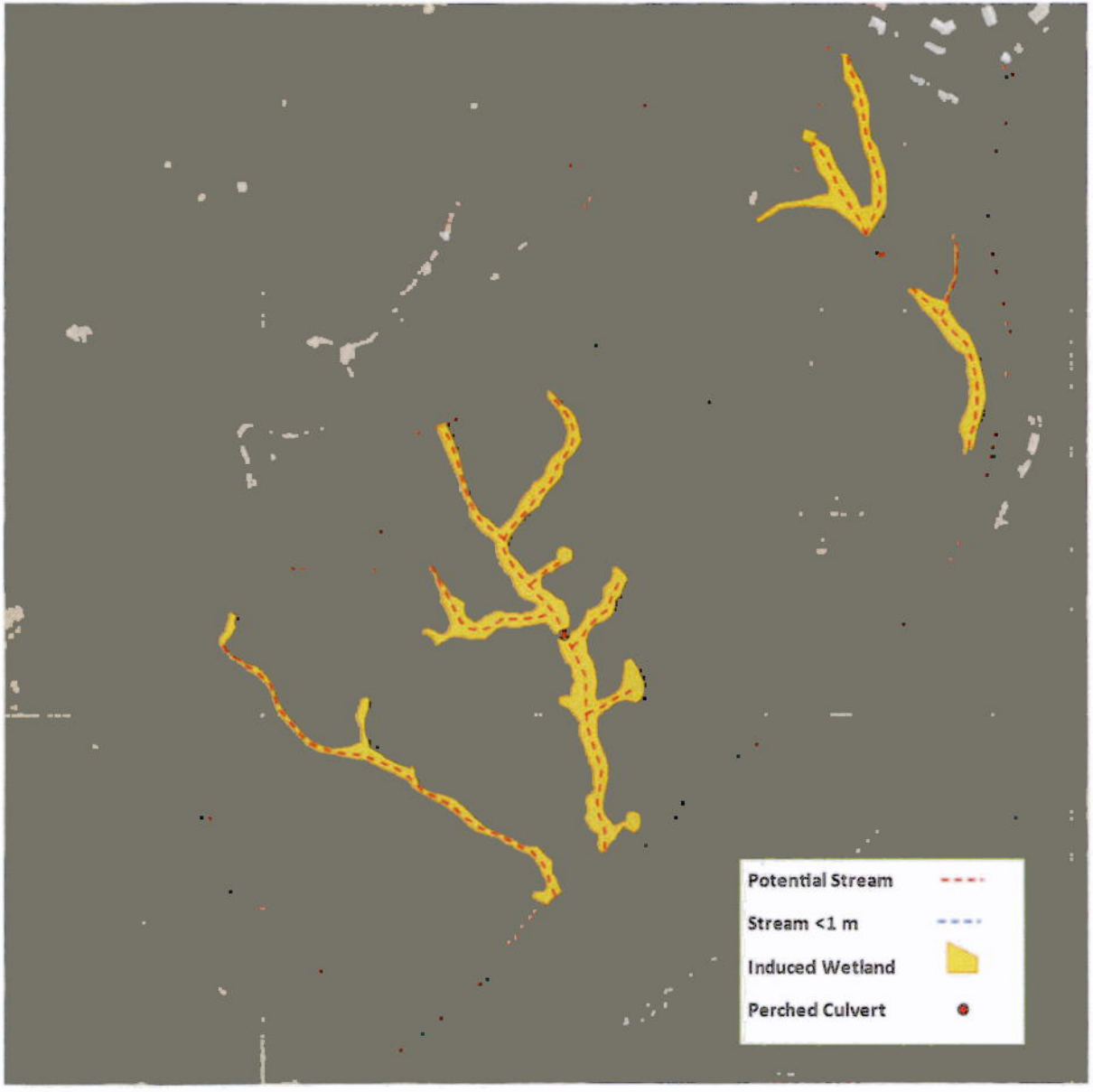

Figure 4: John Carrad Station, ecological features map