

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 03:15pm 28 July 2020 | N 5537082 E 1823359 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 49m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 9 - 51 Maple Street (Bunnythorpe Cemetery 2) Figure 010 Page 2 of 2 page spread.



Viewpoint 10 - 363 Tutaki Road Figure 011

View from 363 Tutaki Road, looking south west towards the site.







Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 10:27am 28 July 2020 | N 5535607 E 1823995 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 36m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 10 - 363 Tutaki Road Figure 011 Page 2 of 2 page spread.



Viewpoint 11 - 363 Tutaki Road (2) Figure 012

View from 363 Tutaki Road, looking south west towards the site.

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 11:22am 28 July 2020 | N 5535583 E 1824211 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 50m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 11 - 363 Tutaki Road (2) Figure 012 Page 2 of 2 page spread.

Viewpoint 12 - 662 Roberts Line Figure 013

View from 662 Roberts Line, looking west from an upstairs window towards Railway Rd, Roberts Line intersection and the site.

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 03:32pm 28 July 2020 | N 5534570 E 1824003 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 65m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 12 - 662 Roberts Line Figure 013 Page 2 of 2 page spread.

Viewpoint 13 - 672 Roberts Line Figure 014

View from 672 Roberts Line, looking south west from an upstairs window towards Railway Rd, Roberts Line intersection.

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 04:13pm 28 July 2020 | N 5534307 E 1823808 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 53m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 13 - 672 Roberts Line Figure 014 Page 2 of 2 page spread.

Viewpoint 14 - 789 Railway Road Figure 015

View from within the proposed designation, 789 Railway Road, looking south west towards Roberts Line and Clevely Line.

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 03:32pm 27 July 2020 | N 5535728 E 1823520 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 42m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 14 - 789 Railway Road Figure 015 Page 2 of 2 page spread.

Viewpoint 15 - 789 Railway Road (2) Figure 016

View from within the proposed designation, 789 Railway Road, looking south east towards Railway Rd

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Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 3:47pm 27 July 2020 | N 5535666 E 1823424 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 31m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 15 - 789 Railway Road (2) Figure 016 Page 2 of 2 page spread.

Viewpoint 16 - 788 Roberts Line Figure 017

View from within the proposed designation, at 788 Roberts Line, looking north-east towards Clevely Line and Railway Rd.

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 12:47pm 28 July 2020 | N 5535381 E 1823110 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 40m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 16 - 788 Roberts Line Figure 017 Page 2 of 2 page spread.

Viewpoint 17 - 788 Roberts Line (2) Figure 018

View from within the proposed designation, at 788 Roberts Line, looking north-west towards Clevely Line.

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 12:56pm 28 July 2020 | N 5535462 E 1823038 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 41m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 17 - 788 Roberts Line (2) Figure 018 Page 2 of 2 page spread.

Viewpoint 18 - 125 Kairanga Bunnythorpe Road Figure 019

View from within the proposed designation, at 125 Kairanga Bunnythorpe Road, looking east towards Clevely Line (Location on the eastern side of the Mangaone Stream)

KiwiRail Regional Freight Hub | June 2021

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 4:47pm 27 July 2020 | N 5536257 E 1823007 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 41m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 18 - 125 Kairanga Bunnythorpe Road Figure 019 Page 2 of 2 page spread.

Viewpoint 19 - 307 Te Ngaio Road Figure 020

View from within the proposed designation at 307 Te Ngaio Road, looking south-west towards Te Ngaio Rd and Railway Rd.

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 11:58am 28 July 2020 | N 5536464 E 1823722 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 44m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 19 - 307 Te Ngaio Road Figure 020 Page 2 of 2 page spread.

Viewpoint 20 - 307 Te Ngaio Road (2) Figure 021

View from within the proposed designation at 307 Te Ngaio Road, looking north towards the Clevely Line-Railway Rd intersection.

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Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 12:06pm 28 July 2020 | N 5536567 E 1823728 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 41m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 20 - 307 Te Ngaio Road (2) Figure 021 Page 2 of 2 page spread.

Viewpoint 21 - 282 Railway Road Figure 022

View from 282 Railway Road Intersection, looking West towards the site.

KiwiRail Regional Freight Hub | June 2021

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 1:32pm 16 June 2021 | N 5535113 E 1823710 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 45m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 21 - 282 Railway Road Figure 022 Page 2 of 2 page spread.

Viewpoint 22 - 73 Sangsters Road Figure 023

View from just south of 73 Sangsters Road, looking west towards the site.

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 12:49pm 16 June 2021 | N 5536001 E 1823773 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 44m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 22 - 73 Sangsters Road Figure 023 Page 2 of 2 page spread.

Viewpoint 23 - 11 Sangsters Road Figure 024

View from 11 Sangsters Road, looking west towards the site.

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 12:34pm 16 June 2021 | N 5536613 E 1823806 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 46m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 23 - 11 Sangsters Road Figure 024 Page 2 of 2 page spread.

Viewpoint 24 - 241 Te Ngaio Road Figure 025

View from 241 Te Ngaio Road, looking south east towards the site.

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 1:10pm 16 June 2021 | N 5536866 E 1823207 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 46m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 24 - 241 Te Ngaio Road Figure 025 Page 2 of 2 page spread.

Viewpoint 25 - 163 Clevely Line West Figure 026

View from 163 Clevely Line West, looking south east towards the site.

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 1:20pm 16 June 2021 | N 5536001 E 1823000 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 41m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 25 - 163 Clevely Line West Figure 026 Page 2 of 2 page spread.

Viewpoint 26 - 163 Clevely Line West (2) Figure 027

View from just south of 163 Clevely Line West, looking south east towards the site.

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 1:24pm 16 June 2021 | N 5535873 E 1822845 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 40m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 26 - 163 Clevely Line West (2) Figure 027 Page 2 of 2 page spread.

Viewpoint 27 - Roberts Line North and Clevely Line West Figure 028

View from the corner of Roberts Line North and Clevely Line West intersection, looking east towards the site.

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 1:52pm 16 June 2021 | N 5535709 E 1822602 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 40m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 27 - Roberts Line North and Clevely Line West Figure 028 Page 2 of 2 page spread.

Viewpoint 28 - 771 Roberts Line North Figure 029

View from 771 Roberts Line North, looking north towards the site.

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 1:42pm 16 June 2021 | N 5535087 E 1823119 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 43m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 28 - 771 Roberts Line North Figure 029 Page 2 of 2 page spread.

Viewpoint 29 - Richardsons Line Figure 030

View from Richardsons Line, looking north towards the site.

Original Photo Lisa Rimmer | 50mm | DSLR Nikon D700 | 1:34pm 16 June 2021 | N 5534796 E 1823329 (NZTM) Reading distance for correct scale: 400mm | Viewpoint Elevation: 45m : Field of View Approximately 110° horizontal (across 2 x A3 pages) & 34° vertical

Viewpoint 28 - 771 Roberts Line North Figure 029 Page 2 of 2 page spread. PAGE INTENTIONALLY BLANK

KiwiRail Regional Freight Hub | June 2021

Context Photograph Methodology Statement

- Photos were taken with a fixed lens on DSLR camera. Locations were fixed using a handheld GPS unit with accuracy of 5m. Reference points in the landscape were also located to assist referencing of photo to digital terrain model.
- A sequence of photos was taken from each viewpoint and stitched to form panoramas. Photos were overlapped by approximately 30% and edges cropped prior to stitching to eliminate edge distortion.
- The time and weather when the photo was taken was entered to the programme in order to replicate lighting conditions.
- The completed photomontage is presented over two pages:
 - The photos are produced to replicate correct scale at the nominated reading distance (in this case -400mm).
 - Each photomontage is printed across two facing pages to illustrate a field of view of approximately 110° at a reading distance of 400mm. This approximates the field of human binocular vision. (But not peripheral vision which extends to approximately 200°)

Notes on use of Context Photographs:

- The Context Photographs are a useful tool but they cannot not precisely reproduce real life for the following reasons:
 - 2D Photography flattens an image compared to binocular vision.
 - Photography is static, whereas the human vision can scan and remember information.
 - Photographs are passive, whereas the eye seeks out detail.
 - The human eye can see more contrast than can be reproduced through photography.
 - Physical resolution of photography and printing is less than that of the human eye.

Figure 01: The relationship between reading distance and real life scale.

Figure 02: Binocular vision is approximately 124°. Field of view is approximately 110° across 2 x A3 pages at correct scale image for 400mm reading distance (vertical field of view is approximately 33°)

Figure 03: Comparison of 35mm lens and 50mm lens

Two images from the same location. With 35mm and 50mm lenses perspective is influenced by field of view, not by lens focal length. The overlaid portion is identical.

Figure 31

APPENDIX B

Legend.

Stormwater	Mitigation
	Stormwater Attenuation Ponds
Noise Mitiga	ation, Features & Fencing
	Planted Earth Bund (Noise Mitigation)
	Vertical Concrete Walls (Noise Mitigation)
	Naturalised Channel
	Possible Future Recreation Track

= = = 2m High Security Fence 1.2m High Post & Wire Fence Feature Indigenous Trees

> Tall River Plains Planting (10-1 Wetland & Naturalised Channe

15m High)	
el Planting	

DRAFT AND INDICATIVE SUBJECT TO CONFIRMATION WITH DETAILED DESIGN

KiwiRail Regional Freight Hub. Landscape plan. **DRAFT AND INDICATIVE**

N Scale:1:3500@A0

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Date: 06 July 2021

REV B

APPENDIX C

SECTION 1 - MAPLE ST DRAFT AND INDICATIVE 1:250@A1 / 1:500@A3

3m Wide — Potential Future Recreati<mark>onal</mark> Path

Low River Terrace Planting with Specimen Trees

Mitigation Area

Planted Earth Bund Noise Mitigation. 3m High.

Proposed Road Reserve Boundary	Low River Terrace Planting	Proposed Rail Hub
		Main Rail Hub

Main Rail Hub

Existing Landform Line

KiwiRail Regional Freight Hub. Landscape plan Cross Sections. **DRAFT AND INDICATIVE**

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_____ Appendix C, Landscape and Visual evidence

SECTION 3 - MANGAONE STREAM DRAFT AND INDICATIVE 1:250@A1 / 1:500@A3

Plains Planting	Lawn	Internal Hub Road
	Main Rail Hub	

KiwiRail Regional Freight Hub. Landscape plan Cross Sections. **DRAFT AND INDICATIVE**

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SECTION 5 - ROBERTS LINE DRAFT AND INDICATIVE 1:250@A1 / 1:500@A3

Stormwater Attenuation Pond

SECTION 6 - ROBERTS LINE DRAFT AND INDICATIVE 1:250@A1 / 1:500@A3

Farmland

Roberts Line

Tall River Plains Planting

		Tall River Plains Planting	New Railway Road	Low River Terrace Planting	nternal Hub Road Hard Stand		Proposed Rail Yard
Mitiga	ation Area						Main Rail Hub
	Post & Wire Fence	Potentine	Perimeter Shown beh Security Fence	Road Lighting 61RL Distribution Facility B cess Lighting ind	ilding - Indicative	Cess Lighting	
		Roberts Line	Low River Terrace Planting		Internal Hub Road	Hard Stand Proposed Rail Yard	

Main Rail Hub

Mitigation Area

m Noise Mitigation Wall Security Fence	Internal Access Lighting		Distribution I
			Υ

SECTION 6

KiwiRail Regional Freight Hub. Landscape plan Cross Sections. **DRAFT AND INDICATIVE**

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Date: 08 July 2021 REV C Appendix C, Landscape and Visual evidence

SECTION 7 - SANGSTERS ROAD DRAFT AND INDICATIVE 1:250@A1 / 1:500@A3

Indicative Containers	
Internal Access Lighting	

	Proposed Rail Yard
Main Rail Hub	

SECTION 8 - SANGSTERS ROAD DRAFT AND INDICATIVE 1:250@A1 / 1:500@A3

Indicative Containers	C Double Flood Light	Double Flood Light					
					Proposed Rail `	<i>f</i> ard	

Main Rail Hub

SECTION 9 - SANGSTERS ROAD DRAFT AND INDICATIVE 1:250@A1 / 1:500@A3

Internal Car Park

	New NIMT Double Track	Mitigation Area
Existing	g Railway Road	Existing NIMT Track

← Double Flood Light		← Single Flood Light shown behind	
	Indicative Overhead Line Equipment		

Existing Road

Existing NIMT Track

Proposed Rail Yard

Main Rail Hub

SECTION 7

KiwiRail Regional Freight Hub. Landscape plan Cross Sections. **DRAFT AND INDICATIVE**

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APPENDIX D

Kiwi Rail Regional Freight Hub Planting Palette - Appendix D Landscape and Visual Evidence

NOTE: TO BE PRINTED AT A3

June 2021

Isthmus.

Document record					
Issue	Revision	Author	QA	Date	
EVI	A	TW	LR	30/06/2021	
EVI	В	CD	LR	06/07/2021	

Isthmus.

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Tall River Plains Planting.	5
Low River Terrace Planting.	6
Naturalised Channel and Wetlands.	7
Amenity Planting.	8

Isthmus.

Feature Indigenous Trees.

Isthmus.

rewarewa Knightia excelsa

Tall River Plains Planting

TREES

Incudes all feature indigenous trees

SHRUBS

kāmahi Weinmannia racemosa

putaputawētā Carpodetus serratus

hīnau Elaecarpus dentatus

kōhūhū Pittosporum tenuifolium

mānatu

karamū

Coprosma lucida

Plagianthus regius

houhere Hoheria populnea

hangehange Geniostoma ligustrifolium

māhoe Melicytus ramilforus

kānuka Kunzea ericoides

rangiora Brachyglottis repanda

mingimingi Coprosma rhamnoides

toetoe

Austroderia fulvida

koromiko Hebe stricta

mingimingi Coprosma propinqua

harakeke

Phormium tenax

kāpuka Griselinia littoralis

Isthmus.

Low River Terrace Planting

whauwhaupaku Pseudopanax arboreus

rangiora

Brachyglottis repanda

tī kōuka Cordyline australis

māhoe Melicytus ramilforus

toetoe Austroderia fulvida

mingimingi

Coprosma propinqua

wīwī

Ficinia nodosa

toetoe upoko-tangata Cyperus ustulatus

pohuehue Muehlenbeckia complexa

hook sedge Uncinia rubra

Kiwi Rail Regional Freight Hub | June 2021

pukio Carex virgata

Isthmus.

Naturalised Channel and Wetlands Planting

Upper bank

mānatu

Plagianthus regius

hangehange Geniostoma ligustrifolium

Mid

bank

kowhai

Sophora microphylla

toetoe Austroderia fulvida

tī kōuka

Cordyline australis

oioi

Apodasmia similis

bumblebee nut sedge Baumea tenax

พīพī Ficinia nodosa

Base of bank

raupō Typha orientalis

wīwī Juncus edgariae

Isthmus.

kiokio Blechnum novae-zelandiae

Amenity Planting

põhuehue Muehienbeckia astonii **rengarenga** Arthropodium cirratum miniature toetoe Chionochloa flavicans **pukio** Carex virgata **mikoikoi** Libertia grandiflora

Isthmus.

the Resource Management Act 1991 ("RMA")

AND

UNDER

IN THE MATTER of a notice of requirement ("NoR") for a designation by KiwiRail Holdings Limited ("KiwiRail") for the Palmerston North Regional Freight Hub under section 168 of the RMA

STATEMENT OF EVIDENCE OF JEREMY GARRETT-WALKER ON BEHALF OF KIWIRAIL HOLDINGS LIMITED

ECOLOGY

1. SUMMARY

- 1.1 Based on my assessment of the ecological features and values of the proposed site for the Freight Hub ("**Site**"), I consider that the Freight Hub will have a very low level of effect on the ecological values of the existing environment. In particular, I consider that the effects of the Freight Hub on the existing terrestrial environment, aquatic environment and aquatic fauna will be, at most, low due to the absence of highly or moderately valued ecological components within the Site or receiving environments.
- 1.2 To date, no natural inland wetlands have been located with the Site. I consider that in the event more detailed Site wide investigations at the regional consenting stage do discover small natural wetlands, they are likely to be largely exotic, and can be offset through recreation such that there is no local loss of extent or value.
- 1.3 I do not consider that there will be any permanent adverse effects on ecological values if the effects are managed appropriately (which I consider they can be). Further, I consider that the Freight Hub presents a number of opportunities to improve and / or increase habitat and ecosystem provisions, predominantly in the surrounding stormwater ponds and naturalised stream channel.

2. INTRODUCTION

2.1 My full name is Jeremy Garrett-Walker. I am an Ecologist at Boffa Miskell Limited. I hold the qualifications of Bachelor of Science in Environmental Planning, and Master of Science in Biological Sciences with first class honours.

Experience

- 2.2 I have been an Ecologist with Boffa Miskell Limited ("BML") for the last five years. Prior to BML, I worked as a Research Officer at the University of Waikato within the aquatic sciences department.
- 2.3 I work primarily in the area of ecological impact assessment, project shaping, determining ecological value and significance, and mitigation and restoration implementation. My main focus is on the freshwater environment, but I have also undertaken and assisted with fauna and basic vegetation surveys for other projects. This includes, for example, ecological monitoring and implementation components of the McKay's to Peka Peka and Transmission Gully roading projects and has included avifauna surveys, vegetation surveys, wetland survey and delineation, herpetofauna surveys, as well as freshwater diversions, fish salvage, SEV, and sediment discharge effects monitoring.
- 2.4 I also retain ties with the University of Waikato, assisting with publishing projects I was involved with in my time there as well as contributing to review papers. I currently work primarily in the lower North Island but have carried out assessments and assisted colleagues throughout New Zealand.

Involvement in the Freight Hub

- 2.5 I was engaged by KiwiRail in 2020 to assess the potential ecological effects of the Freight Hub at the Site for the purpose of the NoR. I was not previously involved in the multi-criteria analysis phase.
- 2.6 I undertook the ecological site investigations and prepared the Assessment of Ecological Values and Effects ("**AEVE**") that was included with the Assessment of Environmental Effects ("**AEE**") for the Freight Hub. I also provided input to KiwiRail's First Section 92 Response. This included matters relating to:
 - site descriptions, features, and values pertaining to landscape ecology context, terrestrial fauna, wetlands stream classification, freshwater fauna, and receiving environments;

- (b) potential effects, including on the receiving environment, fish passage, and stream loss; and
- (c) how the Freight Hub aligns with current policy direction(s).
- 2.7 As a result of Palmerston North City Council's ("PNCC") first section 92 request, I updated my AEVE, which was provided with KiwiRail's section 92 response and is dated 15 February 2021 ("First Section 92 Response"). Where I reference AEVE in this evidence, I am referring to that updated AEVE dated 15 February 2021.
- 2.8 More recently, on 10 June 2021 and 25 June 2021, I (and a colleague) undertook further site investigations on sites near the intersection of Te Ngaio Road and Clevely Line in areas that had previously not been accessed. These areas are shown in Figure 1 below. These visits also allowed for inspection of sections of Stream System 1 that was previously inaccessible. My assessment of those areas is included as **Appendix 1** to my evidence.

Figure 1. Site investigation locations undertaken in June 2021.

Code of conduct

2.9 I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 and that I agree to comply with it. I confirm that I have considered all the material facts that I am aware of that might alter or detract from the opinions that I express, and that this evidence is within my area of expertise, except where I state that I am relying on the evidence of another person.

3. SCOPE OF EVIDENCE

- 3.1 This statement of evidence will:
 - (a) provide an overview of the methodology used to describe and assess ecological features and values;
 - (b) provide a brief overview of the Site from an ecological perspective and the key conclusions of the AEVE for the Freight Hub;
 - (c) respond to the submissions received that relate to the ecological effects on the environment; and
 - (d) address relevant matters raised in the Section 42A Report.

4. SITE CONTEXT

- 4.1 The Site and receiving environment fall within the Manawatu Plant Ecological District, within the Manawatu Ecological Region, which is characterised by low altitude, loess covered plains and alluvial terraces. The vegetation would have previously been a mosaic of semi-swamp forest, totara forest, mixed podocarp, black beech forest, and flax swamp in response to variable rainfalls and topographies.
- 4.2 The Manawatu District is now highly modified, with the majority of indigenous vegetation replaced by pasture and other exotic vegetation to allow farming. This is the case within the Site.

5. METHODS OF ASSESSMENT

5.1 The process for development of my AEVE report followed the accepted good practice as set out in the Environmental Institute of Australia and New Zealand

Inc ("**EIANZ**") 2018 guidelines for Ecological Impact Assessment.¹ It is described in detail in my AEVE and summarised below.²

Desktop Investigations

- 5.2 The assessment began with a desktop review of existing Site inventories, council held data, national databases, management plans, historical aerial imagery, and publicly available literature that covered the Site's terrestrial vegetation, herpetofauna, avifauna, and freshwater environment. Further details of what information was utilised is detailed in section 3.2 of the AEVE.³
- 5.3 No detailed ecological information pertaining to environs within the Site was available when I was doing my initial assessment, and to my knowledge no ecological information (other than the details specific to this NoR) has been published or otherwise in the intervening time.

Site investigations

5.4 I have undertaken the following Site visits and investigations and collected the following ecological information during each visit. The purpose of my Site visits has been to assess the ecological features and values of the land subject to the NoR for the Freight Hub ("**Designation Extent**").

Date of visit	Purpose	Ecological information
		collected
27 and 28 July	Collect relevant ecological data	Qualitative descriptions of
2020.	and descriptions to inform the	terrestrial vegetation,
	AEVE.	including its potential to
		provide habitat for avifauna
		and herpetofauna;
		qualitative descriptions of
		the aquatic environment
		and the condition and
		availability of suitable
		habitat for aquatic fauna.
14 and 15	Collect quantitative aquatic	Quantitative
January 2021.	macroinvertebrate data to inform	macroinvertebrate
	the section 92 response;	community data from four
	investigate whether potential	locations, including

- Roper-Lindsay, et al. 2018. Ecological Impact assessment. EIANZ guidelines for use in New Zealand: terrestrial and freshwater ecosystems. 2nd edition. Environmental Institute of Australia and New Zealand Inc, Melbourne.
- ² AEVE, Section 3 Methods of Assessment, pages 5-10.
- ³ AEVE, Section 3.2 Desktop investigation, pages 7-8.

Date of visit	Purpose	Ecological information
		collected
	natural wetlands were present	upstream and downstream
	according to the NPS-FM (2020)	of the designation where
	definition as the NPS-FM (2020)	access allowed; visual
	did not exist at the time of the 27	rapid inspection of areas
	and 28 July Site visit.	within the Designation
		Extent for natural wetlands
		as defined in the NPS-FM,
		including from accessible
		areas and visually from the
		roadside where possible.
10 and 25 June	Collect relevant data to assess if	Quantitative vegetation
2021	natural wetlands (according to the	community data and soil
	NPS-FM (2020) definition) exist in	profile images to assist
	areas near Te Ngaio Road and	with natural wetland
	Clevely Line, and near Roberts	determination. Rapid
	Line and Richardsons Line which	physical habitat
	had been identified as potential	assessment data for
	natural wetlands via aerial	Stream System 1 where it
	imagery or roadside vantage	flowed through the
	points. Assess the condition and	properties that were
	flow classification of stream	accessed on these dates.
	habitats within these areas that	
	had not previously been visited.	

- 5.5 At the time of preparing the AEVE, some areas of the Designation Extent and receiving environment were not accessible. However, based on information gathered from the accessible areas, the highly modified landscape (both within the Designation Extent and the wider Bunnythorpe plains), aerial imagery, and discussions with landowners, I did not consider' that there were any features or areas that were not able to be visited that had a potential to have increased ecological sensitivity or values different from those that were accessed. The visited locations are shown in Figure 2 below.
- 5.6 Following provision of my First Section 92 Response, I was able to visit some additional areas to assess and describe their ecological condition and features. These more recently visited locations are shown on Figure 2 below. This additional information has been incorporated into this evidence.