



+ Preliminary Site Investigation

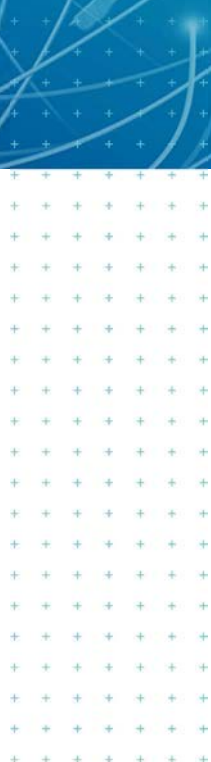
Kākātangiata Structure Plan and District Plan Change

Prepared for  
Palmerston North City Council

Prepared by  
Tonkin & Taylor Ltd

Date  
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# 1 Introduction

Tonkin & Taylor Ltd (T+T) has been commissioned by Palmerston North City Council (PNCC) to undertake a ground contamination desk study assessment for further areas to be included in the Kākātangiata Growth Area (referred to below as the site) to support a Structure Plan and District Plan Change. The location of the initial Kākātangiata site was investigated in 2011<sup>1</sup>. Eight additional areas (Manderson, Cloverlea, No 1 Line, Rail Triangle, West End, Area A, Area B and Area C) have been incorporated to complete the final site, as per the Preferred Masterplan of June 2021<sup>2</sup>. The additional areas have been assessed in this investigation between September 2020 and November 2021.

The location of the initial Kākātangiata area, as well as the additional areas included to complete the final Kākātangiata Growth Area, are presented in Figure 1.1 below. While the initial Kākātangiata area has been identified in Figure 1.1, it has not been further assessed in this investigation.

This report has been prepared in general accordance with the requirements for a Preliminary Site Investigation (PSI) referred to in the NESCS regulations<sup>3</sup>, and as outlined in the MfE Contaminated Land Management Guidelines<sup>4</sup>.

The persons undertaking, managing, reviewing, and certifying this investigation are suitably qualified and experienced practitioners (SQEP), as required by the NESCS and defined in the NESCS Users' Guide (April 2012).

This investigation was undertaken in accordance with our original proposal of 26 February 2020 and our variation orders (VO1 and VO2) of 23 February 2021 and 9 July 2021.

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<sup>1</sup> Tonkin + Taylor Ltd, 2011. Palmerston North Residential Growth Strategy Ground Contamination Assessment prepared for Palmerston North City Council. Reference 85299.001.

<sup>2</sup> Palmerston North City Council, 2021. *Kakātangiata Preferred Masterplan (technical version)*.

<sup>3</sup> Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.

<sup>4</sup> Ministry for the Environment, updated 2021, Contaminated land management guidelines No. 1: *Reporting on Contaminated Sites in New Zealand*.

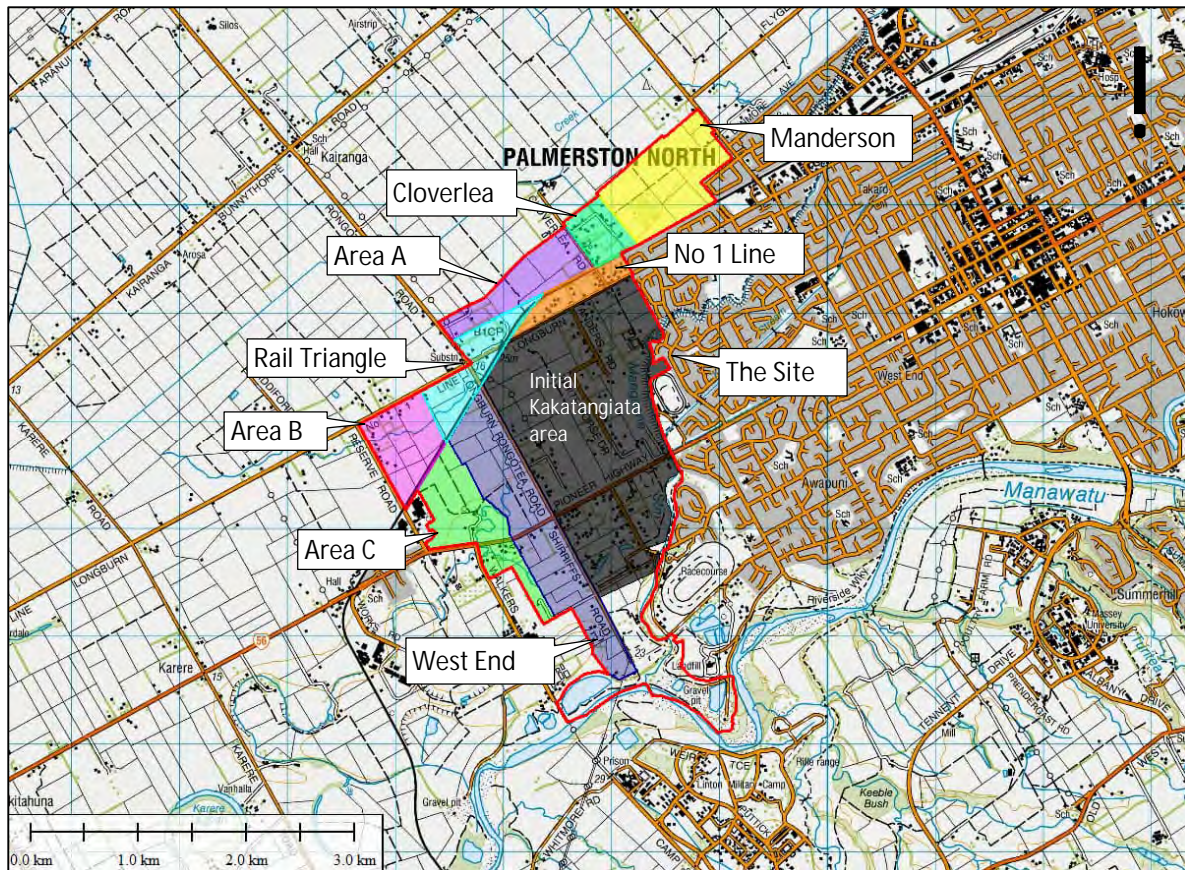


Figure 1.1: Site Location Plan - Topomap sourced from Land Information New Zealand (crown copyright reserved).

## 1.1 Background

T+T have been engaged by PNCC to complete this assessment to support the plan to redevelop the site from the current rural, rural residential and industrial land uses to a residential land use. During this assessment T+T have addressed whether activities included on the MfE Hazardous Activities and Industries List (HAIL)<sup>5</sup> have occurred at the site, and the potential for these activities to have resulted in ground contamination. This report also assesses the need for further investigation and resource consents for the proposed soil disturbance and/or land development activities with regard to ground contamination as required under the NESCS, and other relevant regulations.

The additional areas to the Kākātangiata Growth Area have been predominantly occupied by land uses including rural, rural residential and horticultural. A number of activities associated with these land uses have been identified during this assessment, including sheep dipping, fuel storage, waste disposal to land, orchards and market gardening, and transport depots.

The past and present land uses within the Kākātangiata site have included activities which have the potential to cause land contamination. These activities are defined by the Ministry for the Environment in the Hazardous Activities and Industries List (HAIL). If an activity or industry on the HAIL is, or has occurred on a site, the NESCS applies to proposed soil disturbance and/or land development activities.

<sup>5</sup> Ministry for the Environment, 2011. *Hazardous Activities and Industries List*.

The 2011 investigation<sup>1</sup> that T+T completed of the initial Kākātangiata area for PNCC included two potential areas for development, the Kelvin Grove and Anders Road/Racecourse areas. The initial Kākātangiata site is referred to as the 'Anders Road/Racecourse area' in the 2011 investigation.

## 1.2 Scope of work

The scope of work for this investigation comprised:

- Review Council property files and district planning maps;
- Review of a "Site Contamination Enquiry" and Council records of pollution incidents;
- Review of selected historical aerial photographs;
- Review of current and historical certificates of title;
- A site walkover inspection;
- Review of ground contamination related environmental regulations and planning documents to identify relevant resource consent requirements; and
- The preparation of this report.

This report documents our findings and comments on the potential for ground contamination at the site, in the context of the proposed development, including potential resource consent implications with regard to ground contamination.

## 2 Site description

### 2.1 Site identification

The site is located to the west of Palmerston North's city centre and is adjacent to the current extent of the urbanised area. The Kākātangiata Growth Area extends from the western edge of Palmerston North to the outer edge of the Longburn township in east. The Manawatū River bounds the site to the south and rural properties are present to the north. The Manawatū District Council boundary is adjacent to the site on the north-west portion. The site and property details are included in the tables below:

Table 2.1: Site identification – Manderson Farm

Street addresses	142A and 193 Gillespies Line
Legal descriptions	<ul style="list-style-type: none"> <li>• LOT 2 DP 481216 PT LOT 5 DP 7073;</li> <li>• LOTS 2 3 DP 40516 LOT 48 DP 24500;</li> <li>• PT LOT 3 DP 31968; and</li> <li>• LOT 1 DP 74163.</li> </ul>
Site owner	Multiple private owners
Site area	Approximately 77 ha (765,831 m <sup>2</sup> )
Zoning	Rural

Table 2.2: Site identification – Cloverlea

Street addresses	30, 32, 34, 36, 40, 44, 54, 56, 58, 60, 60A-C, 62 and 62A-B Cloverlea Road
Legal descriptions	<ul style="list-style-type: none"> <li>• SEC 27S CLOVERLEA SETT LOT 1 DP 88490;</li> <li>• SEC 26S CLOVERLEA SETT;</li> <li>• LOT 1 DP 41404;</li> <li>• LOT 2 DP 400868 LOT 2 DP 41404 PT SEC 22 CLOVERLEA SETT;</li> <li>• LOT 2 DP 388808;</li> <li>• LOT 1 DP 78757 BLK X KAIRANGA SD;</li> <li>• LOT 1 DP 400868;</li> <li>• LOT 2 DP 76612 -SUBJ TO &amp; INT IN EASEMENTS &amp; SUBJ TO EASEMENTS ON DP 88136;</li> <li>• LOT 3 DP 76612;</li> <li>• LOT 5 DP 76612;</li> <li>• LOT 6 DP 76612;</li> <li>• LOT 1 DP 76612 BLK X KAIRANGA SD - INT IN R/W RIGHT TO CONVEY WATER TELECOMMUNICATIONS ELECTRICITY &amp; GAS RIGHT TO DRAIN WATER AND SANITARY SEWAGE EASMENT ON DP 80382; and</li> <li>• LOT 1 DP 70621 BLK X KAIRANGA SD-SUBJ TO R/W RIGHT TO CONVEY WATER TELECOMMUNICATIONS ELECTRICITY GAS RIGHT TO DRAIN WATER AND SANITARY SEWAGE EASEMENT ON DP 80382.</li> </ul>
Site owner	Multiple private owners
Site area	Approximately 23 ha (233,867 m <sup>2</sup> )
Zoning	Rural

Table 2.3: Site identification – No 1 Line

Street addresses	No 1 Line Properties: 22A-D, 24, 28, 44, 46, 68, 96, 102, 128, 136, 150, 168 and 200 No 1 Line
	Cloverlea Road Properties: 2-28, 1, 3, 17 and 23 Cloverlea Road
Legal descriptions	No 1 Line Properties: <ul style="list-style-type: none"> <li>• SEC 31S CLOVERLEA SETTLEMENT LOT 3 DP 17313;</li> <li>• LOT 2 DP 17313;</li> <li>• LOT 1 DP 17313 BLK X KAIRNAGA SD;</li> <li>• LOT 1 D P 23852 BLK X KAIRANGA SD;</li> <li>• LOT 1 DP 479790;</li> <li>• SEC 21S CLOVERLEA SETT BLK X KAIRANGA SD;</li> <li>• SEC 8 CLOVERLEA SETTLEMENT;</li> <li>• LOT 1 DP 62557;</li> <li>• LOT 1 DP 64948 BLK X KAIRANGA SD -INT IN RIGHT TO CONVEY WATER &amp; R/W EASEMENTS;</li> <li>• PT LOT 2 DP 62557 BLK X KAIRANGA SD -SUBJ TO RIGHT TO CONVEY WATER &amp; R/W- EASEMENTS;</li> <li>• LOT 1 DP 85334 BLK X KAIRANGA SD-SUBJ TO WATER EASEMENT;</li> <li>• LOT 2 DP 85334; and</li> <li>• LOT 1 DP 15950 LOT 1 DP 64056.</li> </ul>
	Cloverlea Road Properties: <ul style="list-style-type: none"> <li>• LOT 2 DP 479790;</li> <li>• LOT 3 DP 15869 BLK X KAIRANGA SD;</li> <li>• LOT 2 DP 15869 BLK X KAIRANGA SD; and</li> <li>• LOT 1 DP 15869 BLK X KAIRANGA SD.</li> </ul>
Site owner	Multiple owners (private and government agencies)
Site area	Approximately 20 ha (204,397 m <sup>2</sup> )
Zoning	Rural

Table 2.4: Site identification – Rail Triangle

Street addresses	Rongotea Road Properties: 1865, 1885 and 1946 Rongotea Road
	No 1 Line Properties: 311, 316A, 316B, 375, 383 and 397 No 1 Line
	1063 Kairanga Bunnythorpe Road
Legal descriptions	Rongotea Road Properties: <ul style="list-style-type: none"> <li>• LOTS 1 2 DP 534769;</li> <li>• LOT 1 DP 30986 BLK IX KAIRANGA SD; and</li> <li>• LOT 2 DP 30986.</li> </ul>
	No 1 Line Properties: <ul style="list-style-type: none"> <li>• PART LOT 21 RURAL SECTION 355 BLK X KAIRANGA SD-SUBJ TO GAS PIPELINE ON DP 78453;</li> <li>• LOT 1 DP 62403;</li> </ul>



	<ul style="list-style-type: none"> <li>• LOT 2 DP 62403;</li> <li>• LOT 1 DP 30985;</li> <li>• LOT 2 DP 490927; and</li> <li>• LOT 1 DP 460627.</li> </ul>
	<p>Kairanga Bunnythorpe Road Property:</p> <ul style="list-style-type: none"> <li>• LOT 2 DP 41756 LOTS 2 3 DP 67272 LOTS 3 4 DP 25872 SECS 1647 1648 PT SEC 1576 PTS SEC 1575 BLK IX PT SEC 1570 BLK X KAIRANGA SD.</li> </ul>
Site owner	Multiple private owners
Site area	Approximately 24 ha (239,768 m <sup>2</sup> )
Zoning	Rural

Table 2.5: Site identification – West End

Street addresses	<p>Longburn Rongotea Road Properties: 1946, 1952, 2004, 2024, 2042 and 2044 Longburn Rongotea Road</p>
	<p>State Highway 56 Properties: 2300, 2318 and 2320 State Highway 56</p>
	<p>Shirriffs Road Properties: 26, 30, 54, 64, 68, 74, 78, 100, 12, 134, 170, 194, 196, 212, 298 and 302 Shirriffs Road</p>
Legal descriptions	<p>Longburn Rongotea Road Properties:</p> <ul style="list-style-type: none"> <li>• LOTS 1 2 DP 534769;</li> <li>• LOT 1 DP 323595;</li> <li>• LOT 1 DP 79936 BLKS X XIV KAIRANGA SD -INT IN RIGHT TO CONVEY WATER ON DP 84978;</li> <li>• LOT 1 DP 85376 PT LOT 1 DP 12857 PT LOTS 5 6 DP 2848;</li> <li>• LOT 1 DP 18333; and</li> <li>• LOT 1 DP 14292.</li> </ul>
	<p>State Highway 56 Properties:</p> <ul style="list-style-type: none"> <li>• LOT 4 DP 26238;</li> <li>• LOT 2 DP 375580; and</li> <li>• LOT 1 DP 375580.</li> </ul>
	<p>Shirriffs Road Properties:</p> <ul style="list-style-type: none"> <li>• LOT 3 DP 73300 BLK XIV KAIRANGA SD -IN T IN RIGHT TO DRAW &amp; CONVEY WATER EASEMENTS;</li> <li>• PT LOT 2 DP 73300 BLK XIV KAIRANGA SD-PT LOT 2 SUBJ TO RIGHT TO DRAIN SEPTIC TANK EFFLUENT;</li> <li>• LOT 1 DP 77064 BLK XIV KAIRANGA SD;</li> <li>• LOT 1 DP 18013 BLK XIV KAIRANGA SD -INT IN RIGHT TO CONVEY WATER EASEMENT;</li> <li>• LOT 1 DP 29691 BLK XIV KAIRANGA SD -IN T IN RIGHT TO CONVEY WATER EASEMENT;</li> <li>• LOT 2 DP 29691 BLK XIV KAIRANGA SD -SUBJ TO RIGHT TO CONVEY WATER EASEMENT;</li> <li>• LOT 1 DP 73407 -SUBJ TO &amp; INT IN SEWAGE EASEMENT ON DP 319808;</li> <li>• LOT 2 DP 73407;</li> </ul>

	<ul style="list-style-type: none"> <li>• LOT 3 DP 73407 -SUBJ TO RIGHT TO CONVEY WATER EASEMENT ON DP 88249;</li> <li>• LOT 1 DP 68224 -SUBJ TO RIGHT TO CONVE YWATER EASEMENT ON DP 88249;</li> <li>• LOT 2 DP 79136;</li> <li>• LOT 2 DP 458663;</li> <li>• LOT 1 DP 458663;</li> <li>• LOT 1 DP 33155 AND LOT 2 DP 47471;</li> <li>• LOT 1 DP 71287;</li> <li>• LOT 2 DP 58233; and</li> <li>• LOT 2 DP 71287.</li> </ul>
Site owner	Multiple private owners
Site area	Approximately 119 ha (1,189,000 m <sup>2</sup> )
Zoning	Rural and Flood Protection (southernmost end of Shirriffs Road)

Table 2.6: Site identification –Areas A, B and C

Street addresses	<p>Area A:</p> <ul style="list-style-type: none"> <li>• 33, 35-39, 51, 59-61 and 63 Cloverlea Road; and</li> <li>• 1843, 1851, 1853 and 1863 Longburn Rongotea Road.</li> </ul>
	<p>Area B:</p> <ul style="list-style-type: none"> <li>• 405, 415, 429, 439 and 441 No 1 Line Longburn;</li> <li>• 92, 94, 96, 108 and 128 Reserve Road; and</li> <li>• Portion of 2263B State Highway 56.</li> </ul>
	<p>Area C:</p> <ul style="list-style-type: none"> <li>• 2263A, 2263B, 2290, 2288, 2296 State Highway 56;</li> <li>• 15 Walkers Road; and</li> <li>• 158 Shirriffs Road.</li> </ul>
Legal descriptions	<p>Area A:</p> <ul style="list-style-type: none"> <li>• SEC 25S CLOVERLEA SETTLEMENT;</li> <li>• SEC 24S CLOVERLEA SETTLEMENT;</li> <li>• LOT 2 DP 88402 CLOVERLEA SETT BLK X KAIRANGA SD;</li> <li>• LOT 1 DP 88402;</li> <li>• LOT 1 DP 76045 BLK IX KAIRANGA SD - SUBJ TO &amp; INT IN VARIOUS EASEMENTS ON DP 88402;</li> <li>• LOT 2 DP 62712 BLK IX KAIRANGA SD -SUBJ TO WATER SUPPLY EASEMENT;</li> <li>• LOT 1 DP 62712 BLK IX KAIRANGA SD - SUBJ TO WATER SUPPLY EASEMENTS; and</li> <li>• Portion of LOT 2 DP 41756 LOTS 2 3 DP 67272 LOTS 3 4 DP 25872 SECS 1647 1648 PT SEC 1576 PTS SEC 1575 BLK IX PT SEC 1570 BLK X KAIRANGA SD.</li> </ul>
	<p>Area B:</p> <ul style="list-style-type: none"> <li>• Portion of Lot 2 Deposited Plan 534769;</li> <li>• LOT 1 DP 441465;</li> <li>• LOT 1 DP 56230;</li> <li>• LOT 2 DP 84246;</li> </ul>

	<ul style="list-style-type: none"> <li>• LOT 1 DP 84246;</li> <li>• LOT 2 DP 31231;</li> <li>• LOT 3 DP 31231;</li> <li>• LOT 1 DP 317678;</li> <li>• LOT 2 DP 317678;</li> <li>• LOT 5 DP 31231;</li> <li>• LOT 3 DP 85957; and</li> <li>• Portion of LOTS 2 3 DP 85957 PT LOT 7 DP 2848.</li> </ul>
	<p>Area C:</p> <ul style="list-style-type: none"> <li>• Portion of LOTS 3 4 DP 85957 PT LOT 7 DP 2848;</li> <li>• LOT 1 DP 57402;</li> <li>• LOT 1 DP 21008;</li> <li>• LOT 3 DP 26238;</li> <li>• LOT 2 DP 26238;</li> <li>• LOT 1 DP 26238; and</li> <li>• LOT 4 DP 73407.</li> </ul>
Site owner	Multiple private owners
Site area	Combined area of approximately 158 ha (1,579,100 m <sup>2</sup> )
Zoning	Rural and Industrial

## 2.2 Site condition

A contaminated land specialist completed site walkover inspections on 2 and 3 June 2020 on properties where potential HAIL activities had been identified. The walkover inspections were not completed over the entirety of the site.

Two properties within the initial Kākātangiata area, investigated in 2011, were also included in the walkover inspections of 2 and 3 June, as they were identified to be occupied by current HAIL activities.

Relevant observations made at the time of the inspection (and interviews with property owners and site occupiers) are summarised below. Key site features are shown on Figures A.1 -A.3 in Appendix A and selected photographs are included as Photographs 1-61.

### 2.2.1 142A Gillespies Line – Manderson Farm

The property is currently used for farming and contains the following features:

- An implement shed, a hay shed, and a milking shed was present at the end of the driveway. The buildings appeared to have been constructed of corrugated iron, steel beams, timber and cinderblocks (see photographs 1 and 2). Brick fragments were observed in the driveway near to the sheds (see photograph 3);
- The implement shed contained farm equipment, machinery and vehicles including (but not limited to); motorbikes, animal feeders, empty drums and both electrical and fencing wire (see photograph 4). Two shipping containers were present to the south of the implement shed (see photograph 5);
- Manholes associated with a wastewater line were observed on the southern portion of the property. The wastewater pipe is within an above ground bund and extends southwest across the property from Peters Avenue;
- The area previously used as a gravel quarry was observed and a 400 mm thick layer of rounded gravel and cobbles was present in the cut on the north-eastern side of the excavation. Concrete fenceposts, a piece of a concrete trough, fencing wire and a large metal bucket with pitting were observed within the excavated area (see photographs 6-8);
- Remnants of a former plunge sheep dip are present on the south-eastern portion of the property, adjacent to the boundary with the railway. To avoid stock access, the dip has been filled with disused concrete fence posts (including wire), wood and large pieces of a concrete pad associated with the dip (see photograph 9);
- A rectangular structure, resembling a tank, is present approximately 30 m north-east of the sheep dip. Large cracks were evident on all sides of the structure. Rusted pipework, a rusted chain, a glass bottle and metal sheets surround the tank (see photograph 10 and 11);
- An open stormwater channel extends west from the south-east boundary of the site and turns and extends north along the fence line of the paddock containing the sheep dip (see photograph 12);
- An area of dense vegetation containing native and exotic trees and shrubbery was present at the centre of the western portion of the property (see photograph 12);
- A rubbish hole is located in the centre of the property, adjacent to the stormwater drain and contains an assortment of farm refuse including; plastic drums, silage wrapping, PVC pipe, drink cans and food wrappers, calf feed bags, bags with ecotoxic warnings and animal treatment packaging (syringe, drench packets and tubing) (see photographs 13 and 14);

- A large pile of wire and timber from former fences and warped and rusted pieces of metal were observed to be discarded adjacent to and beneath a tree within a paddock on the northern portion of the site (see photographs 15 and 16);
- A pile of partially burnt waste material is present to the rear of the hay shed. The pile contained plastic bale wrap, paper, metal items, timber, and wire. Burning of the pile does not appear to have occurred recently as it has mostly been covered by pest plants (see photograph 17);
- An effluent pond, covered with a membrane that has vents, was present to the north-west of the milking shed (see photograph 18);
- Tyres were seen in and around a drainage channel north of the effluent pond (see photograph 19);
- Disused vehicles and equipment including an above-ground storage tank (AST) and vehicles were stored in the area to the north-east of the driveway. A small shed constructed of corrugated iron was also observed in this area (see photograph 20);
- Vegetation present on the property is predominantly pasture and large trees which were observed to be largely in good condition during the site walkover. Grasses and pest plants surrounding the stormwater channel appear to have been recently sprayed; and
- No unique or special environmental receptors requiring particular attention or protection have been identified during the site walkover.

### 2.2.2 40 and 44 Cloverlea Road – Former orchard

The T+T staff member was met on site by a friend of the property owner. The property owner was also spoken to on the phone and the following summary includes their comments.

The property is currently used for rural residential purposes and contains the following features:

- 40 Cloverlea Road:
  - The property was previously a portion of a former apple orchard. The apple trees have been replaced with walnut trees which are present on the northern portion of the property and extend across the boundary into 44 Cloverlea Road;
  - A plastic tunnel house was previously on the property to the rear of the house. The area is now used for the storage of equipment, including wooden poles, plastic, metal, wire, a tractor and a large tank (possibly a silo). A pile of soil and green waste was present in the centre of this area (see photographs 21 and 22);
  - A small shed is present to the north of the house. The shed is constructed of fibreboard cladding and soffits which could potentially contain asbestos. Broken areas and holes were observed in the cladding panels and large fragments were present on the ground surrounding the building. A large fragment was seen on the top of a box attached beneath the window (see photographs 23 and 24);
  - Building materials, including windows, metal sheeting and pieces of fibre cement cladding sheets were seen to be stored against the west of the shed (see photograph 25); and
  - Four aboveground storage tanks containing diesel that were used for heating of the glasshouses on 44 Cloverlea Road, were observed along the south-east boundary, in the paddock beyond the area previously containing the tunnel house. The area also contained other pieces of equipment that appeared to be disused (see photograph 26).

- 44 Cloverlea Road:
  - This property was also previously a portion of the former apple orchard. The apple trees have been replaced with walnut trees on the north-east portion of the property;
  - A former store and retail/office buildings are present on the western portion of the property near to the entrance from Cloverlea Road. The former retail/office building is constructed of board and batten style external walls, with some areas clad with what appears to be plastic corrugated sheeting (see photograph 27);
  - Metal drums where burning appears to have been undertaken was seen behind the office building in line with the glasshouse (see photograph 27);
  - A large glasshouse was present, constructed of corrugated metal sheeting, corrugated plastic sheeting and a concrete foundation. The plastic sheets ('clearlite') on the roof of the building are in a deteriorating condition and a number of sheets are broken and appear to be collapsing into the building. The building is currently used for storage of equipment (see photograph 28);
  - A store building adjoins the southern wall of the large glasshouse above. Fibre cement cladding, potentially containing asbestos, was observed on the north-facing external wall. The cladding was unpainted and weathered, and cracking and chipping were also evident on the panels. The building is used for storage and contains appliances including fridges and freezers (see photographs 29 and 30);
  - Large, commercial-scale, glasshouses are present to the rear of the store building, the glasshouses were reportedly constructed in the mid to late 1980s. The glasshouses are constructed of steel framing, corrugated plastic sheeting and glass panels. The glasshouses are in a disused and deteriorating condition, and one of the sections of the glasshouse has been removed (see photograph 31); and
  - An above ground storage tank, like those seen on 40 Cloverlea Road, is present adjacent to the southern external wall of the large glasshouse (see photograph 32).

### 2.2.3 58 Cloverlea Road – Former orchard

While this property was not identified to be occupied by a current HAIL activity a brief walkover was undertaken at the time of marking up locations for the geotechnical investigation.

The property is currently used for rural residential purposes and contains the following features:

- This property was previously a portion of the former apple orchard that once comprised a number of properties in north-east area off Cloverlea Road. The majority of the fruit trees, except for remaining rows on the northern portion of the property, have been cleared from the property (see photograph 33); and
- Various sheds (including what appears to be a refrigerated building), shipping containers, a bus, intermediate bulk containers, wooden bins containing wire, plastic and metal drums and water tanks were seen on the southern portion of the property (see photograph 34 and 35).

#### 2.2.4 200 No 1 Line – Former orchard

The T+T staff member was accompanied by the property owner during the walkover and the following summary includes their comments.

The property is currently used for rural residential purposes and contains the following features:

- A residential house and former packing and storage buildings associated with the former orchard activities are present in the centre of the property. The former orchard buildings are in use for storage and numerous plastic produce crates and boxes were observed surrounding the building;
- Fibre board and stucco paint were observed on the southern external walls of the former packing shed and attached garage. Fibreboard was also observed on the soffits of the packing building (see photograph 36);
- Equipment and other items, including a number of retail containers of oil (small volumes) were observed adjacent to and within the northern portion of the store building (see photograph 37);
- Produce is no longer grown on site. The property owner explained that instead they purchase produce from offsite growers and on sell it;
- A pile of rubbish including wire, cardboard, green waste, wooden pallets, and plastic was observed across the driveway from the storage building. Areas of the rubbish pile appears to have been burnt (see photograph 38);
- Water tanks and a refrigerated shipping container were observed near to the storage building;
- A disused tunnel house constructed of fibreglass and metal framing was observed to be in a deteriorating condition. A portion of the roof has been replaced with plastic sheeting which, in areas, has collapsed into the structure under the weight of falling branches and debris from trees above. The tunnel house has no flooring, and the ground surface consists of grass and bare soil. Plastic wrap and disused items including fruit crates and a plastic drum were observed within and adjacent to the structure (see photograph 39);
- The area immediately adjacent to the western wall of the tunnel house is generally untidy with scattered building materials (corrugated iron and timber) which appear to have been small sheds or kennels (see photograph 40);
- The property owner indicated that the commercial orchard activities ceased approximately 20 years ago. Spraying occurred on site during the operation of the orchard but also ceased around 2000. Prior to the owner purchasing the property in 2001, the property was also reportedly occupied by a flower grower;
- A significant amount of bramble is present in the areas previously occupied by fruit trees. The owner stated that the bramble has been sprayed on occasion to keep it under control;
- Fruit trees from the former orchard activities remain in some areas on the site. However due to the bramble the area was inaccessible during the walkover;
- Irrigation has been removed from the former growing areas and the associated pipework is stored beneath the shelter hedge adjacent to the railway;
- Additional water tanks and a small bore shed, which is overgrown with vegetation, are present to the west of the front portion of the store building. Litter in the form of cans and plastic bottles was observed in front of the bore shed (see photograph 41); and
- No unique or special environmental receptors requiring particular attention or protection have been identified during the site walkover.

### 2.2.5 2300 State Highway 56 – Awapuni Nurseries

The T+T staff member met with the property owner and Manager of Awapuni Nurseries, and the following summary includes their comments.

The property is currently used for a commercial plant nursery and contains the following features:

- The owner stated that the site has been a commercial nursery since 1960. Current operation includes the spraying of fertilisers and insecticides on a weekly basis;
- Residential, retail and office buildings are present in the central portion of the property, off the main entranceway and surrounding carparking area used by customers;
- The retail building is present to the south of the carparking area and is constructed of concrete cinderblocks with what appears to be decramastic or bitumastic coated roof tiles (see photograph 42);
- The reception/office building present to the west of the carparking area is constructed of fibre board, which has the potential to contain asbestos (see photograph 43);
- A building used for storage adjoins the northern side of the reception/office building, the building contained buckets of branded hydraulic fluid, jerry cans likely containing fuel, cleaning products and equipment. Staining was evident on the concrete floor of the building (see photograph 44);
- Diesel is stored in an above ground tank with refuelling facilities in another carparking area to the west of the office and retail buildings, immediately adjacent to the site boundary. No hydrocarbon odours were detected, nor staining evident surrounding the tank during the site walkover. However, the soil beneath the tank was damp due to prior rainfall and therefore some staining may be present but not seen during the walkover (see photograph 45);
- A Waste Management skip bin containing rubbish is present in the carparking area to the east of the office and retail buildings, immediately adjacent to the site boundary;
- Three intermediate bulk containers (IBCs) containing orange, purple and yellow solutions (unlabelled) are stored along the hedge near the eastern boundary of the property (see photograph 46); and
- Discarded items, including wooden bins, plastic wrap and pallets, drums, metal bars used for supporting the plastic wrap for rows, vegetation, soil, tyres, and wooden pallets were observed in the eastern and southern portions of the site (see photographs 47 and 48).

### 2.2.6 47 No 1 Line – Market garden

The T+T staff member was met onsite by the property owners and the following summary includes their comments.

The property is currently used for an organic market garden and contains the following features:

- The property owners have owned the property for the past five years and have reportedly used the property as an organic market garden. Prior to the property owners owning the site it was used to grow flowers and berries. Sprays are reportedly no longer used on site;
- The site is predominantly unpaved and mostly bare soil with some gravelled and concreted areas;
- A concrete pad with drainage is present adjacent to the hazardous substance store on the eastern boundary of the property. The hazardous substance store is a small metal shed set on wooden pallets and is labelled with signage indicating flammable liquids, ecotoxic substances and agrichemicals. A large blue plastic container is present to the north of the store, and metal jerry cans were seen next to the container (see photograph 49);



- An older shed, which appears to be a pump shed, is adjacent to the south of the smaller shed and is connected to a water tank. Plastic containers and a metal drum were seen between the pump shed and the water tank (see photograph 49);
- A pile of discarded items including; wire, a large plastic bottle and bucket, PVC piping with irrigation attachments and a bathtub, was seen to the south of the water tank (see photograph 50);
- Buildings, including a large storage building, a small steel shed, and a refrigerated building are present on the eastern portion of the site. The buildings are constructed of steel sheeting;
- There is a small timber building in the area immediately west of the main building. Flaking paint was seen on the building. A refrigerated building and a water tank are also in the area to the west of the main building (see photographs 51 and 52);
- Plastic tunnel houses, constructed of steel framing and plastic sheeting, occupy the majority of the eastern half of the property. The tunnel houses on the northern portion of the property are mostly in use and plants are both grown in the ground and in raised planting beds (see photograph 53);
- The tunnel houses on the southern portion of the property did not contain growing produce at the time of the walkover. However, it appeared that works to remove dead vegetation and prepare the soil for planting were in progress (see photograph 54);
- Plastic sheeting, produce crates, plastic buckets, and disused equipment including a water pump were observed in the eastern most tunnel house;
- Drainage channels approximately 1 m wide and 1 m deep were seen along the southern and western boundaries and also transecting the centre of the western portion of the property. Plastic piping was seen running adjacent to and within some areas of the channels (see photograph 55); and
- The western portion of the site appears to have been previously cropped and was not in crop at the time of the walkover. Dead vegetation and overgrowing vegetation were observed in this area (see photograph 55).

### 2.2.7 31 Shirriffs Road – J P Ware Transport Ltd

The T+T staff member was met on site by the property owner, who is also the operator of the onsite business, during the walkover and the following summary includes their comments.

The property is currently used for a transport depot and contains the following features:

- The owner operates a heavy haulage transport business from the property and has a number of large trucks, trailers and associated machinery. The property has been in the owner's family for over 50 years and has been used as a transport depot for the entire time;
- The majority of the property is unpaved, except for an area west of the workshop building, which is asphalted. Some cracking in some low areas was evident. Ponding was evident on the gravel accessway (see photograph 56);
- The workshop building is constructed of a combination of corrugated iron and fibreboard. The building has a corrugated iron roof and concrete foundation (see photograph 56);
- Vehicle maintenance is undertaken within the workshop building and hydrocarbon staining was evident on the concrete floor in the maintenance area. A rectangular area that has been cut is present within the workshop near the eastern doorway (see photograph 57);
- A waste oil tank is outside the eastern doorway, and staining is evident on the tank and in the surrounding, partially paved, area. The area also contains a disused small storage tank, timber, a fire extinguisher and assorted vehicle parts including a large rubber belt, mudguards and a front bumper (see photograph 58);

- An aboveground North Fuels storage tank was present on the eastern portion of the property and has refuelling facilities. The tank is on concrete slabs which have an unpaved gap of approximately 20 cm in the centre. Some hydrocarbon staining of gravels was present below the area where refuelling occurs (see photograph 59);
- The northern portion of the property is used as a storage area for trucks and trailers. Three storage tanks were on one trailer and a roof of a building (corrugated iron covered in moss) was seen on another (see photograph 60). A disused crane, metal containers and a 'lean-to' structure were present on the north-west portion (see photograph 61); and
- The owner recalled that tomatoes were grown in glass houses on the vacant property to the east of his property and strawberries were grown in paddocks to the west, across Shirriffs Road. The owner also remembered that there were 'D3' planes parked across Shirriffs Road when he was younger, the planes are visible in the 1956 PNCC aerial image.

### 2.2.8 Area A, Area B, Area C and the extension to West End

Site walkovers have not been completed on additional areas; Area A, Area B, Area C and the extension to the southern portion of West End (from 170 Shirriffs Road), to date.

To complete the Preliminary Site Investigation of these additional areas we have completed a desktop investigation and reviewed existing aerial photographs, certificates of title, information from the Horizons Regional Council Site's Associated with Hazardous Substances (SAHS) database and the property file information for properties where HAIL activities were identified. The general condition of the wider Kākātangiata site was observed during the June 2020 site walkovers, however we recommend that site walkovers be undertaken, on areas unable to be accessed during this previous investigation and Area A, Area B, Area C and the southern portion of West End, as part of future detailed site investigations.

## 2.3 Surrounding land use

The Kākātangiata Growth Area is located between Palmerston North and Longburn and are surrounded by the following:

- North – The majority of the area to the north of the Kākātangiata site is occupied by rural and rural residential properties. A Transpower substation is present to the north of the Rail Triangle area at the intersection of No 1 Line Longburn and Longburn Rongotea Road;
- South – Rural residential properties, horse training stables, the Manawatū River with Linton Military Camp and agricultural properties beyond;
- East – Rural-residential properties, Awapuni Racecourse, the wastewater treatment plant, Manawatū Harness Racing Club and Palmerston North city beyond; and
- West – Rural and rural residential, industrial including the Fonterra and Goodman Fielder factories and the Longburn township beyond.

## 2.4 Geology

A summary of available geological information for the area is presented in this Section.

### 2.4.1 Published geology

The published geology beneath the site is described by Begg and Johnson<sup>6</sup> as well-sorted floodplain gravels as shown in Figure 2.1 below.

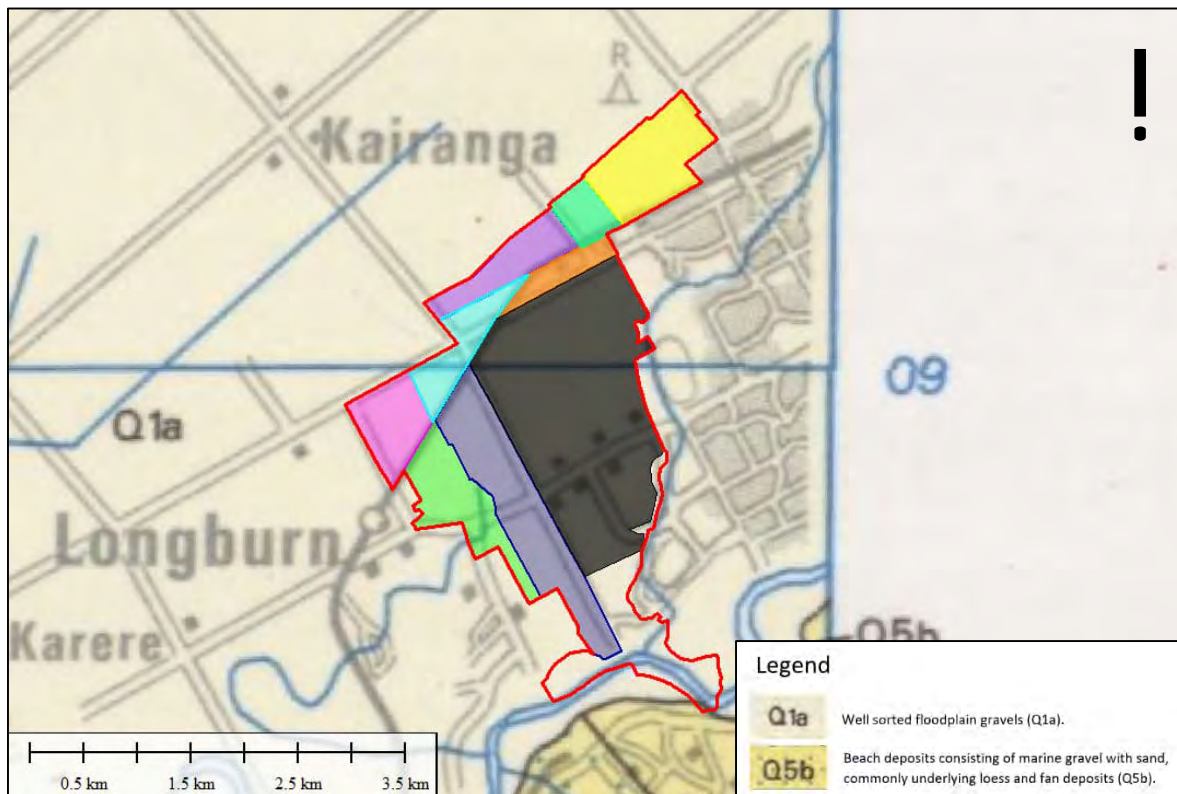


Figure 2.1: Published geology of the Palmerston North and Longburn areas (source: Begg and Johnson, 2000) as per footnote.

### 2.4.2 Site geological information

Further detail regarding site geological information is included in the geotechnical investigation<sup>7</sup> conducted concurrently with this desktop ground contamination investigation.

## 2.5 Hydrogeology and hydrology

Based on topography, groundwater is expected to occur at around 2-4 m below ground level (bgl) and predicted to flow in a south easterly direction. Groundwater was encountered between 0.1-5 m bgl across the site during the T+T geotechnical investigation.

<sup>6</sup> Begg, J.G; Johnston, M. R. (compilers) 2000. Geology of the Wellington area. Institute of Geological and Nuclear Sciences 1: 250 000 geological map 10. 1 sheet + 64 p. Institute of Geological and Nuclear Sciences Ltd., Lower Hutt, New Zealand.

<sup>7</sup> Tonkin + Taylor Ltd, 2022. Kākatangiata Growth Area Geotechnical Hazard Assessment prepared for Palmerston North City Council. Reference 85442.0200.v2

There are 34 bores recorded on the Horizons Regional Council 'Water' webmap to be within the Kākātangiata Growth Area. Depth to groundwater ranging between 0.5 m bgl and 4.5 m bgl has been recorded in some of the bores across the areas.

Surface water and groundwater is expected to discharge to the ultimate discharge point of the Manawatū River, which is located, at its closest, approximately 880 m south-east of the site (refer Figure 1.1)

The information reviewed suggests that groundwater is widely used in the area for stock water, irrigation, manufacturing at the Fonterra factory and domestic supply purposes.

### 3 Site history

Historical information relating to the site was collected from a variety of sources. The information presented documents on-site activities, except for the aerial photograph review where comments are also provided on readily observable surrounding land use. The information that has been reviewed is summarised in this section.

T+T completed an investigation<sup>8</sup> of the initial Kākātangiata area in 2011 for PNCC which included two potential areas for development, the Kelvin Grove and Anders Road/Racecourse areas. The initial Kākātangiata site is referred to as the 'Anders Road/Racecourse area'.

The investigation identified a number of HAIL activities, including a commercial nursery, a possible sheep dip and former stream channels that have previously been filled. Site features identified during this assessment can be seen on Figures A.1-A.3 in Appendix A.

Limited sampling was completed as part of this investigation at the identified commercial nursery, at a location near to the current railway line and at two locations in the area of the historical railway line.

#### 3.1 Manderson

Information within the reviewed historical certificates of title confirms that the registered owners of the Manderson area have been listed as farmers since 1893, indicating the area has been in agricultural use for over 120 years.

Available historical aerial images show that a sheep dip has been present near to the railway line, which runs adjacent to the southern boundary of the property, since at least 1956, prior to the railway being present. A gravel quarry has also been in use on the southern portion of the site, to the east of the sheep dip.

#### 3.2 Cloverlea

The Cloverlea area has been occupied by rural, horticultural, and residential activities. A large apple orchard previously encompassed a large portion of the area. Prior to its horticultural history the area was included within a large farm.

In 2018, Geoworks Limited completed a preliminary site investigation<sup>9</sup> at 40 and 44 Cloverlea Road to support an application for a NESCS consent to subdivide the property. The report indicated that the orchard activities began in the 1970s with further developments completed in the 1980s. The orchard reportedly extended to the surrounding properties including 60A, 60B and 60C Cloverlea.

#### 3.3 No 1 Line

A historical certificate of title from 1882 was issued to a farmer who owned a large portion of the Cloverlea, Manderson and No 1 Line areas.

Property owners for properties within the No 1 Line area have been listed as farmers until the late 1970s and late 1980s. Owners listed as horticulturalists and gardeners have owned properties within the area from the 1950s and 1970s. The property at 200 No 1 Line has been occupied by an apple orchard and a flower growing business - the property is no longer used for horticulture and the areas where the prior orchard was located have become overgrown with bramble.

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<sup>8</sup> Tonkin + Taylor Ltd, 2011. Palmerston North Residential Growth Strategy Ground Contamination Assessment prepared for Palmerston North City Council. Reference 85299.001.

<sup>9</sup> GEOWORKS LTD, 2018. Stage 1 Preliminary Site Investigation Report, 40 &44 Cloverlea Road, Palmerston North.

In March 1926, a proclamation (1588) to take land for the railway to the north of the No 1 Line properties was included in historical certificate of titles for 150 and 200 No 1 Line. The reviewed historical aerial images show the railway first appearing in 1968.

### 3.4 Rail Triangle

The historical aerial images reviewed indicates that the Rail Triangle area has been occupied by rural and rural residential land uses since at least the late 1960s.

### 3.5 West End

The West End area has been occupied by agriculture prior to the horticultural use. Historical aerial images show the area in use as pasture.

Previously, the Wellington-Longburn main trunk railway line ran adjacent to the Pioneer Highway from Longburn to Palmerston North. The railway was disestablished in the 1960s and the area containing the former track has been converted into a recreation walking and cycling path.

The review of historical aerial images suggest that the go-cart track has been present at 170 and 212 Shirriffs Road since the mid-1960s. Prior to this, majority of Shirriffs Road has been occupied by pasture and grazing activities.

### 3.6 Area A

Historical aerial images show there have been very few changes to the land use of Area A from the first image reviewed, dated 1945. From 1945, residential dwellings and farm buildings have been present on site and in the surrounding area. Horticultural activities are visible on the Cloverlea Road portion of the site in the 1968 image, the remainder of the area has continued to be occupied by rural and rural residential activities.

### 3.7 Area B

Records of title for the properties at 439 and 441 No 1 Line Longburn refer to property owners from 1979 as nurserymen. The property file reviewed for 439 No 1 Line Longburn contains a 1997 application to subdivide the former property into two Lots, now the current properties at 439 and 441 No 1 Line Longburn. The former property was occupied by a plant nursery across both Lots at the time of the application, and the half that was to become 441 No 1 Line was to remain as a plant nursery once the subdivision had been completed.

### 3.8 Area C

Historical records of title indicate that Area C has been occupied by farming activities from the early 1900s with previous owners listed as sheep farmers, and in 1964 Lot 3 (2288 SH56) was transferred to the current owners. Information reviewed from the property file for 2288 SH56 contains applications to construct a residential dwelling in 1965, a workshop building in 1966 and an addition to the workshop building in 1968. A site plan in the file shows a structural workshop and machine shop to the rear of the residential dwelling. Area C also encompasses a portion of the property at 2296 SH56, currently occupied by Awapuni Nurseries, which is addressed in this report in the sections for West End.

A more detailed review of the available information is included in Appendix C.

## 4 Site characterisation

This section characterises the likely and potential contamination status of the site based on the available information as presented in Section 3 of this report.

### 4.1 Potential for contamination

This investigation has identified that HAIL activities were (or are likely to have been) undertaken at the site. The activities, potential contaminants and an assessment of the likelihood, potential magnitude and possible extent of contamination are presented in Table 4.1 below. The inferred locations of these activities are presented on Figures A.1-A.3 (Appendix A).

Table 4.1: Potential for contamination

Land use/activity	Potential contaminants	Likelihood, magnitude and possible extent of contamination	HAIL reference
Manderson			
Sheep dip	Arsenic, organochlorines (e.g., aldrin, dieldrin, DDT, lindane) and organophosphates, carbamates, and synthetic pyrethroids	Remnants of a former plunge sheep dip and associated structures present on the southern portion of the property, adjacent to the railway. It is possible that contaminants from the sheep dipping activities are not only localised to the immediate area surrounding the dip but also throughout the area/paddock previously used to hold the sheep after dipping while they were drying.	A8
Waste disposal to land and burning of waste	Based on the waste observed; metals, polycyclic aromatic hydrocarbons (PAH), semi-volatile organic compounds, and solvents	Waste was observed in a number of piles and holes in four locations across the property. The largest rubbish hole observed is located in the centre of the property, off the main track and contains an assortment of farm refuse including plastic drums, silage wrapping, PVC pipe, drink cans and food wrappers, calf feed bags, bags with ecotoxic warnings and animal treatment packaging (syringe, drench packets and tubing). The burning of waste has occurred in one pile behind the shed.	G5
Spray use for pastoral weed and pest control between 1970 and 1975	Metals (As, Cu, Pb) and organochlorine pesticides (OCPs)	Low concentrations possible in shallow soil (typically to 400 mm depth) associated with historical use of sprays containing persistent organochlorine compounds used prior to the late 1970s.	A10
Cloverlea			
Orchard and market garden activities	Arsenic, lead, copper; wide range of organic compounds including acidic herbicides, organophosphates, and organochlorines	Majority of the Cloverlea area has been occupied by horticultural activities including a large apple orchard and growing plants in tunnel houses which operated between the 1970s and 1990s. The use of sprays containing persistent organochlorine compounds, used prior to the late 1970s, have the potential to result in residual contaminants in soils. The spot spraying of weeds with glyphosate (Round Up) at 40 Cloverlea Road is noted in the 2018 investigation report by Geoworks Limited.	A10



Land use/activity	Potential contaminants	Likelihood, magnitude and possible extent of contamination	HAIL reference
Hazardous substance storage	Arsenic, lead, copper, mercury; wide range of organic compounds including acidic herbicides, organophosphates, and organochlorines	A hazardous storage unit, previously containing chemicals used by the large apple orchard including herbicides, pesticides and fungicides, remains on the property at 56 Cloverlea Road.	A17
No 1 Line			
Orchard and market garden activities	Arsenic, lead, copper, mercury; wide range of organic compounds including acidic herbicides, organophosphates, and organochlorines	Properties within the No 1 Line area have been previously occupied by orchards and markets gardening activities. A former apple orchard is present on the property at 200 No 1 Line. Fruit trees associated with the former orchard remain in some areas on site. Flower growing has also occurred on this property. The use of sprays containing persistent organochlorine compounds, used prior to the late 1970s, have the potential to result in residual contaminants in soils.	A10
Hazardous substance storage	Arsenic, lead, copper, mercury; wide range of organic compounds including acidic herbicides, organophosphates, and organochlorines	It is possible that quantities of pesticides, herbicides and fungicides were stored at the property while occupied by the orchard and flower growing activities. Small quantities of hazardous substances including a number of small oil containers were noted during the site walkover.	A17
Transport depot	Hydrocarbons including PAHs, solvents, and metals contained in waste oil	A potential transport depot at 150 No 1 Line was identified during the aerial review. A number of vehicles and containers are visible in the 2017 aerial image.	F8
West End			
Plant Nursery	Arsenic, lead, copper, mercury; wide range of organic compounds including acidic herbicides, organophosphates, and organochlorines	A commercial plant nursery (Awapuni Nurseries) is located at 2296-2300 State Highway 56 (within both West End and Additional Area C) and has operated since the early 1960s. The use of sprays containing persistent organochlorine compounds, used prior to the late 1970s, has the potential to result in residual contaminants in soils.	A10
Waste disposal to land	Metals, organochlorine pesticides	Piles of discarded material including wooden bins, plastic wrap and pallets, drums, metal reinforcing bars, plants, soil, tyres and wooden pallets, were observed on the south-east portion of the property.	G5

Land use/activity	Potential contaminants	Likelihood, magnitude and possible extent of contamination	HAIL reference
Hazardous substance storage	Hydrocarbons, solvents, pesticides, insecticides	Small volumes of hazardous substances including buckets of hydraulic oil are stored in a shed adjoining the office building. What appeared to be hydrocarbon staining was evident on the concrete foundation of the shed.	A17
Fuel storage	Petroleum hydrocarbons	There is potential for fuel storage to be occurring, or previously occurring, on the go-cart track site.	A17
Vehicle workshop and maintenance	Hydrocarbons including PAHs, solvents, and metals contained in waste oil	There is potential for vehicle maintenance to be undertaken as part of the activities on the go-cart track site.	F4
Historical railway line	Metals, PAH, asbestos	A railway line was previously present adjacent to the northern side of Pioneer Highway from Longburn to Palmerston North. The tracks were removed in the late 1960s and have been since been replaced with a pedestrian/cycling track. Lead and cadmium were found to be above background concentrations in the area of the former railway during the 2011 investigation.	Potential I*
Area A			
Dairy manufacturing waste disposal to land	Depending on type of waste within discharge. Could contain metals, PAH, semi-volatile organic compounds, solvents	HRC have identified that the property at 1843 Rongotea Road holds consents to discharge to land; dairy manufacturing liquid whey by-product, casein processing wastewater and wastewater treatment plant solids. HRC have classed these activities as HAIL category G5 – Waste disposal to land (excluding where biosolids have been used as soil conditioners).	G5
Orchard and market gardening activities	Arsenic, lead, copper, mercury; wide range of organic compounds including acidic herbicides, organophosphates, and organochlorines	Orchard and market gardening activities have been visible at 33-39 Cloverlea Road from the 1968 historical aerial image.	A10
Transport depot	Hydrocarbons including PAHs, solvents, and metals contained in waste oil	What appears to be a transport depot is present at 59 Cloverlea Road. A number of sheds or workshop buildings have been present from the 1945 historical aerial image.	F8

Area B			
Orchard and market gardening activities	Arsenic, lead, copper, mercury; wide range of organic compounds including acidic herbicides, organophosphates, and organochlorines	An application, dated 1997, to subdivide a former property confirms that the properties at 439 and 441 No 1 Line Longburn have been previously occupied by a plant nursery. The record of title for the former property notes the property was transferred to an owner listed as a 'Nurseryman' in 1979 and another owner, listed as a 'Nurseryman', in 1992.	A10
Dairy manufacturing waste disposal to land	Depending on type of waste within discharge. Could contain metals, PAH, semi-volatile organic compounds, or solvents	A consent to discharge wastewater treatment plant solids from the dairy manufacturing plant, the microfiltration unit at the dairy research and development site, is held on 2263B State Highway 56. HRC have classed these activities as HAIL category G5 – Waste disposal to land (excluding where biosolids have been used as soil conditioners).	G5
Area C			
Engineering workshops with metal fabrication	Metals and oxides of iron, nickel, copper, chromium, magnesium and manganese; range of organic compounds used for cleaning including BTEX, solvents	An engineering workshop (O'Leary Engineering Limited) is present at 2288 State Highway 56. Historical aerial images show the workshop building on site in 1968, and a building consent application for the construction of the workshop is dated 1966. A separate machine shop is also shown on a site plan dated 1968 within the property file information.	D5
Plant Nursery	Arsenic, lead, copper, mercury; wide range of organic compounds including acidic herbicides, organophosphates, and organochlorines	A commercial plant nursery (Awapuni Nurseries) is located at 2296-2300 State Highway 56 (within both West End and Additional Area C) and has operated since the early 1960s. The use of sprays containing persistent organochlorine compounds, used prior to the late 1970s, has the potential to result in residual contaminants in soils.	A10
Fuel storage	Petroleum hydrocarbons	An above ground fuel storage tank containing diesel with refuelling facilities was observed in the carparking area of Awapuni Nurseries to the east of the retail store and office.	A17
Dairy manufacturing waste disposal to land	Depending on type of waste within discharge. Could contain metals, PAH, semi-volatile organic compounds, or solvents	HRC have identified that the property at and 2263 State Highway 56 holds consents to discharge to land; dairy manufacturing liquid whey by-product, casein processing wastewater and wastewater treatment plant solids. HRC have classed these activities as HAIL category G5 – Waste disposal to land (excluding where biosolids have been used as soil conditioners).	G5

Historical railway line	Metals, PAH, asbestos	A railway line was previously present adjacent to the northern side of Pioneer Highway from Longburn to Palmerston North. The tracks were removed in the late 1960s and have been since been replaced with a pedestrian/cycling track. Lead and cadmium were found to be above background concentrations in the area of the former railway during the 2011 investigation.	Potential I*
All Areas, including Rail Triangle and Area A			
Asbestos	Asbestos fibres	<p>Due to the age of the buildings currently and previously on the site it is likely that asbestos products were used in their construction.</p> <p>If building materials are degraded, or poorly maintained, it is possible that asbestos fibres are present in surrounding soils.</p> <p>Fibre cement cladding in a weathered condition was observed on the exterior walls of a store building at 200 No 1 Line.</p> <p>Fibre cement cladding was observed in a deteriorating condition on a small shed located at 40 Cloverlea Road. Fragments and sheets of cladding were seen in the area surrounding the shed.</p> <p>Fibre cement cladding was also observed on the exterior walls of a shed and the front office building at 44 Cloverlea Road. The cladding on the shed was in a weathered condition and cracking and chipping in areas was evident.</p> <p>Fibre cement cladding and decramastic roofing with a coating that has the potential to contain ACM products were observed on buildings at the Awapuni Nurseries property. If degraded, or poorly maintained, it is possible that asbestos fibres are present in surrounding soils.</p>	Potential E1
Lead paint	Lead	<p>Due to the age of the buildings and structures, it is likely that lead-based paints were used.</p> <p>Any maintenance of painted surfaces may have resulted in the deposition of lead in soils surrounding the structures.</p>	Potential I*
Filling of former stream channels	Depends on type of waste –metals, PAHs, semi- volatile organic compounds, and solvents	Information from residents at a PNCC information evening indicates that, during previous developments, filling has occurred to level former stream channels across the central and southern portions of the site.	Potential I*

\*Potential I: HAIL Category I will be confirmed if contamination is found to be present at concentrations that present a risk to human health or the environment.

## 4.2 Preliminary conceptual site model

A conceptual site model as defined by the Ministry for the Environment in the contaminated land management guidelines<sup>10</sup>, sets out known and potential sources of contamination, potential exposure pathways, and potential receptors. For there to be an effect from the proposed activity there has to be a contamination source and a mechanism (pathway) for contamination to affect human health or the environment (receptor).

A preliminary conceptual site model has been developed for the proposed activity which takes into account the available information about the site, and our understanding of the potential effects on human health and the environment. The model is presented below in Table 4.2:

Table 4.2: Preliminary Conceptual Site Model

Source	Pathway	Receptor	Pathway Assessment
<b>Manderson</b>			
Soil contaminated as a result of: <ul style="list-style-type: none"> <li>sheep dipping activities; and</li> <li>spray use for pastoral weed and pest control.</li> </ul>	Inhalation of dust	Current site users Future site users	Potentially complete: Should contamination exist in soils a risk to current or future site users, maintenance/excavation workers or environmental receptors may be present.
	Dermal contact		
	Ingestion of soil		
	Inhalation of dust	Maintenance/excavation workers	
	Dermal contact		
	Ingestion of soil		
	Leaching of contaminants	Environmental receptors (groundwater, surface water)	
Runoff			
<b>Manderson and West End</b>			
Soil contaminated as a result of waste disposal to land	Inhalation of dust	Current site users Future site users	Potentially complete: Should contamination exist in soils a risk to current or future site users, maintenance/excavation workers or environmental receptors may be present.
	Dermal contact		
	Ingestion of soil		
	Inhalation of dust	Maintenance/excavation workers	
	Dermal contact		
	Ingestion of soil		
	Leaching of contaminants	Environmental receptors (groundwater, surface water)	
Runoff			
<b>Cloverlea, No 1 Line, Area A and Area B</b>			
Soil contaminated as a result of orchard and market garden activities	Inhalation of dust	Current site users Future site users	Potentially complete: Should contamination exist in soils a risk to current or future site users, maintenance/excavation workers or environmental receptors may be present.
	Future site users		
	Dermal contact		
	Ingestion of soil	Maintenance/excavation workers	
	Inhalation of dust		
Dermal contact			

<sup>10</sup> Ministry for the Environment, updated 2011, *Contaminated Land Management Guidelines No. 5 Site Investigation and Analysis of Soils*.

Source	Pathway	Receptor	Pathway Assessment
	Leaching of contaminants	Environmental receptors (groundwater, surface water)	
	Runoff		
Manderson, Cloverlea, No 1 Line and West End			
Soil contaminated as a result of the storage of fuel and hazardous substances	Inhalation of dust	Current site users Future site users	Potentially complete: Should contamination exist in soils a risk to current or future site users, maintenance/excavation workers or environmental receptors may be present.
	Future site users		
	Dermal contact		
	Ingestion of soil	Maintenance/excavation workers	
	Inhalation of dust		
	Dermal contact		
	Leaching of contaminants	Environmental receptors (groundwater, surface water)	
	Runoff		
No 1 Line and Area A			
Soil contaminated as a result of potential transport depot activities	Inhalation of dust	Current site users Future site users	Potentially complete: Should contamination exist in soils a risk to current or future site users, maintenance/excavation workers or environmental receptors may be present.
	Dermal contact		
	Ingestion of soil		
	Inhalation of dust	Maintenance/excavation workers	
	Dermal contact		
	Ingestion of soil		
	Leaching of contaminants	Environmental receptors (groundwater, surface water)	
	Runoff		
West End and Area C			
Soil contaminated as a result of the plant nursery	Inhalation of dust	Current site users Future site users	Potentially complete: Should contamination exist in soils a risk to current or future site users, maintenance/excavation workers or environmental receptors may be present.
	Dermal contact		
	Ingestion of soil		
	Inhalation of dust	Maintenance/excavation workers	
	Dermal contact		
	Ingestion of soil		
	Leaching of contaminants	Environmental receptors (groundwater, surface water)	
	Runoff		
Soil contaminated as a result of the historical railway line	Inhalation of dust	Current site users Future site users	Potentially incomplete: Contamination identified during limited sampling in a 2011 investigation was found to be below human health guidelines. However, as sampling was limited contamination may exist in soils and a risk to current or future site users or
	Dermal contact		
	Ingestion of soil		
	Inhalation of dust	Maintenance/excavation workers	
	Dermal contact		
	Ingestion of soil		

Source	Pathway	Receptor	Pathway Assessment
			maintenance/excavation workers may be present.
	Leaching of contaminants	Environmental receptors (groundwater, surface water)	Potentially complete: Contamination identified during limited sampling in a 2011 investigation was found to be above expected background concentrations for lead a cadmium. A risk to environmental receptors therefore may be present.
	Runoff		
<b>West End</b>			
Soil contaminated as a result of vehicle maintenance at the go- cart track site	Inhalation of dust	Current site users Future site users	Potentially complete: Should contamination exist in soils a risk to current or future site users, maintenance/excavation workers or environmental receptors may be present.
	Dermal contact		
	Ingestion of soil		
	Inhalation of dust	Maintenance/excavation workers	
	Dermal contact		
	Ingestion of soil		
	Leaching of contaminants	Environmental receptors (groundwater, surface water)	
	Runoff		
<b>Area A, Area B and Area C</b>			
Soil contaminated as a result of dairy manufacturing waste disposal to land	Inhalation of dust	Current site users Future site users	Potentially complete: Should contamination exist in soils a risk to current or future site users, maintenance/excavation workers or environmental receptors may be present.
	Dermal contact		
	Ingestion of soil		
	Inhalation of dust	Maintenance/excavation workers	
	Dermal contact		
	Ingestion of soil		
	Leaching of contaminants	Environmental receptors (groundwater, surface water)	
	Runoff		
<b>Area B</b>			
Soil contaminated as a result of plant nursery activities	Inhalation of dust	Current site users Future site users	Potentially complete: Should contamination exist in soils a risk to current or future site users, maintenance/excavation workers or environmental receptors may be present.
	Dermal contact		
	Ingestion of soil		
	Inhalation of dust	Maintenance/excavation workers	
	Dermal contact		
	Ingestion of soil		
	Leaching of contaminants	Environmental receptors (groundwater, surface water)	
	Runoff		

Area C			
Soil contaminated as a result of; <ul style="list-style-type: none"> <li>the engineering workshop; and</li> <li>the storage of fuels in aboveground tanks.</li> </ul>	Inhalation of dust	Current site users	Potentially complete: Should contamination exist in soils a risk to current or future site users, maintenance/excavation workers or environmental receptors may be present.
	Dermal contact	Future site users	
	Ingestion of soil		
	Inhalation of dust	Maintenance/excavation workers	
	Dermal contact		
	Ingestion of soil		
	Leaching of contaminants	Environmental receptors (groundwater, surface water)	
Runoff			
All areas			
Soil contaminated with asbestos fibres from degradation of ACM building materials	Inhalation of dust	Current site users Future site users Maintenance/excavation workers	Potentially complete: Should asbestos fibres be present in soils a risk to current or future site users or maintenance/excavation workers may be present.
Soil contaminated as a result of: <ul style="list-style-type: none"> <li>the maintenance of lead painted surfaces causing the deposition of lead in 'halos' surrounding buildings and structures; and</li> <li>the filling of former stream channels.</li> </ul>	Inhalation of dust	Current site users	Potentially complete: Should contamination exist in soils a risk to current or future site users, maintenance/excavation workers or environmental receptors may be present.
	Dermal contact	Future site users	
	Ingestion of soil		
	Inhalation of dust	Maintenance/excavation workers	
	Dermal contact		
	Ingestion of soil		
	Leaching of contaminants	Environmental receptors (groundwater, surface water)	
Runoff			

The preliminary conceptual site model indicates that, considering the current and historical activities on sites within the Kākātangiata Growth Area and composition of the buildings on some sites, there is a potential for contamination to exist in surface and underlying soils which may present a risk to current and future site users, maintenance/excavation workers, and environmental receptors.

Sampling and analysis of the identified soil contaminants in areas where HAIL activities have been historically present, or are currently present, is recommended to determine whether there is a risk to the current and future site users and environmental receptors.



## 5 Regulatory implications

The rules and associated assessment criteria relating to the control of contaminated sites in the Whanganui-Manawatū region are specified in the following documents:

- NESCS<sup>3</sup>;
- Health and Safety at Work (Asbestos) Regulations (2016)<sup>11</sup>;
- The Horizons Regional Council's Regional Plan (HRC One Plan)<sup>12</sup>; and
- The Palmerston North City Council's District Plan<sup>13</sup>.

The NESCS and District Plan consider issues relating to land use and the protection of human health while the Regional Plan has regard to issues relating to the protection of the general environment, including ecological receptors. The need, or otherwise, for contamination related resource consents for the site redevelopment has been evaluated against these regulatory requirements.

### 5.1 NESCS

#### 5.1.1 NESCS applicability

The NESCS came into effect on 1 January 2012. This legislation sets out nationally consistent planning controls appropriate to district and city councils for assessing contaminants in soil with regard to human health. As a result, the NESCS prevails over the rules in the District Plan, except where the rules permit or restrict effects that are not dealt with in the NESCS.

The NESCS applies to specific activities on land where a HAIL activity has or is "more likely than not" to have occurred. Activities covered under the NESCS include soil disturbance, soil sampling, fuel systems removal, subdivision and land use change.

The following Table 5.1, as provided in the NESCS Users Guide (April 2012), confirms the NESCS applies to site within the development areas if certain activities are proposed.

Table 5.1: PSI checklist (for all five development areas)

NESCS Requirements	Applicable to site?
Is an activity described on the HAIL currently being undertaken on the piece of land to which this application applies?	Yes
Has an activity described on the HAIL ever been undertaken on the piece of land to which this application applies?	Yes
Is it more likely than not that an activity described on HAIL is being or has been undertaken on the piece of land to which this application applies?	Yes
If 'Yes' to any of the above, then the NESCS may apply. The five activities to which the NES applies are:	
Is the activity you propose to undertake removing or replacing a fuel storage system or parts of it?	No
Is the activity you propose to undertake sampling soil?	No
Is the activity you propose to undertake disturbing soil?	Yes

<sup>11</sup>Ministry of Business, Innovation, and Employment, February 2016. *Health and Safety at Work (Asbestos) Regulations*.

<sup>12</sup>Horizons Regional Council, 2014. One Plan - The Consolidated Regional Policy Statement, Regional Plan and Regional Coastal Plan for the Manawatu-Wanganui Region.

<sup>13</sup>Palmerston North City Council, 2018. Palmerston North City Council District Plan.

NESCS Requirements	Applicable to site?
Is the activity you propose to undertake subdividing land?	Yes
Is the activity you propose to undertake changing the use of the land?	Yes
Conclusion: The NESCS applies to the HAIL sites within the Kākātangiata Growth Area.	

As HAIL activities are more than likely to have occurred within the site, and when any of the four activities included in Table 5.1 above are proposed to be undertaken on the site, the NESCS will apply.

It is recommended that a Detailed Site Investigation (DSI) as per the MfE Guidelines<sup>4</sup> be completed, where HAIL activities have been identified, to support the application for a NESCS consent application.

## 5.2 Health and Safety at Work (Asbestos) Regulations

The Health and Safety at Work (Asbestos) Regulations (2016) were enacted on 4 April 2016, herein referred to as the Asbestos Regulations.

In order to help achieve compliance with the Asbestos Regulations, WorkSafe New Zealand has prepared an Approved Code of Practice (ACoP): Management and Removal of Asbestos (September 2016). The ACoP refers readers to the "New Zealand Guidelines for Assessing and Managing Asbestos in Soil" (herein referred to as the Asbestos-in-Soil Guidelines) which were published in November 2017 by BRANZ Ltd<sup>14</sup>.

If buildings containing suspected asbestos are to be demolished an asbestos demolition survey is generally completed to assess asbestos containing products within the structures, prior to the demolition works commencing.

If asbestos, particularly in a deteriorated condition, is found to be present in buildings, then there is a risk that asbestos could be present in the soil surrounding the building. Soil sampling can be undertaken to determine whether asbestos is present, and the level of precautions required to protect people during redevelopment works.

## 5.3 Regional Plan

The Horizons Regional Council's One Plan<sup>12</sup> sets out rules relating to the discharge of contaminants to land and water which will need to be considered once the redevelopment plans have been finalised.

The Horizons Regional Council's One Plan sets out rules to manage the use of natural resources and to maintain the health of the environment including soil and water. Development of the site has potential for regional consents to be required under the plan.

Rules that may apply are:

- Rule 14-18: Discharges of stormwater to surface water and land. In order for an activity to be permitted (i.e., resource consent not required) an activity must comply with the conditions of this rule. Conditions require that the discharge must not include stormwater from any contaminated land where the contaminants of concern may be entrained by stormwater unless there is an interceptor system in place; and
- Rule 14-27: Discharges of contaminants onto or into land that will not enter water may apply during site redevelopment. In order for an activity to be permitted (i.e., resource consent not

<sup>14</sup> BRANZ Ltd, 2017. New Zealand Guidelines for Assessing and Managing Asbestos in Soil.

required) an activity must comply with the conditions of this rule. Conditions require that the rate of discharge associated with the redevelopment must not be more than 100 m<sup>3</sup>/yr, the discharge must not contain contaminants from landfilling or cleanfill material, records of the discharge must be maintained and provided to HRC if requested, long-term stability of the site is maintained, and the risk of erosion is avoided, and the discharge must not have any 'acid-producing' potential.

The HRC One Plan Planning Maps indicate that the sites are within or adjacent to Scheduled Water Management Zones and additional considerations may be relevant due to the location of the site within the following zones:

- 'Lower Manawatū' and 'Lower Mangaone Stream' Schedule A Surface Water Management zones;
- 'Hill Mixed' and 'Lowland Mixed' Life Supporting Capacity and 'Flood Control Drainage' Schedule B Surface Water Management Values zones; and
- 'Manawatū' Schedule D Groundwater Management Zone.

A full planning assessment to confirm the applicable rules is recommended once redevelopment plans have been established.

#### 5.4 District Plan applicability

As noted in Section 5.1.1, the NESCS now prevails over the rules in the District Plan, except where the rules permit or restrict effects that are not dealt with in the NESCS.

As the rules in the District Plan do not deal with any effects that are not dealt with in the NESCS, with respect to managing contaminants in soil to protect human health, the provisions of the District Plan have not been considered further in this assessment.

## 6 Conclusions

T+T has been commissioned by Palmerston North City Council to undertake a Preliminary Site Investigation for eight additional development areas (Manderson, Cloverlea, No 1 Line, Rail Triangle, West End, Additional Area A, Additional Area B and Additional Area C) in the Kākātangiata Growth Area, to support the plan change for rezoning of the sites.

A summary of the findings is below:

- There have been a number of historical and current activities undertaken on site within the additional development areas that have the potential to have resulted in soil contamination. Activities including fuel storage, horticulture, disposal of waste to land, burning of waste material transport depots and a sheep dip which may have resulted in contaminants leaching into shallow soils in localised areas on the sites; and
- It is likely that lead-based paint and asbestos have been used in the construction of a number of buildings and structures on each of the sites. Wear and maintenance of the buildings may have resulted in soil contamination around the buildings and structures.

A summary of potential regulatory implications for future development of the site is below:

- The NESCS will apply to the development as HAIL activities likely occurred on portions of the sites. Prior to redevelopment, an application for a NESCS consent may be required;
- Completion of a DSI in areas where HAIL activities have been identified within the Kākātangiata Growth Area to assess the levels of potential contamination is likely to be required to support the NES consent application;
- The Palmerston North City Council's District Plan does not contain rules which permit or restrict effects that are not dealt with in the NESCS;
- As suspected asbestos has been noted in some of the buildings on site, there is reasonable cause to suspect that asbestos may be present in soil, therefore, sampling to confirm whether asbestos is present in soil is recommended. The Asbestos Regulations are likely to apply when undertaking future demolition and redevelopment works, results of building and demolition surveys and soil sampling will determine the appropriate controls required under the Asbestos Regulations; and
- Rules in the Horizons Regional Council One Plan related to discharge of contaminants to land and stormwater may apply on the site if redevelopment is to be undertaken. A full planning assessment to confirm the applicable rules is recommended once development plans have been established.

## 7 Applicability

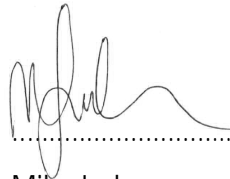
This report has been prepared for the exclusive use of our client Palmerston North City Council, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

Tonkin & Taylor Ltd

Environmental and Engineering Consultants

Report prepared by:

Authorised for Tonkin & Taylor Ltd by:



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Kasey Pitt

.....  
Mike Jacka

Contaminated Land Consultant

Project Director

21-Oct-22

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## Appendix A: Figures

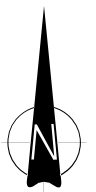
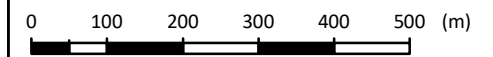
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**LEGEND**

- Manderson
- Cloverlea
- No 1 Line
- Waste disposal to land
- Remnants of sheep dip and associated structures
- Remnants of former gravel quarry
- Effluent pond
- Former and current horticultural activities
- Former fenced yard area
- Yard area (storage of containers and vehicles)
- Open stormwater drain
- Railway line
- Observed wastewater manholes and bund
- Former and current horticultural activities at 47 No 1 Line

A3 SCALE: 1:10,000



Created On:	1/10/2021
Created By:	KPitt
Approved By:	
TT Proj Ref:	85442.0200
TT Map Ref:	TTMAPREF1433463001.902



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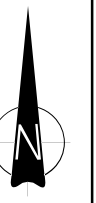
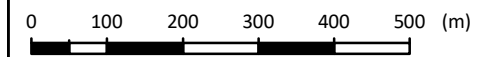
**PALMERSTON NORTH CITY COUNCIL**  
 85442.0200  
 Kakatangiata - Manderson, Cloverlea and No 1 Line  
 Key Site Features



**LEGEND**

- Railway Triangle
- Area A
- Area B
- Area C (portion of)
- Former extent of adjacent substation
- Former and current horticultural activities
- Potential transport depot
- Railway line

A3 SCALE: 1:10,000



Created On:	1/10/2021
Created By:	KPitt
Approved By:	
TT Proj Ref:	85442.0200
TT Map Ref:	TTMAPREF1433463001.902



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**PALMERSTON NORTH CITY COUNCIL**  
 85442.0200  
 Kakatangiata - Central Areas  
 Key Site Features

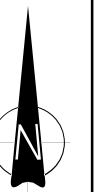
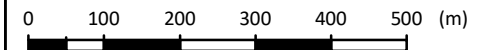




**LEGEND**

- West End
- Area B
- Area C
- Engineering workshop
- Area containing office, retail, workshop and storage buildings
- Area containing discarded items
- Former and current horticultural activities
- Transport depot
- Go-cart track
- Above ground fuel storage tank
- Former Wellington- Longburn main trunk railway line
- Railway line

A3 SCALE: 1:10,000



Above ground fuel storage tank

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TT Proj Ref:	85442.0200
TT Map Ref:	TTMAPREF1433463001.902



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 85442.0200  
 Kakatangiata - Southern Areas  
 Key Site Features

## Appendix B: Site photographs

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## Manderson Area Site Walkover Photographs



*Photograph 1 Appendix B.1: Implement (forefront of image) and hay sheds.*



*Photograph 2 Appendix B.1: Milking shed constructed of cinderblock, corrugated iron and 'clearlite' panels.*



*Photograph 3 Appendix B.1: Brick fragments observed in driveway.*



*Photograph 4 Appendix B.1: Within implement shed showing example of equipment and vehicle stored.*



*Photograph 5 Appendix B.1: Shipping containers present to the south of the implement shed.*



*Photograph 6 Appendix B.1: Former gravel quarry, looking north towards Peters and Tararua Avenue.*



*Photograph 7 Appendix B.1: Concrete fence posts, a trough and a metal bucket within former quarry area.*



*Photograph 8 Appendix B.1: Layer of gravel observed in north eastern wall of former quarry.*



*Photograph 9 Appendix B.1: Remnants of former plunge sheep dip filled with concrete and fenceposts to prevent stock access, looking north east. Rectangular tank visible beyond the dip.*



*Photograph 10 Appendix B.1: Rectangular tank, pipework and cracking evident in image.*



*Photograph 11 Appendix B.1: Metal and concrete fragments present at base of tank.*





*Photograph 12 Appendix B.1: Open stormwater drain extending north, dense vegetation top left of image.*



*Photograph 13 Appendix B.1: Large rubbish pile in centre of site.*



*Photograph 14 Appendix B.1: An example of disposed material in large rubbish pile.*



*Photograph 15 Appendix B.1: Fenceposts and wire discarded by trees on northern portion of property.*



*Photograph 16 Appendix B.1: Large pieces of metal discarded by trees with fence posts and wire.*



*Photograph 17 Appendix B.1: Partially burnt waste material present to the rear of the hayshed.*



*Photograph 18 Appendix B.1: Effluent pond with cover north west of the milking shed.*



*Photograph 19 Appendix B.1: Tyres in and around drainage channel in a northern paddock.*



*Photograph 20 Appendix B.1: Disused vehicles, farming implements and an above ground storage tank stored in paddock north of accessway.*

## Cloverlea Area Site Walkover Photographs



*Photograph 21 Appendix B.1: Equipment stored in area of former tunnel house including silo.*



*Photograph 22 Appendix B.1: Equipment stored in area of former tunnel house.*



*Photograph 23 Appendix B.1: Small shed constructed of fibreboard to the north of the house.*



*Photograph 24 Appendix B.1: Fragment of fibreboard on the top of a box attached to the shed.*



*Photograph 25 Appendix B.1: Building material stored to the rear of the small shed.*





*Photograph 26 Appendix B.1: Disused aboveground storage tanks on south eastern boundary of property.*



*Photograph 27 Appendix B.1: Rear of office/retail building showing board and batten style cladding.*



*Photograph 28 Appendix B.1: Large glasshouse with concrete foundation now used for storage.*



*Photograph 29 Appendix B.1: Store building adjoining the southern wall of the large glasshouse.*



*Photograph 30 Appendix B.1: Exposed fibreboard cladding on north-facing external wall of store building.*



*Photograph 31 Appendix B.1: Southern portion of disused and deteriorating commercial glasshouses.*



*Photograph 32 Appendix B.1: Above ground storage tank adjacent to the the rear of the southern-most glass house, as seen from 40 Cloverlea Road.*



*Photograph 33 Appendix B.1: Remaining fruit trees from former orchard at 58 Cloverlea Road.*



*Photograph 34 Appendix B.1: Example of equipment observed on southern portion of the property.*



*Photograph 35 Appendix B.1: Refrigerated building and sheds seen on southern portion of property.*

## No 1 Line Area Site Walkover Photographs



*Photograph 36 Appendix B.1: Front of store/packing building constructed of fibreboard and stucco paint.*



*Photograph 37 Appendix B.1: Rear of store/packing building containing items including containers of oil.*



*Photograph 38 Appendix B.1: Rubbish pile across the driveway from the northern portion of the store building.*



*Photograph 39 Appendix B.1: Disused tunnel house to the west of the store building.*



*Photograph 40 Appendix B.1: Area to the west of tunnel house with deteriorating structures.*



*Photograph 41 Appendix B.1: Bore shed to the west of the store building, litter present at front of shed.*



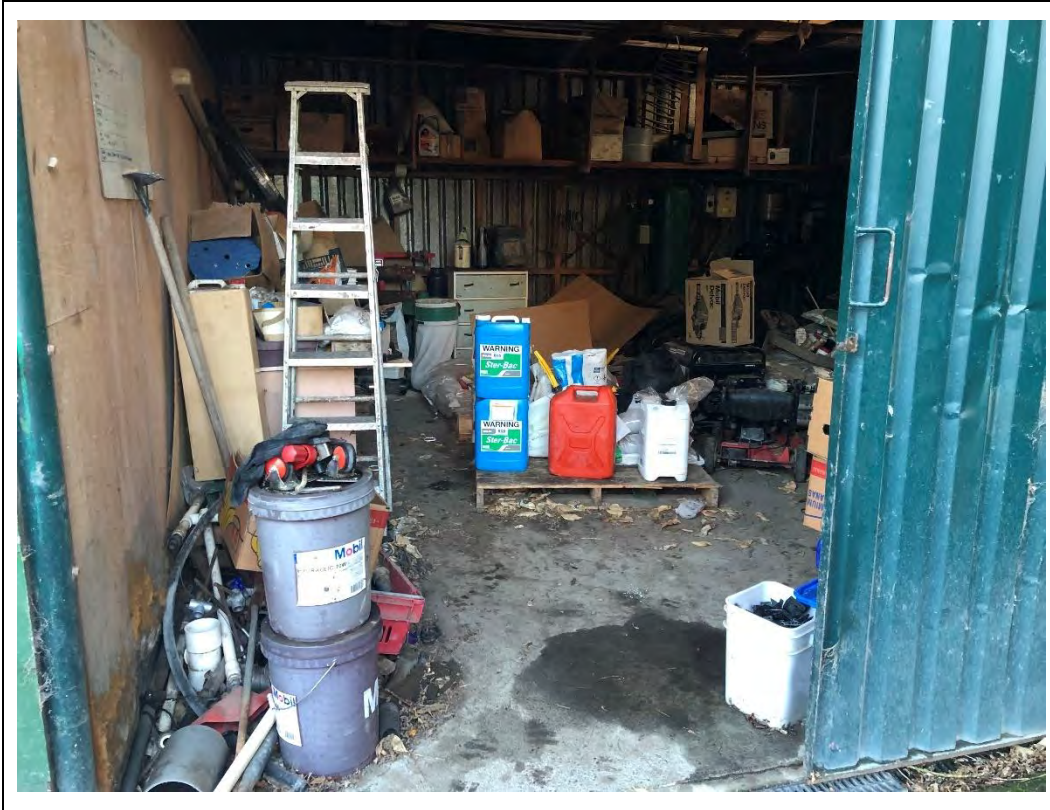
## West End Site Walkover Photographs



*Photograph 42 Appendix B.1: Retail store building present to the south of the carparking area.*



*Photograph 43 Appendix B.1: Office/reception building constructed of fibreboard cladding.*



*Photograph 44 Appendix B.1: Store building adjoining the reception/office building.*



*Photograph 45 Appendix B.1: Aboveground storage tank containing diesel to the west of the office building.*



*Photograph 46 Appendix B.1: Intermediate bulk containers containing coloured solutions.*



*Photograph 47 Appendix B.1: An example of discarded items on eastern portion of property.*



*Photograph 48 Appendix B.1: An example of discarded items towards the eastern portion of property.*

## Initial Kakatangiata Areas

47 No1 Line



*Photograph 49 Appendix B.1: Hazardous substance store, pump shed and water tank.*



*Photograph 50 Appendix B.1: Discarded items immediately south of water tank.*



*Photograph 51 Appendix B.1: Small timber building with flaking paint to the west of the main building.*



*Photograph 52 Appendix B.1: Water tank and refrigerated building to the west of the main building.*



*Photograph 53 Appendix B.1: Example of planting in tunnel houses on northern portion of property.*



*Photograph 54 Appendix B.1: Example of tunnel houses on southern portion of property.*



*Photograph 55 Appendix B.1: Drainage channel running west to east through the centre of the property.*



**31 Shirriffs Road, J P Ware Transport Ltd**



*Photograph 56 Appendix B.1: Eastern portion of the workshop building showing paving and cladding.*



*Photograph 57 Appendix B.1: Within workshop building looking towards shelving on eastern wall. Cut rectangular area within concrete floor. Hydrocarbon staining evident.*



*Photograph 58 Appendix B.1: Waste oil tank and small storage tank outside doorway to west of workshop.*



*Photograph 59 Appendix B.1: Aboveground storage tank on western portion of the property.*



*Photograph 60 Appendix B.1: Trucks and trailers stored on north of property, storage tanks and roof on trailers.*



*Photograph 61 Appendix B.1: Disused crane and metal containers on northeastern portion of property. 'Lean-to' building beyond left of image.*

## Appendix C: Site history information

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Historical information relating to the site has been collected from a variety of sources. The information presented documents on-site activities, except for the aerial photograph review where comments are also provided on readily observable surrounding land use. The information that has been reviewed is summarised in this appendix.

## C1 Certificates of title

Current and historical certificates of titles for the site have been reviewed. A summary of the information reviewed is presented in Appendix C Table 1 below. A copy of the selected certificates of title, identified in bold in the below table, are provided in Appendix D.

Appendix C Table 1: Summary of certificates of title review

Property	Current CT	Historical CT
Manderson		
142A Gillespies Line		
Lot 2 DP 481216 and Part Lot 5 DP 7073	<ul style="list-style-type: none"> <li>673978: Issued 2015 <i>Private ownership</i> <i>Subject to stormwater and sewage drainage rights.</i> <i>Subject to a right to convey water and electric power.</i></li> </ul>	<ul style="list-style-type: none"> <li>WN48B/725: Issued 1996, cancelled 2015</li> <li>WN25D/273: Issued 1984, cancelled 1996 <i>Property owner same as prior CT and listed as farmer</i></li> <li>WNE2/513: Issued 1966, cancelled 1984 <i>Property owner listed as farmer</i></li> <li>WN2/95: Issued July 1871(?), cancelled August 1873</li> </ul>
Lot 48 DP 24500 and Lot 2 DP 40516	<ul style="list-style-type: none"> <li>WN54C/404: Issued 1999 <i>Private ownership</i> <i>Subject to stormwater and sewage drainage rights.</i> <i>Subject to a right to convey water and electric power.</i></li> </ul>	<ul style="list-style-type: none"> <li>WNB1/155: Issued 1963, cancelled 1999</li> <li>WN12B/374: Issued 1974, cancelled 1999</li> <li>WN7B/1017: Issued 1969, cancelled 1974</li> <li>WNA4/317: Issued 1962, Lot 48 DP 24500 created 1963</li> <li>WNB4/137: Issued 1963, Lot 2 DP 40516 created 1974</li> <li>WNB4/136: Issued 1963, cancelled 1969</li> <li>WN530/48: Issued 1946, cancelled 1955</li> <li>WN555/208: Issued 1950, cancelled 1963</li> <li>WN30/116: Issued 1882, cancelled 1950 <i>Various property owners listed as farmer from 1893</i></li> </ul>
Lot 3 DP 40516	<ul style="list-style-type: none"> <li>WN12B/375: Issued 1974 <i>Private ownership</i> <i>Subject to stormwater and sewage drainage rights.</i> <i>Subject to a right to convey water and electric power.</i></li> </ul>	<ul style="list-style-type: none"> <li>WN7B/1017: Issued 1969, cancelled 1974</li> <li>WNB4/137: Issued 1963, Lot 3 DP 40516 created 1974</li> <li>WNB4/136: Issued 1963, cancelled 1969</li> <li>WN576/14: Issued 1951, cancelled 1963</li> <li>WN67/261: Issued 1893, cancelled 1951 <i>Various property owners listed as farmer from 1893</i></li> </ul>

Cloverlea

40 Cloverlea Road  
Part Section 22 Cloverlea Settlement  
and Lot 2 DP 41404 and Lot 2 DP  
400868

- 401697: Issued 2008  
*Private ownership*

- 355025: Issued 2007, cancelled 2008
- WN14B/1146: Issued 1975, cancelled 2008
- WN45B/133: Issued 1994, cancelled 2007  
*Title was issued in August 1994 to a property owner recorded to be an orchardist. Transferred to current owners in November 1994.*
- WN43B/686: Issued 1993, cancelled 1994  
*Title was issued in 1993 to a property owner listed as an orchardist (as above).*
- WN41C/503: Issued 1992, cancelled 1993  
*Title was issued in 1992 to a property owner listed as an orchardist (as above).*
- WN819/29: Issued 1958, cancelled 1975
- WN1/769: Issued 1963, cancelled 1975
- WN801/19: Issued 1958, cancelled 1963  
*Title was issued to a property owner listed as a farmer*
- WN23/27: Issued 1879, cancelled 1914
- WN38A/343: Issued 1990, cancelled 1992  
*Title was issued in 1992 to a property owner listed as an orchardist (as above).*
- WN9A/632: Issued 1971, cancelled 1990  
*Title was transferred to a property owner listed as an orchardist (as above). Change of name from private owners to Cloverlea Orchards Limited in 1990 rejected.*
- WN9A/633: Issued 1971, cancelled 1990  
*Comments as WN9A/632 above.*
- WN9A/634: Issued 1971, cancelled 1990  
*Comments as WN9A/632 above.*
- WN907/53: Issued 1960, cancelled 1971
- WN609/144: Issued 1953, cancelled 1960

44 Cloverlea Road  
Lot 2 DP 388808

- 355026: Issued 2007  
*Private ownership*

- WN41C/502: Issued 1992, cancelled 2007
- WN45B/133: Issued 1994, cancelled 2007  
*Title was issued in August 1994 to a property owner listed as an orchardist. Transferred to current owners in November 1994.*
- WN38A/343: Issued 1990, cancelled 1992

		<i>Title was issued in 1992 to a property owner listed as an orchardist (as above).</i>
56 Cloverlea Road Lot 1 DP 400868	<ul style="list-style-type: none"> <li>• 401696: Issued 2008 <i>Private ownership</i></li> </ul>	<ul style="list-style-type: none"> <li>• 355025: Issued 2007, cancelled 2008</li> </ul>
58 Cloverlea Road Lot 2 DP 76612	<ul style="list-style-type: none"> <li>• WN43B/684: Issued 1993 <i>Private ownership</i></li> </ul>	<ul style="list-style-type: none"> <li>• WN41C/503: Issued 1992, cancelled 1993 <i>Title was issued in 1992 to a property owner listed as an orchardist (same owners as 40 Cloverlea Road).</i></li> </ul>
60A Cloverlea Road Lot 3 DP 76612	<ul style="list-style-type: none"> <li>• WN43B/685: Issued 1993 <i>IHC New Zealand Incorporated</i></li> </ul>	
60B Cloverlea Road Lot 5 DP 76612	<ul style="list-style-type: none"> <li>• WN43B/687: Issued 1993 <i>IHC New Zealand Incorporated</i></li> </ul>	
60C Cloverlea Road Lot 6 DP 76612	<ul style="list-style-type: none"> <li>• WN43B/687: Issued 1993 <i>Private ownership</i></li> </ul>	
62 Cloverlea Road Lot 1 DP 76612	<ul style="list-style-type: none"> <li>• WN43B/683: Issued 1993 <i>Private ownership</i></li> </ul>	
62A-62B Cloverlea Road Lot 1 DP 70621	<ul style="list-style-type: none"> <li>• WN38A/342: Issued 1990 <i>Private ownership</i></li> </ul>	<ul style="list-style-type: none"> <li>• WN9A/632: Issued 1971, cancelled 1990 <i>Title was transferred to a property owner listed as an orchardist. Change of name from private owners to Cloverlea Orchards Limited in 1990 rejected (as 40 Cloverlea Road).</i></li> </ul>
No 1 Line		
2-28 Cloverlea Road Lot 2 DP 47970	<ul style="list-style-type: none"> <li>• 669316: Issued 2014 <i>Private ownership</i></li> </ul>	<ul style="list-style-type: none"> <li>• WNA3/1100: Issued 1962, cancelled 2014 <i>Title was transferred to a property owner listed as a manufacturer.</i></li> <li>• WN712/49: Issued 1956, cancelled 1962 <i>Title was issued to a property owner listed as a gardener.</i> <i>The right to sink artesian wells for water supply given.</i></li> </ul>
150 No 1 Line Longburn Lot 1 DP 85334	<ul style="list-style-type: none"> <li>• WN53B/19: Issued 1998 <i>Various private owners</i></li> </ul>	<ul style="list-style-type: none"> <li>• WN33D/210: Issued 1988, cancelled 1998 <i>Title was transferred to property owners listed as horticulturalists in 1993.</i></li> <li>• WN18D/21: Issued 1978, cancelled 1988 <i>Title was transferred to property owners listed as horticulturalists in the above CT in 1988.</i></li> <li>• WND1/956: Issued 1965, cancelled 1988 <i>Title was issued to a property owner listed as farmer (same owner as above).</i></li> <li>• WN267/251: Issued 1919, cancelled 1965 <i>Title was issued to a property owner listed as farmer (same owner as above).</i></li> <li>• WN417/77: Issued 1930, cancelled 1965</li> </ul>

		<p><i>Title was issued to a property owner listed as farmer (same owner as above).</i></p> <ul style="list-style-type: none"> <li>• WN586/190: Issued 1952, cancelled 1965</li> </ul> <p><i>Title was issued to a property owner listed as farmer (same owner as above).</i></p> <ul style="list-style-type: none"> <li>• WN245/73: Issued 1917, cancelled 1919</li> </ul> <p><i>Title was issued to a property owner listed as farmer (same owner as above).</i></p> <ul style="list-style-type: none"> <li>• WN245/73: Issued 1916, cancelled 1919</li> </ul> <p><i>Title was issued to a property owner listed as farmer (same owner as above).</i></p> <ul style="list-style-type: none"> <li>• WN242/204: Issued 1916, cancelled 1952</li> </ul> <p><i>Title was issued to a property owner listed as farmer (son of owner listed below).</i></p> <p><i>March 1926 – Proclamation 1588 to take land for the railway</i></p> <ul style="list-style-type: none"> <li>• WN30/117: Issued 1882, cancelled 1916</li> </ul> <p><i>Title was issued to a property owner listed as farmer (same owner as above).</i></p>
200 No 1 Line Longburn Lot 1 DP 15950 and Lot 1 DP 64056	<ul style="list-style-type: none"> <li>• WN33D/209: Issued 1988</li> </ul> <p><i>Private ownership</i></p>	<ul style="list-style-type: none"> <li>• WN18D/21: Issued 1978, cancelled 1988</li> </ul> <p><i>Title was transferred to property owners listed as horticulturalists in CT WN33D/210 in 1988.</i></p> <ul style="list-style-type: none"> <li>• WN586/189: Issued 1952, cancelled 1988</li> </ul> <p><i>Title was issued to a property owner listed as farmer.</i></p> <ul style="list-style-type: none"> <li>• WN242/204: Issued 1916, cancelled 1952</li> </ul> <p><i>Title was issued to a property owner listed as farmer (son of owner listed in WN30).</i></p> <p><i>March 1926 – Proclamation 1588 to take land for the railway</i></p>
Rail Triangle		
316A No 1 Line Longburn Lot 1 DP 62403	<ul style="list-style-type: none"> <li>• WN42A/203: Issued 1992</li> </ul> <p><i>Private ownership</i></p>	<ul style="list-style-type: none"> <li>• WN32A/134: Issued 1987, cancelled 1992</li> </ul> <p><i>Title was issued to a property owner listed as mechanic.</i></p> <ul style="list-style-type: none"> <li>• WN10A/1352: Issued 1972, cancelled 1987</li> </ul> <p><i>Title was transferred to a property owner listed as mechanic in 1980.</i></p> <ul style="list-style-type: none"> <li>• WN156/275: Issued 1906, cancelled 1972</li> <li>• WN50/198: Issued 1889, cancelled 1906</li> </ul>



West End		
2300 State Highway 56 Lot 4 DP 26238	<ul style="list-style-type: none"> <li>• WNE3/568: Issued 1966 <i>Various private owners</i></li> </ul>	<ul style="list-style-type: none"> <li>• WN848/6: Issued 1959, cancelled 1966 <i>Title was issued to a property owner listed as farmer, transfer of Lot 1 DP 25778 to Milk Processing (P.N.) Limited in 1964.</i></li> <li>• WN255/196: Issued 1918, cancelled 1959 <i>Title was issued to a property owner listed as farmer.</i></li> <li>• WN217/36: Issued 1913, cancelled 1935 <i>Title was issued to various property owners listed as sheep farmers and a station manager.</i></li> </ul>
2296 State Highway 56 Lot 2 DP 26238	<ul style="list-style-type: none"> <li>• WNE4/301: Issued 1966 <i>Various private owners</i></li> </ul>	<ul style="list-style-type: none"> <li>• WN848/6: Issued 1959, cancelled 1966 <i>Title was issued to a property owner listed as farmer, transfer of Lot 1 DP 25778 to Milk Processing (P.N.) Limited in 1964.</i></li> </ul>
170 Shirriffs Road	<ul style="list-style-type: none"> <li>• WN45D/159: Issued 1994 <i>Private owners</i></li> </ul>	<ul style="list-style-type: none"> <li>• WN19C/1102: Issued 1979, cancelled 1994 <i>Issued to owner listed as farmer</i></li> <li>• WN9D/1143: Issued 1972, cancelled 1979 <i>Issued to owner listed as farmer, transfer to the Manawatu Go-Kart Club in 1979</i></li> <li>• WN353/186: Issued 1930, cancelled 1972 <i>Issued to owner listed as farmer</i></li> </ul>
194 Shirriffs Road	<ul style="list-style-type: none"> <li>• 597518: Issued 2013 <i>Nora Property (2013) Limited</i></li> </ul>	<ul style="list-style-type: none"> <li>• WN45D/158: Issued 1994, cancelled 2013 <i>Private owner, 1994 caveat by PowerCo Limited to create easement to convey electricity</i></li> <li>• WN19C/1102: Issued 1979, cancelled 1994 <i>Issued to owner listed as farmer</i></li> </ul>
212 Shirriffs Road	<ul style="list-style-type: none"> <li>• WN19C/1103: Issued 1979 <i>Kartsport Manawatu Incorporated</i></li> </ul>	<ul style="list-style-type: none"> <li>• WN9D/1142: Issued 1972, cancelled 1979 <i>Issued to owner listed as farmer, transfer to the Manawatu Go-Kart Club in 1977</i></li> <li>• WN353/186: Issued 1930, cancelled 1972 <i>Issued to owner listed as farmer</i></li> </ul>
Area A		
1843 Rongotea Road	<ul style="list-style-type: none"> <li>• WN13A/1064: Issued 1974 <i>New Zealand Rural Property Trust Nominees Limited.</i> <i>Subject to Section 168A Coal Mines Act 1925.</i> <i>Subject to Section 8 Mining Act 1971.</i></li> </ul>	<ul style="list-style-type: none"> <li>• WN765/72: Issued 1955, cancelled 1974 <i>Title was issued to a property owner listed as farmer.</i></li> </ul>
1853 Rongotea Road	<ul style="list-style-type: none"> <li>• WN31A/774: Issued 1987 <i>Private owners</i></li> </ul>	<ul style="list-style-type: none"> <li>• WN10A/1351: Issued 1972, cancelled 1987. <i>Private owners</i></li> <li>• WN156/275: Issued 1906, cancelled 1972.</li> </ul>
1863 Rongotea Road	<ul style="list-style-type: none"> <li>• WN31A/773: Issued 1987 <i>Private owners</i></li> </ul>	

		<i>Issued to owner listed as settler, transfer to owner listed as farmer in 1926.</i>
33 Cloverlea Road	<ul style="list-style-type: none"> <li>• WN595/92: Issued 1953 <i>Private owners</i></li> </ul>	
39-35 Cloverlea Road	<ul style="list-style-type: none"> <li>• WN606/117; Issued 1954 <i>Private owners</i></li> </ul>	
59-61 Cloverlea Road	<ul style="list-style-type: none"> <li>• WN55D/508: Issued 2000 <i>Various private owners</i></li> </ul>	<ul style="list-style-type: none"> <li>• WN44C/419: Issued 1995, cancelled 2000. <i>Private owners</i></li> <li>• WN45C/94: Issued 1994, cancelled 1995. <i>Title issued to a property owner listed as contractor.</i></li> <li>• WN16A/1093: Issued 1976, cancelled 1994. <i>Title issued property owner above listed as contractor. Property originally acquired by owner listed as farmer (family member).</i></li> <li>• WN571/98: Issued 1951, cancelled 1976. <i>Title issued to farmer (family member of the above).</i></li> </ul>
<b>Area B</b>		
405 No 1 Line Longburn	<ul style="list-style-type: none"> <li>• 886270: Issued 2020 <i>Private owners</i> <i>Subject to gas pipeline.</i></li> </ul>	<ul style="list-style-type: none"> <li>• 550406: Issued 2011, cancelled 2020 <i>Private owners</i> <i>Subject to gas pipeline on 2 Lots</i> <i>Subject to Sections 241(2), 242(1) and 242(2) of the Resource Management Act</i></li> <li>• 94801: Issued 2003, cancelled 2011 <i>Private owners</i> <i>Subject to gas pipeline on 2 Lots</i> <i>Subject to Sections 241(2) and 221 of the Resource Management Act</i></li> <li>• WN25D/335: Issued 1984, cancelled 2011 <i>Transferred to owners listed as farmers</i></li> <li>• WN256/158: Issued 1918, cancelled 2003 <i>Private owners</i> <i>1938 Proclamation to take land for railway and road diversions</i> <i>1941 Proclamation to take land for road diversion in connection with the railway</i></li> <li>• WN394/169: Issued 1928, cancelled 1984 <i>Title was issued to owners listed as farmers</i></li> <li>• WN217/36: Issued 1913, cancelled 1935 <i>Title was issued to owners listed as sheep farmers and a station manager.</i></li> <li>• WN253/96: Issued 1918, cancelled 1928 <i>Title was issued to owner listed as farmer</i> <i>Proclamation in 1926 to take portion of land for railway</i></li> </ul>

		<ul style="list-style-type: none"> <li>• WN11/33: Issued 1877, cancelled 1912</li> <li>• WN14/89: Issued 1878, cancelled 1912</li> <li>• WN29/283: Issued 1882, cancelled 1912</li> <li>• WN29/284: Issued 1882, cancelled 1912</li> <li>• WN41/161: Issued 1886, cancelled 1912</li> <li>• WN136/51: Issued 1904, cancelled 1912 <i>Transfer to sheep farmers in 1912</i></li> <li>• WN143/109: Issued 1905, cancelled 1912</li> <li>• WN12/191: Issued 1878, cancelled 1882</li> <li>• WN12/192: Issued 1878, cancelled 1882</li> <li>• WN32/259: Issued 1883, cancelled 1904</li> <li>• WN48/298: Issued 188?, cancelled 1905</li> <li>• WN59/103: Issued 1890, cancelled 1904 <i>Title issued to owner listed as farmer</i></li> <li>• WN12/137: Issued 187?, cancelled 1875 <i>Title issued to owner listed as labourer</i></li> <li>• WN40/133: Issued 1885, cancelled 1905</li> <li>• WN26/127: Issued 1881, cancelled ?</li> <li>• WN30/178: Issued 1882, cancelled ?</li> <li>• WN25/151: Issued 1876, cancelled 1897</li> </ul>
429 No 1 Line Longburn	<ul style="list-style-type: none"> <li>• WN25D/334: Issued 1984 <i>Private owners</i> <i>Subject to a right to convey water over portion of property</i></li> </ul>	<ul style="list-style-type: none"> <li>• WN394/169: Issued 1928, cancelled 1984 <i>Title was issued to property owners listed as farmers.</i></li> </ul>
439 No 1 Line Longburn	<ul style="list-style-type: none"> <li>• WN52A/2: Issued 1997 <i>Private owner</i> <i>Subject to Section 59 Land Act 1948.</i> <i>Subject to Section 8 Mining Act 1971.</i> <i>Subject to Section 5 Coal Mines Act 1979.</i> <i>Subject to right of way and a right to convey water.</i></li> </ul>	<ul style="list-style-type: none"> <li>• WN8A/432: Issued 1970, cancelled 1997 <i>Title was transferred to various owners including a stud groom, freezing worker and nurserymen.</i></li> <li>• WN581/71: Issued 1952, cancelled 1970 <i>Subject to Section 59 Land Act 1948.</i> <i>Subject to Section 5 Coal Mines Act 1950</i></li> </ul>
441 No 1 Line Longburn	<ul style="list-style-type: none"> <li>• WN52A/1: Issued 1997 <i>Private owner</i> <i>Subject to Section 59 Land Act 1948.</i> <i>Subject to Section 8 Mining Act 1971.</i> <i>Subject to Section 5 Coal Mines Act 1979.</i> <i>Subject to right of way and a right to convey water.</i></li> </ul>	<ul style="list-style-type: none"> <li>• WN8A/432: Issued 1970, cancelled 1997 <i>Title was transferred to various owners including a stud groom, freezing worker and nurserymen.</i></li> </ul>
Area C		
2288 State Highway 56	<ul style="list-style-type: none"> <li>• WND1/100: Issued 1964</li> </ul>	<ul style="list-style-type: none"> <li>• WN848/6: Issued 1959, cancelled 1966</li> </ul>

	<i>Sandbrook Investments Limited</i>	<p><i>Title was issued to a property owner listed as farmer.</i></p> <p><i>Transfer of Lot 3 in 1964, CT D1/100.</i></p> <ul style="list-style-type: none"> <li>• WN255/196: Issued 1918, cancelled 1959 <i>Title was issued to a property owner listed as farmer.</i></li> <li>• WN217/36: Issued 1913, cancelled 1935 <i>Title was issued to various property owners listed as sheep farmers and a station manager.</i></li> </ul>
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## C2 Historical aerial photographs

Historical aerial photographs from the T+T library and other sources have been reviewed as stated in Section 3. Relevant features of the site and surrounding land are summarised from each aerial photograph in Appendix C Table 2. Copies of the aerial photographs are included in Appendix E.

Appendix C Table 2: Summary of aerial photograph review

Date, run number and source	Key site features	Surrounding land features
1945 Retrolens	<p>Manderson</p> <ul style="list-style-type: none"> <li>• The area is occupied by agricultural activities. The 1945 image shows the remnant native forest on the western portion of the area, small buildings are visible near the forest.</li> <li>• A plunge sheep dip and additional buildings are present along the designation for the rail line.</li> <li>• Excavation of the material from the quarry, north-east of the sheep dip, has occurred.</li> <li>•</li> </ul>	<p>Surrounding Area</p> <ul style="list-style-type: none"> <li>• The surrounding area is occupied by rural and rural residential properties. Majority of the surrounding land is in pasture with stock visible.</li> <li>• The land designated for the railway has been fenced off along the southern to eastern boundaries of the areas within the site.</li> </ul>
	<p>Cloverlea</p> <ul style="list-style-type: none"> <li>• Rural residential properties are present on Cloverlea Road, each with a number of sheds to the rear of the houses and paddocks beyond.</li> </ul>	
	<p>No 1 Line</p> <ul style="list-style-type: none"> <li>• Rural residential properties are present within the area, farm buildings and a stock yard are visible at 136-150 No 1 Line Longburn. A track extends from the buildings, across the rail designation, to farm buildings to the north.</li> </ul>	
	<p>Rail Triangle</p> <ul style="list-style-type: none"> <li>• Farming activities encompass majority of the area with few buildings.</li> <li>• A house and two sheds are present are present in the north-east portion of the area between No 1 Line and the railway designation.</li> <li>• There is a stream running from south-west portion of area towards Longburn Rongotea Road.</li> <li>•</li> </ul>	

Date, run number and source	Key site features	Surrounding land features
	<p>West End</p> <ul style="list-style-type: none"> <li>• A small portion of the area is visible in the 1945 image. This section is occupied by farming activities.</li> <li>• A drainage channel extends through the area towards Longburn Rongotea Road. What appears to be a former stream is present north of the channel.</li> </ul> <p>Area A</p> <ul style="list-style-type: none"> <li>• Some rural residential properties with sheds of varying sizes are present on the portion of the site adjacent to Rongotea Road and Cloverlea Road.</li> <li>• A stock yard with pens is visible to the north of the property on the corner of Rongotea Road and No 1 Line Longburn.</li> <li>• An access track extends into the centre of the area from 136-150 No 1 Line Longburn where farm buildings and small stock pens are present.</li> <li>• A number of sheds are present on the property at 59 Cloverlea Road.</li> <li>• The remainder of the site has been divided into paddocks with tracks and/or drainage channels between them.</li> </ul> <p>Area B</p> <ul style="list-style-type: none"> <li>• The 1945 image captures approximately half of Area B. Majority of the area is occupied by farming activities.</li> <li>• A residential property with a number of small sheds, is visible on the No 1 Line Longburn portion of the area.</li> <li>• The stream running west towards Longburn Rongotea Road within the Rail Triangle area, extends through the centre of Area B. Three approximately circular excavations are visible adjacent to the stream in the middle of the area.</li> </ul> <p>Area C</p> <ul style="list-style-type: none"> <li>• Area beyond extent of the 1945 image</li> </ul>	
1949 Retrolens	<p>Manderson</p> <ul style="list-style-type: none"> <li>• Area beyond extent of the 1949 image</li> </ul> <p>Cloverlea</p> <ul style="list-style-type: none"> <li>• Area beyond extent of the 1949 image</li> </ul> <p>No 1 Line</p> <ul style="list-style-type: none"> <li>• The area is predominantly in rural residential use with some areas occupied by horticultural and farming activities.</li> <li>• Rows of shrubs or small trees, possibly orchard or market garden, are visible on properties that border with Cloverlea Road.</li> </ul>	<p>Surrounding Area</p> <ul style="list-style-type: none"> <li>• No significant changes to the surrounding area visible in the 1945 image.</li> <li>• The transport depot on Shirriffs Road is visible.</li> <li>• The current railway line has not yet been constructed; however, the area appears to have been fenced off in preparation.</li> <li>• What appears to be a bridge is visible immediately north of the</li> </ul>

Date, run number and source	Key site features	Surrounding land features
	<p>Rail Triangle</p> <ul style="list-style-type: none"> <li>• No apparent changes to previous image.</li> </ul> <p>West End</p> <ul style="list-style-type: none"> <li>• The properties to the west of Shirriffs Road are predominantly occupied by farming activities. Stock (possibly cows) can be seen in paddocks.</li> <li>• Farm buildings are present to the rear of the residential house at 134 Shirriffs Road, this property also has a large garden extending south.</li> <li>• A former stream channel is visible in the paddocks south of the residential house.</li> <li>• The Awapuni Nurseries property is in pasture and a portion of a larger farm.</li> </ul> <p>Area A</p> <ul style="list-style-type: none"> <li>• One of the sheds to the rear of the house seen in the previous image is no longer present.</li> <li>• The small stock pens near to the access track from No 1 Line Longburn, seen in the previous image, are no longer present</li> </ul> <p>Area B</p> <ul style="list-style-type: none"> <li>• The area is occupied by farming and majority is in pasture.</li> <li>• Two residential properties are present within the area, one at 96 Reserve Road and the second at 415 No 1 Line Longburn. Small sheds are present surrounding the houses. A larger farming shed is in the paddock east of the Reserve Road property.</li> <li>• A stream visible in the previous image extends from Reserve Road and crosses through the centre of the area towards the Rail Triangle area.</li> <li>• The circular excavations adjacent to the stream bed are still visible.</li> <li>• A drainage channel extends along the southern portion of the area.</li> </ul> <p>Area C</p> <ul style="list-style-type: none"> <li>• The portions of Area C north and south of SH56 are occupied by a rural residential land uses with farm buildings and residential dwellings present.</li> <li>• A bridge-like structure, near to a farm shed, is present on the farm to the north of SH56.</li> <li>• A number of former stream channels are visible in the area to the north of SH56 and immediately south of the road.</li> </ul>	<p>northern portion of Additional Area C. The stream running through Additional Area B extends south from the rail line to the end of the bridge.</p>
1956 PNCC	<p>Manderson</p> <ul style="list-style-type: none"> <li>• Small section of the south portion of property visible in image.</li> </ul>	<p>Surrounding Area</p> <ul style="list-style-type: none"> <li>• The large workshop building at the transport depot on Shirriffs</li> </ul>

Date, run number and source	Key site features	Surrounding land features
	<ul style="list-style-type: none"> <li>• The plunge sheep dip is visible near to the south boundary of the property. Yards and buildings surround the sheep dip, the large building is likely to be the wool shed.</li> <li>• An excavated quarry is visible to the north-east of the sheep dip. At the time this image was captured the quarry appears to be disused and vegetation has covered the lower sections.</li> </ul> <p>Cloverlea</p> <ul style="list-style-type: none"> <li>• Area beyond extent of the 1956 image</li> </ul> <p>No 1 Line</p> <ul style="list-style-type: none"> <li>• Area beyond extent of the 1956 image</li> </ul> <p>Rail Triangle</p> <ul style="list-style-type: none"> <li>• Area beyond extent of the 1956 image</li> </ul> <p>West End</p> <ul style="list-style-type: none"> <li>• The portion south of Pioneer Highway has been captured in this image.</li> <li>• A residential house with sheds and gardens to the rear, is present at 64 Shirriffs Road.</li> <li>• Four planes can be seen on the property now known as 30 Shirriffs Road.</li> <li>• Vehicle tracks and stock (possibly cows) can be seen on the Awapuni Nurseries property.</li> <li>• The rural residential property and stream channel on the southern portion of the area remain unchanged.</li> </ul> <p>Areas A, B and C</p> <ul style="list-style-type: none"> <li>• All areas are beyond the extent of the 1956 image.</li> </ul>	<p>Road has extended to the west. Equipment and possibly vehicles appear to be stored on the land surrounding the workshop. There is a small shed on the northern portion of the property.</p> <ul style="list-style-type: none"> <li>• There is an area of potential excavation to the south of the sheep dip, within the railway designation.</li> <li>• The farm buildings, yards and houses are located off Gillespies Line in the area now occupied by Peters Avenue, Fox Place and Tararua Terrace. Vehicle tracks can be seen extending in multiple directions from a farm shed, including across the railway designation to the south.</li> <li>• The property at 15 Oriana Place extends across the railway designation and to the southern boundary of the site.</li> </ul>
<p>1968 Retrolens</p>	<p>Manderson</p> <ul style="list-style-type: none"> <li>• Two farm buildings and vehicle tracks are present on the Gillespies Road portion of the farm. What appears to be yards or silage piles are visible to the west of the buildings.</li> <li>• The sheep dip and associated yards and buildings (one large shed and two smaller sheds), as well as the gravel quarry are visible near to the property boundary with the railway.</li> <li>• A trench is visible extending from the centre of the site towards the railway boundary. The trench stops a paddock away from the sheep dip and quarry.</li> <li>• Buildings near to the remnant forest, visible in the 1945 image, are no longer present.</li> </ul> <p>Cloverlea</p> <ul style="list-style-type: none"> <li>• The properties in the Cloverlea area are occupied by rural residential and farming activities. Majority of the area appears to be in pasture for grazing.</li> </ul>	<p>Surrounding Area</p> <ul style="list-style-type: none"> <li>• The transport depot on Shirriffs Road is visible. To the east of the depot appears to be a glass house visible.</li> <li>• An excavation is present to the west of the go-cart track, approximately 30 m from the site boundary.</li> <li>• A substation is present on the corner of Longburn Rongotea Road and No 1 Line. The substation extends further to the west towards the residential properties than it does currently.</li> <li>• A house and sheds are now present to the north-east of Additional Area A, accessed from</li> </ul>

Date, run number and source	Key site features	Surrounding land features
	<ul style="list-style-type: none"> <li>• Sheds and yards are present on northernmost property in the area.</li> <li>• The houses along Cloverlea Road have a number of sheds and other smaller buildings. Garden beds are visible to the north-east of the properties at 44 and 36 Cloverlea Road.</li> </ul> <p>No 1 Line</p> <ul style="list-style-type: none"> <li>• There are a number of sheds visible, including for small square sheds, on the property furthest east on the site. Remnants of stream bed are also visible on this property.</li> <li>• Rows of shrubs or small trees remain on properties that border with Cloverlea Road.</li> <li>• Rows of a planted crop are visible to the north of the house and sheds on 96 No 1 Line.</li> <li>• Yards can be seen extending to sheds from the No 1 Line entrance of the property at 150 No 1 Line.</li> <li>• The western portion of the site is predominantly in pasture for grazing with the house at 200 No 1 Line present.</li> </ul> <p>Rail Triangle</p> <ul style="list-style-type: none"> <li>• This area is occupied by rural and rural residential activities and is predominantly in pasture.</li> </ul> <p>West End</p> <ul style="list-style-type: none"> <li>• The portion of the West End area south of the railway line and north of State Highway 56 is occupied by rural residential and rural land uses. The area south of State Highway 56 also contains horticultural activities.</li> <li>• Stream channels are evident to the north of State Highway 56 and extend in a meandering pattern across the area.</li> <li>• The go-cart track is now present near to the stream channel on the southern portion of the area. some of the vegetation surrounding the stream appears to have been cleared to make way for the track.</li> <li>• Shirriffs Road now extends further south to the river.</li> </ul> <p>Area A</p> <ul style="list-style-type: none"> <li>• An orchard or market garden is now present at a property on Cloverlea Road.</li> <li>• Another residential property is present off Longburn Rongotea Road as well as an orchard or market garden.</li> <li>• Some development has occurred at the property at 59 Cloverlea Road, with additional sheds or workshop buildings visible.</li> </ul> <p>Area B</p>	<p>a driveway on the southern portion of Additional Area A.</p> <ul style="list-style-type: none"> <li>• A large factory (now Fonterra) with a number of buildings and some visible above ground storage tanks, is now present to the south of Additional Area B and west of Additional Area C, bounded by the railway line to the north and Reserve Road to the east. A number of residential properties have been constructed immediately surrounding the factory.</li> <li>• What appears to be filling is occurring on the southernmost portion of the site, now the location of the Awapuni Resource Recovery centre.</li> </ul>



Date, run number and source	Key site features	Surrounding land features
	<ul style="list-style-type: none"> <li>• Except for one shed no longer present, there are no significant changes to 1949 image.</li> </ul> <p>Area C</p> <ul style="list-style-type: none"> <li>• A previous farm shed on the portion of Additional Area C north of SH56 has been replaced by another shed, the bridge-like structure near to the shed is no longer present.</li> <li>• The workshop building is now present on the portion south of SH56. Additional sheds and a house have been constructed around the workshop.</li> <li>• Rows of planted crop, potentially market gardens now appear to the west and east of the workshop.</li> <li>• The remainder of the area continues to be occupied by farming activities.</li> </ul>	
<p>1977 Retrolens</p>	<p>Manderson</p> <ul style="list-style-type: none"> <li>• The yards associated with the sheep dip, to the west of the building, are not visible in this image. With significant reduction of vehicle movements in the area, compared to the previous image, it appears that the sheep dip activities may not have been occurring at the time of the image.</li> <li>• The gravel quarry is not visible in this image.</li> <li>• No further significant changes to previous image</li> </ul> <p>Cloverlea</p> <ul style="list-style-type: none"> <li>• Majority of the area that was in pasture in the previous image has been converted to orchards and market gardens. Horticultural activities now encompass majority of the Cloverlea Area.</li> <li>• The properties on the southern portion of the area, adjacent to the rail line, remains in pasture.</li> </ul> <p>No 1 Line</p> <ul style="list-style-type: none"> <li>• A small portion of this area is shown in the 1977 image. The north-east area this is visible shows that some of the smaller sheds are no longer present, no further significant changes are apparent.</li> </ul> <p>Rail Triangle</p> <ul style="list-style-type: none"> <li>• Not shown in 1977 image</li> </ul> <p>West End</p> <ul style="list-style-type: none"> <li>• Not shown in 1977 image</li> </ul> <p>Area A</p> <ul style="list-style-type: none"> <li>• A small portion of Area A, adjacent to Cloverlea Road, is visible in this image. Horticulture is visible on the portion of the site on the corner of Cloverlea Road and the rail line, and now extends to the boundary with the rail line. The yard on the northern portion of the site is also present.</li> </ul> <p>Area B</p>	<p>Surrounding Area</p> <ul style="list-style-type: none"> <li>• The surrounding area is occupied by rural, residential, and horticultural land uses. The urban extent of Palmerston North extends to the southern boundary of the Manderson area.</li> <li>• An oval racing track is present to the east of the Manderson area.</li> <li>• Market gardens and orchards are present to the west of the Cloverlea area.</li> </ul>

Date, run number and source	Key site features	Surrounding land features
	<ul style="list-style-type: none"> <li>• Not shown in 1977 image</li> </ul>	
2001 Retrolens	<p>Area C</p> <ul style="list-style-type: none"> <li>• Not shown in 1977 image</li> </ul> <p>Manderson</p> <ul style="list-style-type: none"> <li>• The resolution of this image does not allow for all activities to be seen clearly.</li> <li>• The building associated with the sheep dip is no longer present on site.</li> <li>• The quarry appears to be disused with no recent disturbance or vehicle movements visible.</li> <li>• The area east of the main sheds towards Gillespies Line appears to be discoloured and contains stored or discarded equipment/machinery.</li> </ul> <p>Cloverlea</p> <ul style="list-style-type: none"> <li>• Two rural residential properties have replaced two properties adjacent to Cloverlea Road which were previously occupied by orchard activities.</li> <li>• The remainder of the area occupied by orchard activities remains.</li> <li>• Tunnel houses are now visible at 40 Cloverlea Road.</li> </ul> <p>No 1 Line</p> <ul style="list-style-type: none"> <li>• Established shelter hedges, indicative of those on orchards sites, are present on the property furthest west.</li> <li>• The yards are no longer present at the property on 150 No 1 Line.</li> <li>• The potential market garden/orchard activities are no longer present on the properties that border with Cloverlea Road.</li> </ul> <p>Rail Triangle</p> <ul style="list-style-type: none"> <li>• Rural residential properties occupy majority of the Rail Triangle. Potential small orchards are present on the southern portion, adjacent to No 1 Line.</li> </ul> <p>West End</p> <ul style="list-style-type: none"> <li>• The West End area remains predominantly rural with some rural residential properties and the Awapuni Nurseries present to the south of Pioneer Highway.</li> <li>• Adjacent to the east of the Awapuni Nurseries is what appears to be a former market garden or orchard.</li> <li>• The go-cart track has expanded and now encompasses majority of the property. The building previously visible, adjacent to the track in the 1968 image, appears to have remained.</li> </ul> <p>Area A</p>	<p>Surrounding Area</p> <ul style="list-style-type: none"> <li>• Significant developments have occurred since the 1968 aerial image. The urban extent of Palmerston North, suburbs; Westbrook, Highbury and Awapuni, now extending to the initial Kākātangiata area.</li> <li>• Lifestyle properties are now present within the extent of the initial Kākātangiata area, with developments between No 1 Line and Pioneer Highway.</li> </ul>

Date, run number and source	Key site features	Surrounding land features
	<ul style="list-style-type: none"> <li>• Some sheds, previously surrounding the house at 1843 Longburn Rongotea Road, are no longer present.</li> <li>• The access track extending from No 1 Line Longburn, across the rail line and into the area, as well as the buildings previously visible, are no longer present.</li> <li>• A track now enters the site from the farm to the north.</li> <li>• Activities, potentially a transport depot, at 59 Cloverlea Road have expanded, the smaller sheds previously seen are no longer present, there is now a large workshop building in the centre of the property.</li> <li>• Rural residential properties have been developed on Longburn Rongotea Road, between the property at 1843 Longburn Rongotea Road, and the intersection with No 1 Line.</li> <li>• Shelter hedges and what appears to be an orchard are present on the properties at 1853 and 1863 Longburn Rongotea Road.</li> </ul> <p>Area B</p> <ul style="list-style-type: none"> <li>• Additional houses are now present on Reserve Road and No 1 Line.</li> <li>• A paddock on the No Line boundary has been divided with hedge shelter belts, indicating that there may have been an orchard or market garden.</li> </ul> <p>Area C</p> <ul style="list-style-type: none"> <li>• Two square ponds (possibly effluent ponds) are visible to the east of the farm sheds on the portion of Area C north of SH56.</li> <li>• Horticultural activities associated with the Awapuni Nurseries have expanded on the area to the south of SH56.</li> <li>• A pond or wetland is visible to the south of Awapuni Nurseries, a stream extends south-east from SH56, at the corner of SH56 and Walkers Road, through the Nursery site and to the pond.</li> <li>• A lifestyle property containing a house with three large sheds, is now present on Walkers Road.</li> </ul>	
<p>2014 Land Information New Zealand</p>	<p>Manderson</p> <ul style="list-style-type: none"> <li>• No significant changes to previous image.</li> </ul> <p>Cloverlea</p> <ul style="list-style-type: none"> <li>• Areas of the orchard northern and eastern portion of the area have been cleared and houses have been built between the shelter hedges that remain.</li> </ul> <p>No 1 Line</p> <ul style="list-style-type: none"> <li>• Development of some residential properties has occurred on the eastern portion of the area. The</li> </ul>	<ul style="list-style-type: none"> <li>• Development has occurred at the Awapuni Resource Recovery site, with additional buildings now present. What appears to be a gravel quarry is now present between the recovery centre and the Manawatū River. Large settlement ponds are visible at the quarry site.</li> </ul>

Date, run number and source	Key site features	Surrounding land features
	<p>distinctive 'Horsewyse' building and adjacent arena are now present. Further residential developments have occurred on former market garden sites within the area.</p> <p>Rail Triangle</p> <ul style="list-style-type: none"> <li>• What appears to be shipping containers and various types of equipment are visible in the paddocks on property at the corner of No 1 Line and Longburn Rongotea Road.</li> </ul> <p>West End</p> <ul style="list-style-type: none"> <li>• Orchard and market garden activities adjacent to the Awapuni Nurseries property have ceased and appear to have recently been cleared of the trees.</li> <li>• Additional rural residential properties have been developed on Shirriffs Road.</li> <li>• Operations at the go-cart track have expanded with additional buildings and carparking facilities now present.</li> <li>• A yard, with trucks and potentially stockpiles of rubble, is visible on the property north of the go-cart property.</li> </ul> <p>Area A</p> <ul style="list-style-type: none"> <li>• With exception of a trench being excavated from the end of the track in the centre of the area, there have been no significant changes to the previous image.</li> </ul> <p>Area B</p> <ul style="list-style-type: none"> <li>• Some development of rural residential properties has occurred on the No 1 Line portion of the area. A shed or workshop building has been constructed on 415 No 1 Line Longburn.</li> </ul> <p>Area C</p> <ul style="list-style-type: none"> <li>• A residential dwelling has been constructed on the southernmost property in the area. Additional buildings have been constructed on the property on the corner of Pioneer Highway and Walkers Road.</li> </ul>	
<p>2018 Land Information New Zealand</p>	<p>Manderson</p> <ul style="list-style-type: none"> <li>• The effluent pond, covered with a membrane that has vents, is now present to the north-west of the milking shed.</li> </ul> <p>Cloverlea</p> <ul style="list-style-type: none"> <li>• Construction of a building is underway at the property at 34 Cloverlea Road.</li> <li>• Trees have been cleared from the former orchard on the eastern portion of the site.</li> </ul> <p>No 1 Line</p> <ul style="list-style-type: none"> <li>• No significant changes to previous image.</li> </ul> <p>Rail Triangle</p>	<ul style="list-style-type: none"> <li>• No significant changes to surrounding area.</li> </ul>

Date, run number and source	Key site features	Surrounding land features
	<ul style="list-style-type: none"> <li>• The shipping containers and equipment have been cleared from the property on the corner of No 1 Line and Longburn Rongotea Road. Majority of the property has been planted with crops.</li> </ul> <p>West End</p> <ul style="list-style-type: none"> <li>• With the exception of a workshop type building being constructed on Shirriffs Road, north of the go-cart track, there are no significant changes to the previous image.</li> </ul> <p>Area A</p> <ul style="list-style-type: none"> <li>• With the exception of some additional buildings constructed on a Cloverlea Road property, there have been no significant changes to the previous image.</li> </ul> <p>Area B</p> <ul style="list-style-type: none"> <li>• Further developments have occurred on the property at 415 No 1 Line Longburn. What appears to be a pile of rubbish is visible in a paddock on rear portion of the property.</li> </ul> <p>Area C</p> <ul style="list-style-type: none"> <li>• An open, round, above ground effluent pond has replaced the former pond near the milking shed in the centre of the area. It appears that the former pond has been filled.</li> </ul>	

### C3 Previous ground investigations

Two previous investigations have been reviewed as part of this investigation. Details of the prior investigations have been included within this report.

A previous investigation<sup>15</sup> was undertaken by T+T in 2011 for PNCC and included two potential areas for development, Kelvin Grove and Anders Road/Racecourse areas. The initial Kākātangiata site is referred to as 'Anders Road/Racecourse area'.

The investigation identified a number of HAIL activities, including a commercial nursery, a possible sheep dip and former stream channels that have previously been filled. Contractor's/builder's yards and farm storage sheds were also included as potential hot spots for contamination.

A plant hire yard, a disestablished historical railway line along the Pioneer Highway and the current railway line were also identified during the investigation.

The presence or location of the possible sheep dip at 233 No 1 Line Longburn (SH56 portion of property) referred to, and identified on Figure 5, within the 2011 investigation has not been confirmed during the historical information review during this current investigation.

Limited sampling was completed as part of this investigation at the identified commercial nursery, at a location near to the current railway line and at two locations in the area of the historical railway line.

Pugh's Cloverlea Flowers occupied 47 No 1 Line Longburn at the time of the investigation. Flowers were grown commercially in eight 'poly-tunnels', the remaining area on the property was reportedly used for growing berries and bulbs. Samples from two locations at two depths (0-0.075 m and 0.2- 0.25 m) were collected from this property and analysed for metals and organochlorine pesticides. All samples collected from the nursery site returned results below the expected background concentrations<sup>16</sup>.

Samples were also collected from areas near to the historical and current railways. Cadmium was found to be above the expected background concentrations in one of the samples collected from the historical railway, which was adjacent to the Pioneer Highway, within the West End area. Lead was detected in two surface samples above the expected background concentration collected from the historical and current railway areas.

As there were no available regional background concentrations at the time of the investigations, the results were compared against the Wellington expected background concentrations for alluvial soils<sup>17</sup>. During this current investigation, the results of the 2011 investigation have been compared to predicted background concentrations published in 2016 by Landcare Research.

Further investigation in accordance with the MfE Guidelines were recommended to determine whether remedial actions were required prior to redevelopment into a residential land use.

Details of the previous intrusive investigation are summarised in Appendix C Table 3 below.

Geoworks Ltd 2018<sup>18</sup> prepared desktop preliminary site assessment for the properties at 40 & 44 Cloverlea Road to support a subdivision consent application, in accordance with the NESCS.

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<sup>15</sup> Tonkin + Taylor Ltd, 2011. Palmerston North Residential Growth Strategy Ground Contamination Assessment prepared for Palmerston North City Council. Reference 85299.001.

<sup>16</sup> Landcare Research, 2016. Predicted background soil concentrations for Mudstone Pakihi - Upper limit of background concentrations

<sup>17</sup> URS, 2003. Determination of Common Pollutant Background Soil Concentrations for the Wellington Region. Hutt Alluvium.

<sup>18</sup> GEOWORKS LTD, 2018. Stage 1 Preliminary Site Investigation Report, 40 &44 Cloverlea Road, Palmerston North.

The properties have been occupied by horticultural activities, including an apple orchard and a hydroponic growing operation in tunnel houses.

Orchard activities began in the 1970's with further developments completed in the 1980's. The chemical shed for the horticultural operations was located on the property that is now 56 Cloverlea Road (Lot 1 DP 400868).

With the exception of glyphosate (Round Up) which has been used for 'spot spraying' in recent years, the spraying of herbicides, pesticides and fungicides ceased between 1990 and 2000.

In addition to 40 and 44 Cloverlea Road, the report indicates that the apple orchard extended to the following surrounding properties Lot 3, Lot 5 and Lot 6 DP 76612 (60A, 60B and 60C Cloverlea Road). The last remaining portion of the orchard on 60C Cloverlea Road was removed in approximately 2015-2016.

The report concludes that there is very low risk of site contamination from previous horticultural activities.

Appendix C Table 3: Summary of previous ground contamination investigations

Project	Potential contaminants tested	No. of locations sampled	Summary of analytical results
T+T 2011 Palmerston North Residential Growth Strategy Ground Contamination Assessment	Metals, PAH and OCP	5 Hand auger locations	<ul style="list-style-type: none"> <li>PAH (BaP) was detected in two samples collected across the site at a depth of 0-0.075 m bgl. PAH concentrations were found to be below residential guideline values;</li> <li>Cadmium was detected in one surface sample at the historical railway above the expected background concentrations*;</li> <li>Lead was found to be above the expected background concentrations in two surface samples, one collected from the location of the historical railway and the other near to the current railway; and</li> <li>The concentration of metals and PAH in all samples were below NESCS criteria for residential land use (25% produce).</li> </ul>

\*Landcare Research, 2016. Predicted background soil concentrations for Mudstone Pakihi - Upper limit of background concentrations

## C4 Council property files

The initial property information request was placed with the Palmerston North City Council 7 July 2020. PNCC responded on 9 July 2020, confirming that no hazards listed for properties within the five initial development areas were recorded on the PNCC Hazard's Database.

A second request for information relating to the Additional Areas A, B and C was placed 31 March 2021, and PNCC responded on 6 May 2021. A subsequent request for information relating to properties within the final extent of the site was placed 17 August 2021, a response from PNCC was received on 15 November 2021 confirming that none of the properties within the final extent were recorded on the PNCC HAIL register.

Property file information for the additional areas has been provided by PNCC and summarised in Appendix C Table 4 below:

Appendix C Table 4: Property file information reviewed

Property	Documents reviewed
Area A	
<p>1843 Rongotea Road Comprising of:</p> <ul style="list-style-type: none"> <li>• 1001 Kairanga Bunnythorpe Road;</li> <li>• 1063 Kairanga Bunnythorpe Road; and</li> <li>• 1851 Rongotea Road.</li> </ul>	<p>1001 Kairanga Bunnythorpe Road</p> <ul style="list-style-type: none"> <li>• Documents relate to other areas on the wider property.</li> </ul> <p>1063 Kairanga Bunnythorpe Road</p> <ul style="list-style-type: none"> <li>• Documents relate to other areas on the wider property.</li> </ul> <p>1851 Rongotea Road</p> <ul style="list-style-type: none"> <li>• Documents on file relate to the construction of sheds and improvements to the house on the Lot to the rear of 1843 Rongotea Road.</li> </ul>
Area B	
<p>429 No 1 Line Longburn</p>	<ul style="list-style-type: none"> <li>• A building consent application, dated 1986, for a dwelling house to be constructed of board and batten walls and a corrugated iron roof;</li> <li>• A 1984 application to relocate a utility shed, constructed of timber clad walls and a corrugated iron roof; and</li> <li>• 1980 application to construct the above forementioned shed.</li> </ul>
<p>439 No 1 Line Longburn (No information on the property file of 441 No 1 Line Longburn)</p>	<ul style="list-style-type: none"> <li>• A 1997 application to relocate a sleep-out building from 181 Victoria Avenue to 439 No 1 Line. The building was constructed in the late 1970s (a letter on file from the Manawatu District Council indicates it was 18 years prior to their 1997 inspection). The building was reportedly constructed of Hardiflex cladding on the external walls.</li> <li>• A 1976 building application for the construction of a dwelling, external walls to be NZ weatherside (wood fibreboard)</li> <li>• 2007 application to construct a lean-to garage for then storage of hay and farm equipment;</li> <li>• A 2009 application for an addition to the residential house by moving an off-site, previously used dwelling onto the northern side of the current house. The addition is clad in fibre cement sheets, that at the time of council inspection, required repair as some panels had damage.</li> <li>• A 1997 application to subdivide the former property, comprising of the current properties at 439 and 441 No 1 Line Longburn. The former property was occupied by a plant nursery at the time of the application.</li> </ul>
Area C	
<p>2288 State Highway 58</p>	<ul style="list-style-type: none"> <li>• An application, dated 1965, for the consent to construct a dwelling;</li> <li>• A 1966 application for the construction of a workshop building;</li> <li>• A building consent application, dated 1968, for the construction of an addition of a toilet block on the rear of the structural workshop building;</li> <li>• A 1997 application for building consent for O'Leary Engineering for a pump and effluent line from the workshop building; and</li> <li>• Annual renewals for Dangerous Goods Licences and Hazardous Substances Licences, issued between 1993 and 2003. Stored substances on the licences include; Gases (including oxygen, acetylene and LPG), and petrol drums (total of 330 L in 2003 licence).</li> </ul>



## C5 Council contamination enquiry

A contamination enquiry was placed with Horizons Regional Council (HRC) on 3 June 2020. Requests for information relating to Areas A, B and C was placed with HRC on 26 March 2021, a subsequent request was placed on 17 August 2021 to cover the final extent of the growth area. The information provided is included in Appendix F and states that only the property at 47 No 1 Line, within the initial Kākātangiata area, is included on their Sites Associated with Hazardous Substances (SAHS) database.

The HRC response received 13 April 2021 for additional areas A, B and C confirms that no additional properties are included on the SAHS database. However, HRC have identified that the properties at 1843 Rongotea Road (Additional Area A) and 2263 State Highway 56 (Additional Area C) hold consents to discharge; dairy manufacturing liquid whey by-product, casein processing wastewater and wastewater treatment plant solids, activities which HRC have indicated are included on the HAIL as category G5 – Waste disposal to land (excluding where biosolids have been used as soil conditioners).

The HRC response, received on 25 August 2021, for properties within the remainder of the final extent of the growth area, confirms that there are no properties included on the SAHS database. However, HRC have noted that further investigation may need to be completed in two areas; at 2263 State Highway 56 where Fonterra hold a discharge to land consent, and the go-cart track at 212 Shirriffs Road.

Resource consents related to the site or properties immediately surrounding the site (including existing, superseded and surrendered consents) are summarised in Appendix C Table 4 below.

The majority of consents identified in Appendix C Table 5 are considered unlikely to have resulted in soil contamination at the site. This is because of their location, distance and/or nature and likely extent of the contaminants at those locations.

Appendix C Table 5: Ground contamination-related resource consents

Location	Type of consent	Activity description	Consent Activity ID	Status
Manderson				
On site and also on properties immediately adjacent to the north-western boundary	Discharge Permit	Discharge 220 m <sup>3</sup> /ha/year of dairy manufacturing liquid whey by-product and casein processing wastewater from the Longburn Dairy Factory to land application area by tanker truck spreader bar within a 25km radius of Reserve Road, Longburn.	ATH-2006010825.06	Current Expiry: 2/5/2021
On site, northern portion	Discharge Permit	Discharge 12 m <sup>3</sup> /day of dairy farm animal effluent from the dairy shed & yard washdown onto and into land.	ATH-1996004628.01	Current Expiry: 1/7/2033
On site	Discharge Permit	To discharge liquid from dairy manufacturing by-product (whey).	ATH-2006011284.00	Superseded
Approximately 65 m south-east of the area	Discharge Permit	To discharge sand blasting debris.	ATH-1996004808.00	Expired 2005
Cloverlea				
Approximately 180 m south-west of the area	Water Permit	Domestic and horticultural irrigation water abstraction.	ATH-1996004085.00	Surrendered
Approximately 280 m north-west of the area	Water Permit	Horticultural irrigation water abstraction.	ATH-1992006804.00	Expired 2012
No 1 Line				
Approximately 50 m north-west of the area	Discharge Permit	Discharge 15 m <sup>3</sup> /ha/year of wastewater treatment plant solids from the Fonterra Longburn plant, the Fonterra brand site, the microfiltration unit at the Fonterra research and development site, and other Fonterra lower North Island sites, into land via direct injection at 13 farm sites across the region.	ATH-2019202710.00	Current Expiry: 1/7/2033
Approximately 50 m north-west and 20 m south-east of the area	Discharge Permit	Discharge 220 m <sup>3</sup> /ha/year of dairy manufacturing liquid whey by-product and casein processing wastewater from the Longburn Dairy Factory to land application area by tanker truck spreader bar within a 25km radius of Reserve Road, Longburn.	ATH-2006010825.06	Current Expiry: 2/5/2021

Approximately 20 m south-east of the area	Discharge Permit	Discharge up to 15.6 m <sup>3</sup> /day of dairy shed and feed pad effluent from 250 cows into a two pond treatment system, and the discharge of pond treated effluent onto and into land as required.	ATH-2001009108.00	Current Expiry: 11/4/2026
Rail Triangle				
Immediately north-west and west of the site boundary	Discharge Permit	To discharge from dairy shed.	ATH-2002009927.01	Current Expiry: 28/8/2027
Approximately 250 m south-east of the area	Discharge Permit	To discharge wastewater associated with the dairy manufacturing liquid whey and casein processing.	ATH-2006010825.06	Current Expiry: 2/5/2021
Approximately 400 m north of the area				
Approximately 400 m north of the area	Discharge Permit	Solid injection land works.	ATH-2019202710.00	Current Expiry: 1/7/2033
West End				
Extends from 251 Shirriffs Road and across the Manawatu River towards Camp Road	Discharge Permit	To undertake earthworks within 5 metres of a waterway and within Hill Country Erosion Management and Schedule E areas and associated stormwater discharges to land and water for the purpose of transmission tower maintenance.	ATH-2012014214.00	Current Expiry: 1/7/2027
		To undertake wet abrasive blasting on transmission towers within 50 metres of a water body within 50 metres of roads and within 100 metres of dwellings throughout the Manawatu-Whanganui Region.	ATH-2012014589.00	Current Expiry: 1/7/2047
Approximately 50 m south-west of the area	Water Permit	Market garden irrigation water abstraction.	ATH-1992006769.00	Expired 2012
Approximately 200 m south-west of the area	Discharge Permit	Discharge of paunch solids.	ATH-2002009431.00	Expired 2007
Area A				
On site and also across the larger properties.	Discharge Permit	Soil injection land works. Discharge of 15 m <sup>3</sup> /ha/yr of wastewater treatment solids from the Fonterra Longburn Plant.	ATH-2019202710.00	Current Expiry: 1/7/2033

On site and also across the larger properties.	Discharge Permit	Discharge of up to 55 m <sup>3</sup> /ha/day and 110 m <sup>3</sup> /ha/yr of dairy manufacturing liquid whey by-product from the Longburn Dairy Factory.	ATH-2004010976.07	Application Active
On site and also across the larger properties.	Discharge Permit	Discharge 220 m <sup>3</sup> /ha/yr of dairy manufacturing liquid whey by-product and casein processing wastewater from the Longburn Dairy Factory to land application area by tanker truck spreader bar within a 25km radius of Reserve Road, Longburn.	ATH-2006010825.06	Expired 2/5/2021
Area B				
On site - Lot 3 DP 85957 and also on properties in Area C, adjacent to the south of the Area B.	Discharge Permit	Discharge of up to 55 m <sup>3</sup> /ha/day and 110 m <sup>3</sup> /ha/yr of dairy manufacturing liquid whey by-product from the Longburn Dairy Factory.	ATH-2004010976.07	Application Active
On site - Lot 3 DP 85957 and also on properties in Area C, adjacent to the south of the Area B.	Discharge Permit	Discharge 220 m <sup>3</sup> /ha/year of dairy manufacturing liquid whey by-product and casein processing wastewater from the Longburn Dairy Factory to Land.	ATH-2006010825.06	Expired 2/5/2021
On site - Lot 3 DP 85957 and also on properties in Area C, adjacent to the south of the Area B.	Discharge Permit	Discharge 15 m <sup>3</sup> /ha/yr of wastewater treatment plant solids from the Fonterra Longburn Plant, the Fonterra Brand Site, the microfiltration unit at the Fonterra Research and Development Site, and other Fonterra Lower North Island sites, into land via direct injection at 13 farm sites across the region.	ATH-2019202710.00	Current Expiry: 1/7/2033
Approximately 5 m south of the area	Discharge Permit	Discharge 117 m <sup>3</sup> /day of backwash water from a water treatment plant system to the Reserve Road Drain.	ATH-2004010362.00	Current Expiry: 3/3/2024
Approximately 5 m south of the area	Discharge Permit	Discharge collected rainwater runoff from the Fonterra Longburn Dairy Product Manufacturing Plant to the Reserve Road Drain.	ATH-2004010056.01	Current Expiry: 3/3/2024
Approximately 200 m south-east of the area	Discharge Permit	Discharge of emissions, odour and aerosols from gas fired driers, evaporation and drying boilers, hot water generation, heating and ventilation at the Dairy Products Manufacturing Plant.	ATH-2006011255.01	Current Expiry: 30/3/2026

Approximately 140 m south-west of the site	Discharge Permit	Discharge emissions, odours and aerosols from the Meadow Fresh processing plant gas fired hot water generator, steam boiler and factory heating and ventilation to air for milk and yoghurt processing purposes.	ATH-2006011256.00	Current Expiry: 1/7/2033
Approximately 20 m west of the area	Discharge Permit	Discharge dairy shed and feed pad effluent into and onto land at State Highway 56, Longburn.	ATH-2011013644.02	Current Expiry: 1/7/2033
Area C				
On site - 2263 SH56 (Lots 3 and 4 DP 85957 and Part Lot 7 DP 2848)	Discharge Permit	To discharge dairy shed effluent and feed pad effluent into and onto land from 250 cows at State Highway 56 Longburn.	ATH-2003009997.00	Current Expiry: 4/4/2028
On site - 2263 SH56 (Lots 3 and 4 DP 85957 and Part Lot 7 DP 2848)	Discharge Permit	Discharge 220 m <sup>3</sup> /ha/year of dairy manufacturing liquid whey by-product and casein processing wastewater from the Longburn Dairy Factory to Land.	ATH-2006010825.06	Current Expiry: 2/5/2021
On site - 2263 SH56 (Lots 3 and 4 DP 85957 and Part Lot 7 DP 2848)	Water Permit	Abstract 9,375 m <sup>3</sup> /day of groundwater from Bores 335291 (Casein) and 335475 (Cheese) for Mainland and Casein Processing Plant Water Supply purposes at Reserve Road, Longburn.	ATH-2001008270.02	Current Expiry: 1/7/2043
Approximately 85 m south-west of the area at 97 Walkers Road	Water Permit	Abstract 127 m <sup>3</sup> /day of groundwater from two bores for domestic water supply, general office & warehouse, 5.7 ha seasonal irrigation & wildlife habitat pond recharge purposes at Walkers Road.	ATH-2001009239.00	Current Expiry: 29/6/2021
Southernmost portion of site, adjacent to Manawatu River				
Extends north-east from Shirriffs Road, adjacent to 303 Shirriffs Road, to the wastewater treatment plant	Land Use Consent	Horizontally bore, construct, place and maintain a 300mm diameter blackwater pipeline under the Mangaone Stream from the Longburn Industrial Park to the Palmerston North Wastewater Treatment Plant at Totara Road, Palmerston North.	ATH-2008012167.00	Current Expiry: 14/12/2042
Landfill site adjacent to the Manawatu River	Discharge Permit	Contingency discharge of storm water during flood events (where the river terrace is flooded) to the Mangaone Stream, Manawatu River or surrounding surface waters at Totara Road, Palmerston North.	ATH-1994002236.00	Current Expiry: 1/2/2029
		Discharge leachates from municipal refuse disposal site	ATH-1994002237.00	

		into land and groundwater at Awapuni Landfill, Totara Road, Palmerston North.		
		Discharge landfill gas, odour and dust from municipal refuse disposal site to air associated with waste management activities at Totara Road, Palmerston North.	ATH-1994002238.00	
		Discharge solid waste from municipal refuse collection to land within the extension area (until February 2007), discharge leachates from the municipal refuse solid waste disposal site at Totara Road, Palmerston North.	ATH-1994002239.00	
		Discharge 62,700 m <sup>3</sup> /annum of collected rainwater run-off from the municipal refuse disposal to soakage ponds at Totara Road, Palmerston North.	ATH-1994002235.00	
	Water Permit	Divert 66,000 m <sup>3</sup> /annum of collected rainwater run-off from and around the municipal refuse disposal site to twin soakage ponds at Totara Road, Palmerston North.	ATH-1994002234.00	
	Discharge Permit	Discharge 2,500 m <sup>3</sup> /yr of cleanfill to gravel excavation area for backfilling purposes at Tip Road, Palmerston North.	ATH-2015200500.00	Current Expiry: 1/3/2026
Within landfill site immediately adjacent to south-east portion of site	Discharge Permit	Discharge wood chip, green waste and raw feed stock (hot rot), alum sludge, dissolved air floatation sludge, belt press solids, filtercake and other compostable waste materials (biosolids) to closed landfill for vegetable growth purposes at Tip Road, Palmerston North.	ATH-2010013501.00	Current Expiry: 1/2/2029
		Discharge windrows of vegetable matter, green waste and treated screenings to land for commercial composting and waste minimisation service purposes at Awapuni Landfill, Tip Road, Palmerston North.	ATH-2010013502.00	
	Discharge Permit	Discharge contaminants from landfill gas collection system and semi enclosed gas flare burner to air at Tip Road, Palmerston North.	ATH-2006011460.01	Current Expiry: 19/7/2031

## C6 Nearby archaeological sites

Remnant foundations of a historical railway bridge are located on the pedestrian path along SH56, across from the Walkers Road intersection. The bridge formed a portion of the previous Wellington-Longburn main trunk line. The line was re-routed to the west of Palmerston North and the track running adjacent to the Pioneer highway was removed in the mid-late 1960s. This site is recorded on ArchSite as S24/49.

Historic Pā sites are also identified to be along the Manawatū River near to the site. There is a Pā site recorded to be within the southernmost portion of the site, on the banks of the Manawatū River.

## Appendix D: Certificates of Title

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References  
Prior C/T 907/53

**CANCELLED**

Land and Deeds 69

94/632

Transfer No.  
N/C. Order No.870629

**REGISTER**

**DUPLICATE DESTROYED**  
**CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT**

This Certificate dated the 12th day of May one thousand nine hundred and seventy one under the seal of the District Land Registrar of the Land Registration District of WELLINGTON

**WITNESSETH** that MAURICE HOLLOWS LIMITED at Palmerston North

is seized 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 10 ACRES 3 ROODS 29 PERCHES more or less situate in Block X Kairanga Survey District being part Section 11 Cloverlea Settlement and being also Lot 1 on Deposited Plan 32490



Assistant Land Registrar Wellington 191084-9

**DISCHARGED**

Interests at date of issue:-

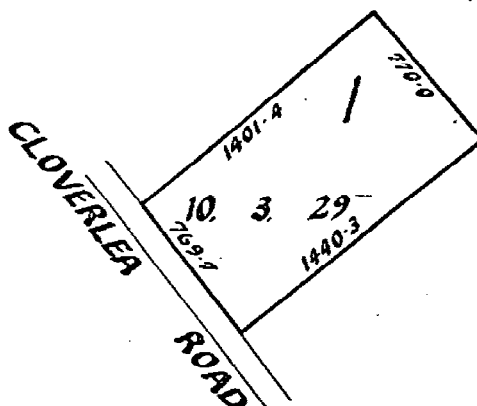
1. Subject to the same restrictions as were imposed in the case of leases by Section 206 of the Land Act 1924  
Mortgage 917158 to The Commercial Bank of Australia Limited 171086 9.5.1972 at 11.43 am  
*[Signature]*  
A.L.R.
2. Mortgage 751410 to Hilton John Waller produced 16.7.1968 at 10.11 a.m. and entered 14.8.1968 at 9.7 a.m.  
Variation of Mortgage 751410 - 12.7.1973 at 9.22 o.c.  
*[Signature]*  
A.L.R.
3. Mortgage 751411 to Andrews Motors (Taupo) Limited produced 16.7.1968 at 10.12 a.m. and entered 14.8.1968 at 9.8 a.m.  
419495.2  
**DISCHARGED**  
207175.1838.5 to Rural Bank of New Zealand and Finance Corporation of New Zealand - 10.2.1975 at 10.01 a.m.  
*[Signature]*  
A.L.R.

Mortgage 917157 to Andrews Motors (Taupo) Limited 11.42 am  
**DISCHARGED**  
28175.197273  
*[Signature]*  
A.L.R.

No. 203075.1 Variation of the terms of Mortgage 751410 3.8.1976 at 1.52 p.m.  
*[Signature]*  
A.L.R.

No. 162534.1 Variation of the terms of mortgage 061838.5 - 1.12.1976 at 1.57 p.m.  
*[Signature]*  
A.L.R.

**DISCHARGED**  
Transmission 266582.1 of Mortgage 751410 to June Ada Ellen Harland as executrix - 23.9.1978 at 12.01 p.m.  
*[Signature]*  
A.L.R.



Scale: 1 inch = 8 chains

EQUIVALENT METRIC  
AREA IS 4.4237 ha.

- OVER -

No. 9A/632

329624.1 Variation of terms of Mortgage  
751410 - 4.5.1979 at 11.30 a.m.

~~DISCHARGED~~

791084.10  
DISCHARGED  
Mortgage 488359.2 to The Commercial Bank  
Savings Bank (N.Z.) Limited - 5.5.1982  
at 11.45 a.m.

M.B. Egan  
A.L.R.  
M.B. Egan  
A.L.R.

488359.3 Memorandum of Priority making  
Mortgages 488359.2 and 917158 first and  
second mortgages respectively - 5.5.1982  
at 11.45 a.m.

M.B. Egan  
A.L.R.

791084.5  
DISCHARGED  
Mortgage 488359.4 to The Rural Banking  
and Finance Corporation - 5.5.1982 at  
11.45 a.m.

M.B. Egan  
A.L.R.

631702.1 Caveat by East Coast Permanent  
Trustees Limited 2.7.1984 at 9.35 a.m.

791084.3  
WITHDRAWN  
REJECTED

637548.1 Caveat by East Coast Permanent  
Trustees Limited 2.7.1984 at 9.25 a.m.

A.L.R.

727432.3 Mortgage to The Rural Banking and  
Finance Corporation - 14.11.1985 at 10.28 a.m.

(Caveator consented)  
864102.1  
DISCHARGED

791084.13 Mortgage to Development Finance Cor-  
poration of New Zealand - 13.11.1986 at  
9.40 a.m.

A.L.R.

864102.2 Transfer to Julian Lee, Research  
Scientist and Pamela Shirley Lee, Real  
Estate Agent, both of Palmerston North -  
17.7.1987 at 2.31 p.m.

A.L.R.

864102.3 Mortgage to Development Finance  
Corporation of New Zealand - 17.7.1987 at  
2.31 p.m.

~~DISCHARGED~~

A.L.R.

864102.4 Mortgage to Manicé Holdings Limited  
- 17.7.1987 at 2.31 p.m.

~~DISCHARGED~~

A.L.R.

958792.3 Transfer to Dominant Investments  
No. 1 Limited - 28.10.1988 at 10.34 a.m.

958792.4 Mortgage to DFC Financial Services  
Limited - 10.10.1988 at 10.00 a.m.

~~DISCHARGED~~

A.L.R.

B091738.2

DISCHARGED  
B091738.3  
B007785.1 Mortgage to Trust Bank Cent  
Limited - 13.6.1988 at 2.36 p.m.

7121190  
A.L.R.  
B007785.2 Memorandum of priority making  
Mortgages B007785.1 and 958792.4 first and  
second mortgages respectively - 13.6.1989  
at 2.36 p.m.

Notice  
B.077559.3 Evidence of the Change of Name  
of the registered proprietor to Cloverlea  
Orchards Limited - 24.4.1990 at 10.40  
a.m.

A.L.R.  
B.077559.4 Transfer to John Anthony  
Murdoch, Orchardist and Margaret Joan  
Murdoch, School Teacher, both of  
Palmerston North - 24.4.1990 at 10.40  
a.m.

REJECTED  
A.L.R.  
B.077559.5 Mortgage to The National Bank  
of New Zealand Limited - 24.4.1990 at  
10.40 a.m.

REJECTED  
A.L.R.  
B.091738.1 Notice of the Change of Name  
of the registered proprietor to Cloverlea  
Orchards Limited - 2.7.1990 at 10.53 a.m.

R. Jentley  
A.L.R.  
B.091738.4 Transfer to John Anthony  
Murdoch, Orchardist and Margaret Joan  
Murdoch, School Teacher both of  
Palmerston North - 2.7.1990 at 10.53 a.m.

R. Jentley  
A.L.R.  
B.091738.5 Mortgage to The National Bank  
of New Zealand Limited - 2.7.1990 at  
10.53 a.m.

R. Jentley  
A.L.R.  
B.129502.1 OCT ) Cancelled and the  
13.11.1990 ) following CsT issued in  
terms of DP 70621:

38A/342 for Lot 1  
38A/343 for part Lot 2

A.L.R.



Certificate No. E. 39119  
Reference: P.R. Vol. 21 folio 112  
Transfer No.



NEW ZEALAND

Vol. 712 folio 49

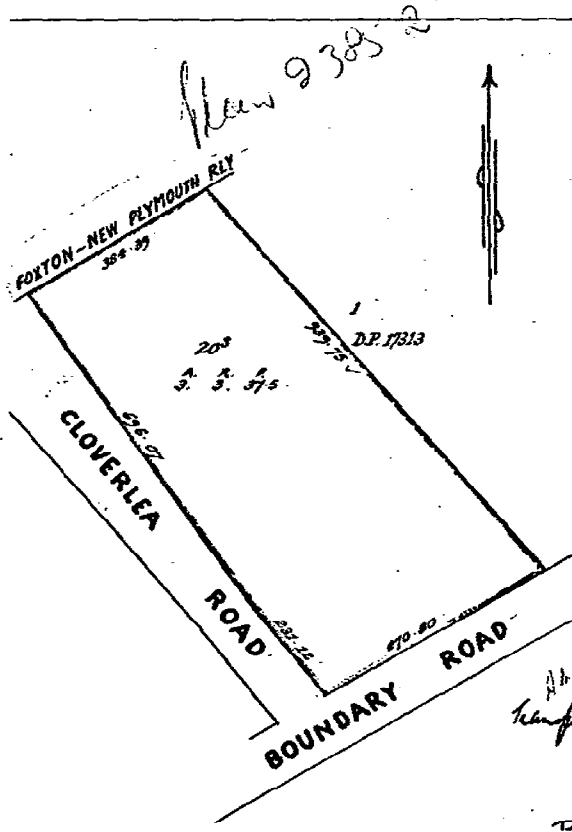


# CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate, dated the Seventeenth day of August, one thousand nine hundred and 1956 under the hand and seal of the District Land Registrar of the Land Registration District of Wellington being a Certificate in lieu of Grant, Witnesseth that: STANLEY RICHARD GREGG of Palmerston North Gardener

is seized of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed hereon; subject also to any existing right of the Crown to take and lay off roads under 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, which said land was originally acquired by the said STANLEY RICHARD GREGG as from the Nineteenth day of March, one thousand nine hundred and fifty-six under Section 4 of the Discharged Soldiers Settlement Act 1915 that is to say: All that parcel of land containing 3 ACRES 3 RODS 57.5 PERCHES more or less situate in Block X of Kairanga Survey District being Section 208 of the Cloverlea Settlement.

Image Quality due to Condition of Original



*[Signature]*  
District Land Registrar

Reserving nevertheless for all time to Her Majesty the Queen the right to sink Artesian wells on the land comprised in this Certificate and the registered proprietor or person claiming for the time being shall wherever the land is traversed by water pipes keep the said pipes in good order and condition, shall prevent the escape of water by fixing a ball-cock at every trough constructed on the land and shall be liable for his share of the cost of maintenance of the water supply.

Subject to the same restrictions as are imposed in the case of leases by section 206 of the Land Act 1948.

Witness my hand and seal this 17th day of August 1956.

*[Signatures]*  
Notary Public  
Transfer No. 538221 Summary of Encumbrances for 10/10/56 to include  
Artesian Wells above referred to. See marginally the Cause  
to Stanley Richard Gregg. - 13.7.1962 at  
9.30 a.m.  
Transfer 540051 after including Lot 1 Plans 23852  
& 23853 Automatic Lane Usage. 4.10.1962 at 2.49 p.m.  
C.T. A3/1100

Blk. X Kairanga S.D.  
Scale: 2 chains to an inch.  
S.O. 21744

CONTINUED OVER

Transfer 540788 of lot 1 plan 23852 to  
Nola Margaret Greaves - 12.10.1962 at 2300

712/49

13/12/67



Duplicate destroyed



# REGISTER

[L.T.-20]

## NEW ZEALAND.

[Form B.]

Reference: Vol. 30, Folio 117  
 Transfer No. 104459  
 Application No.  
 Order for N/C No.



Register-book,  
 Vol. 342, folio 204

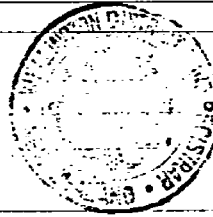
### CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.



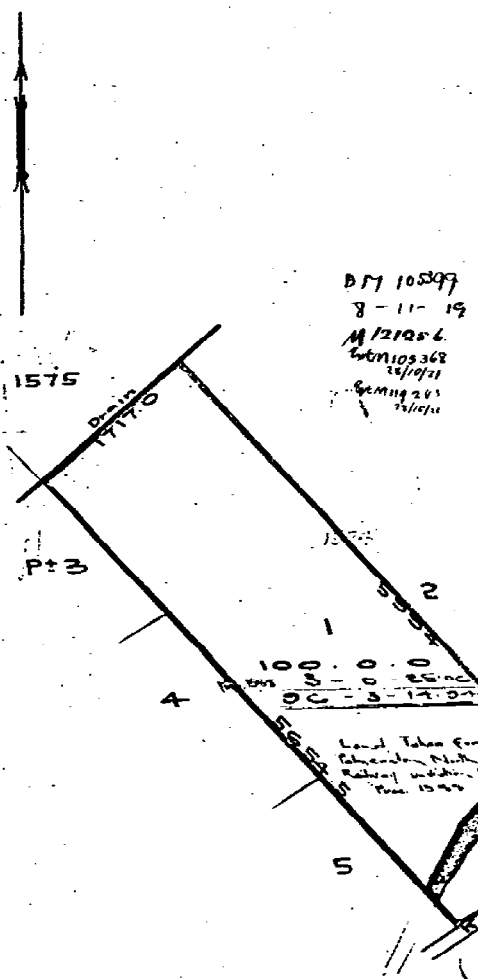
This Certificate, dated the fifth day of August, one thousand nine hundred and sixteen  
 under the hand and seal of the District Land Registrar of the Land Registration District of Wellington Witnesseth that  
David Buick the younger of Palmerston North Farmer

is seized of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed 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 red, be the several admeasurements a little more or less, that is to say: All that parcel of land containing one hundred acres more or less being part of section 1574, Hauranga Survey District and being Lot 1 on Deposited Plan No 3519

forwarded  
 25.6.20  
 2000  
 S.R.



W. H. Hines  
 District Land Registrar.



D 17 105297  
 8-11-19  
 M 121256  
 24/10/21  
 24/10/21

Mortgage 105368 produced 5 August 1916 at 10.45 am David Buick the younger to the Public Trustee

Mortgage 105369 produced 8 August 1916 at 2 pm David Buick the younger to Dalgety and Co. Limited

Mortgage 119243 produced 8 November 1919 at 10 am David Buick the younger to the Public Trustee

Mortgage 121256 produced 13 February 1920 at 2 pm David Buick to William Clarke

Extension of Term and Increase of Interest of Mortgage 105368 produced 25th October 1921 at 2 pm J. D. Richmond A.R.

Extension of Term and Increase of Interest of Mortgage 119243 produced 25th October 1921 at 2 pm J. D. Richmond, A.R.

Extension of Mortgage 121256 produced 27th February 1925 at 10.22 am W. H. Hines A.R.

CONTINUED

REGISTER

242/204

Proclamation 1535 produced 15<sup>th</sup> March 1926 at 3pm taking part of within land for Palmerston North Division of Wellington District Railway

Transfer 353257 of Lot 11 Plan 15950 discharged from mortgages 263902, 121256 and 258035 David Buick to David John Buick dated 20.8.1952 at 12.30 pm

Mortgage 1825 David Buick the Younger to The National Bank of New Zealand Limited produced 10<sup>th</sup> July 1928 at 2.45 pm

26017 mo cancelled as to balance and new 10.8.1952 } C.I. issued see Vol 586 Fol 190

DISCHARGE

Extension of Term of Mortgage 121256 and Reduction of Principal Sum - produced 16<sup>th</sup> August 1929 at 11.2 am



DISCHARGED

Extension of Term of Mortgage 19243 and reduction of principal sum and increase of interest produced 22<sup>nd</sup> August 1929 at 2.20 pm

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

DISCHARGED

Extension of term of Mortgage 105362, and increase of interest produced 22<sup>nd</sup> August 1929 at 2.31 pm

DISCHARGE of Term of Mortgage 113241

Certificate of Charge by the Commissioner of Taxes produced 27<sup>th</sup> March 1931

Certificate of Charge by the Commissioner of Taxes produced 25<sup>th</sup> March 1931

Order of Court of Review setting mortgages 105368, 119043, 121256 and affecting mortgage 188205 produced 14<sup>th</sup> June 1931 at 3 pm

Transmission 33346 of mortgage 121256 to The Guardian Trust and Executors Company of New Zealand Limited as Executors entered 25<sup>th</sup> August 1939 at 11.55 am

Mortgage 263902 David Buick to The National Bank of New Zealand Limited. Produced 10<sup>th</sup> October 1928 at 2.40 pm

Mortgage 258435 David Buick to The Public Trustee produced 3<sup>rd</sup> June 1929 at 2.6 pm

Mortgage 288435 first and second mortgages of land 121256 and 263902

Mortgage 288435 first and second mortgages of land 121256 and 263902



Reference: { Vol. 255, Folio 196  
Transfer No.  
Order for N/C No. 436137



Register-book,  
Vol. 848, folio 6

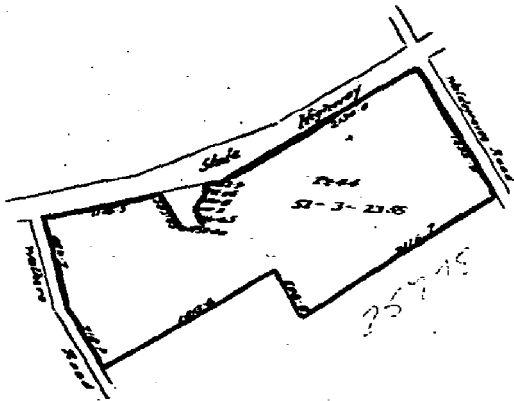
**CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT**

This Certificate, dated the Seventh day of July, one thousand nine hundred and fifty-nine under the hand and seal of the District Land Registrar of the Land Registration District of WELLINGTON WITNESSETH that MERVYN WALLACE COCKSLEY of Longbown Farmer and LINDA FLORENCE MAUD COCKSLEY his wife are seized of an estate in fee simple as tenants in common in equal shares

in and to an estate in fee simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed 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 52 ACRES, 3 RODS, and 23.55 PERCHES more or less situate in Block XIV Kairanga Survey District being part Sections 15 and 16 of the Kareere Block and being also part Lot 4 Deposited Plan 2648

Image Quality due to Condition of Original

Plan 26238



Scale: as shown to one inch  
See P. 5.

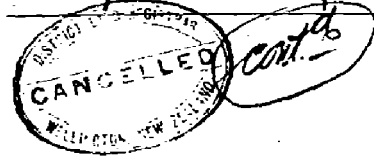


Pending Covenant in Transfer 11468

Mortgage 372481 the registered proprietors to DISCHARGE the mortgage produced 30.7.1956 at 12.30 p.m. 1956

Mortgage 562701 to Australia and New Zealand - 2/9/1963 at 9.36 a.m. 1963  
Transfer 601089 of Lot 1 Plan 25778 to Milk Processing (P.N.) Limited - 30.7.1964 at 2.45 p.m. 1964  
CT 63/352  
Transfer 619083 of Lot 3 Plan 26238 to Helen Joha Busch - 21.12.1964 at 10.47 a.m. 1964  
CT 01/100

Transfer 663702 of Lot 5 plan 26238 to Donald Arthur Reeve and Alice Elvay Reeve preserving water rights over part appurtenant to Lot 2 and to plan 26238 herein and Lot 1 plan 21008 in CT 848/5 16.3.1966 at 9.12 p.m. 1966  
CT 52/159  
Transfer 671535 of Lot 5 Plan 26238 to Diamond Driften - 30.5.1966 at 12.27 p.m. 1966  
CT 63/166



over

848/6

Transfer 67370J of Lot 4 plan 26238  
to Anthony Lombardo Peteras Nam  
reserving water rights over part  
appurtenant to Lot 2 plan 26238 here  
and Lot 1 plan 21008 (C.T. 848/5)  
20.6.1966 at 2 p.m.  
C.T. 848/568

J. Newman  
S.H.R.

Transfer 679337 of Lot 2 Plan  
26238 reserving water rights over  
part appurtenant to Lot 1 Plan 21008  
(C.T. 848/5) to John Harold Staff -  
6.5.1966 at 2.27 p.m.  
C.T. 848/301

J. Newman  
S.H.R.



DUPLICATE DESTROYED





# REGISTER

Vol. 11.	folio 33
Vol. 14.	folio 89
Vol. 29.	folio 293, 394
Vol. 32.	folio 136
Vol. 41.	folio 161
Vol. 136.	folio 57
Vol. 143.	folio 109

Substituted

## NEW ZEALAND.

[Form B.]



Register-book,

Vol. 217, folio 36

Deeds Index Reference:

Vol. 26.	folio 615
Vol. 30.	folio 742
Vol. 30.	folio 706
Vol. 33.	folio 928

Applications 1871

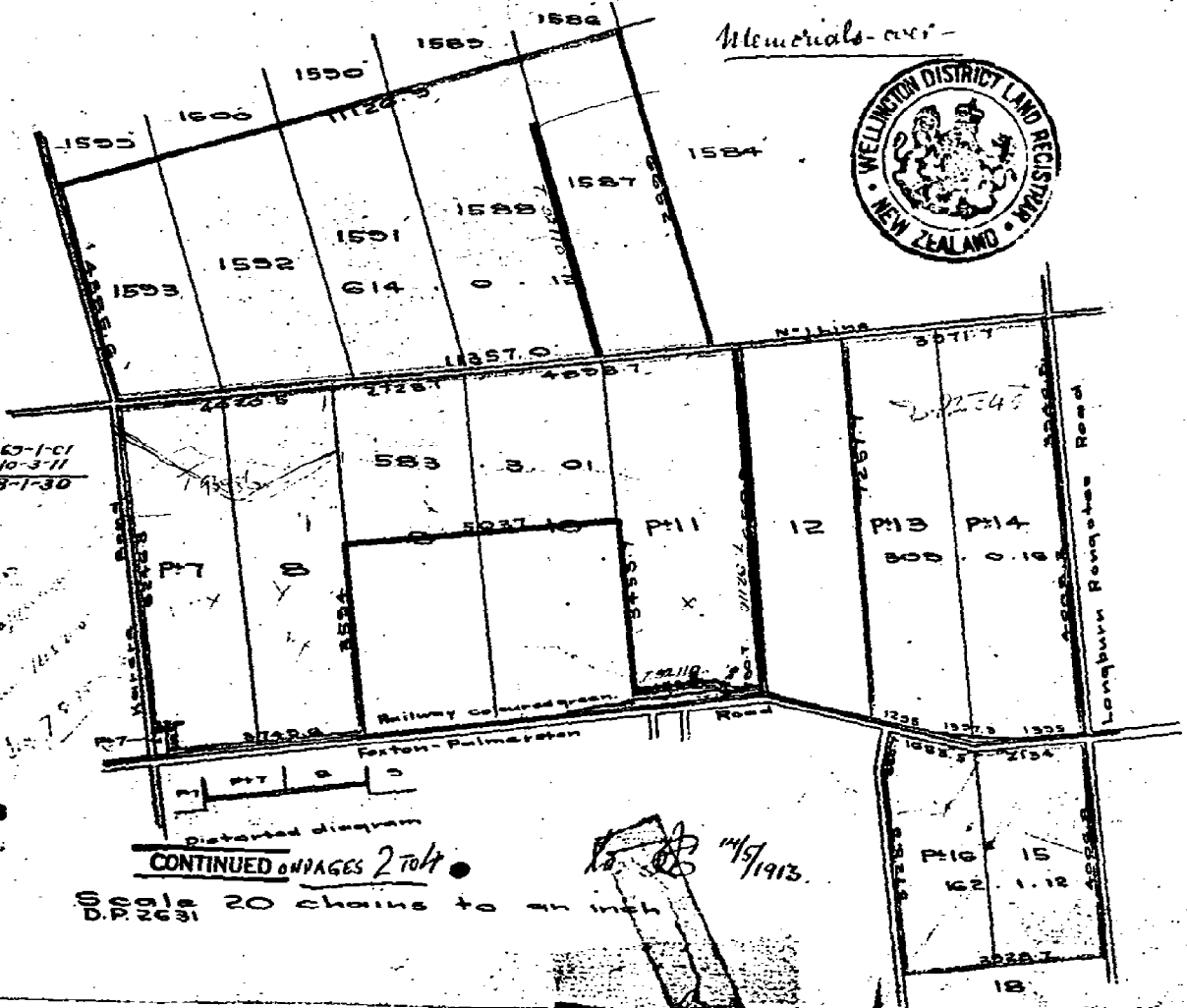
### CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

This Certificate, dated the Twenty sixth day of May, one thousand nine hundred and eighteen, under the hand and seal of the District Land Registrar of the Land Registration District of Wellington & it is hereby that The Persons named in the Schedule hereunder are

is seized 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 Red, be the several admeasurements a little more or less, that is to say: All that parcel of land containing together one thousand six hundred and sixty nine acres one rood and one perch more or less situated in Block's IX, XIV and XIV Kaipunga Survey District and being Sections 1587, 1588, 1591, 1592 and 1593, Sections 8 and 15 and parts of Sections 9, 10, 11, 12, 13 and 14 of the Forest Block Schedule

- Cleaver Caroline Riddiford of the Hunt District
- Edward Vicar Riddiford of the Hunt Sheepfarmer
- Daniel Henry Strothers Riddiford of Tablelands Sheepfarmer
- Eric Leslie Riddiford of Orongorongo Sheepfarmer
- Oliver Ashby Binney of Te Awairua Station Manager

*[Signature]*  
District Land Registrar



# REGISTER

T. 93465 of lots 23 & 27 ind. Block I D.P. 28448  
217/36 (P2)

Part of Section 11 has appurtenant thereto the right of way and other rights over Railway reserves granted by Order of Court No 2092

Outstanding interest: -

Lease dated 20 November 1908 Edward Joshua Riddell to Henry Michin book Term 5 years from 1 August 1908 affecting parts of sections 15 and 16

Transfer 100285 produced 6th September 1915 at 11.40 am. the registered proprietors to Robert Dawson Knight of lots 6, 40, and 41, Block I, plan 2848. C/J 233/81

Transfer 100921 produced 6th September 1916 at 2.45 pm the registered proprietors to John de Chamant of Lot 15 Block II, plan 2848. C/J 242/31

Transfer 105759 produced 3rd November 1916 at 2.07 pm the registered proprietors to John Clive Hobbs of Lot 12 Block I plan 2848. C/J 248/120

Transfer 109080 produced 26th July 1917 at 3 p.m. the registered proprietors to David Holland of Lot 23 Block II plan 2848. C/J 248/150

Transfer 112567 produced 1st May 1918 at 2.30 pm the registered proprietors to Rasmus Peter Jensen of Lot 7 Block I plan 2848. C/J 253/96

Transfer 113519 produced 4th July 1918 at 3 p.m. the registered proprietors to Thomas Keith of Lot 36 Block I plan 2848. C. S. 254/150

Transfer 114133 produced 9th August 1918 at 2 p.m. the registered proprietors to Henry John Bannister of lots 1, 2 and 43 Block I plan 2848. C/J 255/29

Transfer 114271 produced 20th August 1918 at 10.30 am the registered proprietors to William Davidson of Lot 1 Block I plan 2848. C/J 255/16

Transfer 114468 produced 28th August 1918 at 2 pm the registered proprietors to Isaac Daniel Sage Cookley of Lot 44 Block I plan 2848. C/J 255/196

Transfer 114582 produced 5th September 1918 at 11.52 am the registered proprietors to Elizabeth Sophia Holland of lots 21 and 22, Block II, plan 2848. C. S. 255/234

Transfer 114916 produced 26th September 1918 at 2.30 pm the registered proprietors to Charles Henry Symon of lots 33 and 34, Block I plan 2848 subject to drainage rights and with and subject to water rights. C/J 256/156

Transfer 115102 produced 8th October 1918 at 11 am the registered proprietors to Robert Dawson Knight of Lot 5 Block I plan 2848. C/J 256/157

Transfer 115173 produced 10th October 1918 at 3 pm the registered proprietors to Jager Sorenson of lots 2 and 3 Block I plan 2848. C/J 256/155

T 92110

T 93486 Transfer 92110 produced 17th October 1913 at 4 pm.

T 9507 dedicating as public roads the parts marked 'New Road', 'Reserve Road', 'New Road' and 'The Street' on plan No 2848.

T 95839 and T 95840

T 96318 Transfer 93486 (Grant of easement) produced 17th February 1914 at 2.10 pm the registered proprietors to The Harbour and Drainage Board granting rights relating to drainage.

T 97188

T 98382

T 100176

T 100285

T 104921

T 105759

T 109080

T 112567

T 113519

T 114133

T 114271

T 114468

T 114582

T 114916

T 115102

T 115173

T 119593

T 120048

T 120048

T 120048

T 120048

T 120048

T 120048

T 120048

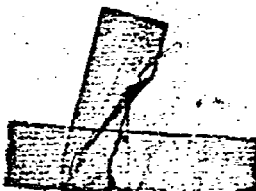
T 120048

T 120048

T 120048

T 120048

T 120048



27/36(13)

(2)

# REGISTER

CERTIFICATE OF TITLE REGISTER-BOOK.

Vol 217, folio 36 Continued

Transfer 115342 produced 19th October 1918 at 10 am the registered proprietors to Thomas Lancaster of lot 15 Block I plan 2848 with water rights affecting lot 16  
C/T 256/215 *WLR*

Transfer 115958 produced 13th December 1918 at 2 pm the registered proprietors to Robert Tanner of lots 31 and 32 plan 2848 with water rights over lot 33 on same plan and subject to existing drainage rights (if any) affecting lot 32  
C/T 254/184 *WLR*

Transfer 119593 produced 9th July 1919 at 10 am the registered proprietors to William Thomas Sidd of lot 8 Block I plan 2848  
C/T 260/90 *WLR*

Transfer 120068 produced 29th July 1919 at 10:30 am the registered proprietors to Arthur John Sanson of lots 9, 10, and 11 Block I plan 2848  
C/T 260/215 *WLR*

Transfer 122558 produced 21st October 1919 at 10 am the registered proprietors to George Elijah Cothelley of lot 13 Block I and lots 2 to 8 inclusive of Block II on plan 2848 with right of way created by Order of Council 2092 and subject to water rights  
Vol 293 folio 12 *WLR*

Transfer 125314 produced 28th January 1920 at 11:30 am the registered proprietors to Jane Alice Blanche of lot 1 Block II plan 2848  
C/T 265/70 *WLR*

Transfer 126166 produced 26th February 1920 at 11:30 am the registered proprietors to Mary Maude Elizabeth Tanner of lot 30 Block I, plan 2848  
C/T 265/71 *WLR*

Transfer 134091 produced 7th October 1920 at 10 am the registered proprietors to John Wingate of lots 15, 16 and 17 Block I plan 2848 retaining drainage rights and with water rights over lot 14  
C/T 272/219 *WLR*

Transfer 146329 produced 24th June 1922 at 12 noon the registered proprietors to Nicholas John Donohue of lot 19 Block II plan 2848  
Vol 291 folio 154 *WLR*

Transfer 153936 produced 10th July 1923 at 10:35 am the registered proprietors to Benedict Apperance Zucher of lot 35 Block I plan 2848  
Vol 302 folio 184 *WLR*

Transfer 155203 produced 10 September 1923 at 2:35 pm the registered proprietors to George Allman of lot 21 Block I plan 2848 retaining water rights appurtenant to lot 22 Block I on same plan  
Vol 305 folio 514 *WLR*

Transfer 155933 produced 18th October 1923 at 10:55 am the registered proprietors to Stephen Robert Lancaster of lot 22 Block I plan 2848 together with water rights over lot 23 on same plan  
Vol 306 folio 75 *WLR*

Transfer 158007 produced 12th February 1924 at 11:20 am the registered proprietors to Helen Margaret McHenry of lots 24, 25, 26 and 27 Block I plan 2848  
Vol 307 folio 285 *WLR*

Transfer 159729 produced 16 May 1924 at 11:50 am the registered proprietors to John McEwen of lots 27 and 28 Block I plan 2848  
Vol 311 folio 197 *WLR*

Transfer 160197 produced 4th June 1924 at 11:50 am the registered proprietors to Elie Maria Johnston of lot 23 Block I plan 2848  
Vol 312 folio 107 *WLR*

Transfer 162069 produced 12th August 1924 at 2:30 pm the registered proprietors to John Howland of lots 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100  
Vol 314 folio 276 *WLR*

Transfer 169298 produced 7th August 1925 at 11:15 am the registered proprietors to Edwin Pratt of lot 14 Block I plan 2848 subject to water rights over lot 9 plan 2848  
Vol 315 folio 224 *WLR*

Transfer 171525 produced 13th November 1925 at 12:26 pm the registered proprietors to Thomas Saunders of lot 6 Block I plan 2848  
Vol 319 folio 24 *WLR*

Transfer 174858 produced 2nd May 1926 at 11:25 am the registered proprietors to Clara Palmer of lot 9 Block I plan 2848  
Vol 318 folio 188 *WLR*

Transfer 175879 produced 14th June 1926 at 2:30 pm the registered proprietors to Matha Louisa Zucher of lot 39 Block I plan 2848  
Vol 362 folio 19 *WLR*

Transfer 175879 produced 14th June 1926 at 2:30 pm the registered proprietors to Oliver Ashby Bunny as business continued 18th February 1925 at 2:30 pm  
Vol 362 folio 19 *WLR*

Transfer 175879 produced 14th June 1926 at 2:30 pm the registered proprietors to Oliver Ashby Bunny as business continued 18th February 1925 at 2:30 pm  
Vol 362 folio 19 *WLR*

CONTINUED p. 4

REGISTER

217/36 (P4)

Transfer of balance the registered proprietor  
to the said Glennie Caroline Riddiford, Daniel  
Henry, Martha Riddiford, Eric John Riddiford,  
Oliver Stanley Bunny and Alexander  
Kenneth, of the above names produced 18<sup>th</sup>  
February 1925 at 2.30 p.m. 15/2/25  
Cancelled, per Volume 443 Folio 174. 15/2/25

Cancelled.

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.  
*A. H. H. H.* P.L.R.





**COMPUTER FREEHOLD REGISTER  
UNDER LAND TRANSFER ACT 1952**

**Historical Search Copy**



*R. W. Muir*  
Registrar-General  
of Land

**Identifier** **WN256/158**  
**Land Registration District** **Wellington**  
**Date Issued** 10 October 1918

**Cancelled**

**Prior References**

WN217/36

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**Estate** Fee Simple  
**Area** 20.2343 hectares more or less  
**Legal Description** Lot 2-3 Block I Deposited Plan 2848

**Original Proprietors**

George Lewis Adlam as to a 1/2 share  
Heather Cecily Adlam as to a 1/2 share

---

**Interests**

2752 Proclamation taking the land shown coloured red on the plan hereon for Palmerston North deviation of the Wellington New Plymouth Railway and for Road diversions in connection herewith - 25.11.1938 at 3.00 pm  
3064 Proclamation taking part of within land for road diversion in connection with the Palmerston North Deviation of the Wellington New Plymouth Railway - 20.3.1941 at 9.30 am  
Subject to a gas pipeline right (in gross) over parts marked F and G on DP 78453 in favour of Natural Gas Corporation of New Zealand Limited created by Transfer B639182.1 - 25.11.1997 at 11.31 am  
5105841.1 Transfer to Peter Lewis Adlam and Thomas Henry Shaw - 12.11.2001 at 9:00 am  
5105841.2 Mortgage to ANZ Banking Group (New Zealand) Limited - 12.11.2001 at 9:00 am  
5697128.1 Transfer to Peter Lewis Adlam and Brent Thomas Dickins - 18.8.2003 at 9:00 am  
5697128.2 Transfer to Peter Thomas Adlam and Coombes Smith Trust Company Limited - 18.8.2003 at 9:00 am  
5697128.3 CTs issued - 18.8.2003 at 9:00 am

<b>Legal Description</b>	<b>Title</b>
part Lot 2 Deposited Plan 323595	94800
Lot 3 Deposited Plan 323595 and Part Lot	94801
2-3 Block I Deposited Plan 2848	

CANCELLED

References  
Prior C/T. 581/71

Transfer No.  
N/C. Order No. 825210



REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 8th day of May one thousand nine hundred and seventy under the seal of the District Land Registrar of the Land Registration District of WELLINGTON

WITNESSETH that F.S. BIRCH & SON LIMITED at Palmerston North \_\_\_\_\_

is seized 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 10 ACRES 9 PERCHES more or less situate in Block IX Kairanga Survey District being part Lot 1 of Section 12 Karere District and being also Lot 1 on Deposited Plan 31231 \_\_\_\_\_



*[Signature]*  
Assistant Land Registrar

Subject to Section 59 Land Act 1948 and Section 8 Coal Mines Amendment Act 1950.

*[Signature]*  
A.L.R.

No. 825211 Easement Certificate certifying the following to be the easements intended to be created by operation of Section 90A Land Transfer Act 1952:  
Tenements on Plan 31231.

Nature Servient Dominant  
Water part Lots 3 & 4 (yellow) Lot 1

produced 8.5.1970 at 11.40 a.m.

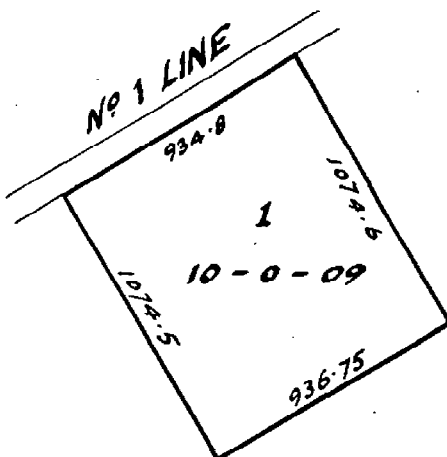
*[Signature]*  
A.L.R.

Transfer 873066 to Earl Raymond Peck of Palmerston North stud groom - 27.5.1971 at 1.31 p.m.

Mortgage 873067 to F.S. Birch & Son Limited - 27.5.1971 at 1.31 p.m.  
*[Signature]*  
A.L.R.

Transfer 993155 to Neil Alexander McIntosh of Palmerston North, Freezing Worker and Julia Mary McIntosh, his wife - 23.8.1971 at 11.13 o'clock.

*[Signature]*  
A.L.R.  
2 Mortgage 993156 to Margaret Ineland and Emily Josephine Goodwin - 23.8.1973 at 11.14 o'clock.  
*[Signature]*  
A.L.R.



Scale: 1 inch = 6 Chains

EQUIVALENT METRIC

AREA IS ... 4.06965

(OVER)

OVER

**DISCHARGED**  
MORTGAGE 993157  
23.8.1977

Mortgage 993157 to Alexander Lynn  
McIntosh and Olive McIntosh  
23.8.1977 at 11.15 o'clock.

*[Signature]*  
A.L.R.

Variation of Mortgage 993156 - 4.3.1974  
at 2.16 p.m.

*[Signature]*  
A.L.R.

**DISCHARGED**  
Mortgage 207934.1 to Australia and  
New Zealand Banking Group Limited -  
28.9.1976 at 1.32 p.m.

287489-1  
*[Signature]*  
A.L.R.

Transfer 287489.2 to Antonius Leonardus Petrus  
Ham of Palmerston North, Nurseryman and  
Leonarda Maria Ham his wife - 30.8.1979 at  
11.45 a.m.

51.9726.1  
**DISCHARGED**  
Mortgage 287489.3 to Australia and New Zealand  
Banking Group Limited - 30.8.1979 at 11.45 a.m.  
*[Signature]*  
A.L.R.

~~B.067737.1 Mortgage to Westpac Banking  
Corporation - 9.3.1990 at 9.30 a.m.~~

**REJECTED**  
A.L.R.

~~B.075623.1 Mortgage to Westpac Banking  
Corporation - 5.4.1990 at 1.45 p.m.~~

**REJECTED**  
A.L.R.

~~B.082890.1 Mortgage to Westpac Banking  
Corporation - 24.5.1990 at 9.31 a.m.~~

**REJECTED**  
A.L.R.

B.232079.2 Transfer to Ronald Graham  
Thoms of Palmerston North, Nurseryman -  
8.5.1992 at 2.42 p.m.

*[Signature]*  
A.L.R.

B.232079.3 Mortgage to Westpac Banking  
Corporation - 8.5.1992 at 2.42 p.m.

*[Signature]*  
A.L.R.

8A/432 - page 3

B613817.1 CsT 52A/1-2 issued for Lots 1-2 DP 84246 -  
21.8.1997 at 3.40

  
For DLR

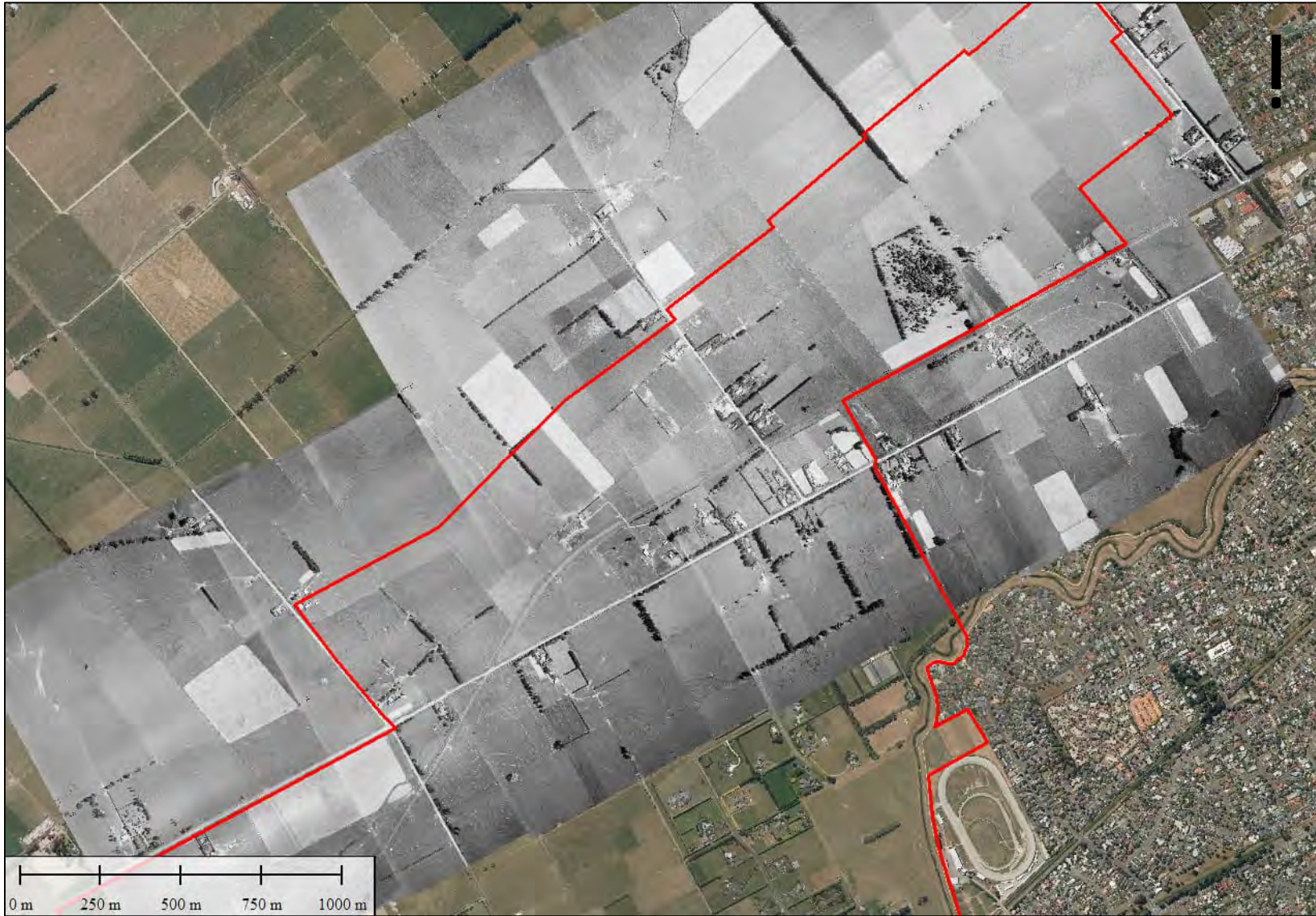
**CANCELLED**  
**DUPLICATE DESTROYED**





## Appendix E: Historical aerial photographs

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*Figure Appendix E.1: 1945 Historical Aerial Image sourced from Retrolens. Site boundary defined in red.*

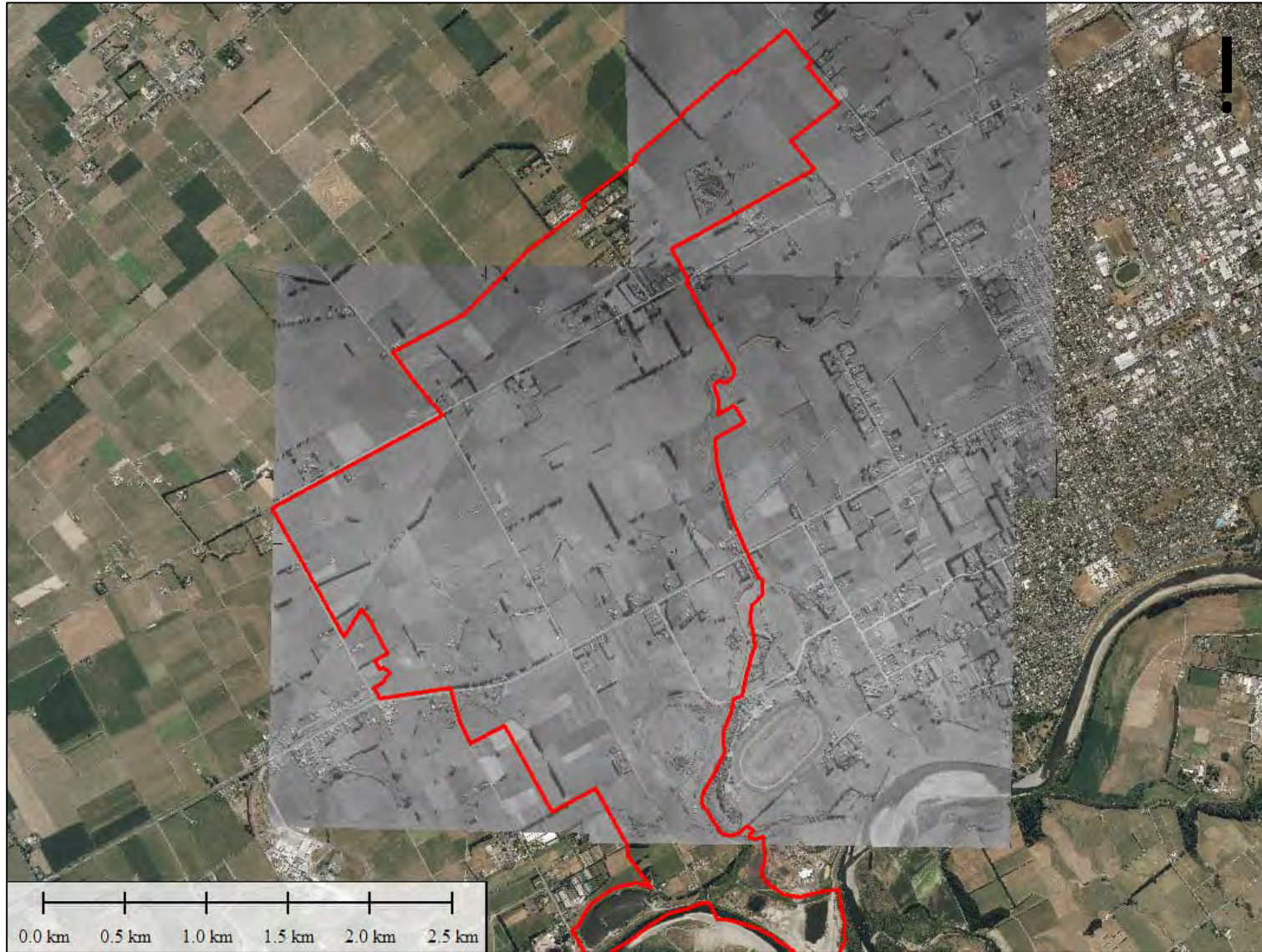
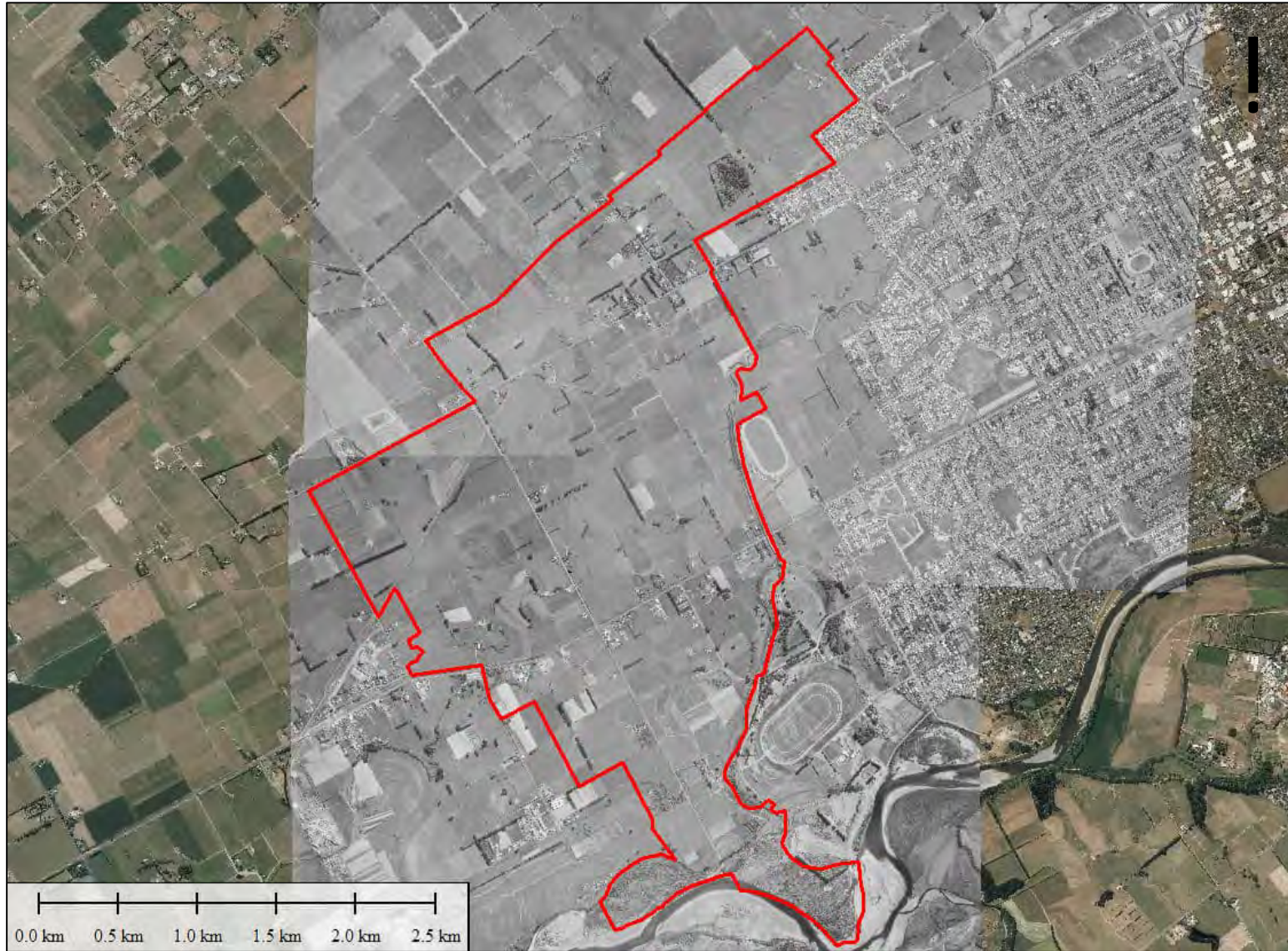


Figure Appendix E.2: 1949 Historical Aerial Image sourced from Retrolens. Site boundary defined in red.



*Figure Appendix E.3: Selected images of sheep dip in Manderson area and workshop on Shirriffs Road. Sourced from PNCC Local Maps, 1956 layer.*



*Figure Appendix E.4: 1968 Historical Aerial Image sourced from Retrolens. Site boundary defined in red.*



Figure Appendix E.5: 1977 Historical Aerial Image sourced from Retrolens. Site boundary defined in red. Only Manderson and Cloverlea Areas shown in this image.



Figure Appendix E.6: 2001 Historical Aerial Image sourced from Retrolens. Site boundary defined in red



*Figure Appendix E.7: 2014 Historical Aerial Image sourced from Land Information New Zealand. Site boundary defined in red*





Figure Appendix E.8: 2018 Historical Aerial Image sourced from Land Information New Zealand. Site boundary defined in red

## Appendix F: Council contamination enquiry

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## Kasey Pitt

---

**From:** Hail Enquiries <Hail.Enquiries@horizons.govt.nz>  
**Sent:** Wednesday, 17 June 2020 4:17 PM  
**To:** Kasey Pitt  
**Subject:** WEBSITE: HAIL Info Request ( ++RE-110228++ )  
**Attachments:** 20171024121909658.pdf; HAIL Information Request – Kakatangiata 030620.pdf

Hi Kasey,

I have checked Horizons Regional Council Site's Associated with Hazardous Substances (SAHS) database and I can advise that there is one site listed on our SAHS database from the are that you have highlighted. The site is located at 47 No.1 Line Longburn (Legal Description: LOT 5 DP 27537 BLK X KAIRANGA SD -PT SUBJ TO WATER EASEMENT-). The site is listed with the following information:

Classification 02. Verified Hail. No Site Investigation

Hail Category - A 10 - Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds

Potential Contaminants: Arsenic, lead, copper, mercury; wide range of organic compounds including acidic herbicides, organophosphates, and organochlorines (eg, endosulfan on golf and bowling greens)

Letter Comments Palmerston North Residential Growth Strategy Ground Contamination Assessment = identifies the Cloverlea Flowers site as a "potential hotspot of contamination" the report recommends that "the potential hot spots of contamination identified in section 3.5 will require further assessment at the subdivision stage".. to determine if remediation is required.

This activity is on the Hazardous Activities and Industries List, Ministry for the Environment, October 2011. I have attached what information we hold for the site and your original request.

I would recommend that you check with Palmerston North City Council as they may also have records relating to the aforementioned site.

Thanks,

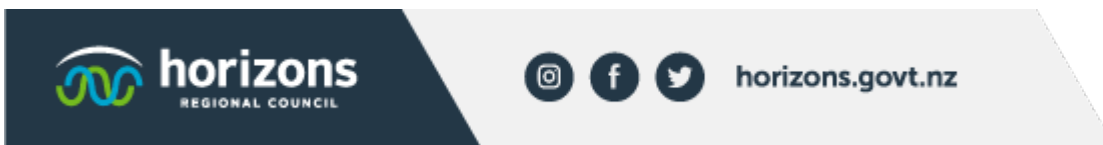
CALEB SMITH | Consent Monitoring Officer

Horizons Regional Council | 11-15 Victoria Avenue | Palmerston North 4410

Mobile: 021 2477341 | 0508 800 800

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## Kasey Pitt

---

**From:** HAIL <Hail.Enquiries@horizons.govt.nz>  
**Sent:** Tuesday, 13 April 2021 12:54 PM  
**To:** Kasey Pitt  
**Cc:** hail.enquiries@horizons.govt.nz  
**Subject:** Re: [Request ID :##12233##] WEBSITE: HAIL Info Request  
**Attachments:** 1843 Reserve Road.PNG; B2263 SH2 Lot 3 DP 85957.PNG

Hi,

I have checked Horizons Regional Council Site's Associated with Hazardous Substances (SAHS) database and I can advise that none of the properties listed (1843 Rongotea Road;• 405, 415, 429, 439 and 441 No 1 Line Longburn;• 92, 94, 96, 108 and 128 Reserve Road;• 2263A, 2263B, 2290, 2288, 2296 State Highway 56;• 15 Walkers Road; and• 158 Shirriffs Road) are recorded on our SAHS database.

However, 1843 Rongotea Road (appellation Section 1647 Block IX Kairanga SD) and Reserve Road / B/2263 State Highway 56 (Lot 3 DP 85957) both have the following resource consents associated with them (see attached aerial photos);

RECORD TYPE	Resource Consent
ACTIVITY ID	ATH-2006010825.06
ACTIVITY NAME	Dairy Manufacturing Liquid Whey & Casein Processing Wastewater Discharge
ACTIVITY DESCRIPTION	Discharge 220 m3/ha/Year of Dairy Manufacturing Liquid Whey By-Product and Casein Processing Wastewater from the Longburn Dairy Factory to Land Application Area by Tanker Truck Spreader Bar within a 25km Radius of Reserve Road, Longburn
CLASSIFICATION	Discretionary Activity
ACTIVITY TYPE	Discharge Permit
ACTIVITY SUBTYPE	Land
PRIMARY PURPOSE	Industrial, Waste Management, Liquid Waste, Wastewater
SECONDARY PURPOSE	
GRANTED DATE	26/8/2019
COMMENCEMENT DATE	16/9/2019
LAPSE DATE	
EXPIRY DATE	2/5/2021
STATUS	Current
RECORD TYPE	Resource Consent
ACTIVITY ID	ATH-2019202710.00
ACTIVITY NAME	Solid Injection Land Works
ACTIVITY DESCRIPTION	Discharge 15 m3/ha/yr of Wastewater Treatment Plant Solids from the Fonterra Longburn Plant, the Fonterra Brand Site, the Microfiltration Unit at the Fonterra Research and Development Site, and other Fonterra Lower North Island Sites, into Land via Direct Injection at 13 Farm Sites across the Region
CLASSIFICATION	Discretionary Activity
ACTIVITY TYPE	Discharge Permit

ACTIVITY SUBTYPE Land  
PRIMARY PURPOSE Industrial, Waste Management, Solid Waste, Composting  
SECONDARY PURPOSE  
GRANTED DATE 20/9/2019  
COMMENCEMENT DATE 11/10/2019  
LAPSE DATE 20/8/2024  
EXPIRY DATE 1/7/2033  
STATUS Current

The above consented activities are on the Hazardous Activities and Industries List, Ministry for the Environment, October 2011. These activities would be classed as G5 (G=Cemeteries and waste recycling, treatment and disposal; 5=Waste disposal to land (excluding where biosolids have been used as soil conditioners)).

I would recommend that you check with Palmerston North City Council as they may also have records relating to the aforementioned site.

Yours faithfully

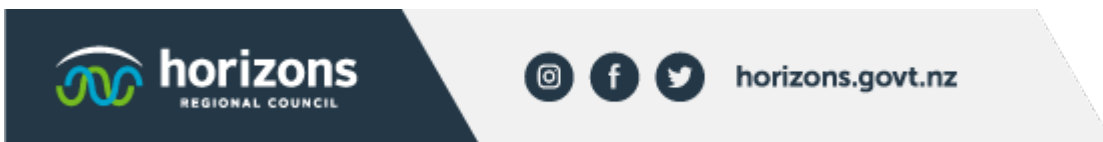
Pita Kinaston | Team Leader Consent Monitoring

Horizons Regional Council | 11-15 Victoria Avenue | Palmerston North 4410

0508 800 800 | DD: 06 9522841 | Mobile: 021 2277448 |

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## Kasey Pitt

---

**From:** HAIL <Hail.Enquiries@horizons.govt.nz>  
**Sent:** Thursday, 26 August 2021 12:27 PM  
**To:** Kasey Pitt  
**Cc:** hail.enquiries@horizons.govt.nz  
**Subject:** Re: [Request ID :##28578##] HAIL Info Request |

H Kaseyi,

I have checked Horizons Regional Council Site's Associated with Hazardous Substances (SAHS) database and I can advise that the sites listed in your request are not recorded on our SAHS database.

The activities on these properties are not on the Hazardous Activities and Industries List, Ministry for the Environment, October 2011 however I note two areas you hat may need further investigation. 212 Shirriffs Road is noted as being a go-kart track but it is unknown if there are any mechanical workshops or refueling used on the property.

The property labelled Central Area of SH56 is adjacent to the Fonterra Longburn plant and is utilised for irrigating dairy farm effluent and dairy processing wastewater. Fonterra holds resource consent with Horizons to undertake these activities.

I would recommend that you check with Palmerston North City Council as they may also have records relating to the aforementioned site.

Thanks

CALEB SMITH | Consent Monitoring Officer

Horizons Regional Council | 11-15 Victoria Avenue | Palmerston North 4410

Mobile: 021 2477341 | 0508 800 800

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