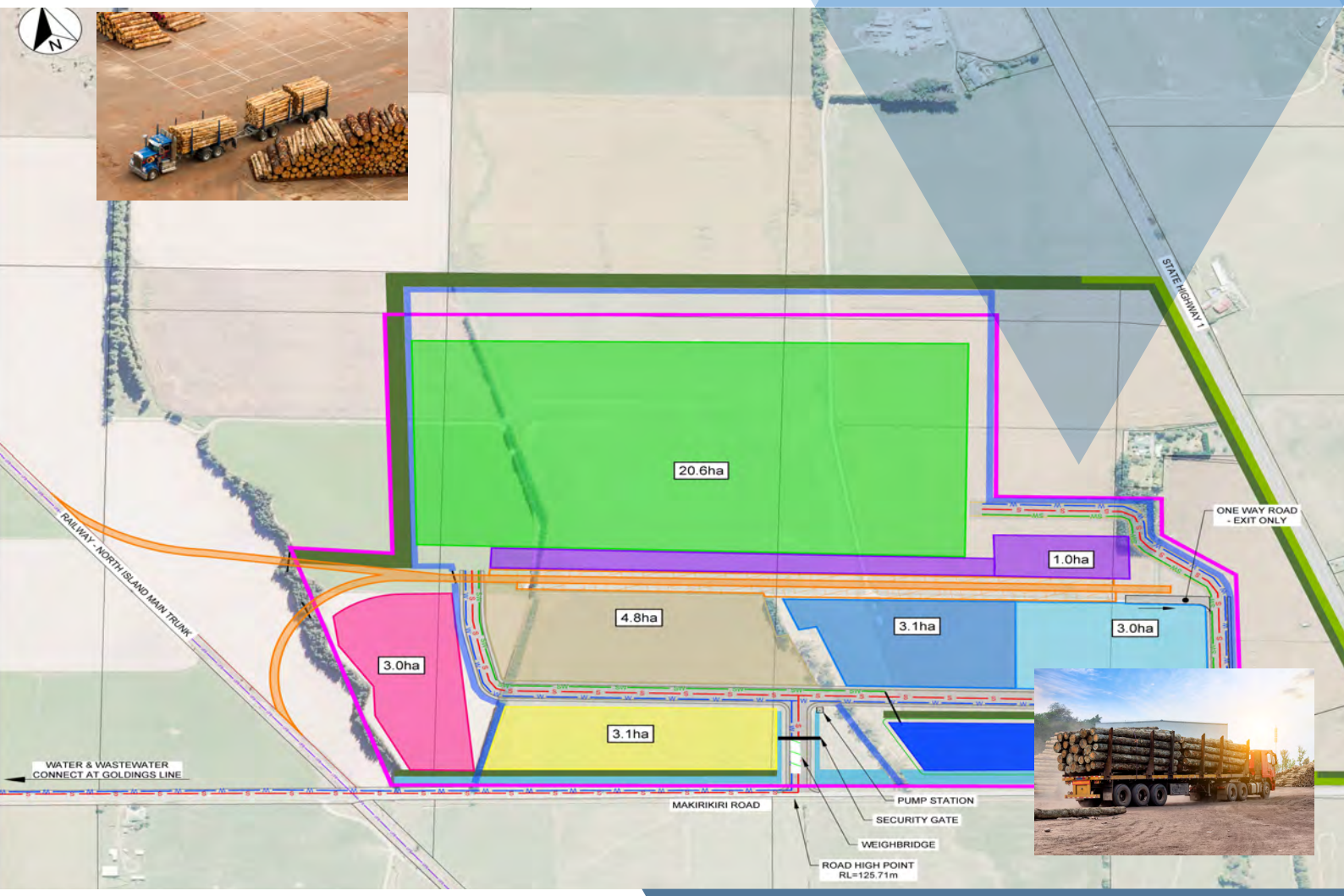
RANGITIKEI DISTRICT COUNCIL



August 2021

MARTON RAIL HUB

Part B - CDP Framework Report

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1 INTRODUCTION

The purpose of this Comprehensive Development Plan (**CDP**) Framework Report (**the Framework Report**) is to facilitate establishment of the Marton Rail Hub.

This Part B to the Framework Report is intended to assist resource consent applicants. It sets out the background to the thresholds for potential effects to maintain a baseline of character and amenity values for the surrounding environment. It provides a technical assessment of potential effects for a modelled development scenario.

The report is intended to provide clarity for applicants seeking to establish industrial activities at the CDP site. Such applications will need to maintain this baseline environment or demonstrate that the potential effects are well defined and the same or similar to the baseline effects scenario.

1.1 BACKGROUND

Rangitīkei District Council (**RDC**) has received COVID 19 Response and Recovery funding to establish a private rail siding and industrial hub at the Marton Industrial Development Area (**IDA**). A CDP has been prepared which addresses all matters specified in the Plan Change decision (August 2020). The CDP and this report record the baseline of character and amenity values within the site and for the surrounding environment.

To inform the development of the CDP, including an assessment of potential effects of a modelled scenario of industrial activities, the following technical assessments have been completed: an Assessment of Ecological Effects, Landscape and Visual Assessment, Traffic Impact Assessment, Air Quality Impact Assessment, Preliminary Geotechnical Assessment, Preliminary Site Investigation, Acoustic Assessment, a Soil Survey, Lighting Impact Statement and Preliminary Design Report - Engineering for three waters and roading infrastructure services.

1.2 COMPREHENSIVE DEVELOPMENT PLAN REQUIREMENTS

Rule B5 states:

> *Without limitation on any requirement of section 88 of the RMA 1991, or any other requirement in the District Plan, prior to any initial development occurring within the Industrial Development Area, a resource consent application submitted under (c) for the first stage of site development must include a Comprehensive Development Plan for the entire Industrial Development Area.*

The rule requires the following mandatory information to be provided with the CDP:

1. *Sufficient information to demonstrate consistency with the objectives and policies of the District Plan addressing, at a minimum, the following matters:*
    a. *site arrangement and layout including internal roading, building platforms and landscaped areas*
    b. *infrastructure requirements, including but not limited to access to the local roading network (including connections to potential future roads), water supply, trade waste and waste water treatment and disposal, and stormwater management*

c. *sources of potential dust, odour, light and noise emissions*

d. *natural hazard avoidance*

e. *staging and construction management*

f. *location of highly productive and versatile soils:*

2. *An assessment of effects arising from the implementation of the Comprehensive Development Plan, particularly the avoidance, remediation and mitigation of any adverse effects, and including, at minimum, consideration of the following matters:*

   a. *roading efficiency and safety, including the local roading network*

   b. *the effects on adjacent rural productivity, sensitive land uses and local amenity values from use and development in the Industrial Development Area*, including effects on activities occurring to the immediate north (on Wings Line) and on Crofton*

   c. *landscape values*

   d. *noise and vibration effects*

   e. *light spill and glare*

   f. *potential risks to human health and their mitigation*

   g. *effects on hydrology and drainage*

   h. *loss of highly productive and versatile soils, and*

   i. *identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted.*

Parts A and B of the Framework Report provide the mandatory information required by Rule B5. Comprehensive Development Plan

1.3 SITE DESCRIPTION

Figure 1 - Comprehensive Development Plan Location

The CDP site is located at the southern urban boundary of Marton trending in an east west direction between the North Island Main Trunk Line (NIMT) and State Highway 1 (SH1). The CDP site is bordered by Makirikiri Road to the south and rural land to the north. This area is different to the IDA area approved in the Plan Change process, but within the original notified Plan Change area. This reorientation of the IDA will be reviewed as part of the Environment Court decision on the appeal.

1.3.1 LAND USE CLASSIFICATION

A Soil Survey was undertaken by WSP (Refer Part A - Appendix A). Based on the site observations and research, the soil type is considered to be 'Marton silt loam' across the entire subject site. A discrete area was observed where a small layer of sand was exposed at approximately 25 cm, this was adjacent to the small stream to the west and only two observations were encountered. It was not of sufficient size to be considered a separate soil type. Discrete areas with higher stone content would be expected to be encountered across the wider site but were not exposed during the onsite observations. This is in-keeping with existing soil survey information available for the site as referenced in the Survey Memo.

1.3.2 EXISTING TRANSPORT NETWORK

The site is bounded to the south by Makirikiri Road, a primary collector and key route between SH1 and Wellington Road (primary collector), which connects through the rural community of Crofton directly to the Marton town centre. The site is bounded to the west by the NIMT. To the northwest the land comprises industrial and rural uses.

The site is bounded to the east by SH1, with the Makirikiri Road intersection forming the primary connections onto the State Highway network from the site.

1.3.3 EXISTING INFRASTRUCTURE SERVICING

The site is currently not serviced with any potable water. It is anticipated that the existing reticulation will be extended to service the proposed development. The closest connections are the 100 mm up to 52 Wings Line and the 90 mm along Golding Line

Stormwater is not currently managed onsite, stormwater either soaks to ground or travels via overland flow paths across the site into nearby streams which then connect to the culverts crossing Makirikiri Road.

The site is not connected to Council's reticulated sewer systems and there are no onsite disposal systems. The closest suitable sized sewer pipe for future connection is located at the corner of Golding Line and Makirikiri Road.

Data services currently service the local community, however there is no known supply feed to the proposed development site.

Overhead powerlines distribute power throughout the Marton community, but the development site is not currently serviced.

1.3.4 EXISTING LANDSCAPE AND VISUAL AMENITY

The site is located on flat land adjoining the urban-rural fringe of Marton. The wider landscape is largely rural to the east, south and west of the CDP site. Most of the surrounding rural farmland has an open rural character that includes pastoral farming, small scale forestry woodlots and rural lifestyle activities with rectilinear shelterbelts. Apart from a small number of lifestyle properties, local roads and SH1 this rural area is characterised by minimal built development.

In contrast with the rural character described above, a mix of industrial and commercial buildings, derelict sites, Marton Railway Station and the NIMT, and residential land use activities are situated to the north and northwest of the CDP site. These urban land use patterns are diverse and more structured in layout when compared to the rural farmland, imposing a strong industrial/utilitarian character to that area. The influence of the railway activities creates a strong link with the industrial character of the area.

1.3.5 EXISTING AMBIENT NOISE ENVIRONMENT

The CDP site is located adjacent to SH1 and the NIMT. Therefore, the ambient noise around the site is expected to be elevated due to this existing transport infrastructure. Predicted levels of existing noise from vehicles to SH1 and trains on the NIMT have been established in a desktop Acoustic Assessment (refer to Appendix D1) and detailed below.

Noise from vehicles on SH1 to adjacent noise sensitive receptors has been assessed. Traffic volumes for the portion of SH1 between Makirikiri Road and Wings Line has been taken from Waka Kōtahi New Zealand Transport Agency (Waka Kōtahi) *State highway volumes by region 2019* document. In

2019, average daily traffic (ADT) volumes were measured to be 6,875, with 16% being heavy vehicles. Traffic noise levels for properties adjacent to SH1 have been calculated using the Calculation of Road Traffic Noise (CoRTN) method, modified for New Zealand conditions. Based on the distance between SH1 and the façade of the adjacent properties, noise levels are predicted to be:

- 1020 State Highway 1: 57 dB $L_{Aeq(24\ hrs)}$
- 1066 State Highway 1: 65 dB $L_{Aeq(24\ hrs)}$
- 1091 State Highway 1: 56 dB $L_{Aeq(24\ hrs)}$
- 1108 State Highway 1: 63 dB $L_{Aeq(24\ hrs)}$
- 1165 State Highway 1: 57 dB $L_{Aeq(24\ hrs)}$

Noise from state highway traffic at the façade of the dwellings located on SH1 is high. While traffic noise is not assessed against the typical noise limits outlined in the District Plan, the predicted traffic noise levels are higher than the District Plan limits for other activities. Noise from traffic is calculated over a 24 hour period, and therefore the 15 minute average noise level may fluctuate between peak and off-peak times.

To the west of the site is the NIMT. WSP prepared a Level Crossing Safety Impact Assessment in October 2019, this records the number of locomotive movements at the Makirikiri Road rail crossing. In 2019 a total of 32 locomotives were recorded each day. Locomotive speed over the crossing was recorded at between 100 and 110 km/hr. Based on the information contained within the New South Wales Rail Noise Database, *Stage III Measurements and Analysis* (dated January 2015), the typical sound pressure noise level during a diesel locomotive pass-by is 85 - 90 dB $L_{Aeq,T}$ at 15 m.

Based on the distance between the NIMT and the façade of the nearest dwellings and properties boundaries, noise levels from the existing train movements are predicted to be as follows:

- 73 Wings Line (Fraser Auret Racing): 45 dB $L_{Aeq,T}$
- 76 Wings Line: 45 dB $L_{Aeq,T}$
- 19 Goldings Line: 54 dB $L_{Aeq,T}$
- 33 Goldings Line: 56 dB $L_{Aeq,T}$
- 67/77 Goldings Line: 49 dB $L_{Aeq,T}$
- 45 and 74 Stantialls Road: 56 dB $L_{Aeq,T}$
- 1020, 1066, 1091 State Highway 1: 40 dB $L_{Aeq,T}$
- 1108 and 1165 State Highway 1: 39 dB $L_{Aeq,T}$
- 157 Makirikiri Road: 59 dB $L_{Aeq,T}$
- 97 and 104 Alexandra Street: 51 dB $L_{Aeq,T}$

During times when trains pass, there are many properties near the NIMT which currently experience noise greater than the District Plan noise limits.

1.3.6 EXISTING ECOLOGICAL CONTEXT

Marton is situated within the Manawatū Plains Ecological District, which is part of the Manawatū Ecological Region. The Manawatū Plains District is low, loess covered, has windy plains and terraces and a range of soils including volcanic ash, greyed clay soils, stony soils, and alluvial and peaty soils.

The CDP site is in the Rangitīkei Catchment. More precisely, the site is within the Tutaenui Surface Water Subzone (Rang_4d), which is part of the Coastal Rangitīkei Surface Water Zone (Rang_4) and the encompassing Rangitīkei Groundwater Management Zone. Groundwater within this management zone is generally shallow and unconfined. Groundwater is predominately recharged by rainfall, however, there is also high connectivity between ground and surface waterbodies in this area.

There are four unnamed ephemeral streams, recognised by Horizons Regional Council (HRC), that run through the CDP site. The ephemeral streams are tributaries of the Tutaenui Stream, which itself is a tributary of the Rangitīkei River. The Tutaenui Stream is classified as a Flood Control Drainage stream under Schedule B of the Horizons Regional One Plan (One Plan). Further, the Rangitīkei River is classified as a Site of Significance – Aquatic, Site of Significance – Riparian, Trout Fishery – Other, Water Supply, and Flood Control Drainage river under Schedule B of the One Plan. No Schedule B values are recognised for the unnamed tributary streams within the CDP site.

There are six identified broad habitat types, including streams. These habitat types are:

- Farmland pasture/crops
- Pine stand
- Macrocarpa stand
- Eucalyptus stand
- Rank grass, exotic weeds
- Streams – A, B and C

The existing values were assessed and are detailed in the Assessment of Ecological Effects attached as Appendix H.

1.3.7 EXISTING AIR QUALITY

Existing air quality in and around Marton has been assessed in an Air Quality Impact Assessment (Refer to Appendix C) using a combination of monitoring data in Marton, estimates of ambient concentrations for the Marton, and surrounding rural census area unit and air quality measurements from comparable locations in New Zealand.

The data obtained shows the prevailing winds are typically strong winds from the northwest, west, and east-southeast directions for all hours. It also records that winds from north and north-northeast are relatively frequent and typically lighter. Drainage flows (which are cold, light winds that generally follow the terrain flowing downhill) are likely to be from these directions. Wind patterns for specific times of the day show:

- Morning – from 0:00 to 08:00 hours, winds are most frequent from the north and north-northeast, typically light to moderate. The northerly winds occur for 32% of the time during these hours;

- Daytime – from 09:00 to 18:00 hours, prevailing winds are typically strong winds from the west, west-northwest and east-southeast directions, which accounts for 45% of the time during these hours;
- Evening – from 19:00 to 23:00 hours, light to moderate winds blowing from the north and north-northeast occur most commonly, followed by moderate to strong winds developing from the northwest and east-southeast.

The above highlights the light winds from the north through evening, night and morning, but not during the daytime. They are likely driven by cool drainage flows from the terrain to the north and northeast. These conditions are less favourable for dispersion of air pollutants than more rapid winds, so that air quality impacts are more likely under these conditions to the south of air discharge source locations.

Likely discharges of pollutants to air in the vicinity of the site are from surrounding land transport infrastructure, home heating, and industry. Meteorological data from the Royal New Zealand Air Force Base Ohakea, located approximately 13 km south of Marton, was used to determine local wind patterns as it generally represents the meteorology of Marton.

The highest-estimated ambient ground level concentrations of key air pollutants are summarised in Table 1 below.

Table 1: Highest-estimated ambient ground level concentrations for four air pollutants in Marton

CONTAMINANT	AVERAGING PERIOD	BASELINE CONCENTRATION (µG/M³)
PM_{10}	24-hour	35
	Annual	13
$PM_{2.5}$	24-hour	14
	Annual	8
NO_2	1-hour	74
	24-hour	39
	Annual	13
SO_2	1-hour	20
	24-hour	9
	Annual	3

2 OVERVIEW OF COMPREHENSIVE DEVELOPMENT PLAN

The CDP for Marton Rail Hub comprises an internal roading network, private rail siding, container storage area, a weighbridge and commercial services area intended to service multiple industrial activities on the balance area. No direct vehicle access is available onto the State Highway network with all access facilitated through existing SH1 intersections. Access into the CDP site is from Makirikiri Road via two new intersections.

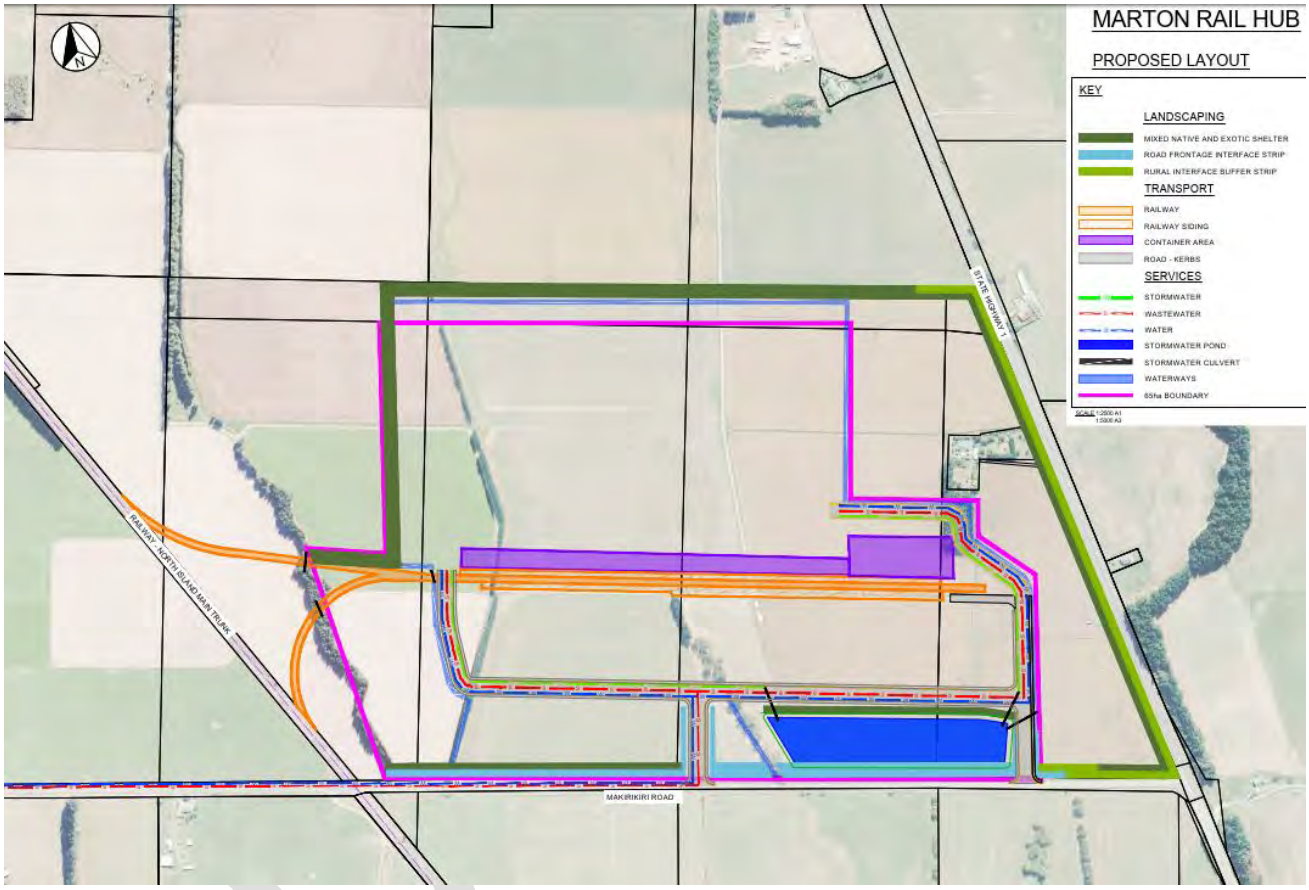

Figure 2 - Marton Rail Hub - Comprehensive Development Plan

2.1 EARTHWORKS

The design objective is to minimise the earthworks on site and avoid the need for clean fill as far as practicable. To achieve this, sites that currently fall in the correct direction will be left to their current shape and earthworks would will be limited to minor shaping to avoid major ponding that could affect adjacent sites within or beyond the CDP site.

Earthworks in the stream to the west of the development are required where the rail siding and future services cross the stream. These works will be minimised with some work required.

A detailed Erosion and Sediment Control Plan will be prepared at detailed design phase for all works related to the construction of infrastructure services in Stage One of the CDP site development.

Design

The majority of the cut will result from the excavation of the stormwater detention basin and the excavation for the pavement of the road and the railway lines. The preliminary cut volume is approximately 200,000m^3.

The proposed sites to be filled are to the south and southwest corner of the development where the land will need to be lifted to ensure that stormwater overland flow from the sites will be directed towards Road 1.

Fill is also proposed to be placed at the corner of Makirikiri Road and SH1 being close to the excavation site of the detention basin.

Where the low zones are formed at the boundary between the container area and the food producers. These areas will be formed to ensure that there are no large areas of ponding.

The detailed design of the earth works will aim to achieve a cut/fill ratio so that all usable material will remain on site.

2.2 INFRASTRUCTURE SERVICES

Infrastructure to serve the Marton Rail Hub will be installed progressively but largely as part of the first stage of development of the CDP site.[1] Essential infrastructure services are detailed below.

2.2.1 INTERNAL ROADING

Provision has been made for vehicle access from Makirikiri Road, an internal roading network suitable for industrial scale trucks and traffic volumes, and a weighbridge facility,

All roading within the CDP site will be designed in accordance with NZS 4404:2010 and RDC Land Development and Subdivision Infrastructure Addendum to NZS 4404:2010, which states the minimum standards for roading. The minimum carriageway width of 11m and a minimum longitudinal grade of 0.33%. The roads have been designed to ensure that these minimums are achieved.

Construction of the internal roading network is planned to occur in Stage One of the CDP site development. Although roading not required to protect services or provide access for Stage One could be deferred to Stage Two.

2.2.2 RAIL SIDING

Provision has been made for a rail siding perpendicular to the NIMT. The siding will provide for a stabling length of 530 m to accommodate trains comprising up to 30 wagons at the Marton Rail Hub.

Rail siding concept design options considered are outlined in the Concept Design report prepared by WSP and approved by KiwiRail.[2] The key options are detailed in this Framework Report at Part A - Section 3.1.

[1] *Preliminary Design Report – Engineering*, WSP August 2021

[2] *KiwiRail Marton Rail Hub – Track Concept Design Report*, WSP, 29 June 2021

The perpendicular design was preferred due to difficulties achieving operational requirements parallel to the NIMT given the steep incline to the Marton Station and the nature of the generally sloping topography.

The yard consists of three tracks, one mainline and two loop tracks (or secondary tracks).
The yard's access is made through the two connecting tracks branching off the NIMT through 1 in 9 turnouts.

A mass concrete buffer stop is to be placed at the end of the alignment. The dimensions of the buffer stop are: 2500x2500x2200 as per KiwiRail detail drawing 300198.

The track geometry solution has been designed to follow KiwiRail Track design standard T-ST-DE-5200 and KiwiRail Formation design standard C-ST-FO-4110 in relation to track formation and drainage.

The existing level crossing in the vicinity of the southern rail siding turnout approach will require separate consideration and KiwiRail and RDC approval for any additional signalling equipment that might affect the current configuration of the level crossing.

Construction of the rail siding is planned to occur in Stage One of the CDP site development.

2.2.3 CONTAINER STORAGE

Provision is made for a container storage area and loading platforms to the north and south of the rail siding. This will enable efficient central management of the loading and unloading of wagons at the Marton Rail Hub. It is intended that a single entity operate the facility to ensure safety and efficient coordination of the loading/unloading of log and container wagons. Unless specifically authorised by this central logistic management operator there will be no access directly to the siding for loading or unloading of wagons for individual operators for health and safety and logistical reasons and to meet KiwiRail operational requirements.

Construction of the southern rail siding will occur in Stage One, but the container area and siding access to the north will likely be deferred until Stage Two of the CDP site development.

2.2.4 THREE WATERS INFRASTRUCTURE SERVICES

Three waters infrastructure services will be installed in, or adjacent to, the road corridor and to each industrial activity site. These services are:

- Piped water and wastewater service connections from the Marton reticulated network;
- Pumps located within a pump/plant room in the vicinity of the control gates to pump sewerage off site. All sewerage will be pre-processed on site prior to pumping into the Council sewerage system; and
- Stormwater management using a mix of piped and open swale network, including the provision of a detention basin to take all stormwater from within the CDP site.

The design rationale and considerations are outlined in the Preliminary Design Report - Engineering[3] and summarised below.

[3] *Preliminary Design Report – Engineering*, WSP August 2021

Construction of the water, wastewater and stormwater management network will be progressively installed but is largely planned to occur in Stage One with the balance installed in Stage Two of the CDP site development.

Stormwater

The general fall of the land is from the north to the south, with an average slope of approximately 0.8% or 1:125. This results in the general flow of surface water flowing across the site is in a north - south direction. The location of the proposed development crosses the majority of the current overland flow paths between Wings Line and Makirikiri Road therefore surface water needs to be managed.

The stormwater from the CDP site is designed so the discharge remains neutral for a 50 year two hour storm event as required by RDC and HRC.

A detention basin will be placed at the south east corner of the CDP site, approximately 200 m from the intersection of Makirikiri Road and SH1. This location will allow the site to drain into the detention basin before discharging through the existing 750mm and 600mm diameter culverts along Makirikiri Road. These two culverts are at the top of an existing stream.

The ground level at the Makirikiri Road and SH1 corner is approximately 118m and is lower than most of the existing culverts along Makirikiri Road that drain the land. The runoff from this corner will continue along its current flow path, through the existing culvert at the corner.

The proposed rainfall intensities for the design are based on the NIWA HIRDS V4 intensity data for the RCP6.0 for the period 2081-2100.

The design has considered both the modelled scenario as well as both the existing and future catchments above the CDP site as required by NZS 4404:2010.

> *"Where further subdivision, upstream of the one under consideration, is provided for in the district or regional plan, then Council will require stormwater infrastructure to be constructed to the upper limits of the subdivision.*
>
> *Additionally, Council will require further capacity to be provided in the stormwater system to cater for the existing and any future development upstream."*

The design will meet the requirements of NZS 4404:2010 and the RDC Land Development and Subdivision Infrastructure Addendum to NZS 4404.

A piped and open drain system will be designed for the primary system to cater for the 10-year storm event, with 100-year storm event directed as over land flow.

Wastewater

There are currently no existing sewer services bordering the CDP site.

The level of the CDP site is below the existing sewer network and will require pumping. Two options were considered, low pressure or a pump station. The pump station is preferred due to the volume likely to be required to be pumped assuming the food producer goes live. Scaling of the pump station system can also be managed to match a lesser volume if the large waste generating activities do not establish. The pump station design will be to NZS:4404 2010 and WSA 04 – 2005.

RDC has confirmed capacity at their treatment facility for the modelled scenario of future development.

The design of the pump station will aim to achieve a workable solution for both Stage One and future stages without requiring significant modifications to the network.

Water

The development is outside the current portable water network in Marton. The proposal is to connect the CDP site to the existing network by extending the network along Wings Line and Makirikiri Road.

The design has been undertaken to cater for the modelled scenario of activities on the proposed 62 hectares of land.

It is still to be confirmed what the firefighting demand requirements will be and the extent of existing network upgrades to cater for this development. These matters will be addressed in the detailed design prior to commencement of Stage One.

2.2.5 POWER SUPPLY

Power supply will be achieved via three systems working together:

- PowerCo and Transpower network supply - Significant upgrades are required to the Marton Network. PowerCo and Transpower are working to address Stage Two onwards development capacity issues. Provision has been made for location options for substation/s within or adjacent to the CDP site;
- Energy Plant – Provision for a biomass plant processing wood waste has been included in the modelled scenario for the CDP site. Alternatively, biomass plants may be provisioned on individual industrial sites; and
- Solar Power – The potential to establish a significant solar panel farm within the CDP site or wider Rural zone is being investigated.

Upgrades to and installation of appropriate power supply infrastructure will occur progressively as required. No upgrade is required for Stage One but significant upgrades, potentially including a new substation, will be required for future development the CDP site.

2.2.6 TELECOMMUNICATIONS

Provision is made for fibre to be installed in trenches to be shared with power and water services. These services will be installed according to the water supply construction timetable.

3 MODELLED DEVELOPMENT SCENARIO

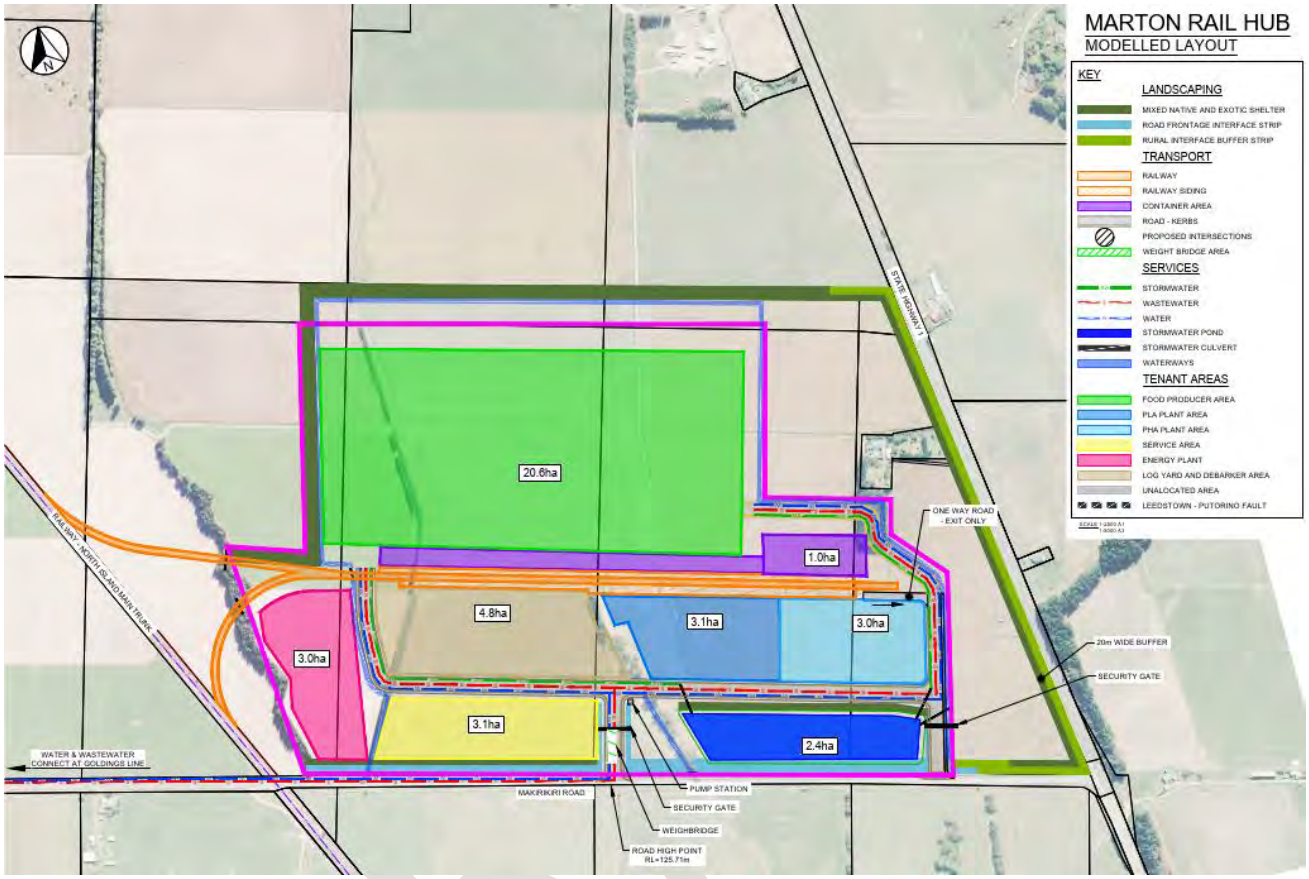

Figure 3 - Marton Rail Hub - Layout of Modelled Activities Scenario

To inform the Plan Change appeal resolution, a scenario of proposed industrial activities has been established and modelled to record the potential environmental effects and establish comparative thresholds to assist future resource consent assessments. The best information available from each proposed activity operator has been applied and assumptions made where necessary to enable an assessment of potential effects. Relevant assumptions are recorded in each technical report.

The scenario of proposed industrial activities at the CDP site include:

- Log yard and de-barker with pump station (5 ha/ 50,000 m^2);
- Polylactic Acid (PLA) and Polyhydroxyalkanoates (PHA) plastics manufacturing plants (6 ha/ 60,000 m^2);
- Food producer (20 ha/ 200,000 m^2);
- Energy plant (3 ha/ 30,000 m^2); and
- Area for small scale service businesses (3ha/30,000m^2).

The proposed layout of the CDP site including the location of the modelled scenario of activities assessed is shown in Figure 3 above. An A3 Plan of the CDP is attached as Appendix A and a Plan of the Modelled Scenario is attached as Appendix B.

The operational details including both known details and assumptions, are recorded below for each modelled activity:

3.1 MODELLED ACTIVITIES AND ASSUMPTIONS

3.1.1 GENERAL ACTIVITY DETAILS

Within the Traffic Impact Assessment (TIA) (refer to Appendix G -Table 3-3), the following details and assumptions are assessed in relation to daily and peak hourly commercial trip generations at the CDP site:

Table 2: Summary of TIA estimated trip generations at the CDP site

ACTIVITY	DELIVERY	TYPE	DAILY TRIPS (TWO-WAY)	ASSUMED DAILY MOVEMENTS	
				Per Day	Peak Hour
Log Yard / De-barking Facility	Inward	Unprocessed logs	65	130 vpd	20 vph
	Outward	N/A	-	-	-
Food Producer	Inward	Barley Waste	8	16 vpd	4 vph
		Wood Waste from Biomass	6	12 vpd	2 vph
	Outward	Waste to Landfill	<1 Per Day	<1 Per Day	2 vph
		Produce	8	16 vpd	4 vph
Container Area	Inward	Malt Factory Containers	4	8 vpd	2 vph
	Outward	N/A	-	-	-
PHA/PLA Plastics	Inward	Dairy Waste Slurry	21	42 vpd	6 vph
	Outward		-	-	-
Biomass Energy Plant	Inward	Forestry Waste	8	16 vpd	4 vph
		Dairy Waste	17	34 vpd	6 vph
	Outward	N/A	-	-	-
		Total	Inward (50%)	137 vpd	50 vph
			Outward (50%)	137 vpd	25 vph
			Total	274 vpd	25 vph

Within the Acoustic Assessment (refer to Appendix D1), the following details and assumptions are assessed in relation to peak internal truck movements across a 15-minute period:

Table 3: Summary of Acoustic Assessment peak internal truck movements at CDP site

AREA	PEAK MOVEMENTS
Weighbridge and Internal Roads	20 truck movements per 15-minute period
Container Area	10 truck movements per 15-minute period
Log Yard PHA/PLA Plastics Energy Plant	6 truck movements per 15-minute period
Small Business and Service Area	8 heavy and 10 light vehicle movements per 15-minute period
Food Producer	4 heavy and 10 light vehicle movements per 15-minute period

The following details and assumptions are assessed in the Air Quality Assessment (refer to Appendix C) specific to dust and particulate derived from relevant activities in the model:

Table 4: Summary of Air Quality Assessment working day average particulate emission rates

AREA	EMISSION SOURCE	ACTIVITY DESCRIPTION	PM_{10} EMISSION RATE (G/S)	$PM_{2.5}$ EMISSION RATE (G/S)	HOURS
Heavy vehicle access road	Truck	Wheels movement on paved road	0.02	0.005	6am to 6pm
		Exhaust	0.0017	0.0012	
Log yard	Log loaders and trucks	Wheels movement on paved road	0.016	0.004	7am to 5pm
		Exhaust	0.06	0.06	
	De-barker	De-barking operation	0.20	0.001	
Container area	Container stackers and trucks	Wheels movement on paved road	0.013	0.003	7am to 5pm
		Exhaust	0.05	0.05	

Area	Emission source	Activity description	PM_{10} emission rate (g/s)	$pm_{2.5}$ emission rate (g/s)	Hours
Rail siding and main trunk	Existing trains passing through	Train exhaust	0.055	0.055	12am to 12pm
	New trains arriving from/departing north		0.006/0.096	0.006/0.096	6am to 6pm
	New trains arriving form/departing south		0.003/0.049	0.003/0.049	
	Idling trains		0.006	0.006	
Energy plant	Wood combustion	Combustion of biomass	0.65	0.59	12am to 12pm
Food producer			0.33	0.29	

3.1.2 LOG YARD AND DE-BARKER WITH PUMP STATION

Assessed outdoor equipment on site is:

- Two rubber-wheeled loaders (1 x 34.5 tonne and 1 x 54 tonne front loaders – average loader weight is 31.5 tonnes) will operate at average speed 10 km/hr and travel average 200 km/day.
- A single A8 Nicholson ring de-barker will be located outdoors. Throughput will be 1300 tones/ day and operating 10 hours/day.
- A pump station to pump waste from the de-barker in the form of a slurry to the PHA plant. It is assumed any pumps will be located within a pump room.
- Water flushing is to be applied to the paved log yard during dry conditions and this will provide an 80% dust reduction.

The wheeled loaders will be used to load/unload the rail wagons, truck and the de-barker and move logs around site. The de-barker is automatically loaded with a stacker infeed and two-drop cradle out feed. A conveyor system will remove bark from the machine for storage in bins.

Up to 65 trucks per day will bring logs to the CDP site and processed logs will be moved offsite via train or truck initially. In addition, logs will be moved between the log yard and PLA plant. For the modelled scenario it has been assumed that all outwards movements are via truck not rail and a maximum of 20 vehicles per hour. Trucks will be loaded/unloaded within a circuit requiring minimal parking, with two designated loading areas.

All buildings on site will be single story, including a Portacom office and toilets for staff.

The following are assumed:

- The site will employ up to 8 staff working 10-hour days (7am – 5pm) six days a week

- The entire site will be a formed and sealed concrete pavement with drainage installed.
- Water use will be 24,000 m^3/year for both the log yard and de-barker. Use will include:
    - a truck wash with handheld hose, tank/pump system and electric water blasting; and
    - the transportation of wood slurry from the de-barker to the PLA plant.
- The yard will be sealed and 100% impervious. Stormwater will be collected at a central sump and discharged to the CDP stormwater detention basin and then to the stream as clean water.
- Security lighting will be required for night-time only and there are no specific outdoor lighting requirements.

3.1.3 PLA PLASTICS MANUFACTURING PLANT

The PLA plant will comprise an area of 3 ha and will use wood-based feedstock to create a bio-plastic. The logs are run through a chipper or other similar machine to break-up the logs. These are then processed though reaction and distillation chambers and dried to create plastics.

It has been assumed that:

- All processing and manufacturing will be undertaken indoors.
- Raw material along with wood-waste product is trucked off-site or to the energy plant
- The resultant PLA plastics is stored on-site and conveyed to the plastics manufacturing plant, at the PHA site, when needed to be turned into a composite bio-plastic.
- The PLA plant will operate 24 hours a day 7 days a week.
- Both the PLA and PHA plastics sites will employ up to 6 staff, with a maximum of 8 staff on site at any one time in routine shift patterns.
- Equipment used within a building on site includes:
    - A rubber wheeled loader will move product around site for storage or for transfer to the plastics manufacturing plant.
    - A chipper to break-up the logs.
    - Reactor chambers and distillation chambers.
    - 4 post reactors, 2 crystallisers and 2 dryers.
    - A conveyor operated with an electric motor.

3.1.4 PHA PLASTICS MANUFACTURING PLANT

The PHA plant comprises 3 ha and takes forestry waste, dairy waste and heat waste from food manufacture and turns it into a bio-plastic.

High sugar logs and wood waste will be transported from the log yard to the PHA and PLA plants via a slurry. Dairy waste slurry will be transported to the CDP site via train and piped to the PHA plant site. In addition to using closed tankers for the delivery of raw material inputs and closed tanks for feedstock transport and storage.

This wood and dairy slurry is then fermented in multiple tanks, using specific cultures from which the resulting product is then removed and dried. This is turned into pellets which are transported to the plastics manufacturing plant located on the site.

The plastics manufacturing plant located central to the site, then combines separate PHA and PLA plastics into a single plastic. The mixture of each of the plastics can be changed during manufacturing depending on scarcity, price, and quality of plastics requested. Motors, pumps, reactor and centrifugal tanks, boilers, mixing tanks, a dryer and a granulation plant are associated with this area.

It has been assumed that:

- All processing and manufacturing will be undertaken within enclosed tanks or within a building.
- Any exhaust air from the storage tanks will be ducted.
- A rubber wheeled loader will move product around the site.
- Dairy slurry raw materials will largely arrive by rail, although initially some dairy slurry /raw materials may arrive by road.
- The PHA plant will operate 24 hours a day 7 days a week.
- Both the PLA and PHA plastics sites will employ up to 6 staff, with a maximum of 8 staff on site at any one time in routine shift patterns.

3.1.5 FOOD PRODUCER

The food producer site will comprise 20 ha of site area with provision for a large car and truck parking area, office and staff areas, utilities, silos milling, processing and packing of food goods.

Associated floor areas include; factory floor area is 2 x 7,300 m^2, warehouse 2500 m^2, 1000 m^2 is allocated to address trade waste treatment.

The majority of operations at the food producer facility will occur within buildings. Some activity (such as boilers or dryers), while inside, will have exhaust flues.

This facility will be fully operational 24 hours a day 7 days a week and employ up to 200 staff working in 2 - 3 shifts daily. The plant will be highly mechanised and 50% of staff will be professional and highly skilled.

3.1.6 ENERGY PLANT

The energy plant will comprise 3 ha site area. It will take dairy waste delivered by train, and wood-waste from the PHA/PLA plants and will utilise waste heat that will be piped from the food producer to either burn the wood-waste to create electricity, or to create bio-char which is either stored for burning in the future or trucked off-site.

A large boiler flue, fans, and turbines will be located on this site for the boiler and energy production. Waste from the PHA/PLA plants will be pumped to the energy plant. All processes will occur within a building.

The energy plant will operate 24 hours/day 7 days/week and will employ approximately 6 staff with routine shift patterns. There will be a maximum of 8 staff on site at any one time.

3.1.7 SMALL BUSINESS AND SERVICE AREA

The small business area allows for smaller businesses which can support the wider industrial site. The following noise sources have been assumed in the scenario modelled in the Acoustic Assessment for each activity as set out below:

- Café / truck stop – 20 outdoor seating;
- Truck wash area;
- Truck repair workshop; - rattle guns, other handled tools
- Truck tyre replacement workshop;
- Offices;
- Fuel pumps. – 4 x high flow fuel pumps.
- Multiple compressors used within buildings.
- Electric water blaster and handheld hose used within a building.

3.1.8 RAIL SIDING OPERATION

DL Class 108 Tonne double cab locomotives will bring industrial inputs via containers and take logs and containers to NZ sea-ports from the log yard and container storage area. Locomotives can access the rail siding from the NIMT either coming from the north or south.

Locomotives idling in the siding will occur for 30 – 60 minutes after a train has sided, while maintenance is completed. Noise from locomotives moving in and out of the siding are of limited duration (approx. 10 minutes) and number (up to six movements per day in the fully developed CDP site)

Once the entire modelled scenario of development at the CDP site is established, it is anticipated that up to three trains with up to 30 wagons would access the rail siding per day (six locomotive movements). It is expected that it would take 10 minutes for a locomotive to access the siding and come to a complete stop. Once at a complete stop, locomotives will take 30 to 60 minutes to carry out testing while idling. When testing has been completed the locomotive will be switched off.

Trains will arrive from both north and south tracks. Loading and unloading of 3 trains a day 6 days a week between 7am – 6pm.

3.1.9 CONTAINER AREA OPERATION

Containers will be stored prior to loading onto train wagons and transported off-site or stored once unloaded from a train. The container area will include a centralised point for loading and unloading of containers for all businesses utilising the rail siding. The loading of logs will occur at the southern rail siding, but logistics will be coordinated by/with the container area operator.

Reach stackers or hoists will be used to move containers around the site, to stack containers and load/unload rail wagons and trucks.

Provision for the storage of up to 80 containers stacked up to 2 containers high is assumed based on the volumes identified for the modelled activities.

Two container stackers or wheeled top-lift hoists (tare weight is 11 tonnes, fully loaded weight is 41 tonnes, average is 26 tonnes) will operate at the site at an average speed of 10 km/hr and travel an average of 200 km/day.

Lighting will be designed and installed to comply with the recommendations of the Lighting Impact Statement (Refer to Appendix E).

3.1.10 WEIGHBRIDGE FACILITY

The weighbridge facility will be located at the entry to the CDP site. Loaded trucks and trailers will be weighed as they enter the site, and some may be weighed as they leave. Empty logging trucks will not use the weighbridge.

The following equipment and activities have been assumed for the weighbridge:

- Electric 50 kW motor associated with the control gate; and
- Pumps located within a pump/plant room around the control gates to pump sewerage off site. All sewerage will be pre-processed on site prior to pumping into the Council sewerage system.

3.2 SOURCES OF POTENTIAL DUST, ODOUR, LIGHT AND NOISE EMISSIONS

Based on the modelled scenario of proposed activities at the CDP site, sources of dust, odour, light and noise emissions have been identified below and are discussed in detail within Section 4 of this report.

DUST

Potential sources of dust are identified in an Air Quality Assessment prepared by Golder and attached as Appendix C. These sources include wheel generated dust from onsite surfaces, logs being loaded or unloaded from trains and trucks by machinery, the log de-barker, and trucks arriving and departing on the main internal access roads of the CDP site.

Additionally, dust generated during construction activities when the CDP area is developed has the potential to create a dust nuisance and health effects. Dust sources include the on-site and off-site transportation of material, site preparation, and stockpiles.

The $PM_{2.5}$ and PM_{10} emissions of dust are outlined in Sections 8.2 and 8.3 of the Air Quality Assessment and discussed in Section 4.10 along with the effects on sensitive receptors.

ODOUR

The key potential sources of odour discharges from the CDP site are identified to be from the food producer, the PHA/ PLA plastics plants and pine odours from logs. The potential effects of odour from these sources have been assessed and mitigation measures are discussed in Section 4.13.6 of this report. Refer to Appendix C - Air Quality Assessment.

- Food producer area – the site will exhaust air during product drying and cooking processes. The intensity of this odour has been modelled off the existing food manufacturing site located within the nearby Marton Industrial Area.
- Plastics plants – odour sources include the partial drying of biomass product streams, the receipt, storage and transfer of raw biomass, and the discharge of volatile organic compounds during the separation and drying processes of manufacturing.
- Log yard – the storage, handling and de-barking of logs at site will create a pine type odour due to the release of pinenes and other natural wood volatiles.

LIGHTING

External security lighting will be required at all industrial sites. None of the modelled activities will require additional specific outdoor lighting, as little or no outdoor activity is assumed to occur at night. Rail activities will likely occur into the evening and lighting will be designed to the KiwiRail specifications. Standard streetlighting will be installed on the internal road network. A Lighting Impact Statement was prepared by WSP and is attached as Appendix E. The statement provides comment on the potential impact of artificial lighting associated with the site on the existing adjacent residential properties, sensitive land uses, and SH1 during the hours of darkness. It sets out the expected lighting levels, District Plan criteria, industry guidelines and best practice, and recommended mitigation measures for exterior lighting onsite. CDP site lighting can readily be designed to achieve compliance with the District Plan thresholds within, and thus beyond, the CDP site.

NOISE

Activities on site that are likely to emit noise are summarised below. Further details of their assessed noise levels and effects is found in Section 4.8 of this report and Appendix D1.

- Rail siding – Locomotives moving entering/exiting and idling on the siding.
- Log yard – Two front loaders (1x 34.5 tonne and 1x 54 tonne) moving onsite and loading and unloading logs from trucks and trains, a single A8 Nicholson ring de-barker and a pump station to be located within a pumphouse within the logging yard area.
- Weighbridge and internal roads – All heavy vehicles and some light vehicles will pass through the weighbridge facility and travel around the internal roading network before entering an industrial site. They will then leave the CDP site via the internal roads. The option of an electric control gate has been assumed to operate at the entrance to secure the CDP site area.
- Small business and service area – Use of rattle guns, compressors, hand tools, water blaster and heavy vehicle movements and potential for people seating outside food outlets.
- PHA plant and plastics manufacturing area - Heavy truck movements, motors, pumps, reaction chambers, tanks, a dryer and granulation plants and noise form waste pipes.
- PLA plant area - Heavy truck movements, a chipper, motors, a dryer and use of a rubber wheeled loader.
- Energy plant area - A large boiler and boiler flue, fans, and turbines.
- Container area – Heavy truck movements, reach stackers or hoists moving and stacking containers and loading/unloading rail wagons and trucks.
- Food producer area - A large car and truck park and internal boilers and dryers with exhaust flues
- Construction noise – Construction equipment on site including excavators, loaders, graders, watercarts, asphalt paver trucks, vibratory roller and compactor, concrete pump, generators, angle grinders, rattle guns and cranes.

3.3 STAGING AND CONSTRUCTION MANAGEMENT

CDP site development is proposed to occur in two distinct stages, as outlined below.

STAGE ONE

Stage One comprises partial earthworks to facilitate the following construction activities and provision of services:

- The rail siding and log wagon loading area to south of siding;
- Site entrance and internal roading to provide access to the rail siding and log yard or for protection of underground services;
- Installation of underground services;
- Weighbridge facility including overflow parking area;
- Provision of ducting for services and future proofing for movement of industrial inputs between sites, if required under the rail siding and the log yard;
- Partial development of the stormwater detention basin;
- Landscaping mitigation for the entire CDP site and essential hardstand areas will be constructed onsite.; and
- Log yard and log de-barking activity.

Section 5 of the Construction Noise and Vibration Assessment (Appendix D2) recommends that a Construction Noise and Vibration Management Plan (CNVMP) be adopted for each construction area on site and be developed in accordance with Annex E2 of NZS 6803:1999 to include:

- A construction methodology for each site;
- The predicted noise levels that will occur on site;
- Any practicable physical noise control measures available;
- Managerial mitigation measures;
- A Community Communication Plan;
- The contact details for the lead contractor/ project manager and a representative of the consent holder;
- Complaints handling procedure; and
- Noise and vibration monitoring procedures.

STAGE TWO

In Stage Two, all other modelled activities are expected to establish within five years of Stage One subject to first obtaining resource consents.

All activities in Stages One and Two will need to demonstrate that their proposed activities are consistent with the intent of the CDP and the effects on the environment are the same or similar to those modelled and assessed in the CDP scenario detailed in this report. These effects and thresholds are discussed further in Section 4.

4 MODELLED SCENARIO – ASSESSMENT OF EFFECTS

As stated in Section 1.2, Rule B5 requires an assessment of effects arising from the implementation of the CDP, particularly the avoidance, remediation and mitigation of any adverse effects. This section addresses the matters specified in Rule B5.

The technical reports to inform development of the CDP along with engagement with the potentially affected parties, have established:

1. The existing character and state of the environment associated with the site; and
2. A set of thresholds of acceptable change that the existing environment can sustain as a consequence of the implementation of the modelled scenario of industrial activities.

On this basis, it is expected that any activity for which a resource consent is sought in the future must demonstrate that the effects associated with the specific activity are either the same or similar or less than the baseline effects established by implementation of the CDP infrastructure services and the modelled scenario of activities as outlined already and discussed in the following sections.

The following sections evaluate the potential effects of establishing the infrastructure services associated with the CDP as proposed and define a baseline of reasonable effects to maintain the character and amenity of the surrounding environment, for which those seeking resource consents to establish activities onsite must demonstrate that such activities are in general accordance with.

4.1 LANDSCAPE AND LOCAL AMENITY VALUES

A Landscape and Visual Assessment (LVA) was undertaken by WSP, which assessed the potential landscape and visual effects of the CDP as proposed. This is attached as Appendix H. The landscape and visual effects are described using a seven-point scale from 'very low' to 'very high'. 'Very low' to 'low' are understood to be equivalent to 'less than minor' effects.

Landscape effects took into account landform (earthworks including cut and fill), loss of vegetation and existing structures, and effects on land use. The LVA assessment of effects on these matters are summarised below:

- In terms of effects on landform, within the immediate and wider rural context the potentially adverse landscape effects will be 'low'. This is due to the relatively flat nature of the site meaning the scale of earthworks will not result in significant cut and fill batters.
- Regarding landcover, the overall level of potentially adverse effects relative to changes in the vegetative pattern is considered to be 'low'. This is because little vegetation exists onsite and only a small amount will be cleared.
- For land use, the proposal will have a 'moderate to low' potentially adverse effect on the immediate rural and residential landscape character. However, proposed screen planting is consistent with shelterbelts and the overall vegetative patterns within the rural landscape and will help to assimilate the proposed development into its setting. This is because a land use change from pastoral activities to a permanent industrial development will result.

Visual effects take into account the fit within the existing landscape character and patterns, the visual amenity in relation to the appearance of structures such as buildings, and visual effects as seen from dwellings and private property.

Four viewpoints of the site were identified and used as the basis for analysing the extent of any potential visual effects of the proposal which include; removal of shelterbelt vegetation along the lower part of the eastern boundary, earthworks to construct building platforms, internal roads and an increase in vehicle movements, railway sidings, timber log yards, stacked containers, security fences, lights, dust plumes, industrial structures and buildings. The viewpoints were selected based on where the proposal is considered to be most visible by people from roads, recreation spaces, or near private places on public roads. The viewpoints were located on Wings Line (viewpoint 1), SH1 (viewpoint 2), Makirikiri Road (viewpoint 3) and residential properties on Goldings Line (viewpoint 4). The LVA assessment of visual effects on these viewpoints are summarised below:

- Effects on viewpoint 1 are assessed as 'very low', 'low' and 'moderate to low' depending on the properties' proximity to the site, their associated land use, and the presence of shelterbelt planting. The viewing audience includes farm and rural residential dwellings, and users of Racecourse Road and Wings Line. For those viewpoints in close proximity to the site the visual effect can be mitigated through screen planting (discussed further in section 4.13.1).
- Visual effects from viewpoint 2, which comprises a viewing audience of the occupants of a small number of rural residential properties and farms located along SH1, and users of the highway, are assessed as 'moderate' and 'very low' based on the proximity of viewers to the site. Mitigation measures such as screen planting of the site will reduce the overall effect on residential activity viewpoints from 'moderate' to 'low'.
- For viewpoint 3 the viewing audience comprise occupants of rural residential properties, farms and users of Makirikiri Road. The changes will result in both 'low' to 'moderate' effects based on the viewers' proximity to the site. Mitigation by way of screen planting and enhancement of the main entrance to the CDP site will mitigate the effect.
- The viewing audience for viewpoint 4 includes a small number of rural and urban residential properties, farms and users of Goldings Line. The visual effect on this viewpoint is assessed as 'very low', this is due to the site being largely screened by shelterbelt planting.

The LVA proposes a Mitigation Screen Planting and Vegetation Site Enhancement Plan, (Refer to the LVA - Appendix A). This will be implemented as part of Stage One site development (see Section 4.13.1 below for further detail). The benefits of the plan are:

- Achieving a dense visual screen in a short timeframe to mitigate the landscape and visual effects of the rail siding, log yard and wider CDP site;
- Visually 'anchoring' the proposal into the landscape. This can be achieved by using screen planting that has a high level of compatibility with shelterbelt planting patterns from the surrounding rural landscape;
- Reducing the scale and bulk of the proposed buildings, effectively rendering them less noticeable;
- Enhance the visual amenity of the road frontage; and
- Encouraging dust suppression and screening dust plumes by locating tall vegetation on the periphery of, and in strategic locations throughout the site.

The LVA concludes that the proposal introduces noticeable new industrial activities and structures at an existing rural site that is located within the urban-rural fringe of Marton. While the proposed changes will be consistent with the existing industrial character defining the western urban fringe of Marton, the proposal will have the effect of shifting the existing urban-rural interface southwards by approximately 1.6 kms.

Due to the presence of industrial activities nearby, the ability of the landscape to accommodate the proposal is favourable. However, the scale and visual prominence of the proposal will have a noticeable and enduring landscape effect on the rural landscape amenity. The proposal will have a 'low' adverse effect on the key attributes of the surrounding landscape. Visual effects at the outset will be 'moderate' reducing over time to 'low' as the mitigation planting establishes.

Overall, the landscape and visual effects are considered to be less than minor.

4.2 ECOLOGICAL EFFECTS ASSESSMENT

An Assessment of Ecological Effects (AEE) has been prepared by WSP. The report identifies the ecological habitats and species on site, assesses the ecological impacts of the CDP and modelled development scenario as proposed, and sets out appropriate mitigation of ecological impacts. It is attached as Appendix H.

The AEE identified six broad habitat types, including streams. These habitat types are:

- Farmland pasture/crops
- Pine stand
- Macrocarpa stand
- Eucalyptus stand
- Rank grass, exotic weeds
- Streams – A, B and C

Pine, macrocarpa and eucalyptus stands within the area were identified as having 'very high' value as habitat for long-tailed bats (Threatened-Nationally Critical, Very High value), which have been detected at 'low to moderate' levels across the site. Terrestrial habitats also provide habitat for a range of exotic and common native birds with 'low' values, and potentially for lizards with 'high' ecological values. However, the potential for any substantial lizard population at the site was assessed as 'low'. The possibility of 'high' value fish species to occupy intermittent streams (with low to moderate values) at the site was also assessed as 'low' due to downstream barriers and temporary flow conditions.

The AEE outlines recommendations to avoid, remedy, and mitigate adverse ecological effects on these habitats including the management of freshwater ecosystems and fish, bat management, bird management and lizard management. This mitigation is outlined in Section 3 of this report.

The ecological value, magnitude of mitigated effect and overall level of effect on each habitat and species is outlined in Table 5 below.

Table 5: Ecological effects on habitats identified within the CDP site

Habitat / Species	Ecological Value	Magnitude of mitigated Effect	Overall level of Effect
Farmland pasture/crops	Negligible	Negligible	Very Low
Pine/eucalyptus stands	Very High	Low	Very Low
Macrocarpa stand	Very High	Negligible	Negligible
Rank grass, exotic weeds	Negligible	Negligible	Very Low
Stream A	Moderate	Low	Low
Stream B	Low	Low	Very Low
Stream C	Negligible	Negligible	Very Low
Birds	Low	Negligible	Very Low
Long-tailed bats	Very High	Negligible	Low
Herpetofauna	High	Negligible	Very Low
Freshwater fish	High	Negligible	Very Low

Based on the AEE above and the implementation of the recommended mitigation measures (set out in Section 4.13.2), the ecological effect of the CDP and modelled scenario of activities as proposed is considered to be less than minor.

4.3 LOSS OF HIGHLY PRODUCTIVE AND VERSATILE SOILS

As discussed in Section 2.1.1, a Soil Survey was undertaken (Refer Part A - Appendix A). A site visit was undertaken on 24 March 2021 where several profiles were exposed with spade and auger and each profile was logged. Soil to approximately 1.2 m depth was excavated with an auger. Observations were made to the west and north-west of the subject site. A description was recorded, in general accordance with Milne et al (1995)[4] and photographs were taken. An area was exposed from geotechnical investigations on the site and this was examined to compare to the representative profile. Aerial assessment of the wider set was also undertaken, with a number of historical aerial images examined.

Based on the observations, the soil type is considered to be 'Marton silt loam' across the entire subject site. A discrete area was observed where a small layer of sand was exposed at approximately 25 cm, this was adjacent to the small stream to the west and only two observations were encountered. It was not of sufficient size to be considered a separate soil type. Discrete areas with higher stone content would be expected to be encountered across the wider site but were not exposed during the onsite observations. This is in-keeping with existing soil survey information available for the site as referenced in the Survey Memo.

A number of soils previously classified as Class II land is now reclassified as Class III land. 'Marton silt loam' is included in this reclassification due to limitations of poor drainage and compact subsoils with poor physical structure.

[4] *Soil Description Handbook by Milne et al*. (1995). Published by Manaaki Whenua Press, Canterbury, NZ

Using site observations and the Soil Survey, a LUC classification of the proposed site has been deemed to be Class III. Based on this classification, the effects of loss of highly productive and highly versatile soils associated with the CDP as proposed are considered to be less than minor.

4.4 EFFECTS ON ADJACENT PROPERTIES RURAL PRODUCTIVITY

The adjacent rural properties are currently used primarily for grain production as well as holding several ancillary buildings for farming equipment and storage. The use of these properties for rural production will not be hindered and existing operations will not need to be altered by the development of the CDP site.

Fraser Auret Racing is located at 73 Wing Line north of the CDP site, and is a private training facility for thoroughbred racehorses. Fraser Auret Racing oppose the change in zoning on the basis that the land uses are not compatible and will have a significant adverse effect on the horses. Fraser Auret Racing explained in the Plan Change hearing that racehorses are incredibly sensitive to their surroundings especially when it comes to air, dust, noise and light.

Most relevant to other existing rural operations will be effects associated with increased traffic, including potential effects on safe access to the adjacent rural productive properties. As outlined in Section 0, implementation of the proposed mitigation measures will ensure safe access to the adjacent properties, SH1 and Makirikiri Road will be maintained.

To inform preparation of the CDP, WSP and Golder have prepared numerous technical reports including an Air Quality Impact Assessment, Acoustic Assessment and Lighting Impact Statement. All reporting has been forwarded to Fraser Auret Racing for review and further input. Various reports were amended to include further analysis.

The mitigation measures proposed by each report are detailed in Section 4.13 of this report. As a result of the technical reports and the consultation undertaken with potentially affected parties, the location of the rezoning is proposed to be re-oriented and the potential effects of dust, noise, and lighting on the facility are better understood.

In addition, an equine specialist has reviewed the technical reports and provided input on the potential effects of noise on racehorses. Professor Mayhew of Massey University provided feedback on the acoustic effects modelled and these are addressed in Appendix D3.

Overall, the technical assessments confirm that the effects on rural productivity at adjacent properties and in relation to respiratory and stress effects on racehorses at the Fraser Auret Racehorse facility, the proposed CDP site development for industrial activities as modelled are considered to be less than minor.

4.5 EFFECTS ON HYDROLOGY AND DRAINAGE

As part of Stage One development, the site will be recontoured and hardstand areas along with three waters infrastructure constructed, such that all stormwater onsite is directed via sumps and pipes to a stormwater retention basin in the southeast corner of the CDP site adjoining Makirikiri Road. The detention basin will filter stormwater contaminants before discharging to the unnamed streams onsite. These discharges will be designed to be in accordance with the permitted performance standards set out in Rules 14-18 of the One Plan.

In addition to the above, culverts will be placed within the unnamed streams onsite to provide for the rail siding. These will be placed either in accordance with permitted performance standards set out in the One Plan and the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (NES-F) or resource consent obtained as part of Stage One development.

4.6 POTENTIAL RISKS TO HUMAN HEALTH

In addition to air quality and contaminated land, all other activities onsite identified to pose a potential risk to human health, will need to comply with the permitted performance standards set out in the RDP and One Plan. This includes, but is not limited to, rules relating to hazardous substances.

A preliminary site investigation of the entire CDP site has concluded that there is no evidence to indicate that the site has been used for any activities included in the Hazardous Activities and Industries List (HAIL) . Refer to Part A - Appendix B.

4.7 ROADING EFFICIENCY AND SAFETY, INCLUDING THE LOCAL ROADING NETWORK

To assess the impacts of the CDP and modelled scenario of industrial activities on the safe and efficient operation of the transport network, a TIA was prepared by WSP. The TIA assesses the transportation effects of the proposed Marton Rail Hub, with reference to the proposed roading layout outlined in the CDP, on the efficient and effective operation of the surrounding road network. It is attached as Appendix G.

As outlined in this Framework Report, the proposed CDP site comprises a mix of industrial activities, many of which are complementary to the log yard and associated de-barking facility. The proposed interdependence of activities within the CDP site means a higher than normal number of trips generated by land-uses are expected to be internal trips. At full operation of the modelled activities the TIA identifies a trip generation potential of approximately 245 vehicle trips per peak hour and 744 all-day vehicle trips.

4.7.1 CDP - ROADING NETWORK

Stage One of the CDP site development will involve construction of the primary entrance and internal roading. This will give certainty that traffic effects will be managed ahead of demand.

Stage Two implementation will see traffic demand and rail use increase significantly. Full implementation of the roading network including provision of secondary light vehicle entry will facilitate consistent outcomes with those assessed in the TIA.

Design and construction of the CDP roading will be in accordance with best practice standards as outlined in section 3.2 of this report.

Construction activities will largely occur within the CDP site and have little to no effect on the existing road network operations except during the construction of the main entrance. This activity will be of temporary duration and be managed in accordance with the requirements of RDC to minimise any health and safety effects or inconvenience to Makirikiri Road users.

4.7.2 BASELINE TRAFFIC STANDARDS - MODELLED INDUSTRIAL ACTIVITIES

This section addresses the specific traffic volumes and effects generated by the establishment of the modelled industrial activities and compliance with the relevant TIA recommendations.

The TIA has taken a conservative approach to traffic volumes for each industrial activity and a pessimistic view of rail use i.e. assumed maximum road use. The traffic volumes for the modelled industrial activities in Table 6 below relate to the inward and outward movement of vehicles, and do not include additional minor movements internal to the CDP site.

Resource consent applications will need to ensure cumulative traffic effects do not exceed those assessed in the TIA (shown in Table 6 below) or provide specific assessment by a suitably qualified person and mitigation if necessary, to address the potential effects on the CDP and wider roading networks of exceeding activity traffic volumes as assessed in the TIA.

Table 6: Summary of traffic thresholds for the CDP modelled cumulative operating scenario

ACTIVITY	ASSUMED MOVEMENTS PER DAY	ASSUMED PEAK MOVEMENTS PER HOUR
Log Yard / De-barking Facility	130	20
Food Producer	45	12
Container Area	8	2
PHA/PLA Plastics	42	6
Biomass Energy Plant	50	10
Total CDP Site Movements	275 vpd	50 vph

4.7.3 TIA CONCLUSIONS

Based on the assessment of effects on wider network operations caused by the trip generating potential of the CDP site development and modelled industrial activities at the CDP site, it is concluded that:

- The key state highway intersections in the vicinity of the CDP site are expected to operate within acceptable levels of capacity and delay following completion of the development. However, intersection upgrades are likely to be required at the Makirikiri Road/SH1 intersection after 2034 as a response to general traffic growth on the State Highway network;
- The expected traffic generated by the CDP site is expected to have a minor impact on crash risk at most key intersections in the vicinity of the development. The greatest increase in crash risk

is expected on Makirikiri Road/SH1 intersection as a result of increased right-turning movements into and from Makirikiri Road from the development;

- The proposed access arrangements from the development can achieve the intersection separation distance and sightline requirements, subject to a reduction in the posted speed limit to 70 km/hr or below;
- Subject to a reduced speed limit, the Eastern Access from Makirikiri Road will require a short channelised right-turn bay to support peak hour access demands. Although the Western Access will not require dedicated turning bays, it is recommended that the access be designed to comply with Waka Kōtahi's 'Diagram E' of the 'Access Standards Guidelines' and be designed to support the access needs of the largest vehicles expected to use the site;
- As part of the detailed design process, the proposed weigh station should be located within the site itself at the northern extent of the Western Access road and in a position that the risks of heavy vehicles queueing back onto Makirikiri Road are minimised; and
- Subject to the implementation of the recommendations outlined within the Line Crossing Safety Impact Assessment, the additional traffic generated by the proposed development is not expected to warrant a fundamental change in rail crossing provisions.

The TIA concludes, subject to the recommended mitigation measures outlined in Section 4.13.4 of this report, that the proposed CDP site roading network and modelled industrial activities will operate safely and efficiently, and that traffic generated by the proposed activities on the site can be accommodated with a less than minor effect on the surrounding transport network. It is considered that there is no traffic planning or traffic engineering reason to preclude the implementation of the development as intended.

4.8 NOISE AND VIBRATION EFFECTS

To assess the operational noise of the entire Marton Rail Hub development, an Acoustic Assessment was prepared by WSP, attached as Appendix D1. Aside from the log yard and the rail sidings, the majority of the operators at the Marton Rail Hub site have yet to be finalised and therefore the final machinery, equipment and processes on site may change.

Proposed activities included in the assessment are: a weighbridge facility and security gate for access into the wider Industrial zoned site, log yard and de-barker with pump station, rail siding and container area, internal sealed roads for staff and trucks to access industrial sites, PLA and PHA plastics manufacturing plants, a small business and service area, an energy plant, and a food producer.

The following thresholds for reasonable noise were identified for the modelled cumulative operating scenario of the CDP site within the Acoustic Assessment. These thresholds relate to the nearest sensitive receptors based on a worst-case scenario. Noise sources from these modelled activities are detailed in Section 3.2 of this report.

Table 7: Reasonable noise thresholds of the CDP modelled cumulative operating scenario

PROPERTY	PREDICTED NOISE LEVEL (dB $L_{Aeq\ (15\ min)}$)	PREDICTED EXISTING AMBIENT NOISE FROM TRAFFIC ON SH1 (dB $L_{Aeq(24hr)}$)	PREDICTED EXISTING AMBIENT NOISE FROM LOCOMOTIVES ON NIMT (dB $L_{Aeq,\ T}$)	COMPLIES WITH DISTRICT PLAN CRITERIA?		REASONABLE AGAINST EXISTING AMBIENT NOISE ENVIRONMENT ?
				DAY	NIGHT	
73 Wings Line (Fraser Auret Racing)	42	-	-	Yes	Yes	-
76 Wings Line	41	-	-	Yes	Yes	-
Malteurop	44	-	-	Yes	Yes	-
19 Goldings Line	42	-	-	Yes	Yes	-
33 Goldings Line	45	-	56	Yes	Yes	-11 dB difference
67/77 Goldings Line	43	-	49	Yes	Yes	-6 dB difference
45 and 74 Stantialls Road	44	-	-	Yes	Yes	-
1020 State Highway 1	49	57	-	Yes	No	-8 dB difference
1066 State Highway 1	54	65	-	No	No	-11 dB difference
1108 State Highway 1	50	63	-	Yes	No	-13 dB difference
157 Makirikiri Road	52	-	59	No	No	-7dB difference
97 and 105 Alexandra Street	40	-	-	Yes	Yes	-

In summary, cumulative noise emissions associated with the entire Marton Rail Hub development have been calculated to exceed the District Plan noise limits at 1020, 1066, 1108 SH1 and 157 Makirikiri Road. However, the predicted existing ambient noise environment, namely that the ambient noise associated with the NIMT and SH1 at these properties, already exceeds the noise predicted for the CDP development. The noise effects will likely be the same or less than currently experienced. For this reason, the noise emissions generated by Marton Rail Hub are **expected to be reasonable** at those properties.

4.8.1 RAIL SIDING

Regarding the rail sidings, if a diesel locomotive is idling on the rail siding, noise is below the District Plan noise limits, and therefore is expected to be reasonable.

Noise from locomotives entering and exiting the siding exceeds the District Plan noise limits at various properties. However, noise from the existing train movements on the NIMT is predicted to be higher than the slower speed movements on the rail siding when assessed at the majority of properties in the surrounding area.

Furthermore, movements on the NIMT line occur significantly more frequently at 32 times per day compared to a maximum of six associated with the rail siding. In some locations where existing rail noise is lower than the predicted noise from locomotives on the siding, noise from traffic on SH1 is predicted to mask the train noise.

Therefore, the noise effects associated with the rail siding are **predicted to be reasonable**.

4.8.2 LOG YARD AND DE-BARKING FACILITY

Noise from the log yard and de-barker operations will comply with the District Plan noise limits, and therefore the noise effects associated with the log yard are assessed **to be less than minor**.

4.8.3 CONSTRUCTION NOISE AND VIBRATION

A Construction Noise and Vibration Assessment (Appendix D2) was prepared by WSP to assess the noise and vibration effects of construction activities associated with the development of the rail siding, log yard, container storage area, plastics manufacturing plants and food producer area.

The assessment found that most of the surrounding properties are located beyond the stand-off distances required to meet the daytime noise criteria of the District Plan. The only exception is the dwelling located at 1066 SH1, which is located approximately 150 m from the CDP site boundary. Exceedances in noise would occur if piling work was undertaken within the PHA plant site 220 m or less from 1066 SH1. Noise exceedances would occur within an area of approximately 70 m from the site boundary of 1066 SH1. However, with good site management and communication with adjacent neighbours, the impact of this exceedance can be appropriately managed. As all other construction activities comply with the District Plan requirements, no further mitigation was proposed to control construction noise.

Construction vibration levels were also assessed. All surrounding properties are predicated to receive vibration levels of less than 1 mm/s and meet the required standoff distances to achieve vibration criteria. It is recommended that vibration measurements be undertaken for specific high-vibration machinery to determine any additional stand-off distances and that this be captured within the CNVMP for each site.

For the reasons outlined above and detailed further within Section 4 of Appendix D2, effects from construction noise and vibration are assessed to be **less than minor.**

4.9 LIGHT SPILL AND GLARE

The Lighting Impact Statement (attached as Appendix E) states that obtrusive light associated with the relevant Exterior Lighting Standards[5] expected, and listed in Section 3.2 above, can be managed by the selection of appropriate lighting equipment and by way of professional lighting design. In general, this is achieved by the following:

1. Use of appropriate luminaire mounting heights for the space.
2. Placement of luminaires so they are not directed towards areas of concern.
3. Use of asymmetric luminaire optics with minimal (max of 5 degrees) horizontal tilts
4. Switching off or dimming of luminaires when activities are not occurring.

The impact statement assesses that the distance of existing residential dwellings from the proposed site is unlikely to create issues with spill lighting, provided the above principles are implemented. However, the impact statement also notes that even in the event that these practices are not followed, it could be possible that an exterior lighting installation still be compliant with the RDP in terms of boundary illuminance limits, whilst potentially creating a glare concern for the closer residential properties and adjacent roads.

The use of planting and other screening measures to physically block light exiting the site boundary would be advantageous in reducing the impact of obtrusive light.

Subject to the recommended mitigation measures detailed in Section 4.13.3 being implemented in Stage One of the CDP development and applied also when new activities establish onsite, the effects of light spill and glare are considered to be less than minor.

4.10 DUST EFFECTS

For the purpose of assessing potential construction dust effects, the Air Quality Assessment (Appendix C) anticipated that construction at the CDP site would be undertaken within three stages:

- Stage One: construction of the main access road entry from Makirikiri Road, weighbridge facility and internal roading running east-west opposite to, and inclusive of the rail siding, including the log yard, service area, and platform for the energy plant.
- Stage Two: construction of second Makirikiri Road access to the CDP site and extension of the access road entry to the combined container area and platforms for the plastics plants.
- Stage Three: construction of the platform and buildings for the food producer area.

Seven sensitive receptors were assessed in relation to potential dust effects, with the nearest sensitive receptor to the CDP site located at 1066 SH1. All receptors were assumed to have a high sensitivity to dust. Table 8 below provides a summary of overall dust effects assessment for a dry day scenario. It accounts for all wind frequencies during operational hours between 7am to 6pm when

[5] AS/NZS 1158.3.1:2020 – Lighting for Roads and Public Places Part 3.1: Pedestrian Area (Category P) Lighting – Performance and Design Requirements; and AS/NZS 1680.5:2012 – Interior and Workplace Lighting Part 5: Outdoor Workplace Lighting.

dust generation will be at its highest. Please refer to Section 9.2 of the Air Quality Assessment for the full effects assessment.

Table 8: Summary of operational hours relative dust risk to nearest receptors

RECEPTOR	CDP STAGE	DISTANCE TO RECEPTOR (M)	EROSION DUST RISK
1108 SH1	2	433 m	Low
1108 SH1	3	255 m	Moderate
1066 SH1	2	156 m	Moderate
1066 SH1	3	395 m	Low - Moderate
1022 SH1	2	380 m	Low
157 Makirikiri Rd	1	310 m	Negligible
197 Makirikiri Rd	1	660 m	Negligible
1151 SH1	3	385 m	Low
Fraser Auret Racing	3	1200 m	Negligible

Overall, through the implementation of the mitigation measures outlined in Section 9.3 of the Air Quality Assessment and Section 4.13.5 of this report, potential adverse nuisance effects will be **minor** at the nearest sensitive receptors and **less than minor** at receptors located over 500 m form the CDP site. Additionally, potential adverse health effects could be reliably controlled to be **less than minor,** and probably **negligible** at all sensitive receptor locations.

4.11 ODOUR EFFECTS

The Air Quality Assessment (Appendix C) states that the main sources of odour from the CDP site are likely from manufacturing processes associated with the food producer site, the bioplastics plants and the log yard (as outlined in Section 3.2 of this report). It was assessed overall that the food producer site is the most significant potential source of odour discharge. Odour complaints are typically associated with wind speeds below 7 m/s due to lower dilution. A significant odour risk to 1108 and 1151 SH1 has been indicated due to the frequency of downwind time during daylight hours, and 1066 and 1022 SH1 are indicated to have a moderate odour risk. Therefore, odour abatement systems are required at the food producer site to mitigate objectionable odours as outlined in section 4.13.6.

A downwind frequency assessment was not undertaken for the PHA/PLA plastics plants due to the smaller scale daily output in comparison to the food producer, where the food processer plant odour risk is far more significant. Mitigations are still proposed for the plastics plants to ensure the discharge of odours are effectively avoided as outlined in section 4.13.6

Due to the location of the log yard being in the western portion of the CDP site, it was assessed that occupants within nearby dwellings may notice a pine type odour on infrequent occasions. Given

that pine is a pleasant to neutral type odour and the low frequency of exposure, it was determined that further assessment was not required.

Overall, through the mitigation measures proposed in Section 10.3 of the Air Quality Assessment and outlined in Section 4.13.6 of this report, potential adverse effects of odour will be **minor** at the nearest sensitive receptors, and **less than minor** (if not **negligible)** at sensitive receptors located over 500 m from the CDP site.

4.12 SENSITIVE LAND USES

Surrounding sensitive land uses include Fraser Auret Racing to the north (as described in Section 4.4 above), and Crofton and other residential properties to the south and southwest of the site. The effects on these sensitive land uses have been assessed through various technical reports including the Air Quality Assessment, Acoustic Assessment, TIA, Lighting Impact Statement and LVA. The findings of these reports are further discussed above, and recommended mitigation measures are detailed in Section 4.13 below. The technical assessments are summarised in this section as they relate to the effects on sensitive land uses:

- The LVA (attached as Appendix F) found the proposal introduces noticeable new industrial activities and structures into the existing rural environment. However, any potential adverse landscape and visual effects will be mitigated through context sensitive design including rural type screen planting and retention of existing shelterbelt type plantings as far as practical. Once the proposed mitigation planting has established (approximately 5 to 7 years) any potentially adverse landscape and visual effects are considered to be **less than minor**.
- The TIA (attached as Appendix G) found that subject to mitigation measures (including upgrade of the SH1 and Makirikiri Road intersection, a speed reduction from 100 km/h to 70 km/h, railway line crossing upgrades, and a construction traffic management plan), the proposed CDP will operate safely and efficiently and with a **less than minor** impact on the surrounding transport network.
- The Acoustic Assessment (attached as appendices D1 – D3) concluded that cumulative noise emissions associated with the entire Marton Rail Hub development have been calculated to exceed the District Plan noise limits at 1020, 1066, 1108 SH1 and 157 Makirikiri Road. However, when considering the existing ambient noise environment that affected sites are exposed to, the noise emissions generated by Marton Rail Hub is expected to be reasonable. In this environment the acoustic effects are considered to be **less than minor.**
- The Air Quality Assessment (attached as Appendix C) provided an assessment of air quality impacts on ambient respirable particulate levels within the vicinity of the CDP site, dust construction effects and odour effects. It found that:
    - The cumulative particulate exposures at the most impacted residential dwellings are likely to remain well within health guideline criteria and can be further reduced via the application of standard particulate emission mitigation measures, which could be imposed via standard discharges to air resource consenting processes.
    - The cumulative particulate exposures at Fraser Auret Racing are likely to change very little, and also remain within health guideline criteria. These potential exposures could also be further reduced via the application of standard particulate emission mitigation measures, such as water suppression.

- Potential construction dust effects are found to be moderate at 1108 and 1066 SH1. Effects will overall be mitigated through implementation of a DMP and associated mitigation measures to be minor at the nearest sites, and likely less than minor at sites over 500 m from the CDP site. Additionally, it is likely that all sensitive receptors will have less than minor (if not negligible) adverse human health effects.
- Odour effects are most significant associated with the food producer site for sensitive receptors at 1108 and 1151 SH1. Use of appropriate biofilter odour abatement systems are required to ensure effects on neighbouring sites are minor for the nearest sensitive receptors, and less than minor or negligible for receptors over 500 m from the CDP site.
- Overall, the cumulative effects on air quality are assessed to be less than minor.

- The Lighting Impact Statement (attached as Appendix E) found that the District Plan requirements have the potential to create a glare concern for the closer residential properties and adjacent road as luminous intensity limits are not defined in the Plan's standards. It therefore recommends any exterior lighting associated with the site shall be designed to meet certain requirements and reviewed 30 days after installation to confirm that the lighting design intent has been met. These recommendations would be included in site development and as such the effects of light spill and glare on adjacent sensitive receptors has been assessed as less than minor.

Based on the above, it is considered the effects on surrounding sensitive land uses will be less than minor.

4.13 MITIGATION

To mitigate the effects of the CDP implementation and modelled scenario of industrial activities, the various technical reports recommended a number of mitigation measures. This section outlines the measures required to mitigate the potential effects resulting from the CDP. It is anticipated that such measures will be implemented either through proposed measures in a resource consent application or imposed as conditions on resource consents as appropriate.

4.13.1 LANDSCAPE AND VISUAL AMENITY EFFECTS

To mitigate the landscape and visual amenity effects, the LVA recommended that a detailed planting plan and specification will be prepared and implemented in Stage One. To assist preparation of this detailed plan a Mitigation Screen Planting and Vegetation Site Enhancement Plan (Mitigation Plan) has been produced (see LVA - Appendix A). This Mitigation Plan specifies the type and location of proposed vegetated areas to be planted and maintained on site.

Implementation of this plan will mitigate effects through the use of screen planting and softer planting measures. Further detail can be found in Section 7 of the LVA. The main features are:

- A 5 – 10 m wide enhancement planting strip at the main entrance to the site and road frontage to SH1 and Makirikiri Road, which will reduce the potential for adverse visual effects and soften the interface between the road corridor and the development area.
- The stormwater reserve and rural properties to the south are buffered from the proposal by a 10 m native planted strip. This smaller buffer strip will create a gradual, tiered transition from the road frontage to the interior part of the site.

- A mixed native and exotic shelter belt comprising a 10 m to 20 m wide mixed planting strip along the majority of the site boundary to obscure views from the surrounding landscape towards the proposal. Plant selection will comprise a mix of native shrubs, exotic shrubs and trees, with a height of 40 m minimum at full maturity. Plant densities will ensure that a dense visual screen is achieved.
- A mixture of native riparian grasses and rushes, shrubs and trees are proposed for the stormwater reserve, stream margins and swales. Low-growing plant species are proposed along the Makirikiri Road boundary which will maintain views from the roading corridor into the stormwater reserve, creating a positive relationship with the road frontage. A Rural Interface Buffer is located at the rear of the stormwater reserve to help screen views of the proposal in the background.

The above mitigation measures will be implemented as recommended by the LVA and as part of Stage One of site development. The planting will be maintained to ensure that a dense visual screen is achieved in specified locations.

4.13.2 ECOLOGICAL

Recommendations for mitigation of ecological effects are outlined in Section 6 of the AEE. The main features are:

- Management of freshwater ecosystems and fish by: ensuring works in-stream occur in dry periods to avoid affecting fish passage, implementation of an Erosion and Sediment Control Plan during construction and preparation of a Spill Management Plan to manage refuelling, chemicals and the containments of any spills within the CDP site. Riparian enhancement by planting along the margins of any diverted streams to replace the loss of riparian vegetation and enhance the health of the stream.
- Bat management measures include:
  - Removal of any vegetation greater than 15 cm Diameter at Breast Height (DBH) must adhere to Vegetation Removal Protocols defined by a suitably qualified bat ecologist;
  - Lighting to be installed within the CDP site should incorporate best practice design for bats wherever possible; and
  - Supplementary planting of both exotic and native tree species known to provide roosting habitats should be incorporated into planting plans and designed to retain edge effects allowing commuting routes between other habitats in the area surrounding the CDP site.
- Bird management measures to ensure no native bird species are harmed during tree removal. It is recommended that an ecologist be present to inspect trees/vegetation for presence of occupied native bird nests immediately prior to felling. Alternatively, felling of trees within bird nesting season (September to January) should be avoided.
- Regarding lizard management, the effect on lizard populations as a result of the CDP and modelled industrial development is likely to be low. However, passive mitigation measures should be implemented to minimise risk of losing protected species, including:
  - Cutting rank grass, exotic weed species to a specified height and 48 hours prior to earthworks;

- Rake cuttings to areas outside of the CDP site. This will remove lizard cover within the CDP site and encourage any lizards to seek refuge outside of the development area; and
- Relocation of ground cover habitats, such as woody debris or sprawling ground plants that may provide refuge for lizards, to a spot outside of the zone of direct impact. This should be undertaken within 48 hours prior to earth works within rank grass and shelterbelt areas (including beneath trees).

The above mitigation measures have been incorporated into the LVA and will be implemented throughout construction associated with Stage One. In addition, all resource consents applied for as part of establishing activities onsite in Stage Two will need to demonstrate they comply with the above ecological recommendations, where applicable.

4.13.3 LIGHT SPILL AND GLARE

The Lighting Impact Statement (Refer to Appendix E) identified that the District Plan does not include numerical luminous intensity limits which could potentially create a glare concern for the closer residential properties and adjacent roads. The following recommendations are made:

- Any exterior lighting associated with the site be designed to meet the requirements of the current version of AS/NZS 4282 and shall require review and approval from RDC prior to installation; and
- Any exterior lighting installed be reviewed 30 days after completion by an independent and suitably qualified lighting designer to confirm that the approved lighting design intent has been met.

The above measures would be incorporated into both stages of site development. Stage One exterior lighting would be designed to meet the above requirements.

Prior to any resource consents for Stage Two being issued for other industrial activities to establish, the applicants would need to demonstrate the exterior lighting is designed to comply with the above standard; including consideration of any cumulative effects if RDC deems this necessary.

4.13.4 TRANSPORT

The TIA recommends mitigation measures to support the safe and efficient operation of the wider transportation network. RDC is committed to implementation of these recommendations which are outlined in Table 10 below.

Table 9: TIA mitigation recommendations

Timeline	Proposed Mitigation
Stage One - Infrastructure development, rail siding and log yard development	Makirikiri Road (General) • The posted speed limit on Makirikiri Road within the vicinity of the CDP site be reduced to 70 km/hr or below prior to occupancy of the site, to adhere with the minimum intersection spacing requirements outlined within the District Plan. • A right-turn bay is provided from Makirikiri Road into the Eastern Access, and the Western Access is designed to comply with Waka Kōtahi's Accessway Standards Diagram E to support heavy vehicle access into the site. Makirikiri Road / Wellington Road • RDC to investigate safety improvements such as enhanced sightlines, implementing electronic warning signs, speed reduction measures and/or changes to posted speeds at the intersection at the Wellington Road / Makirikiri Road crossroads intersection in response to the current higher than expected volume of injury crashes. Makirikiri Road Railway Crossing • Installation of crossing approach warning signs, no passing markings and yellow hatching through the Makirikiri Road rail crossing to comply with the requirements of TCD Manual Part 9[6], and localised widening of the road on the approach to the railway crossing. General Recommendation • Construction Traffic Management Plans are developed by each developer and approved prior to commencing work on the site.
Stage Two - Plastics plants, food producer, small businesses and energy plant. developments.	SH1 / Makirikiri Road Intersection • A right-turn bay is provided on SH1 at the intersection with Makirikiri Road prior to completion of the development to safely support increased traffic turning demands generated by implementation of the proposed developments at the CDP site General Recommendation • Construction Traffic Management Plans are developed by each developer and approved prior to commencing work on the site.
Post-Development	• In collaboration with Waka Kōtahi, investigate options to upgrade the Makirikiri Road/SH1 intersection in response to expected longer-term (post-2034) capacity issues at the intersection. • RDC undertakes regular monitoring of the safety performance of key intersections and roads surrounding the site to determine if and when any improvements are required in response to emerging crash trends.

[6] Traffic Control Devices Manual - Part 9: Level Crossing

4.13.5 DUST

Activity Generated Dust

Dust will be released by some modelled activities. Dust was a key concern for the appellants given the sensitive nature of racehorses with respect to particulate matter. Proposed activities with the potential to generate dust beyond the boundary of the CDP site at levels above those recorded as acceptable in the Air Quality Assessment will be required to demonstrate how the generation of dust will be avoided or mitigated. These measures and a specific assessment of the anticipated effects will need to be recorded in a Dust Management Plan (DMP) for the specific activity site.

Construction Dust

As set out in Section 9.3 of the Air Quality Assessment, dust mitigation measures will likely be necessary to ensure minor or less than minor effects from construction. Recommended mitigation measures will be implemented in Stages One and Two development via RDC as developer or as consent conditions. These include but are not limited to:

- Development and use of a construction DMP;
- Dust generating construction activities are to cease when houses are located downwind on dry days with wind speeds 7 m/s or higher;
- Use of ambient particulate sensors to monitor boundary dust levels in real time;
- Regular liaison with surrounding neighbours;
- Onsite vehicle speed restriction of less than 20 km/hr;
- Covering of stockpiles;
- Delivery of cement and fine materials within enclosed tankers and stored in silos;
- Use of water-cart to dampen surfaces which generated dust plume beyond CDP boundary;
- Use only of water assisted dust sweepers if necessary;
- Removal of any material tracked onto public road with water and sweeping; and
- Cover vehicles entering and leaving site to prevent the escape of materials.

4.13.6 ODOUR

As set out in Section 10.3 of the Air Quality Assessment, to avoid objectionable odour beyond the CDP site boundary associated with discharges from the food producer site and plastics plants, the following mitigation measures are proposed:

Food producer area:

- The use of an odour scrubbing and biofiltering type odour abatement system for treatment of the dryer exhaust air streams. For a flow of 50,000 m^3/hr a biofilter bed of 1000 m^2 would be required; or
- Direct ozone injection into the drying process or dryer discharge stack.

Plastics plants:

- The use of a biofilter system to treat odorous drying exhaust air streams;
- The use of carbon filter type cannisters for removal of odour from low flow air streams which are discharged from the centrifuges; and
- The use of cannister filters with regards to the ventilation and displacement of air from the sludge storage tanks.

These activities will require resource consent, and mitigation measures will need to be provided within the resource consent application or through the inclusion of suitable consent conditions.

4.14 SUMMARY

There are a number of environmental effects associated with the CDP and the modelled scenario of activities as proposed including landscape and amenity, ecological, rural land resource, transport, noise and vibration, lighting, dust and odour effects. The potential effects have been assessed through various technical reports appended to this Framework Report.

Each report has established avoidance or mitigation measures to address potential adverse effects and establish that the effects individually and cumulatively will be minor or less than minor on the environment. This information has been circulated to parties to the Plan Change appeal for comment and input. Technical reports and this Framework Report will continue to be updated and informed by further analysis as the parties to the appeal progress to resolution of the appeal.

Overall, it is concluded that the effects of development of the CDP site including provision of roading and three water infrastructure services, a re-oriented rail siding and establishment of industrial activities as modelled and assessed in this Framework Report, will have a minor or less than minor effect on the environment.

5 CONCLUSION

Rangitīkei District Plan Change for the proposed rezoning of 1165, 1151 and 1091 SH1 from Rural to Industrial was publicly notified 29 June 2019, with a decision released August 2020 to rezone 40 ha of land adjoining the NIMT overlain with an IDA notation. The Plan Change introduced provisions into Rule B5, and this report provides the information required by that rule.

Technical reporting, consultation with potential industrial operators, and concerns raised by submitters as part of the Plan Change process have resulted in a new CDP site being proposed from that approved in the Council's Plan Change decision.

Potential effects include dust and odour, lighting, noise, traffic, landscape and visual character, and ecological and have been assessed by various technical experts. The reports have also established a baseline existing environment for the surrounding rural area and assessed the modelled scenario of industrial activities.

The technical assessments establish that the CDP infrastructure services and the modelled industrial activities can be established at the CDP site, whilst maintaining a level of environmental effects that are minor or less than minor or in the case of noise reasonable when compared to the existing ambient environment of the surrounding environment.

This Framework Report seeks to provide clarity for resource consent applicants seeking to establish industrial activities within the CDP site. It establishes the baseline existing environment in the vicinity of the CDP site and thresholds for new activities to ensure that the amenity values of the surrounding rural environment are maintained for the future.

The Framework Report will enable a comprehensive assessment of resource consent applications for any industrial activity that proposes to deviate from activities or effects assessed in the modelled scenario. Applicants will need to maintain the modelled industrial activities baseline or demonstrate that any other adverse effects will be mitigated or avoided to the same or similar level.

Currently, the Plan Change is subject to an appeal and this Framework Report will inform mediation of the issues raised and will be updated as required following resolution of the appeal by the Environment Court.

APPENDIX A - COMPREHENSIVE DEVELOPMENT PLAN

MARTON RAIL HUB

PROPOSED LAYOUT

KEY

LANDSCAPING

- MIXED NATIVE AND EXOTIC SHELTER
- ROAD FRONTAGE INTERFACE STRIP
- RURAL INTERFACE BUFFER STRIP

TRANSPORT

- RAILWAY
- RAILWAY SIDING
- CONTAINER AREA
- ROAD - KERBS

SERVICES

- SW STORMWATER
- S WASTEWATER
- W WATER
- STORMWATER POND
- STORMWATER CULVERT
- WATERWAYS
- 65ha BOUNDARY

SCALE 1:2500 A1
1:5000 A3

N

STATE HIGHWAY 1

RAILWAY - NORTH ISLAND MAIN TRUNK

MAKIRIKIRI ROAD

APPENDIX B – MODELLED SCENARIO PLAN

MARTON RAIL HUB
MODELLED LAYOUT

N

STATE HIGHWAY 1

RAILWAY - NORTH ISLAND MAIN TRUNK

20.6ha

1.0ha

4.8ha

3.1ha

3.0ha

3.0ha

3.1ha

2.4ha

ONE WAY ROAD
- EXIT ONLY

20m WIDE BUFFER

SECURITY GATE

WATER & WASTEWATER
CONNECT AT GOLDINGS LINE

MAKIRIKIRI ROAD

PUMP STATION

SECURITY GATE

WEIGHBRIDGE

ROAD HIGH POINT
RL=125.71m

KEY

LANDSCAPING
- MIXED NATIVE AND EXOTIC SHELTER
- ROAD FRONTAGE INTERFACE STRIP
- RURAL INTERFACE BUFFER STRIP

TRANSPORT
- RAILWAY
- RAILWAY SIDING
- CONTAINER AREA
- ROAD - KERBS
- PROPOSED INTERSECTIONS
- WEIGHT BRIDGE AREA

SERVICES
- SW STORMWATER
- S WASTEWATER
- W WATER
- STORMWATER POND
- STORMWATER CULVERT
- WATERWAYS

TENANT AREAS
- FOOD PRODUCER AREA
- PLA PLANT AREA
- PHA PLANT AREA
- SERVICE AREA
- ENERGY PLANT
- LOG YARD AND DEBARKER AREA
- UNALOCATED AREA
- LEEDSTOWN - PUTORINO FAULT

SCALE 1:2500 A1
1:5000 A3

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APPENDIX C – AIR QUALITY IMPACT ASSESSMENT

APPENDIX D1 - ACOUSTIC ASSESSMENT

APPENDIX D2 – CONSTRUCTION NOISE AND VIBRATION ASSESSMENT

APPENDIX D3 – EQUINE IMPACT ANNEX

APPENDIX E – LIGHTING IMPACT STATEMENT

APPENDIX F – LANDSCAPE AND VISUAL VALUES ASSESSMENT

APPENDIX G – TRAFFIC IMPACT ASSESSMENT

APPENDIX H – ASSESSMENT OF ECOLOGICAL EFFECTS