4.5 Laboratory results and evaluation

The soil sample results are summarised in **Table 3** (overpage). The full laboratory reports are provided in **Appendix C**.

Soil sample results have been compared against the following assessment criteria:

Protection of Human Health	NESCS SCS[8,9] for commercial / industrial land use to reflect the current and proposed use, and as a proxy for assessing potential exposures to construction workers. NESCS SCS criteria for rural residential land use (the most protective standard) to assess the potential beneficial offsite reuse of topsoil offsite, which could include produce being grown in the soils.
Discharges to the Environment	For discharges to the environment the predicted background concentrations[10] and ecological soil guideline values (Eco-SGVs)[11] have been considered to assess potential effects.
Soil Disposal	Predicted background concentrations have been adopted to assess acceptance of soil to cleanfill sites (if required).

The following provides further discussion of the approach adopted with respect to background concentrations:

- With respect to metals - the development area is located on alluvial deposits adjacent to the floodplain of the Kerikeri River. Lithologies within the catchment of the Kerikeri River upstream of the development area include the sandstones, mudstones and other alluvial deposits of the Tauranga Group as well as basaltic and rhyolitic rocks of the Kerikeri Volcanic Group. The mineralogy of the soils beneath the development area are therefore likely to include a mixture of these parent rock types. On this basis Manaaki Whenua – Landcare Research's predicted background concentrations for both basaltic and rhyolitic rocks are presented. However, as these are based on statistical and predictive modelling approaches (i.e. potentially subject to uncertainty), background concentrations for volcanic (primarily basaltic) soils in the Auckland Region[12] are also included for reference. The Auckland background values are based on a larger dataset and has been in use by the industry for over 20 years. For this assessment concentrations are only considered to exceed background if they surpass the greater of the Manaaki Whenua – Landcare Research and Auckland Region values.
- As indicated in the preceding sections, samples were submitted for analysis for TPH. The TPH method involves a crude solvent extraction, which extracts both anthropogenic contaminants as well as natural organic matter (NOM). For this assessment the TPH chromatograms were reviewed and compared to laboratory reference chromatograms for petroleum hydrocarbons, other organic contaminants, and NOM[13] to assess if the samples were of anthropogenic origin or reflective of natural conditions (NOM).

The findings are summarised below:

A single stockpile (SP06) and soils around the implement shed (S9-1)	**Contain metals and/or PAHs above expected background ranges. These materials can therefore NOT be considered to be cleanfill. However, there are no exceedances of relevant human health or environmental criteria.** • One sample collected adjacent to the implement shed contains lead slightly elevated above background ranges. Trace levels of PAHs (pyrene) were also present at the same location. • A sample collected by PDP from the northern end of the eastern most of the two stockpiles located on the northern boundary of the development area contains arsenic and copper above expected background ranges.

[8] Soil Contaminant Standards (SCS) as set out in Ministry for the Environment, 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.
[9] Where NESCS are not provided, guidelines have been adopted in accordance with Ministry for the Environment, 2011. Contaminated Land Management Guidelines No. 2, Hierarchy and Application in New Zealand of Environmental Guideline Values (Revised 2011). Wellington: Ministry for the Environment.
[10] Predicted Background Concentrations of trace elements sourced from Landcare Research 2015 report through the LINZ data service, 95% UCL values adopted. https://lris.scinfo.org.nz/layer/48470-pbc-predicted-background-soil-concentrations-new-zealand.
[11] Manaaki Whenua – Landcare Research, 2019. Updated Development of soil guideline values for the protection of ecological receptors (Eco-SGVs): Technical document. Contract Report: LC2605 (updated), dated June 2019.
[12] Auckland Regional Council, Technical Publication 153 (TP153): Background concentrations of inorganic elements in soil from the Auckland Urban Region.
[13] For example, Figure 7 from "Detection of Natural Organic Matter in the Total Petroleum".

	• All samples of returned concentrations that comply with the relevant criteria for the protection of human health and environmental receptors under commercial / industrial land use. • One sample returned concentrations of arsenic above the criteria for protection of human health under rural residential land use, meaning that beneficial offsite reuse of these soils will need to be appropriately managed.
Soils across the remainder of the development area	**Comply with expected background ranges.** • All samples of returned concentrations of metals within expected background ranges. • Other than TPH no organic compounds (PAHs, OCPs and anti-sapstain chemicals) were reported above the laboratory limit of reporting. The TPH chromatograms are all reflective of NOM rather than anthropogenic contaminants therefore the TPH reported is considered to represent natural conditions (i.e. background). • All samples of returned concentrations that comply with the relevant criteria for the protection of human health and environmental receptors under commercial / industrial use. • Two samples returned concentrations of cadmium above the criteria for protection of human health under rural residential land use, meaning that beneficial offsite reuse of some of these soils will need to be appropriately managed. But the majority are suitable for reuse without constraint.

Table 3. Summary soil analytical results

				Metals and metalloids								PAH			TPH			Pesticides	
				Arsenic	Boron	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	BaP eq.	Naphtha.	Pyrene	C7-C9	C10-C14	C15+	OCPs	Multiresidue
Human Health: NESCS SCS Commercial/Industrial [1]				70	>10,000	1,300	6,300	>10,000	3,300	6,000 [5]	400,000 [5]	35	210 [6]	>10,000 [6]	500 [6]	1,700 [6]	>20,000 [6]	Various	Various
Human Health: NESCS SCS Rural Residential [1]				17	>10,000	0.8	290	>10,000	160	400 [5]	7,400 [5]	6	63 [6]	1,600 [6]	500 [6]	510 [6]	>20,000 [6]	Various	Various
Environmental: EcoSGVs [2]				146	>60	33	771	364	2,557	-	534	47*	27	-	170	140	2,500	-	-
Disposal: Predicted Background - basalt [3]				9	-	0.5	129	108	56	77	296	-	-	-	-	-	-	-	-
Disposal: Predicted Background - rhyolite [3]				15	-	1.4	101	51	33	57	160	-	-	-	-	-	-	-	-
Disposal: Published Background - Auckland volcanic [4]				12	260	0.7	125	90	65	320	1,160	-	-	-	-	-	-	-	-
	Sample Location	Depth (m)	Material																
PDP	HA01	0.15	Topsoil	< 2	< 20	0.4	33	19	8.5	20	71	-	-	-	-	-	-	-	
PDP	HA04	0.15	Hardfill	10	< 20	-	7	15	-	-	-	-	-	-	-	-	-	-	
PDP	HA04	0.75	Natural	< 2	< 20	-	105	43	-	-	-	-	-	-	-	-	-	-	
PDP	HA04	1.2	Natural	< 2	< 20	-	105	49	-	-	-	-	-	-	-	-	-	-	
PDP	SP05	-	Stockpile	< 2	< 20	< 0.1	71	25	5.0	52	12	-	-	-	< 30	< 20	162	-	
PDP	SP06	-	Stockpile	42	49	1.75	47	158	6.3	26	153	-	-	-	<30	< 20	134	-	
PDP	SP07	-	Stockpile	< 2	< 20	0.2	49	23	5.8	35	26	-	-	-	<30	< 20	44	-	
WWLA	HA01	0.1	Topsoil	< 2	< 20	0.52	65	31	9	30	20	< 0.040	< 0.09	< 0.017	< 30	< 20	87	<LoR	-
WWLA	HA02	0.1	Topsoil	< 2	< 20	0.45	52	25	12.8	28	13	< 0.040	< 0.09	< 0.017	< 30	< 20	100	<LoR	-
WWLA	HA03	1	Natural	2	< 20	< 0.10	90	45	6.6	108	17	< 0.040	< 0.09	< 0.017	< 30	< 20	< 40	-	<LoR
WWLA	HA04	0.4	Natural	2	< 20	< 0.10	143	33	6.8	125	11	< 0.036	< 0.08	< 0.015	< 30	< 20	< 40	-	<LoR
WWLA	HA05	0.5	Stockpile	< 2	< 20	0.36	44	22	7.9	28	13	< 0.037	< 0.08	< 0.016	< 30	< 20	103	<LoR	-
WWLA	HA06	0.3	Natural	< 2	< 20	0.39	44	16	8.1	23	15	< 0.036	< 0.08	< 0.015	< 30	< 20	54	-	-
WWLA	HA07	0.1	Natural	< 2	< 20	0.14	74	26	7.3	50	15	< 0.034	< 0.07	< 0.014	< 20	< 20	79	-	-
WWLA	HA08	0.5	Bund	< 2	< 20	< 0.10	139	36	6.9	112	18	< 0.035	< 0.08	< 0.015	< 30	< 20	< 40	-	<LoR
WWLA	Comp S1	0.1	Topsoil	< 2	< 20	1.02	52	24	8.7	29	24	< 0.035	< 0.08	< 0.015	< 20	< 20	102	<LoR	-
WWLA	Comp S2	0.1	Topsoil	7	< 20	3.82	64	34	53	39	111	< 0.034	< 0.07	< 0.014	< 20	31	166	<LoR	-
WWLA	Comp S3	0.1	Topsoil	< 2	< 20	0.44	46	22	10	27	23	< 0.036	< 0.08	< 0.015	< 30	< 20	118	<LoR	-
WWLA	Comp S4	0.1	Topsoil	< 2	< 20	0.44	44	21	10.1	33	24	< 0.036	< 0.08	< 0.015	< 30	< 20	119	<LoR	-
WWLA	Comp S5	0.1	Topsoil	< 2	< 20	0.4	45	19	9.3	23	22	< 0.039	< 0.08	< 0.016	< 30	< 20	144	<LoR	-
WWLA	Comp S6	0.1	Topsoil	< 2	< 20	0.44	58	18	8.9	21	16	< 0.036	< 0.08	< 0.015	< 30	< 20	46	<LoR	-
WWLA	Comp S7	0.3	Natural	< 2	< 20	< 0.10	57	34	7	58	22	< 0.033	< 0.07	< 0.014	< 20	< 20	< 40	<LoR	-
WWLA	Comp S8	0.3	Natural	< 2	< 20	0.18	53	26	8.1	39	12	< 0.036	< 0.08	< 0.015	< 30	< 20	81	<LoR	-
WWLA	S9-1	0.1	Natural	9	< 20	0.57	81	65	118	53	280	< 0.036	< 0.08	0.032	< 30	< 20	109	<LoR	-

Notes:

Grey values are at/ below predicted background ranges.

Black values exceed expected background range (or indicate where a background range is not defined).

Shaded cells exceed the acceptance criteria with the corresponding colour.

* EcoSGV relates to BaP rather than BaP equivalents.

1. NESCS Soil Contamination Standard (SCS) for indicated land use .
2. Manaaki Whenua Landcare Research, 2019. Updated Development of Soil Guideline Values for the Protection of Ecological Receptors (Eco-SGVs): Technical document. Criteria for commercial and industrial land use. Added concentration limits using EC30 for typical NZ reference soils and predicted background concentration in basalt.
3. Manaaki Whenua Landcare Research. 2015 Predicted Background Concentrations of trace elements, sourced through the LINZ data service, 95% quantile. https://lris.scinfo.org.nz/layer/48470-pbc-predicted-background-soil-concentrations-new-zealand. Associated rock type indicated.
4. Background Concentrations of Inorganic Elements in Soils from the Auckland Region. Auckland Regional Council, Technical Publication No. 153, October 2001.
5. National Environment Protection (Assessment of Site Contamination) Measure (Australia), ASC NEPM Toolbox, Health Investigation levels for indicated land use.
6. Ministry for the Environment, August 1999. Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand. Criteria for sandy silt soils at surface.

5. Conceptual Site Model

A conceptual site model (CSM) indicates known and potential sources of contamination, routes of exposure (pathways), and the receptors that are affected by contaminants moving along those pathways. Receptors may be people or environmental. *The CSM's purpose is to set out risks to people and the environment (if any) associated with any proposed activity (short or long term) on the land.*

Works are expected to involve removal of topsoil, stockpiles and bund materials for reuse both onsite and offsite (e.g. for topsoiling / landscaping), installation of new services and placing clean imported hardfill to create new yard areas and building foundations. The CSM is summarised in **Table 4**. Colour coding in the table is used to indicate the:

- Potentially Complete pathways i.e. those where there may be a risk to people and/or the environment if appropriate controls and remedial actions in respect of ground contamination are not in place; and
- Incomplete exposure pathways where there is no risk to human or environmental receptors.

No complete pathways (i.e. no confirmed risks) were identified.

Table 4. CSM for the proposed boron treatment plant and dispatch yard

Source	Receptor	Exposure pathway	Acceptable risk (Yes/No) and assessment
Topsoil in one stockpile and around the implement shed	Site workers during soil disturbance	Dermal contact Inhalation of dust Ingestion of soil	**Yes** Identified contaminants of concern are well below applicable human health criteria.
	Future site users	Dermal contact Inhalation of dust Ingestion of soil	
	Future users of surplus soils	Dermal contact Inhalation of dust Ingestion of soil	**No** Some soils exceed the criteria for protection of human health under rural residential land use, meaning that beneficial offsite reuse of these soils will need to be appropriately managed.
	Ecological receptors at the nearest surface water bodies	Leaching to groundwater or surface water runoff from the site	**Yes** Identified contaminants of concern are well below applicable environmental criteria.
	Ecological receptors at soil receiving site(s).	Leaching to groundwater or surface water runoff from the receiving site	**No** As contaminants are present above background concentrations these soils either need to be retained onsite or, if surplus to site requirements, disposed of to appropriately consented facilities (managed or Class 3 fill sites are suitable).
Topsoil across the majority of the development area	Site workers during soil disturbance	Dermal contact Inhalation of dust Ingestion of soil	**Yes** Identified contaminants of concern are not present above expected background concentrations and are therefore well below applicable human health criteria.
	Future site users	Dermal contact Inhalation of dust Ingestion of soil	
	Future users of surplus soils	Dermal contact Inhalation of dust Ingestion of soil	**No** Some soils exceed the criteria for protection of human health under rural residential land use, meaning that beneficial offsite reuse of some of these soils will need to be appropriately managed. But the majority are suitable for reuse without constraint.

Source	Receptor	Exposure pathway	Acceptable risk (Yes/No) and assessment
	Ecological receptors at the nearest surface water bodies	Leaching to groundwater or surface water runoff from the site	**Yes** Identified contaminants of concern are not present above expected background concentrations and are therefore well below applicable environmental criteria.
	Ecological receptors at soil receiving site(s).	Leaching to groundwater or surface water runoff from the receiving site	

6. Development Implications

6.1 Contamination consenting

6.1.1 NESCS

The NESCS sets out nationally consistent planning controls appropriate to district and city councils for assessing potential human health effects related to contaminants in soil. The regulations apply to specific development activities (namely soil disturbance, soil sampling, subdivision, land use change, and fuel system removal) carried out on land where an activity included on the HAIL has occurred.

As described in **Section 3.3**, only HAIL activity I (placement of fill) was identified as potentially applying to the development area. However, investigations show that contaminants are not present at concentrations that pose a risk to human health. On this basis no HAIL activity has not occurred in the development area. As no HAIL activities have been or are occurring on the development area the NESCS does not apply to it and consent is not required under this legislation.

6.1.2 Proposed Regional Plan for Northland

Section B of the PRPN defines potentially contaminated land as that on which a HAIL activity is or has been undertaken. As described in the preceding sections, as HAIL activities have not occurred on the development area, the contaminated land rules of Section C.6.8 of the PRPN do not apply to the proposed works.

6.2 Construction implications

6.2.1 Soil reuse and disposal

As described in **Section 5.4**, soils across the majority of the development area contain identified contaminants of concern of within expected background ranges, therefore this material (with the exceptions described below) can be reused without constraint or if necessary, disposed of as cleanfill.

- Some topsoil across the development area contains cadmium above the criteria for protection of human health under rural residential land use, meaning that beneficial offsite reuse of some of these soils will need to be appropriately managed. Management options could comprise:
  - Allowing reuse of soils only on non-rural residential properties.
  - Separating soils to divert unsuitable material away from rural residential properties.
  - Mixing soils to dilute the contamination so it complies with rural residential acceptance criteria.
- Soil around the implement shed (expected to be limited to a 1-2 m wide halo) and the eastern most stockpile in the development area (SP06) contains metals at concentrations slightly above expected background ranges. This soil should either be retained onsite or, if surplus to site requirements, disposed of to appropriately consented facilities (managed or Class 3 fill sites are suitable). It may also be possible to mix these materials with topsoil from the wider development area to comply with background ranges. However, this option must be accepted by the receiving site before mixing occurs.

6.2.2 Earthworks

Specific contamination-related health and safety controls are NOT required for disturbing any soils in the development area. All soils can be removed and placed onsite under standard earthworks controls.

Soil around the implement shed (expected to be limited to a 1-2 m wide halo) and the eastern most stockpile (SP06) should either be:

- Segregated for separate storage and reuse or disposal; OR
- Mixed with topsoil from the wider development area, but this option must be accepted by the receiving site before mixing occurs.

7. Conclusions

WWLA was commissioned by Waipapa Pine to prepare this PSI / DSI to assist with its project to expand operations and construct new facilities at its existing sawmill located at 1945B State Highway 10, Waipapa (the site). This includes the construction of a new dispatch yard, new boron treatment plant, a second boiler, on-site infrastructure upgrades, removal of existing bunds and associated earthworks.

Minor works such as construction of the second boiler, associated local service connections, and formation of new car parking areas will occur within the existing sawmill plant area, which is identified as a HAIL by FNDC and NRC. However, these works are expected to be able to occur as permitted activities and are therefore not addressed further by this report.

Review of the site history identified that the development area was covered in pasture until 2017, when a laydown yard was created at its western end. The remainder of the development area remained in pasture and is still currently being grazed. While the wider site has been used for sawmilling since 2004, associated activities with the potential to cause ground contamination, have not impacted on the development area.

Only the formation of stockpiles and bunds on parts of the development area were identified as being potential HAILs (category I). However, testing of site topsoil, bund materials and stockpiles shows that contaminants are not present at concentrations that pose a risk to human health. On this basis HAIL activity I does not apply to the development area. As no HAIL activities have been or are occurring in the development area neither the NESCS nor contaminated land provisions of the PRPN apply to the site and consent is not required under these regulations / legislation.

Soils across the majority the development area contain identified contaminants of concern of within expected background ranges, therefore this material (with the exceptions described below) can be reused without constraint or if necessary, disposed of as cleanfill.

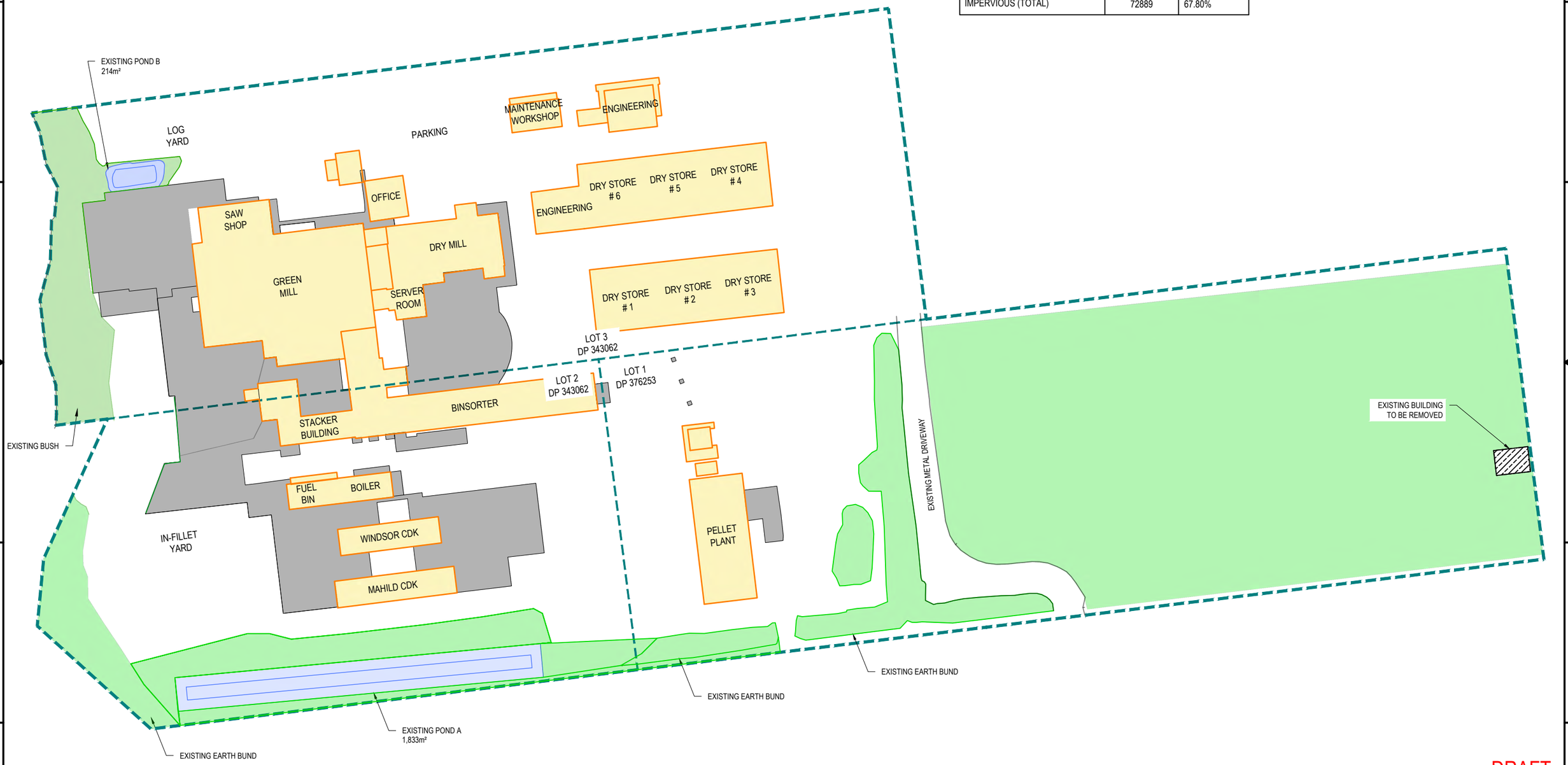
- Specific contamination-related health and safety controls are NOT required for disturbing any soils in the development area.
- All soils can be removed and placed onsite under standard earthworks controls.
- Some topsoil across the development area contains cadmium above the criteria for protection of human health under rural residential land use, meaning that beneficial offsite reuse of some of these soils will need to be appropriately managed. Management options could comprise:
  - Allowing reuse of soils only on non-rural residential properties.
  - Separating soils to divert unsuitable material away from rural residential properties.
  - Mixing soils to dilute the contamination so it complies with rural residential acceptance criteria.
- Soil around the implement shed (expected to be limited to a 1-2 m wide halo) and the eastern most stockpile (SP06) contains metals at concentrations slightly above expected background ranges. This soil is should either be retained onsite or, if surplus to site requirements, disposed of to appropriately consented facilities (managed or Class 3 fill sites are suitable). It may also be possible to mix these materials with topsoil from the wider development area to comply with background ranges. However, this option must be accepted by the receiving site before mixing occurs.

Appendix A. Selected development plans

EXISTING SURFACES		
AREA	m²	
ROOF AREA	14736	
CONCRETE	10252	
PONDS	2047	
METAL	45854	
PERVIOUS - VEGETATED	34611	
PERVIOUS (TOTAL)	34611	32.20%
IMPERVIOUS (TOTAL)	72889	67.80%

GENERAL NOTES:
1. All features are taken from Topo Plan by HG, dated March 2024, ref. 2414676-HG-XX-DR-XX-G-SS01-03.

LEGEND
Boundaries



DRAFT

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP

DWG EXISTING SURFACES

A3 Scale 1: 1500 (0, 30, 75)

Date 13/05/2024

Drawn LP | Checked JP | Approved JP

File T:\CLIENTS\WAIPAPA PINE LIMITED\JOBS\23 256 - WAIPAPA MILL -1945B STATE HIGHWAY 10, WAIPAPA\ENGINEERING\DRAWINGS\01_CIVIL\23 256_20240507_DESIGN 2D.DWG

HAIGH WORKMAN Ltd
Civil & Structural Engineers
6 Fairway Drive
Kerikeri, BOI
T: 09 407 8327
F: 09 407 8378
E: info@haighworkman.co.nz

Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. EXP01

Sheet No.

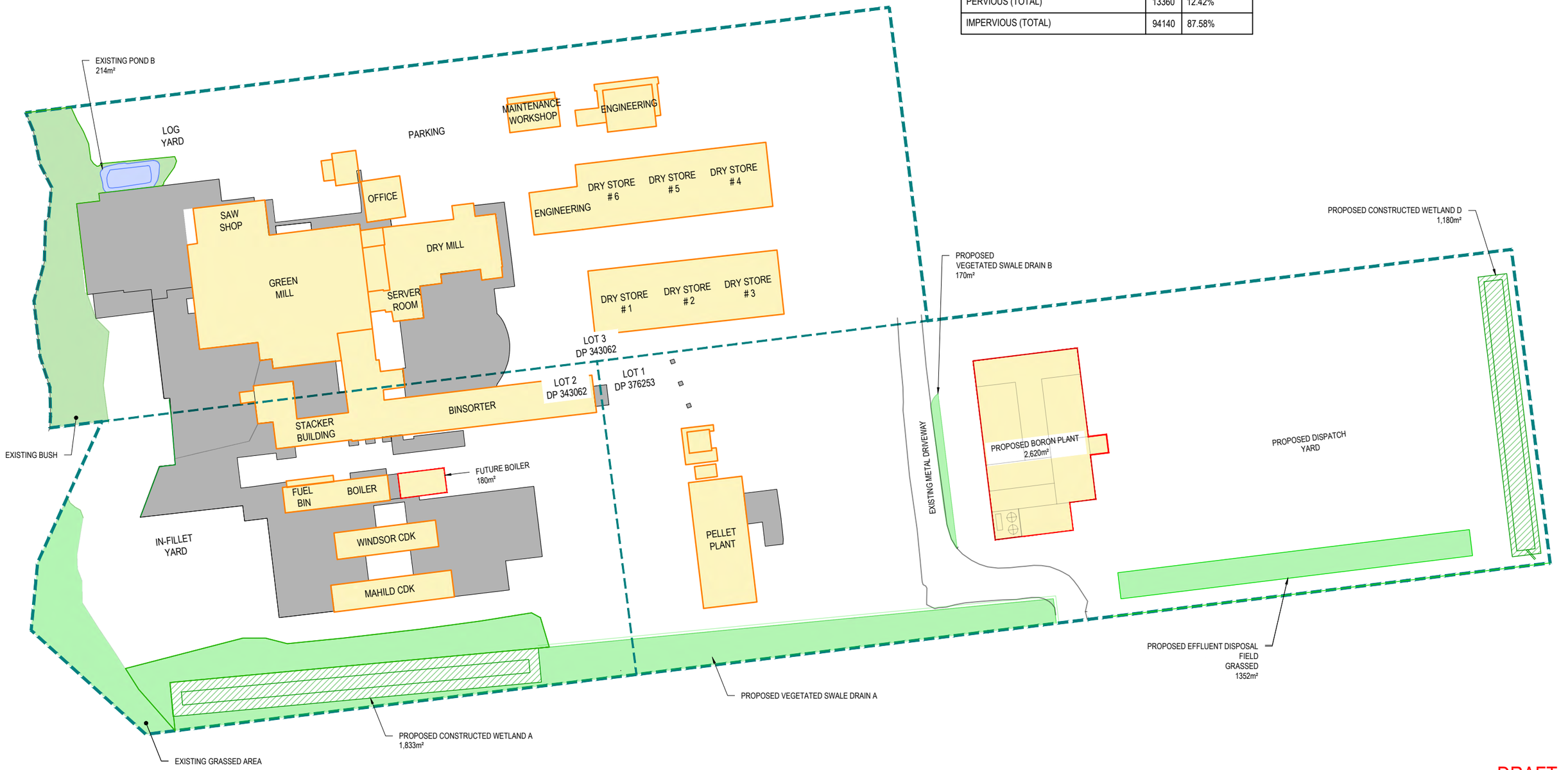
PROPOSED SURFACES		
AREA	m²	
ROOF AREA	17436	
CONCRETE	10252	
PONDS	214	
METAL	66238	
PERVIOUS - VEGETATED	10347	
PERVIOUS - CONSTRUCTED WETLAND	3013	
PERVIOUS (TOTAL)	13360	12.42%
IMPERVIOUS (TOTAL)	94140	87.58%

GENERAL NOTES:

1. All features are taken from Topo Plan by HG, dated March 2024, ref. 2414676-HG-XX-DR-XX-G-SS01-03.

LEGEND

Boundaries



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Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP

DWG PROPOSED SURFACES

A3 Scale 1: 1500 (0, 30, 75) Date 13/05/2024

Drawn LP | Checked JP | Approved JP

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HAIGH WORKMAN LTD
Civil & Structural Engineers
6 Fairway Drive
Kerikeri, BOI
T: 09 407 8327
F: 09 407 8378
E: info@haighworkman.co.nz

Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. EXP02

Sheet No.

GENERAL NOTES:
1. All features are taken from Topo plan by HG, dated 20/03/2024
2. Aerial image courtesy of Google.
3. Flood extent taken from NRC GIS map.

LEGEND
- Boundaries
- Proposed Stormwater Pipe
- Flowpath
- Open drain
- Dish channel

EXISTING POND B
LOG YARD
PARKING
MAINTENANCE WORKSHOP
ENGINEERING
OFFICE
SAW SHOP
GREEN MILL
DRY MILL
SERVER ROOM
ENGINEERING
DRY STORE # 6
DRY STORE # 5
DRY STORE # 4
DRY STORE # 1
DRY STORE # 2
DRY STORE # 3
LOT 3 DP 343062
LOT 2 DP 343062
LOT 1 DP 376253
BINSORTER
STACKER BUILDING
FUTURE BOILER 180m²
FUEL BIN
BOILER
WINDSOR CDK
MAHILD CDK
IN-FILLET YARD
PELLET PLANT
EXISTING OPEN DRAIN
PROPOSED CULVERT WITH HEADWALL Ø300
EXISTING STORMWATER MANHOLE
PROPOSED CONSTRUCTED WETLAND D
PROPOSED VEGETATED SWALE DRAIN B
PROPOSED DISH CHANNEL
crossfall
PROPOSED SCRUFFY DOME Ø1050
crossfall
PROPOSED CULVERT Ø300 WITH FLOODGATE
PROPOSED SCRUFFY DOME Ø1050
PROPOSED CULVERT Ø300 WITH FLOODGATE
EXISTING METAL DRIVEWAY
PROPOSED BORON PLANT 2,620m²
PROPOSED DISPATCH YARD
BUILDING DRAINAGE
PROPOSED DISH CHANNEL
CULVERT
EMERGENCY OVEFLOW
EXISTING FLOWPATH
EXISTING OPEN DRAIN
EXISTING OPEN DRAIN TO BE FILLED IN
PROPOSED EFFLUENT DISPOSAL FIELD 1352m² (TOTAL)
PROPOSED SCRUFFY DOME Ø1050
PROPOSED EARTH BUND AT RL 78.0m
PROPOSED VEGETATED SWALE DRAIN A
PROPOSED CONSTRUCTED WETLAND A

DRAFT

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP

DWG STORMWATER PLAN

A3 Scale 1: 1500 (0, 30, 75)

Date 13/05/2024

Drawn LP | Checked JP | Approved JP

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HAIGH WORKMAN LTD
Civil & Structural Engineers
6 Fairway Drive
Kerikeri, BOI
T: 09 407 8327
F: 09 407 8378
E: info@haighworkman.co.nz

Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. SWP01

Sheet No. 1 of 1

GENERAL NOTES:
1. All features are taken from Topo plan by HG, dated 20/03/2024
2. Aerial image courtesy of Google.

LEGEND
- Boundaries
- Existing Wastewater Pipe Line
- Proposed Wastewater Pipe Line
- Proposed Stormwater Pipe
- Flowpath
- Open drain

NOTE:
1. STORMWATER RUNOFF FROM HOUSE PLATFORM TO BE DIRECTED AWAY FROM THE EFFLUENT FIELD DISPOSAL FILED
2. SET SEQUENCING VALVE SO THAT DISPOSAL FIELD 1 RECEIVES ONE DOSE AND DISPOSAL FIELD 2 RECEIVES TWO DOSES.

PROPOSED CONSTRUCTED WETLAND D

PROPOSED CULVERT 300Ø

PROPOSED EFFLUENT PUMP LINE TO PROPOSED PUMP CHAMBER

EXISTING EFFLUENT DISPOSAL FIELD (TO BE DECOMMISSIONED)

PROPOSED SWALE DRAIN B

PROPOSED SECONDARY TREATMENT PLANT EconoTraet VBB-C-300 (FOR BORON PLANT ONLY)

PROPOSED DISPATCH YARD

PROPOSED DISCH CHANNEL

PROPOSED PUMP CHAMBER

PROPOSED EFFLUENT PUMP LINE

SEQUENCING VALVE

PROPOSED DISH CHANNEL

MIN 15m

MIN 3m

EXISTING OPEN DRAIN

PROPOSED RESERVE AREA 312m² (30%)

MINIMUM SECONDARY TREATMENT PLANT SETBACKS:
- INVERT LEVEL AT INLET - NOT LESS THAN 0.5m BELOW FLOOR LEVEL
- BUILDINGS - 3 m
- BOUNDARIES - 1.5m
- EASILY ACCESSIBLE FOR MAINTANACE.

CHECK ALL DIMENSION ON SITE.

SPECIFIC WASTEWATER DESIGN:
MINIMUM EFFLUENT DISPOSAL SETBACKS:
- BOUNDARIES - 1.5m
- BUILDINGS AND RETAINING WALLS - 3m
- SURFACE WATER - 5m (SECONDARY)
- COAST, RIVERS, LAKES - 30m

CHECK ALL DIMENSION ON SITE.

PROPOSED CULVERT Ø300

MIN 5m

PROPOSED SCRUFFY DOME

EXISTING OPEN DRAIN TO BE FILLED IN

PROPOSED EFFLUENT DISPOSAL FIELD 1040m² (TOTAL) SURFACE MOUNTED DRIPPLINES DENSELY PLANTED REF. SHEET WWD02 FOR DETAILS

DRAFT

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP

DWG WASTEWATER PLAN 2/2

A3 Scale 1: 750 (0 15 38)

Date 13/05/2024

Drawn LP | Checked JP | Approved JP

File T:\CLIENTS\WAIPAPA PINE LIMITED\JOBS\23 256 - WAIPAPA MILL -1945B STATE HIGHWAY 10, WAIPAPA\ENGINEERING\DRAWINGS\01_CIVIL\23 256_20240507_DESIGN 2D.DWG

HAIGH WORKMAN LTD Civil & Structural Engineers
6 Fairway Drive, Kerikeri, BOI
T: 09 407 8327
F: 09 407 8378
E: info@haighworkman.co.nz

Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

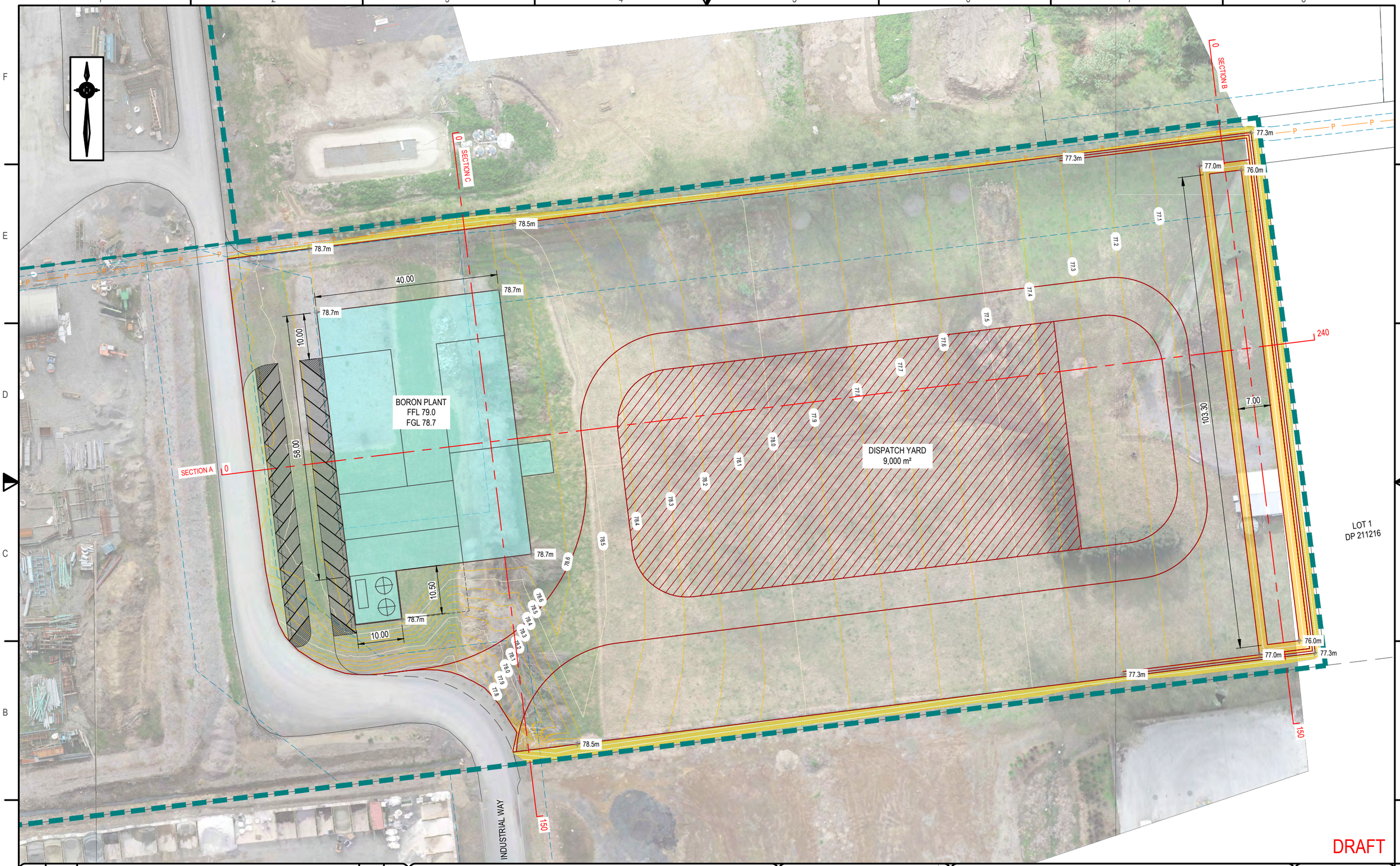
Project No. 23 256

RC no.

Stage

Dwg No. WWP02

Sheet No.



Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	-

DWG FINISHED GROUND LEVEL PLAN

A3 SCALE 1:750 (0 — 15m — 37.5m) Date 13/05/2024

Drawn JT | Checked JP | Approved JP

File T:\CLIENTS\WAIPAPA PINE LIMITED\JOBS\23 256 - WAIPAPA MILL -1945B STATE HIGHWAY 10, WAIPAPA\ENGINEERING\DRAWINGS\01_CIVIL\23_256_CIVIL_DESIGN_C3D.DWG

HAIGH WORKMAN Ltd
Civil & Structural Engineers
6 Fairway Drive
Kerikeri, BOI
T: 09 407 8327
F: 09 407 8378
E: info@haighworkman.co.nz

Project: BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client: WAIPAPA PINE LIMITED

Project No. 23 256 | RC no.

Stage

Dwg No. EWP01

Sheet No. 1 of 2

BUND 1 EARTHWORKS

Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume
1		-3.000 m	-2.000 m	551.9 m2	167.9 m3
2		-2.000 m	-1.000 m	564.3 m2	822.7 m3
3		-1.000 m	0.000 m	994.9 m2	1 537.9 m3
			Total Cut	2 111.1 m2	2 528.5 m3

BUND 2 EARTHWORKS

Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume
1		-4.000 m	-3.000 m	0.0 m2	0.0 m3
2		-3.000 m	-2.000 m	167.9 m2	86.3 m3
3		-2.000 m	-1.000 m	107.6 m2	222.1 m3
4		-1.000 m	0.000 m	119.8 m2	333.8 m3
			Total Cut	395.3 m2	642.2 m3

BUND 3 EARTHWORKS

Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume
1		-4.000 m	-3.000 m	0.7 m2	0.0 m3
2		-3.000 m	-2.000 m	117.6 m2	56.8 m3
3		-2.000 m	-1.000 m	139.0 m2	185.3 m3
4		-1.000 m	0.000 m	192.8 m2	342.8 m3
			Total Cut	450.1 m2	584.9 m3

DISPATCH YARD TOPSOIL STRIPPING (-0.2m)

Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume	Total Volume
1		-1.000 m	0.000 m	26 119.6 m2	5 223.9 m3	Total Cut (5 223.9 m3)

DISPATCH YARD EARTHWORKS

Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume	Total Volume
1		-1.000 m	0.000 m	1 181.8 m2	508.1 m3	Total Cut (508.1 m3)
2		0.000 m	1.000 m	13 752.3 m2	19 105.3 m3	Total Fill (22 273.1 m3)
3		1.000 m	2.000 m	10 527.6 m2	3 166.9 m3	
4		2.000 m	3.000 m	9.4 m2	0.9 m3	

DRAFT

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP

DWG EARTHWORKS CUT AND FILL PLAN

A3 SCALE 1:1000 0 20m 50m

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

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HAIGH WORKMAN Ltd
Civil & Structural Engineers
6 Fairway Drive
Kerikeri, BOI
T: 09 407 8327
F: 09 407 8378
E: info@haighworkman.co.nz

Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

Project No. 23 256

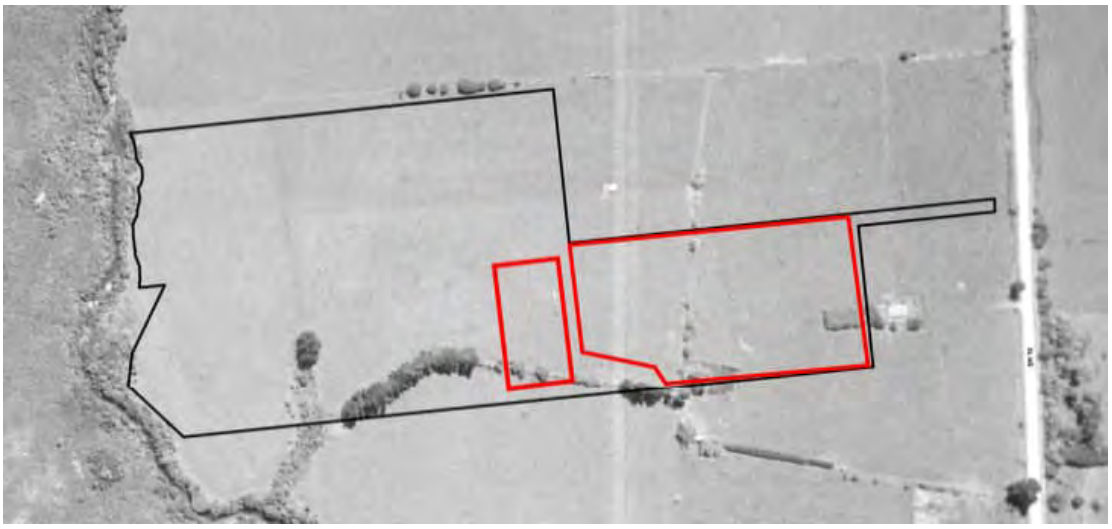
RC no.

Stage

Dwg No. EWP02

Sheet No. 2 of 2

Appendix B. Selected historic aerial photographs

Year	Photograph (reproduced from PDP, 2022) and WWLA commentary
1968 Image sourced from Retrolens, reproduced from PDP 2022	 Site and surrounds are being used for pastoral grazing purposes. A residential dwelling is present to the east of the proposed dispatch yard.
1979 Image sourced from Retrolens, reproduced from PDP 2022	 Horticultural use is evident to the north, northeast and south of the site but the site itself remains under pastoral use.
1981 Image sourced from Retrolens, reproduced from PDP 2022	 Horticultural use has largely ceased in the site surrounds with the land reverting to pastoral uses.

Year	Photograph (reproduced from PDP, 2022) and WWLA commentary
2003 Image sourced from Google Earth, reproduced from PDP 2022	 The wider site is still in pastoral use, with extensive shelter belts. A building (shed) has been constructed at the eastern boundary of the proposed dispatch yard, likely to be the 3-bay corrugated iron clad farm shed identified during the site visit. Industrial development has also commenced to the north of the wider site.
2007 Image sourced from Google Earth, reproduced from PDP 2022	 The northern portion of the wider site has been developed as a sawmilling facility and industrial development has continued to the north of the wider site. The site remains in pastoral use.

Year	Photograph (reproduced from PDP, 2022) and WWLA commentary
2018 Image sourced from Google Earth, reproduced from PDP 2022	 Development of the wider site has intensified with the pellet plant building constructed to the west (after 2017). Earthworks are visible within the proposed boron plant area and the effluent soakage field has been constructed in the northwestern corner of the proposed dispatch yard (circa 2016). Otherwise the site remains in pastoral use. Industrial development continues to intensify in the surrounding area, including adjoining the southern boundary of the site.
2019 Image sourced from Google Earth, reproduced from PDP 2022	 Earthworks continue within the proposed boron plant area, including the development of earth bunds, presumably from topsoil stripped from the wider site. Industrial development continues to intensify in the surrounding area.

Year	Photograph (reproduced from PDP, 2022) and WWLA commentary
2022 Image sourced from Google Earth, reproduced from PDP 2022	 The proposed boron plant area is now being used as a laydown area and vegetation is absent from the bunds. Two stockpiles have been formed near the centre of the northern boundary of the dispatch yard area, otherwise this area remains in pastoral use. Industrial development continues to intensify in the surrounding area.

Appendix C. Laboratory transcripts

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	Williamson Water & Land Advisory Limited	**Lab No:**	3522099	SPv2
Contact:	Steve Tyson	**Date Received:**	30-Mar-2024	
	C/- Williamson Water & Land Advisory Limited	**Date Reported:**	16-Apr-2024	
	PO Box 314	**Quote No:**	123964	
	Kumeu 0841	**Order No:**	WWA 1088	
		Client Reference:	Waipapa Sawmill	
		Submitted By:	Steve Tyson	

Sample Type: Soil

Sample Name:		S9-1 @ 0.075m 26-Mar-2024	HA01-0.1m 26-Mar-2024	HA02-0.1m 26-Mar-2024	HA03-1.0m 27-Mar-2024	HA04-0.4m 27-Mar-2024
Lab Number:		3522099.41	3522099.43	3522099.46	3522099.51	3522099.53
Individual Tests						
Dry Matter	g/100g as rcvd	66	61	60	61	67
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	9	< 2	< 2	2	2
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	0.57	0.52	0.45	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	81	65	52	90	143
Total Recoverable Copper	mg/kg dry wt	65	31	25	45	33
Total Recoverable Lead	mg/kg dry wt	118	9.1	12.8	6.6	6.8
Total Recoverable Nickel	mg/kg dry wt	53	30	28	108	125
Total Recoverable Zinc	mg/kg dry wt	280	20	13	17	11
Multiresidue Pesticides in Soil samples by GCMS						
Acetochlor	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Alachlor	mg/kg dry wt	-	-	-	< 0.006	< 0.006
Aldrin	mg/kg dry wt	-	-	-	< 0.017	< 0.015
Atrazine	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Atrazine-desethyl	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Atrazine-desisopropyl	mg/kg dry wt	-	-	-	< 0.02	< 0.018
Azaconazole	mg/kg dry wt	-	-	-	< 0.005	< 0.005
Azinphos-methyl	mg/kg dry wt	-	-	-	< 0.05	< 0.05
Benalaxyl	mg/kg dry wt	-	-	-	< 0.005	< 0.005
Bendiocarb	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Benodanil	mg/kg dry wt	-	-	-	< 0.02	< 0.018
alpha-BHC	mg/kg dry wt	-	-	-	< 0.017	< 0.015
beta-BHC	mg/kg dry wt	-	-	-	< 0.017	< 0.015
delta-BHC	mg/kg dry wt	-	-	-	< 0.017	< 0.015
gamma-BHC (Lindane)	mg/kg dry wt	-	-	-	< 0.017	< 0.015
Bifenthrin	mg/kg dry wt	-	-	-	< 0.005	< 0.005
Bitertanol	mg/kg dry wt	-	-	-	< 0.02	< 0.018
Bromacil	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Bromophos-ethyl	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Bromopropylate	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Bupirimate	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Buprofezin	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Butachlor	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Captafol	mg/kg dry wt	-	-	-	< 0.05	< 0.05
Captan	mg/kg dry wt	-	-	-	< 0.02	< 0.018
Carbaryl	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Carbofenothion	mg/kg dry wt	-	-	-	< 0.010	< 0.009

Sample Type: Soil						
Sample Name:		S9-1 @ 0.075m 26-Mar-2024	HA01-0.1m 26-Mar-2024	HA02-0.1m 26-Mar-2024	HA03-1.0m 27-Mar-2024	HA04-0.4m 27-Mar-2024
Lab Number:		3522099.41	3522099.43	3522099.46	3522099.51	3522099.53
Multiresidue Pesticides in Soil samples by GCMS						
Carbofuran	mg/kg dry wt	-	-	-	< 0.010	< 0.009
cis-Chlordane	mg/kg dry wt	-	-	-	< 0.017	< 0.015
trans-Chlordane	mg/kg dry wt	-	-	-	< 0.017	< 0.015
Chlorfenvinphos	mg/kg dry wt	-	-	-	< 0.014	< 0.013
Chlorfluazuron	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Chlorothalonil	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Chlorpropham	mg/kg dry wt	-	-	-	< 0.02	< 0.018
Chlorpyrifos	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Chlorpyrifos-methyl	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Chlortoluron	mg/kg dry wt	-	-	-	< 0.02	< 0.018
Chlozolinate	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Coumaphos	mg/kg dry wt	-	-	-	< 0.02	< 0.018
Cyanazine	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Cyfluthrin	mg/kg dry wt	-	-	-	< 0.012	< 0.011
Cyhalothrin	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Cypermethrin	mg/kg dry wt	-	-	-	< 0.03	< 0.03
Cyproconazole	mg/kg dry wt	-	-	-	< 0.02	< 0.018
Cyprodinil	mg/kg dry wt	-	-	-	< 0.010	< 0.009
2,4'-DDD	mg/kg dry wt	-	-	-	< 0.017	< 0.015
4,4'-DDD	mg/kg dry wt	-	-	-	< 0.017	< 0.015
2,4'-DDE	mg/kg dry wt	-	-	-	< 0.017	< 0.015
4,4'-DDE	mg/kg dry wt	-	-	-	< 0.017	< 0.015
2,4'-DDT	mg/kg dry wt	-	-	-	< 0.017	< 0.015
4,4'-DDT	mg/kg dry wt	-	-	-	< 0.017	< 0.015
Total DDT Isomers	mg/kg dry wt	-	-	-	< 0.10	< 0.09
Deltamethrin (including Tralomethrin)	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Diazinon	mg/kg dry wt	-	-	-	< 0.005	< 0.005
Dichlobenil	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Dichlofenthion	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Dichlofluanid	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Dichloran	mg/kg dry wt	-	-	-	< 0.03	< 0.03
Dichlorvos	mg/kg dry wt	-	-	-	< 0.010	< 0.010
Dicofol	mg/kg dry wt	-	-	-	< 0.05	< 0.05
Dicrotophos	mg/kg dry wt	-	-	-	< 0.05	< 0.05
Dieldrin	mg/kg dry wt	-	-	-	< 0.017	< 0.015
Difenoconazole	mg/kg dry wt	-	-	-	< 0.014	< 0.013
Dimethoate	mg/kg dry wt	-	-	-	< 0.02	< 0.018
Dinocap	mg/kg dry wt	-	-	-	< 0.11	< 0.10
Diphenylamine	mg/kg dry wt	-	-	-	< 0.02	< 0.018
Diuron	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Endosulfan I	mg/kg dry wt	-	-	-	< 0.017	< 0.015
Endosulfan II	mg/kg dry wt	-	-	-	< 0.017	< 0.015
Endosulfan sulphate	mg/kg dry wt	-	-	-	< 0.017	< 0.015
Endrin	mg/kg dry wt	-	-	-	< 0.017	< 0.015
Endrin aldehyde	mg/kg dry wt	-	-	-	< 0.017	< 0.015
Endrin ketone	mg/kg dry wt	-	-	-	< 0.017	< 0.015
EPN	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Ethion	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Etrimfos	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Famphur	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Fenarimol	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Fenitrothion	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Fenpropathrin	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Fenpropimorph	mg/kg dry wt	-	-	-	< 0.010	< 0.009

Sample Type: Soil						
Sample Name:		S9-1 @ 0.075m 26-Mar-2024	HA01-0.1m 26-Mar-2024	HA02-0.1m 26-Mar-2024	HA03-1.0m 27-Mar-2024	HA04-0.4m 27-Mar-2024
Lab Number:		3522099.41	3522099.43	3522099.46	3522099.51	3522099.53
Multiresidue Pesticides in Soil samples by GCMS						
Fensulfothion	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Fenvalerate (including Esfenvalerate)	mg/kg dry wt	-	-	-	< 0.014	< 0.013
Fluazifop-butyl	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Fluometuron	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Flusilazole	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Fluvalinate	mg/kg dry wt	-	-	-	< 0.007	< 0.007
Folpet	mg/kg dry wt	-	-	-	< 0.02	< 0.018
Furalaxyl	mg/kg dry wt	-	-	-	< 0.005	< 0.005
Haloxyfop-methyl	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Heptachlor	mg/kg dry wt	-	-	-	< 0.017	< 0.015
Heptachlor epoxide	mg/kg dry wt	-	-	-	< 0.017	< 0.015
Hexachlorobenzene	mg/kg dry wt	-	-	-	< 0.017	< 0.015
Hexaconazole	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Hexazinone	mg/kg dry wt	-	-	-	< 0.005	< 0.005
Hexythiazox	mg/kg dry wt	-	-	-	< 0.05	< 0.05
Imazalil	mg/kg dry wt	-	-	-	< 0.05	< 0.05
Indoxacarb	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Iodofenphos	mg/kg dry wt	-	-	-	< 0.010	< 0.009
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	-	-	-	< 0.05	< 0.05
Isazophos	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Isofenphos	mg/kg dry wt	-	-	-	< 0.005	< 0.005
Kresoxim-methyl	mg/kg dry wt	-	-	-	< 0.005	< 0.005
Leptophos	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Linuron	mg/kg dry wt	-	-	-	< 0.05	< 0.05
Malathion	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Metalaxyl	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Methacrifos	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Methamidophos	mg/kg dry wt	-	-	-	< 0.05	< 0.05
Methidathion	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Methiocarb	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Methoxychlor	mg/kg dry wt	-	-	-	< 0.017	< 0.015
Metolachlor	mg/kg dry wt	-	-	-	< 0.006	< 0.006
Metribuzin	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Mevinphos	mg/kg dry wt	-	-	-	< 0.02	< 0.018
Molinate	mg/kg dry wt	-	-	-	< 0.02	< 0.018
Myclobutanil	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Naled	mg/kg dry wt	-	-	-	< 0.05	< 0.05
Nitrofen	mg/kg dry wt	-	-	-	< 0.02	< 0.018
Nitrothal-isopropyl	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Norflurazon	mg/kg dry wt	-	-	-	< 0.02	< 0.018
Omethoate	mg/kg dry wt	-	-	-	< 0.05	< 0.05
Oxadiazon	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Oxychlordane	mg/kg dry wt	-	-	-	< 0.005	< 0.005
Oxyfluorfen	mg/kg dry wt	-	-	-	< 0.005	< 0.005
Paclobutrazol	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Parathion-ethyl	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Parathion-methyl	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Penconazole	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Pendimethalin	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Permethrin	mg/kg dry wt	-	-	-	< 0.003	< 0.003
Phosmet	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Phosphamidon	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Pirimicarb	mg/kg dry wt	-	-	-	< 0.010	< 0.009

Sample Type: Soil						
Sample Name:		S9-1 @ 0.075m 26-Mar-2024	HA01-0.1m 26-Mar-2024	HA02-0.1m 26-Mar-2024	HA03-1.0m 27-Mar-2024	HA04-0.4m 27-Mar-2024
Lab Number:		3522099.41	3522099.43	3522099.46	3522099.51	3522099.53
Multiresidue Pesticides in Soil samples by GCMS						
Pirimiphos-methyl	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Prochloraz	mg/kg dry wt	-	-	-	< 0.05	< 0.05
Procymidone	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Prometryn	mg/kg dry wt	-	-	-	< 0.005	< 0.005
Propachlor	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Propanil	mg/kg dry wt	-	-	-	< 0.03	< 0.03
Propazine	mg/kg dry wt	-	-	-	< 0.005	< 0.005
Propetamphos	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Propham	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Propiconazole	mg/kg dry wt	-	-	-	< 0.007	< 0.007
Prothiofos	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Pyrazophos	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Pyrifenox	mg/kg dry wt	-	-	-	< 0.014	< 0.013
Pyrimethanil	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Pyriproxyfen	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Quintozene	mg/kg dry wt	-	-	-	< 0.02	< 0.018
Quizalofop-ethyl	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Simazine	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Simetryn	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Sulfentrazone	mg/kg dry wt	-	-	-	< 0.05	< 0.05
Sulfotep	mg/kg dry wt	-	-	-	< 0.010	< 0.009
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	mg/kg dry wt	-	-	-	< 0.05	< 0.05
Tebuconazole	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Tebufenpyrad	mg/kg dry wt	-	-	-	< 0.005	< 0.005
Terbacil	mg/kg dry wt	-	-	-	< 0.05	< 0.05
Terbumeton	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Terbuthylazine	mg/kg dry wt	-	-	-	< 0.005	< 0.005
Terbuthylazine-desethyl	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Terbutryn	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Tetrachlorvinphos	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Thiabendazole	mg/kg dry wt	-	-	-	< 0.05	< 0.05
Thiobencarb	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Tolylfluanid	mg/kg dry wt	-	-	-	< 0.005	< 0.005
Triadimefon	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Triazophos	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Trifluralin	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Vinclozolin	mg/kg dry wt	-	-	-	< 0.010	< 0.009
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
alpha-BHC	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
beta-BHC	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
delta-BHC	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
gamma-BHC (Lindane)	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
cis-Chlordane	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
trans-Chlordane	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
2,4'-DDD	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
4,4'-DDD	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
2,4'-DDE	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
4,4'-DDE	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
2,4'-DDT	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
4,4'-DDT	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
Total DDT Isomers	mg/kg dry wt	< 0.09	< 0.10	< 0.10	-	-
Dieldrin	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
Endosulfan I	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-

Sample Type: Soil						
Sample Name:		S9-1 @ 0.075m 26-Mar-2024	HA01-0.1m 26-Mar-2024	HA02-0.1m 26-Mar-2024	HA03-1.0m 27-Mar-2024	HA04-0.4m 27-Mar-2024
Lab Number:		3522099.41	3522099.43	3522099.46	3522099.51	3522099.53
Organochlorine Pesticides Screening in Soil						
Endosulfan II	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
Endosulfan sulphate	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
Endrin	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
Endrin aldehyde	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
Endrin ketone	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
Heptachlor	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
Heptachlor epoxide	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
Hexachlorobenzene	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
Methoxychlor	mg/kg dry wt	< 0.015	< 0.017	< 0.017	-	-
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.015	< 0.017	< 0.017	< 0.017	< 0.015
2-Methylnaphthalene	mg/kg dry wt	< 0.015	< 0.017	< 0.017	< 0.017	< 0.015
Acenaphthylene	mg/kg dry wt	< 0.015	< 0.017	< 0.017	< 0.017	< 0.015
Acenaphthene	mg/kg dry wt	< 0.015	< 0.017	< 0.017	< 0.017	< 0.015
Anthracene	mg/kg dry wt	< 0.015	< 0.017	< 0.017	< 0.017	< 0.015
Benzo[a]anthracene	mg/kg dry wt	< 0.015	< 0.017	< 0.017	< 0.017	< 0.015
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.025	< 0.017	< 0.017	< 0.017	< 0.015
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.036	< 0.040	< 0.040	< 0.040	< 0.036
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.036	< 0.039	< 0.040	< 0.040	< 0.036
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.030	< 0.017	< 0.017	< 0.017	< 0.015
Benzo[e]pyrene	mg/kg dry wt	0.017	< 0.017	< 0.017	< 0.017	< 0.015
Benzo[g,h,i]perylene	mg/kg dry wt	0.017	< 0.017	< 0.017	< 0.017	< 0.015
Benzo[k]fluoranthene	mg/kg dry wt	< 0.015	< 0.017	< 0.017	< 0.017	< 0.015
Chrysene	mg/kg dry wt	0.015	< 0.017	< 0.017	< 0.017	< 0.015
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.015	< 0.017	< 0.017	< 0.017	< 0.015
Fluoranthene	mg/kg dry wt	0.028	< 0.017	< 0.017	< 0.017	< 0.015
Fluorene	mg/kg dry wt	< 0.015	< 0.017	< 0.017	< 0.017	< 0.015
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.020	< 0.017	< 0.017	< 0.017	< 0.015
Naphthalene	mg/kg dry wt	< 0.08	< 0.09	< 0.09	< 0.09	< 0.08
Perylene	mg/kg dry wt	< 0.015	< 0.017	< 0.017	< 0.017	< 0.015
Phenanthrene	mg/kg dry wt	0.018	< 0.017	< 0.017	< 0.017	< 0.015
Pyrene	mg/kg dry wt	0.032	< 0.017	< 0.017	< 0.017	< 0.015
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	< 30	< 30	< 30	< 30	< 30
C10 - C14	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C15 - C36	mg/kg dry wt	109	87	100	< 40	< 40
Total hydrocarbons (C7 - C36)	mg/kg dry wt	116	97	107	< 90	< 90

Sample Name:		HA05-0.5m 27-Mar-2024	HA06-0.3m 27-Mar-2024	HA07-0.1m 27-Mar-2024	HA08-0.5m 27-Mar-2024	Composite of S1-1 @ 0.1m, S1-2 @ 0.1m, S1-3 @ 0.1m & S1-4 @ 0.1m
Lab Number:		3522099.56	3522099.58	3522099.61	3522099.65	3522099.67
Individual Tests						
Dry Matter	g/100g as rcvd	65	66	70	67	68
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	< 2	< 2	< 2	< 2	< 2
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	0.36	0.39	0.14	< 0.10	1.02
Total Recoverable Chromium	mg/kg dry wt	44	44	74	139	52
Total Recoverable Copper	mg/kg dry wt	22	16	26	36	24
Total Recoverable Lead	mg/kg dry wt	7.9	8.1	7.3	6.9	8.7

Sample Type: Soil						
Sample Name:		HA05-0.5m 27-Mar-2024	HA06-0.3m 27-Mar-2024	HA07-0.1m 27-Mar-2024	HA08-0.5m 27-Mar-2024	Composite of S1-1 @ 0.1m, S1-2 @ 0.1m, S1-3 @ 0.1m & S1-4 @ 0.1m
Lab Number:		3522099.56	3522099.58	3522099.61	3522099.65	3522099.67
7 Heavy metals plus Boron						
Total Recoverable Nickel	mg/kg dry wt	28	23	50	112	29
Total Recoverable Zinc	mg/kg dry wt	13	15	15	18	24
Multiresidue Pesticides in Soil samples by GCMS						
Acetochlor	mg/kg dry wt	-	-	-	< 0.009	-
Alachlor	mg/kg dry wt	-	-	-	< 0.006	-
Aldrin	mg/kg dry wt	-	-	-	< 0.015	-
Atrazine	mg/kg dry wt	-	-	-	< 0.009	-
Atrazine-desethyl	mg/kg dry wt	-	-	-	< 0.009	-
Atrazine-desisopropyl	mg/kg dry wt	-	-	-	< 0.018	-
Azaconazole	mg/kg dry wt	-	-	-	< 0.005	-
Azinphos-methyl	mg/kg dry wt	-	-	-	< 0.018	-
Benalaxyl	mg/kg dry wt	-	-	-	< 0.005	-
Bendiocarb	mg/kg dry wt	-	-	-	< 0.009	-
Benodanil	mg/kg dry wt	-	-	-	< 0.018	-
alpha-BHC	mg/kg dry wt	-	-	-	< 0.015	-
beta-BHC	mg/kg dry wt	-	-	-	< 0.015	-
delta-BHC	mg/kg dry wt	-	-	-	< 0.015	-
gamma-BHC (Lindane)	mg/kg dry wt	-	-	-	< 0.015	-
Bifenthrin	mg/kg dry wt	-	-	-	< 0.005	-
Bitertanol	mg/kg dry wt	-	-	-	< 0.018	-
Bromacil	mg/kg dry wt	-	-	-	< 0.009	-
Bromophos-ethyl	mg/kg dry wt	-	-	-	< 0.009	-
Bromopropylate	mg/kg dry wt	-	-	-	< 0.009	-
Bupirimate	mg/kg dry wt	-	-	-	< 0.009	-
Buprofezin	mg/kg dry wt	-	-	-	< 0.009	-
Butachlor	mg/kg dry wt	-	-	-	< 0.009	-
Captafol	mg/kg dry wt	-	-	-	< 0.05	-
Captan	mg/kg dry wt	-	-	-	< 0.018	-
Carbaryl	mg/kg dry wt	-	-	-	< 0.009	-
Carbofenothion	mg/kg dry wt	-	-	-	< 0.009	-
Carbofuran	mg/kg dry wt	-	-	-	< 0.009	-
cis-Chlordane	mg/kg dry wt	-	-	-	< 0.015	-
trans-Chlordane	mg/kg dry wt	-	-	-	< 0.015	-
Chlorfenvinphos	mg/kg dry wt	-	-	-	< 0.013	-
Chlorfluazuron	mg/kg dry wt	-	-	-	< 0.009	-
Chlorothalonil	mg/kg dry wt	-	-	-	< 0.009	-
Chlorpropham	mg/kg dry wt	-	-	-	< 0.018	-
Chlorpyrifos	mg/kg dry wt	-	-	-	< 0.009	-
Chlorpyrifos-methyl	mg/kg dry wt	-	-	-	< 0.009	-
Chlortoluron	mg/kg dry wt	-	-	-	< 0.018	-
Chlozolinate	mg/kg dry wt	-	-	-	< 0.009	-
Coumaphos	mg/kg dry wt	-	-	-	< 0.018	-
Cyanazine	mg/kg dry wt	-	-	-	< 0.009	-
Cyfluthrin	mg/kg dry wt	-	-	-	< 0.011	-
Cyhalothrin	mg/kg dry wt	-	-	-	< 0.009	-
Cypermethrin	mg/kg dry wt	-	-	-	< 0.03	-
Cyproconazole	mg/kg dry wt	-	-	-	< 0.018	-
Cyprodinil	mg/kg dry wt	-	-	-	< 0.009	-
2,4'-DDD	mg/kg dry wt	-	-	-	< 0.015	-
4,4'-DDD	mg/kg dry wt	-	-	-	< 0.015	-
2,4'-DDE	mg/kg dry wt	-	-	-	< 0.015	-
4,4'-DDE	mg/kg dry wt	-	-	-	< 0.015	-

Sample Type: Soil						
Sample Name:		HA05-0.5m 27-Mar-2024	HA06-0.3m 27-Mar-2024	HA07-0.1m 27-Mar-2024	HA08-0.5m 27-Mar-2024	Composite of S1-1 @ 0.1m, S1-2 @ 0.1m, S1-3 @ 0.1m & S1-4 @ 0.1m
Lab Number:		3522099.56	3522099.58	3522099.61	3522099.65	3522099.67
Multiresidue Pesticides in Soil samples by GCMS						
2,4'-DDT	mg/kg dry wt	-	-	-	< 0.015	-
4,4'-DDT	mg/kg dry wt	-	-	-	< 0.015	-
Total DDT Isomers	mg/kg dry wt	-	-	-	< 0.09	-
Deltamethrin (including Tralomethrin)	mg/kg dry wt	-	-	-	< 0.009	-
Diazinon	mg/kg dry wt	-	-	-	< 0.005	-
Dichlobenil	mg/kg dry wt	-	-	-	< 0.009	-
Dichlofenthion	mg/kg dry wt	-	-	-	< 0.009	-
Dichlofluanid	mg/kg dry wt	-	-	-	< 0.009	-
Dichloran	mg/kg dry wt	-	-	-	< 0.03	-
Dichlorvos	mg/kg dry wt	-	-	-	< 0.010	-
Dicofol	mg/kg dry wt	-	-	-	< 0.05	-
Dicrotophos	mg/kg dry wt	-	-	-	< 0.009	-
Dieldrin	mg/kg dry wt	-	-	-	< 0.015	-
Difenoconazole	mg/kg dry wt	-	-	-	< 0.013	-
Dimethoate	mg/kg dry wt	-	-	-	< 0.018	-
Dinocap	mg/kg dry wt	-	-	-	< 0.10	-
Diphenylamine	mg/kg dry wt	-	-	-	< 0.018	-
Diuron	mg/kg dry wt	-	-	-	< 0.009	-
Endosulfan I	mg/kg dry wt	-	-	-	< 0.015	-
Endosulfan II	mg/kg dry wt	-	-	-	< 0.015	-
Endosulfan sulphate	mg/kg dry wt	-	-	-	< 0.015	-
Endrin	mg/kg dry wt	-	-	-	< 0.015	-
Endrin aldehyde	mg/kg dry wt	-	-	-	< 0.015	-
Endrin ketone	mg/kg dry wt	-	-	-	< 0.015	-
EPN	mg/kg dry wt	-	-	-	< 0.009	-
Ethion	mg/kg dry wt	-	-	-	< 0.009	-
Etrimfos	mg/kg dry wt	-	-	-	< 0.009	-
Famphur	mg/kg dry wt	-	-	-	< 0.009	-
Fenarimol	mg/kg dry wt	-	-	-	< 0.009	-
Fenitrothion	mg/kg dry wt	-	-	-	< 0.009	-
Fenpropathrin	mg/kg dry wt	-	-	-	< 0.009	-
Fenpropimorph	mg/kg dry wt	-	-	-	< 0.009	-
Fensulfothion	mg/kg dry wt	-	-	-	< 0.009	-
Fenvalerate (including Esfenvalerate)	mg/kg dry wt	-	-	-	< 0.013	-
Fluazifop-butyl	mg/kg dry wt	-	-	-	< 0.009	-
Fluometuron	mg/kg dry wt	-	-	-	< 0.009	-
Flusilazole	mg/kg dry wt	-	-	-	< 0.009	-
Fluvalinate	mg/kg dry wt	-	-	-	< 0.007	-
Folpet	mg/kg dry wt	-	-	-	< 0.018	-
Furalaxyl	mg/kg dry wt	-	-	-	< 0.005	-
Haloxyfop-methyl	mg/kg dry wt	-	-	-	< 0.009	-
Heptachlor	mg/kg dry wt	-	-	-	< 0.015	-
Heptachlor epoxide	mg/kg dry wt	-	-	-	< 0.015	-
Hexachlorobenzene	mg/kg dry wt	-	-	-	< 0.015	-
Hexaconazole	mg/kg dry wt	-	-	-	< 0.009	-
Hexazinone	mg/kg dry wt	-	-	-	< 0.005	-
Hexythiazox	mg/kg dry wt	-	-	-	< 0.05	-
Imazalil	mg/kg dry wt	-	-	-	< 0.05	-
Indoxacarb	mg/kg dry wt	-	-	-	< 0.009	-
Iodofenphos	mg/kg dry wt	-	-	-	< 0.009	-

Sample Type: Soil						
Sample Name:		HA05-0.5m 27-Mar-2024	HA06-0.3m 27-Mar-2024	HA07-0.1m 27-Mar-2024	HA08-0.5m 27-Mar-2024	Composite of S1-1 @ 0.1m, S1-2 @ 0.1m, S1-3 @ 0.1m & S1-4 @ 0.1m
Lab Number:		3522099.56	3522099.58	3522099.61	3522099.65	3522099.67
Multiresidue Pesticides in Soil samples by GCMS						
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	-	-	-	< 0.05	-
Isazophos	mg/kg dry wt	-	-	-	< 0.009	-
Isofenphos	mg/kg dry wt	-	-	-	< 0.005	-
Kresoxim-methyl	mg/kg dry wt	-	-	-	< 0.005	-
Leptophos	mg/kg dry wt	-	-	-	< 0.009	-
Linuron	mg/kg dry wt	-	-	-	< 0.009	-
Malathion	mg/kg dry wt	-	-	-	< 0.009	-
Metalaxyl	mg/kg dry wt	-	-	-	< 0.009	-
Methacrifos	mg/kg dry wt	-	-	-	< 0.009	-
Methamidophos	mg/kg dry wt	-	-	-	< 0.05	-
Methidathion	mg/kg dry wt	-	-	-	< 0.009	-
Methiocarb	mg/kg dry wt	-	-	-	< 0.009	-
Methoxychlor	mg/kg dry wt	-	-	-	< 0.015	-
Metolachlor	mg/kg dry wt	-	-	-	< 0.006	-
Metribuzin	mg/kg dry wt	-	-	-	< 0.009	-
Mevinphos	mg/kg dry wt	-	-	-	< 0.018	-
Molinate	mg/kg dry wt	-	-	-	< 0.018	-
Myclobutanil	mg/kg dry wt	-	-	-	< 0.009	-
Naled	mg/kg dry wt	-	-	-	< 0.05	-
Nitrofen	mg/kg dry wt	-	-	-	< 0.018	-
Nitrothal-isopropyl	mg/kg dry wt	-	-	-	< 0.009	-
Norflurazon	mg/kg dry wt	-	-	-	< 0.018	-
Omethoate	mg/kg dry wt	-	-	-	< 0.05	-
Oxadiazon	mg/kg dry wt	-	-	-	< 0.009	-
Oxychlordane	mg/kg dry wt	-	-	-	< 0.005	-
Oxyfluorfen	mg/kg dry wt	-	-	-	< 0.005	-
Paclobutrazol	mg/kg dry wt	-	-	-	< 0.009	-
Parathion-ethyl	mg/kg dry wt	-	-	-	< 0.009	-
Parathion-methyl	mg/kg dry wt	-	-	-	< 0.009	-
Penconazole	mg/kg dry wt	-	-	-	< 0.009	-
Pendimethalin	mg/kg dry wt	-	-	-	< 0.009	-
Permethrin	mg/kg dry wt	-	-	-	< 0.003	-
Phosmet	mg/kg dry wt	-	-	-	< 0.009	-
Phosphamidon	mg/kg dry wt	-	-	-	< 0.009	-
Pirimicarb	mg/kg dry wt	-	-	-	< 0.009	-
Pirimiphos-methyl	mg/kg dry wt	-	-	-	< 0.009	-
Prochloraz	mg/kg dry wt	-	-	-	< 0.05	-
Procymidone	mg/kg dry wt	-	-	-	< 0.009	-
Prometryn	mg/kg dry wt	-	-	-	< 0.005	-
Propachlor	mg/kg dry wt	-	-	-	< 0.009	-
Propanil	mg/kg dry wt	-	-	-	< 0.03	-
Propazine	mg/kg dry wt	-	-	-	< 0.005	-
Propetamphos	mg/kg dry wt	-	-	-	< 0.009	-
Propham	mg/kg dry wt	-	-	-	< 0.009	-
Propiconazole	mg/kg dry wt	-	-	-	< 0.007	-
Prothiofos	mg/kg dry wt	-	-	-	< 0.009	-
Pyrazophos	mg/kg dry wt	-	-	-	< 0.009	-
Pyrifenox	mg/kg dry wt	-	-	-	< 0.013	-
Pyrimethanil	mg/kg dry wt	-	-	-	< 0.009	-
Pyriproxyfen	mg/kg dry wt	-	-	-	< 0.009	-
Quintozene	mg/kg dry wt	-	-	-	< 0.018	-
Quizalofop-ethyl	mg/kg dry wt	-	-	-	< 0.009	-

Sample Type: Soil						
Sample Name:		HA05-0.5m 27-Mar-2024	HA06-0.3m 27-Mar-2024	HA07-0.1m 27-Mar-2024	HA08-0.5m 27-Mar-2024	Composite of S1-1 @ 0.1m, S1-2 @ 0.1m, S1-3 @ 0.1m & S1-4 @ 0.1m
Lab Number:		3522099.56	3522099.58	3522099.61	3522099.65	3522099.67
Multiresidue Pesticides in Soil samples by GCMS						
Simazine	mg/kg dry wt	-	-	-	< 0.009	-
Simetryn	mg/kg dry wt	-	-	-	< 0.009	-
Sulfentrazone	mg/kg dry wt	-	-	-	< 0.05	-
Sulfotep	mg/kg dry wt	-	-	-	< 0.009	-
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	mg/kg dry wt	-	-	-	< 0.018	-
Tebuconazole	mg/kg dry wt	-	-	-	< 0.009	-
Tebufenpyrad	mg/kg dry wt	-	-	-	< 0.005	-
Terbacil	mg/kg dry wt	-	-	-	< 0.009	-
Terbumeton	mg/kg dry wt	-	-	-	< 0.009	-
Terbuthylazine	mg/kg dry wt	-	-	-	< 0.005	-
Terbuthylazine-desethyl	mg/kg dry wt	-	-	-	< 0.009	-
Terbutryn	mg/kg dry wt	-	-	-	< 0.009	-
Tetrachlorvinphos	mg/kg dry wt	-	-	-	< 0.009	-
Thiabendazole	mg/kg dry wt	-	-	-	< 0.05	-
Thiobencarb	mg/kg dry wt	-	-	-	< 0.009	-
Tolylfluanid	mg/kg dry wt	-	-	-	< 0.005	-
Triadimefon	mg/kg dry wt	-	-	-	< 0.009	-
Triazophos	mg/kg dry wt	-	-	-	< 0.009	-
Trifluralin	mg/kg dry wt	-	-	-	< 0.009	-
Vinclozolin	mg/kg dry wt	-	-	-	< 0.009	-
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.016	-	-	-	< 0.015
alpha-BHC	mg/kg dry wt	< 0.016	-	-	-	< 0.015
beta-BHC	mg/kg dry wt	< 0.016	-	-	-	< 0.015
delta-BHC	mg/kg dry wt	< 0.016	-	-	-	< 0.015
gamma-BHC (Lindane)	mg/kg dry wt	< 0.016	-	-	-	< 0.015
cis-Chlordane	mg/kg dry wt	< 0.016	-	-	-	< 0.015
trans-Chlordane	mg/kg dry wt	< 0.016	-	-	-	< 0.015
2,4'-DDD	mg/kg dry wt	< 0.016	-	-	-	< 0.015
4,4'-DDD	mg/kg dry wt	< 0.016	-	-	-	< 0.015
2,4'-DDE	mg/kg dry wt	< 0.016	-	-	-	< 0.015
4,4'-DDE	mg/kg dry wt	< 0.016	-	-	-	< 0.015
2,4'-DDT	mg/kg dry wt	< 0.016	-	-	-	< 0.015
4,4'-DDT	mg/kg dry wt	< 0.016	-	-	-	< 0.015
Total DDT Isomers	mg/kg dry wt	< 0.10	-	-	-	< 0.09
Dieldrin	mg/kg dry wt	< 0.016	-	-	-	< 0.015
Endosulfan I	mg/kg dry wt	< 0.016	-	-	-	< 0.015
Endosulfan II	mg/kg dry wt	< 0.016	-	-	-	< 0.015
Endosulfan sulphate	mg/kg dry wt	< 0.016	-	-	-	< 0.015
Endrin	mg/kg dry wt	< 0.016	-	-	-	< 0.015
Endrin aldehyde	mg/kg dry wt	< 0.016	-	-	-	< 0.015
Endrin ketone	mg/kg dry wt	< 0.016	-	-	-	< 0.015
Heptachlor	mg/kg dry wt	< 0.016	-	-	-	< 0.015
Heptachlor epoxide	mg/kg dry wt	< 0.016	-	-	-	< 0.015
Hexachlorobenzene	mg/kg dry wt	< 0.016	-	-	-	< 0.015
Methoxychlor	mg/kg dry wt	< 0.016	-	-	-	< 0.015
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
2-Methylnaphthalene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Acenaphthylene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Acenaphthene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015

Sample Type: Soil						
Sample Name:		HA05-0.5m 27-Mar-2024	HA06-0.3m 27-Mar-2024	HA07-0.1m 27-Mar-2024	HA08-0.5m 27-Mar-2024	Composite of S1-1 @ 0.1m, S1-2 @ 0.1m, S1-3 @ 0.1m & S1-4 @ 0.1m
Lab Number:		3522099.56	3522099.58	3522099.61	3522099.65	3522099.67
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Anthracene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Benzo[a]anthracene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.037	< 0.036	< 0.034	< 0.035	< 0.035
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.037	< 0.035	< 0.034	< 0.035	< 0.035
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Benzo[e]pyrene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Benzo[k]fluoranthene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Chrysene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Fluoranthene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Fluorene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Naphthalene	mg/kg dry wt	< 0.08	< 0.08	< 0.07	< 0.08	< 0.08
Perylene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Phenanthrene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Pyrene	mg/kg dry wt	< 0.016	< 0.015	< 0.014	< 0.015	< 0.015
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	< 30	< 30	< 20	< 30	< 20
C10 - C14	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C15 - C36	mg/kg dry wt	103	54	79	< 40	102
Total hydrocarbons (C7 - C36)	mg/kg dry wt	116	< 90	86	< 90	107

Sample Name:		Composite of S2-1 @ 0.075m, S2-2 @ 0.1m, S2-3 @ 0.1m & S2-4 @ 0.1m	Composite of S3-1 @ 0.1m, S3-2 @ 0.1m, S3-3 @ 0.1m & S3-4 @ 0.1m	Composite of S4-1 @ 0.1m, S4-2 @ 0.1m, S4-3 @ 0.1m & S4-4 @ 0.1m	Composite of S5-1 @ 0.1m, S5-2 @ 0.1m, S5-3 @ 0.1m & S5-4 @ 0.1m	Composite of S6-1 @ 0.1m, S6-2 @ 0.1m, S6-3 @ 0.1m & S6-4 @ 0.1m
Lab Number:		3522099.68	3522099.69	3522099.70	3522099.71	3522099.72
Individual Tests						
Dry Matter	g/100g as rcvd	70	67	66	61	65
7 Heavy metals plus Boron						
Total Recoverable Arsenic	mg/kg dry wt	7	< 2	< 2	< 2	< 2
Total Recoverable Boron	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	0.82	0.44	0.44	0.40	0.44
Total Recoverable Chromium	mg/kg dry wt	64	46	44	45	58
Total Recoverable Copper	mg/kg dry wt	34	22	21	19	18
Total Recoverable Lead	mg/kg dry wt	53	10.0	10.1	9.3	8.9
Total Recoverable Nickel	mg/kg dry wt	39	27	33	23	21
Total Recoverable Zinc	mg/kg dry wt	111	23	24	22	16
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
alpha-BHC	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
beta-BHC	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
delta-BHC	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
gamma-BHC (Lindane)	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
cis-Chlordane	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
trans-Chlordane	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
2,4'-DDD	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
4,4'-DDD	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
2,4'-DDE	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015

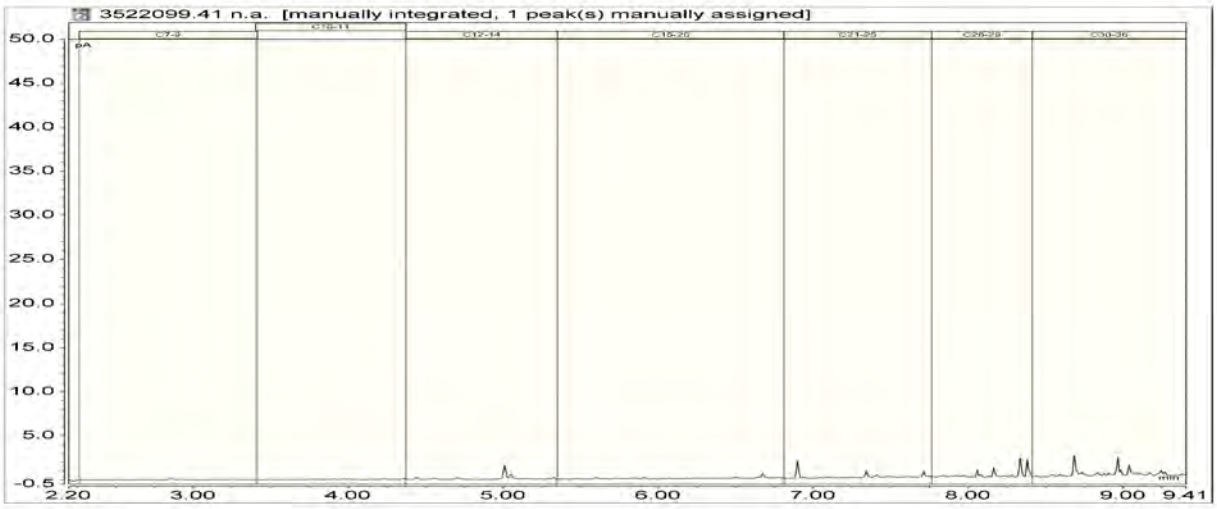
Sample Type: Soil						
Sample Name:		Composite of S2-1 @ 0.075m, S2-2 @ 0.1m, S2-3 @ 0.1m & S2-4 @ 0.1m	Composite of S3-1 @ 0.1m, S3-2 @ 0.1m, S3-3 @ 0.1m & S3-4 @ 0.1m	Composite of S4-1 @ 0.1m, S4-2 @ 0.1m, S4-3 @ 0.1m & S4-4 @ 0.1m	Composite of S5-1 @ 0.1m, S5-2 @ 0.1m, S5-3 @ 0.1m & S5-4 @ 0.1m	Composite of S6-1 @ 0.1m, S6-2 @ 0.1m, S6-3 @ 0.1m & S6-4 @ 0.1m
Lab Number:		3522099.68	3522099.69	3522099.70	3522099.71	3522099.72
Organochlorine Pesticides Screening in Soil						
4,4'-DDE	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
2,4'-DDT	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
4,4'-DDT	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Total DDT Isomers	mg/kg dry wt	< 0.09	< 0.09	< 0.09	< 0.10	< 0.09
Dieldrin	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Endosulfan I	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Endosulfan II	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Endosulfan sulphate	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Endrin	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Endrin aldehyde	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Endrin ketone	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Heptachlor	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Heptachlor epoxide	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Hexachlorobenzene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Methoxychlor	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
2-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Acenaphthylene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Acenaphthene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Anthracene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Benzo[a]anthracene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.034	< 0.036	< 0.036	< 0.039	< 0.036
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.034	< 0.036	< 0.036	< 0.039	< 0.036
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Benzo[e]pyrene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Benzo[k]fluoranthene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Chrysene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Fluoranthene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Fluorene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Naphthalene	mg/kg dry wt	< 0.07	< 0.08	< 0.08	< 0.08	< 0.08
Perylene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Phenanthrene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Pyrene	mg/kg dry wt	< 0.014	< 0.015	< 0.015	< 0.016	< 0.015
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	< 20	< 30	< 30	< 30	< 30
C10 - C14	mg/kg dry wt	31	< 20	< 20	< 20	< 20
C15 - C36	mg/kg dry wt	166	118	119	144	46
Total hydrocarbons (C7 - C36)	mg/kg dry wt	197	128	129	161	< 90

Sample Name:		Composite of S7-1 @ 0.3m, S7-2 @ 0.3m & S7-4 @ 0.3m	Composite of S8-1 @ 0.3m, S8-2 @ 0.3m, S8-3 @ 0.3m & S8-4 @ 0.3m
Lab Number:		3522099.73	3522099.74
Individual Tests			
Dry Matter	g/100g as rcvd	73	66

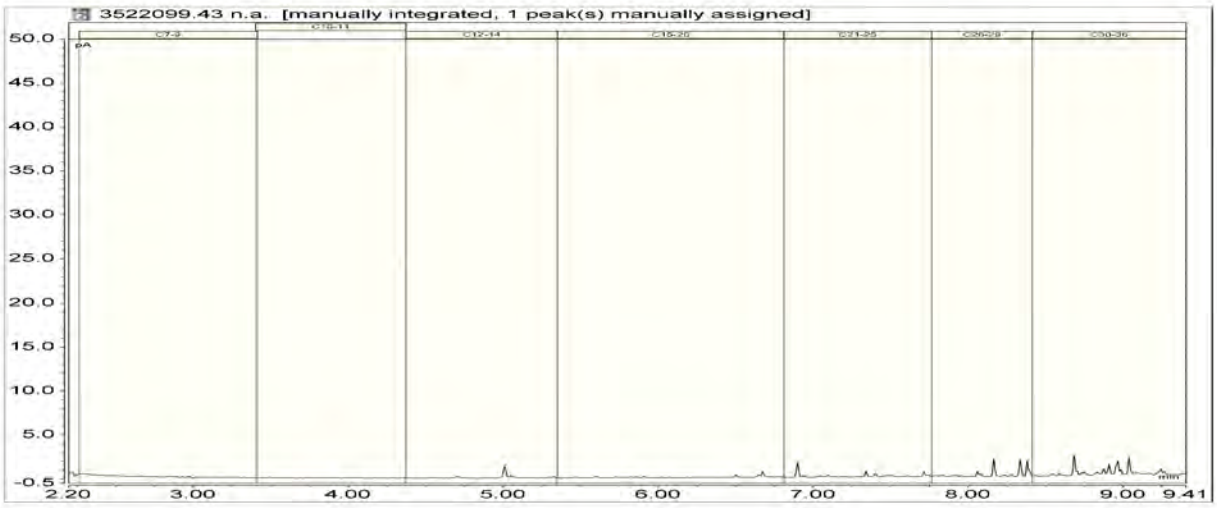
Sample Type: Soil			
Sample Name:		Composite of S7-1 @ 0.3m, S7-2 @ 0.3m & S7-4 @ 0.3m	Composite of S8-1 @ 0.3m, S8-2 @ 0.3m, S8-3 @ 0.3m & S8-4 @ 0.3m
Lab Number:		3522099.73	3522099.74
7 Heavy metals plus Boron			
Total Recoverable Arsenic	mg/kg dry wt	< 2	< 2
Total Recoverable Boron	mg/kg dry wt	< 20	< 20
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	0.18
Total Recoverable Chromium	mg/kg dry wt	57	53
Total Recoverable Copper	mg/kg dry wt	34	26
Total Recoverable Lead	mg/kg dry wt	7.0	8.1
Total Recoverable Nickel	mg/kg dry wt	58	39
Total Recoverable Zinc	mg/kg dry wt	22	12
Organochlorine Pesticides Screening in Soil			
Aldrin	mg/kg dry wt	< 0.014	< 0.015
alpha-BHC	mg/kg dry wt	< 0.014	< 0.015
beta-BHC	mg/kg dry wt	< 0.014	< 0.015
delta-BHC	mg/kg dry wt	< 0.014	< 0.015
gamma-BHC (Lindane)	mg/kg dry wt	< 0.014	< 0.015
cis-Chlordane	mg/kg dry wt	< 0.014	< 0.015
trans-Chlordane	mg/kg dry wt	< 0.014	< 0.015
2,4'-DDD	mg/kg dry wt	< 0.014	< 0.015
4,4'-DDD	mg/kg dry wt	< 0.014	< 0.015
2,4'-DDE	mg/kg dry wt	< 0.014	< 0.015
4,4'-DDE	mg/kg dry wt	< 0.014	< 0.015
2,4'-DDT	mg/kg dry wt	< 0.014	< 0.015
4,4'-DDT	mg/kg dry wt	< 0.014	< 0.015
Total DDT Isomers	mg/kg dry wt	< 0.09	< 0.09
Dieldrin	mg/kg dry wt	< 0.014	< 0.015
Endosulfan I	mg/kg dry wt	< 0.014	< 0.015
Endosulfan II	mg/kg dry wt	< 0.014	< 0.015
Endosulfan sulphate	mg/kg dry wt	< 0.014	< 0.015
Endrin	mg/kg dry wt	< 0.014	< 0.015
Endrin aldehyde	mg/kg dry wt	< 0.014	< 0.015
Endrin ketone	mg/kg dry wt	< 0.014	< 0.015
Heptachlor	mg/kg dry wt	< 0.014	< 0.015
Heptachlor epoxide	mg/kg dry wt	< 0.014	< 0.015
Hexachlorobenzene	mg/kg dry wt	< 0.014	< 0.015
Methoxychlor	mg/kg dry wt	< 0.014	< 0.015
Polycyclic Aromatic Hydrocarbons Screening in Soil*			
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	< 0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.015
2-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.015
Acenaphthylene	mg/kg dry wt	< 0.014	< 0.015
Acenaphthene	mg/kg dry wt	< 0.014	< 0.015
Anthracene	mg/kg dry wt	< 0.014	< 0.015
Benzo[a]anthracene	mg/kg dry wt	< 0.014	< 0.015
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.014	< 0.015
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.033	< 0.036
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.033	< 0.036
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.014	< 0.015
Benzo[e]pyrene	mg/kg dry wt	< 0.014	< 0.015
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.014	< 0.015
Benzo[k]fluoranthene	mg/kg dry wt	< 0.014	< 0.015
Chrysene	mg/kg dry wt	< 0.014	< 0.015
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.014	< 0.015
Fluoranthene	mg/kg dry wt	< 0.014	< 0.015
Fluorene	mg/kg dry wt	< 0.014	< 0.015

Sample Type: Soil			
	Sample Name:	Composite of S7-1 @ 0.3m, S7-2 @ 0.3m & S7-4 @ 0.3m	Composite of S8-1 @ 0.3m, S8-2 @ 0.3m, S8-3 @ 0.3m & S8-4 @ 0.3m
	Lab Number:	3522099.73	3522099.74
Polycyclic Aromatic Hydrocarbons Screening in Soil*			
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.014	< 0.015
Naphthalene	mg/kg dry wt	< 0.07	< 0.08
Perylene	mg/kg dry wt	< 0.014	< 0.015
Phenanthrene	mg/kg dry wt	< 0.014	< 0.015
Pyrene	mg/kg dry wt	< 0.014	< 0.015
Total Petroleum Hydrocarbons in Soil			
C7 - C9	mg/kg dry wt	< 20	< 30
C10 - C14	mg/kg dry wt	< 20	< 20
C15 - C36	mg/kg dry wt	< 40	81
Total hydrocarbons (C7 - C36)	mg/kg dry wt	< 80	85

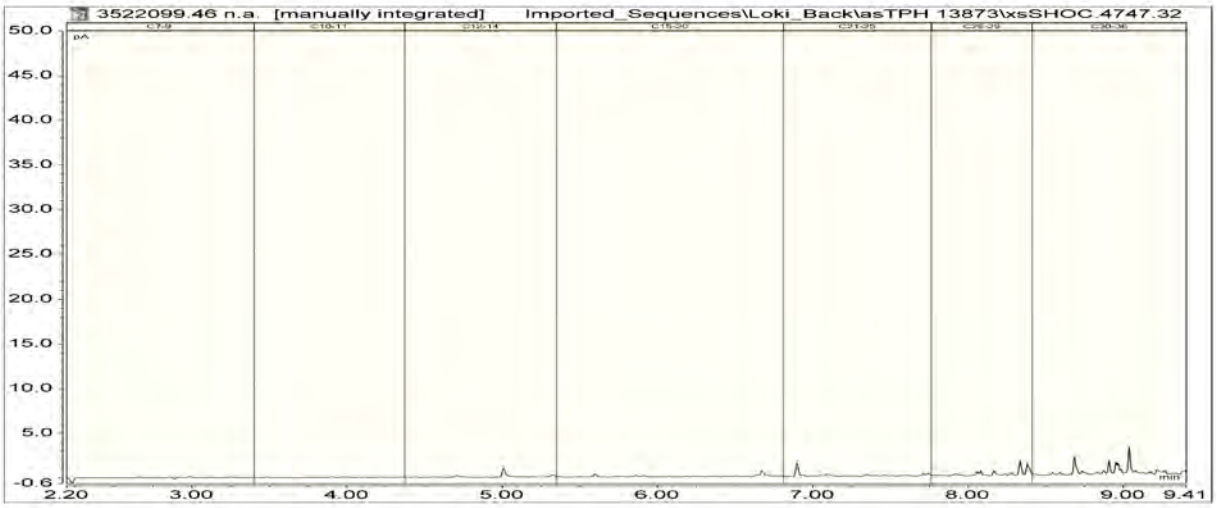
3522099.41
S9-1 @ 0.075m 26-Mar-2024
Client Chromatogram for TPH by FID



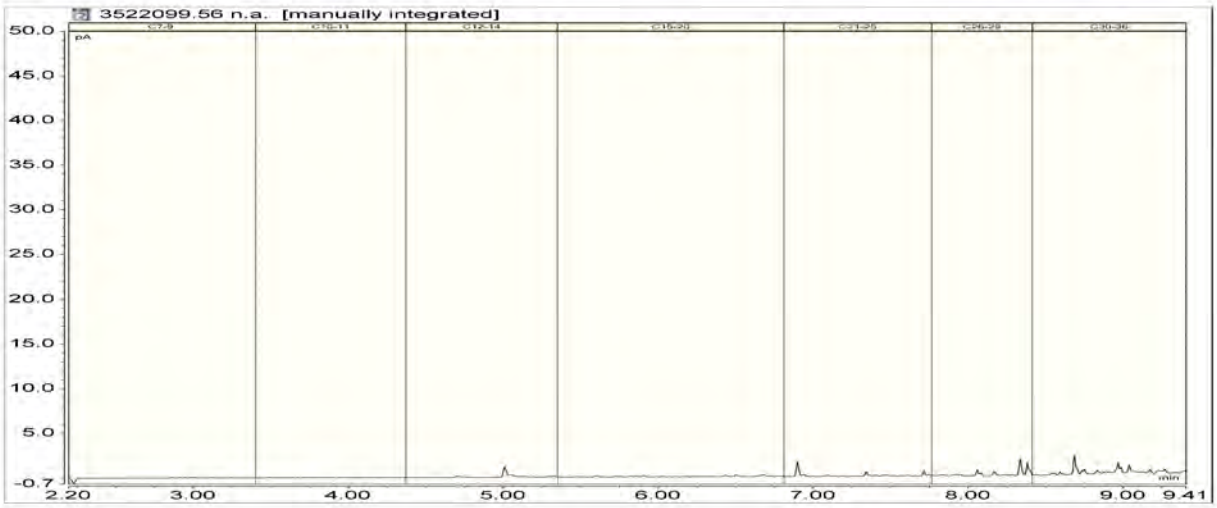
3522099.43
HA01-0.1m 26-Mar-2024
Client Chromatogram for TPH by FID



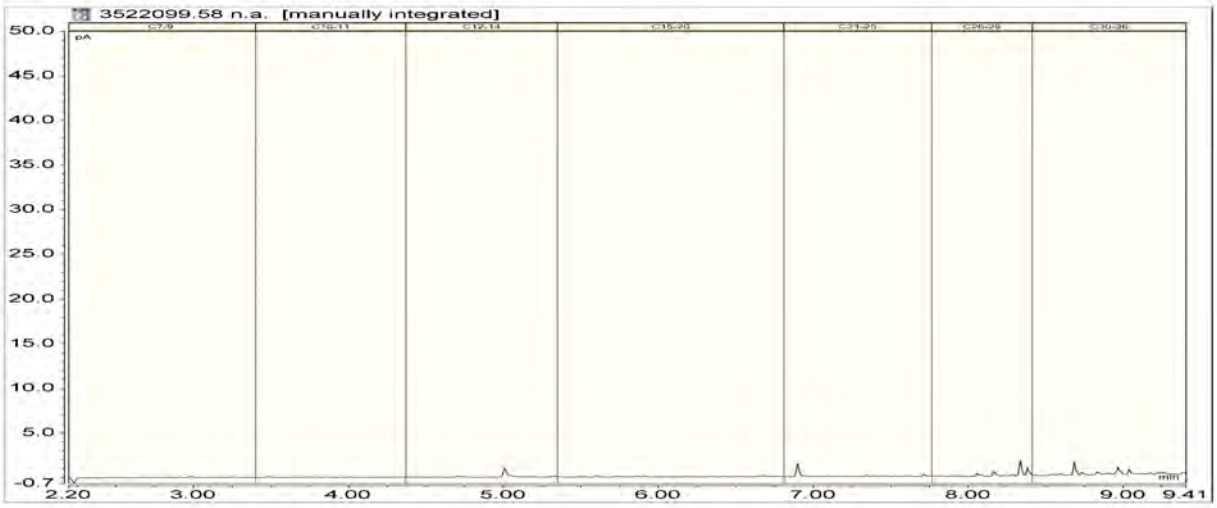
3522099.46
HA02-0.1m 26-Mar-2024
Client Chromatogram for TPH by FID



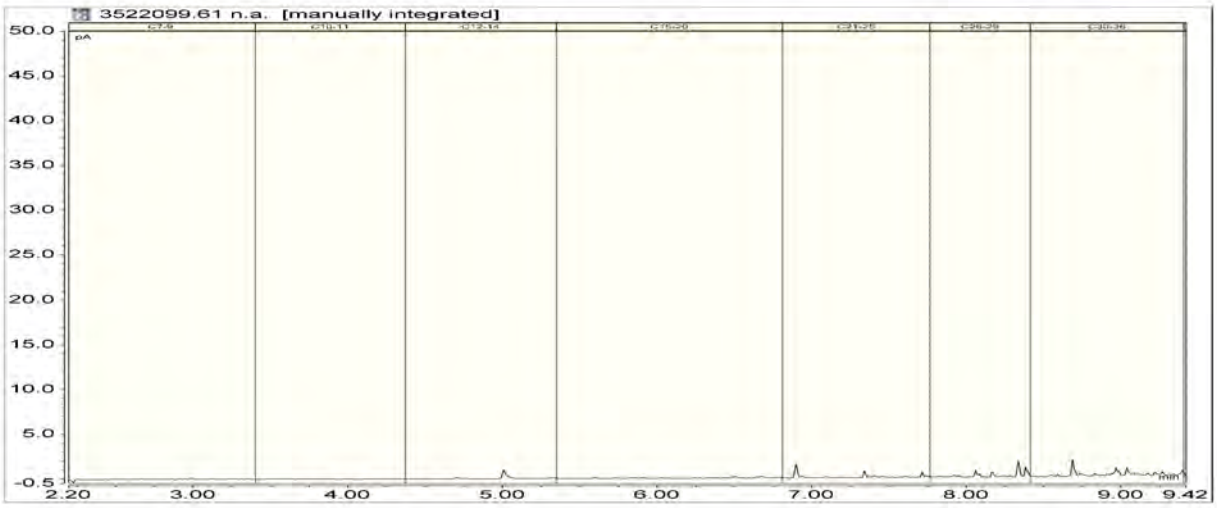
3522099.56
HA05-0.5m 27-Mar-2024
Client Chromatogram for TPH by FID



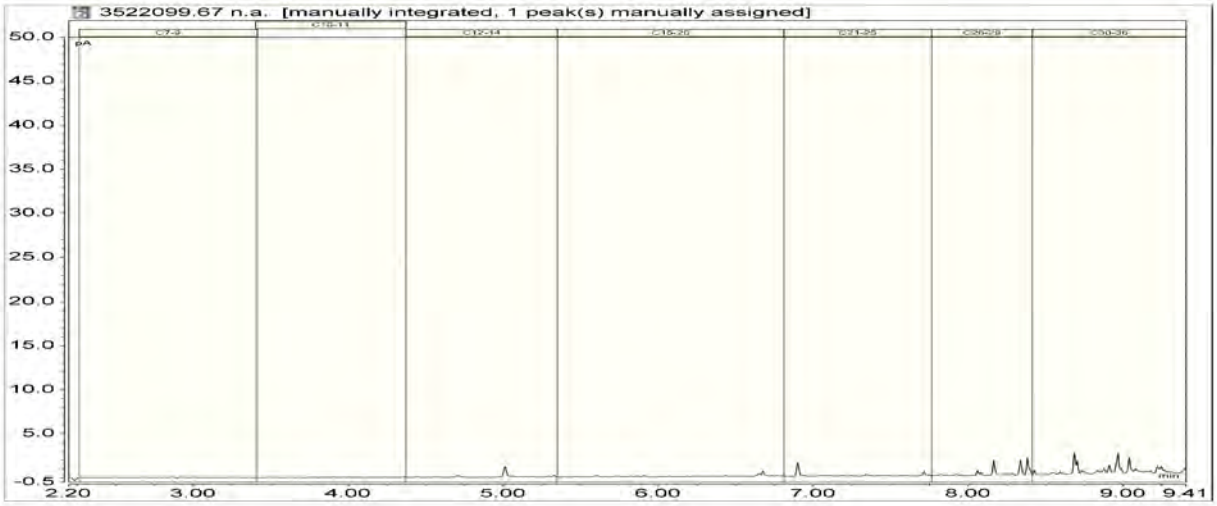
3522099.58
HA06-0.3m 27-Mar-2024
Client Chromatogram for TPH by FID



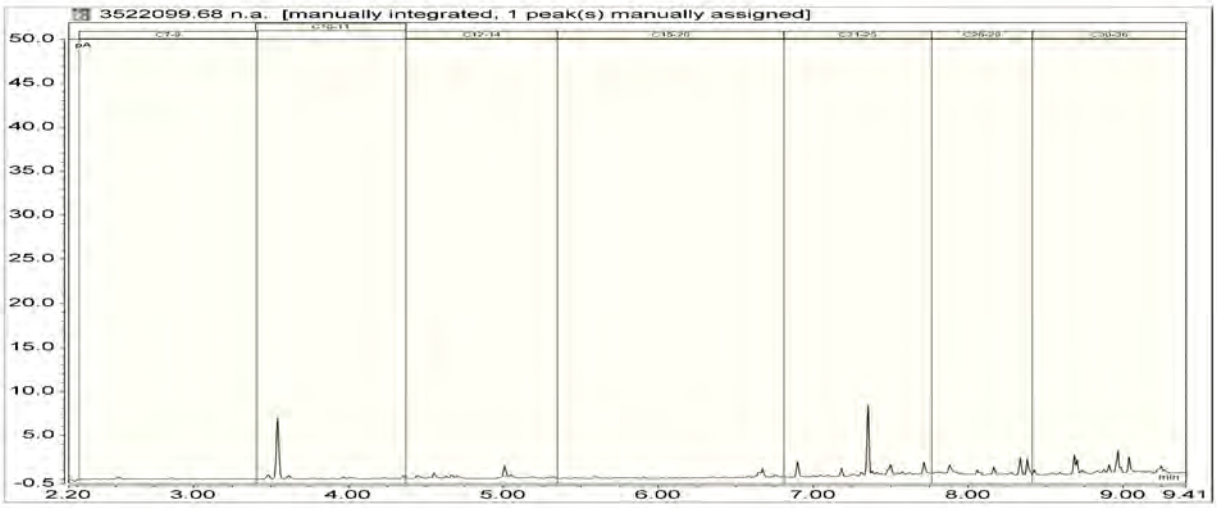
3522099.61
HA07-0.1m 27-Mar-2024
Client Chromatogram for TPH by FID



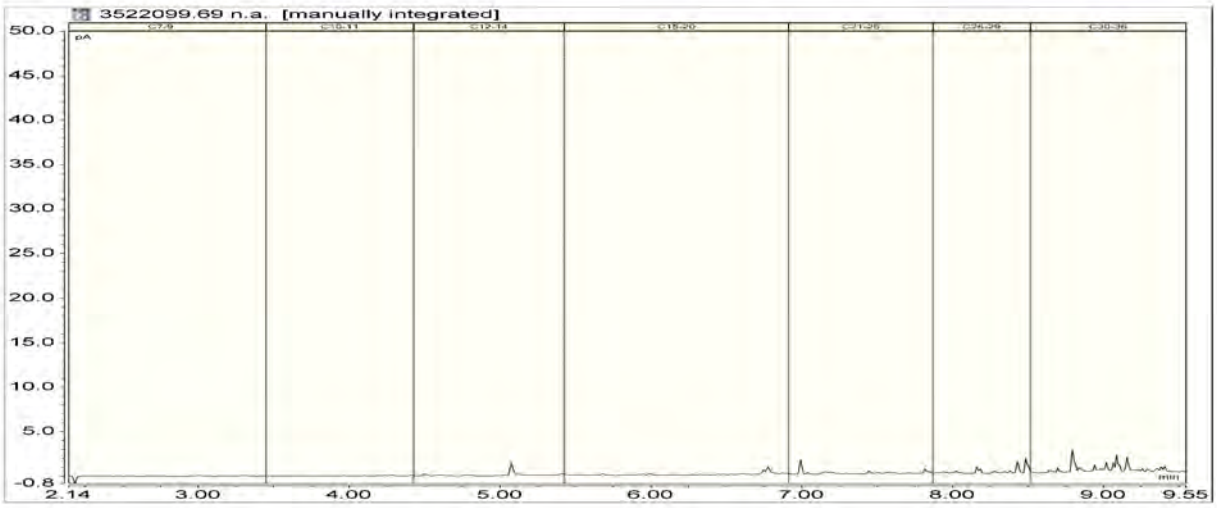
3522099.67
Composite of S1-1 @ 0.1m, S1-2 @ 0.1m, S1-3 @ 0.1m & S1-4 @ 0.1m
Client Chromatogram for TPH by FID



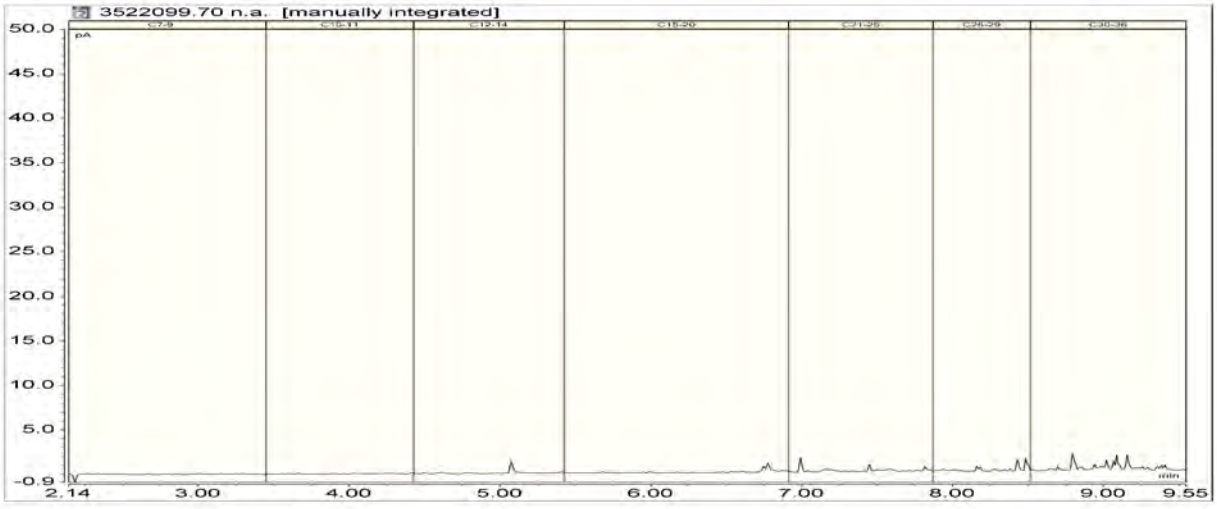
3522099.68
Composite of S2-1 @ 0.075m, S2-2 @ 0.1m, S2-3 @ 0.1m & S2-4 @ 0.1m
Client Chromatogram for TPH by FID



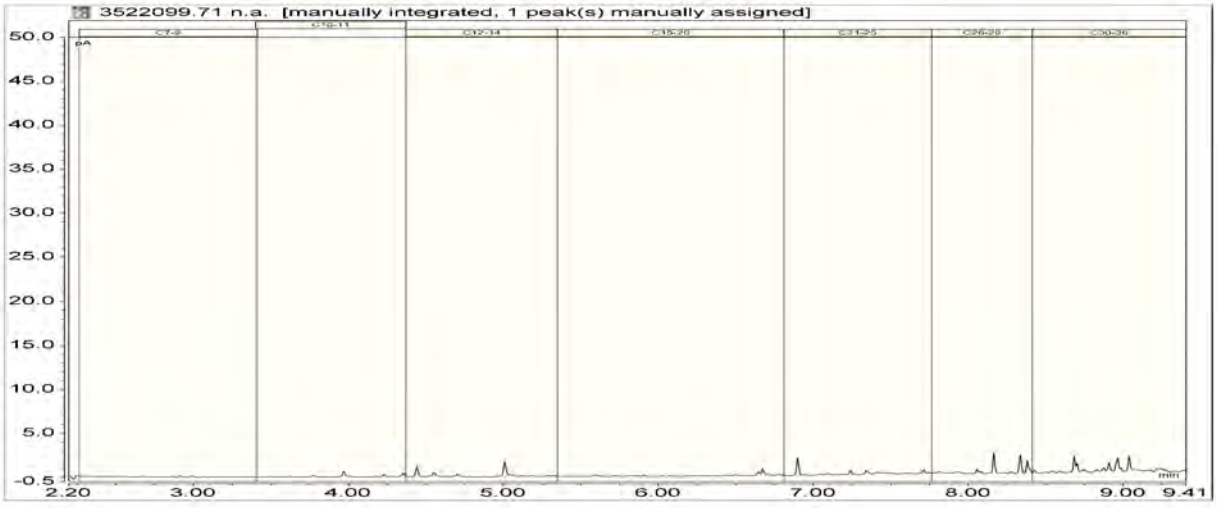
3522099.69
Composite of S3-1 @ 0.1m, S3-2 @ 0.1m, S3-3 @ 0.1m & S3-4 @ 0.1m
Client Chromatogram for TPH by FID



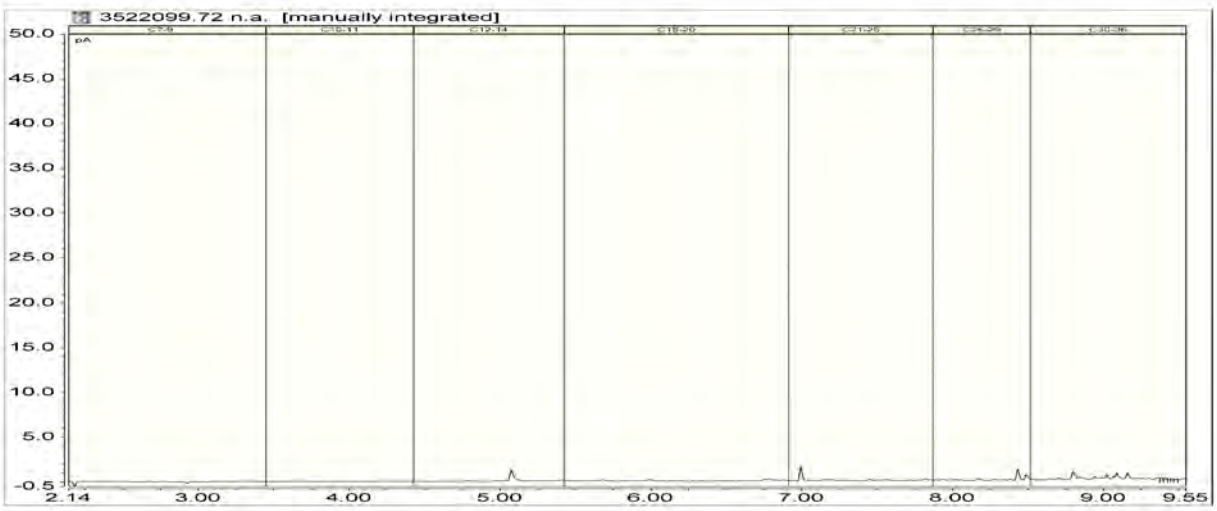
3522099.70
Composite of S4-1 @ 0.1m, S4-2 @ 0.1m, S4-3 @ 0.1m & S4-4 @ 0.1m
Client Chromatogram for TPH by FID



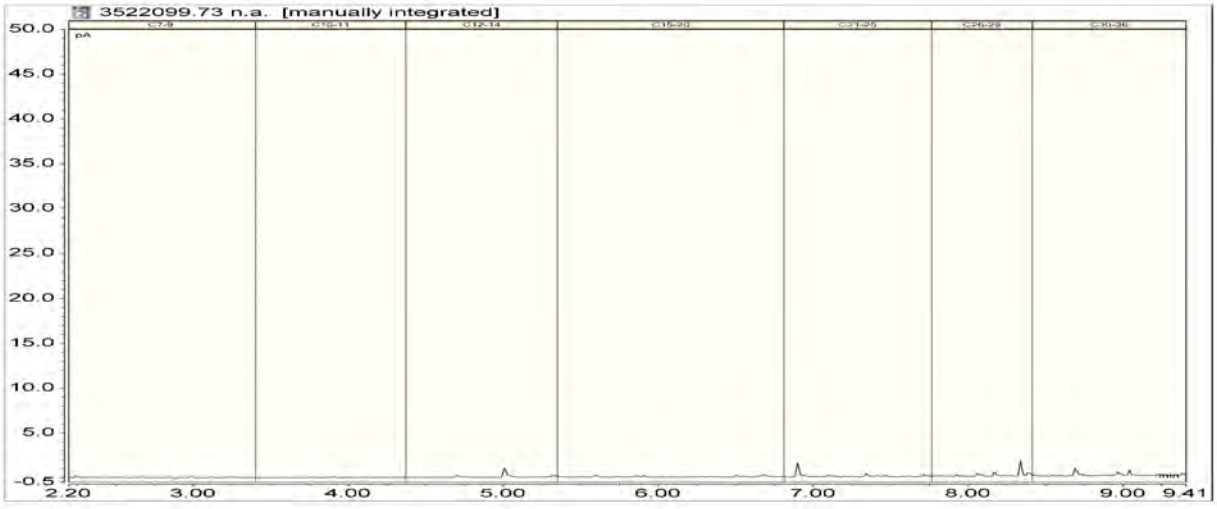
3522099.71
Composite of S5-1 @ 0.1m, S5-2 @ 0.1m, S5-3 @ 0.1m & S5-4 @ 0.1m
Client Chromatogram for TPH by FID



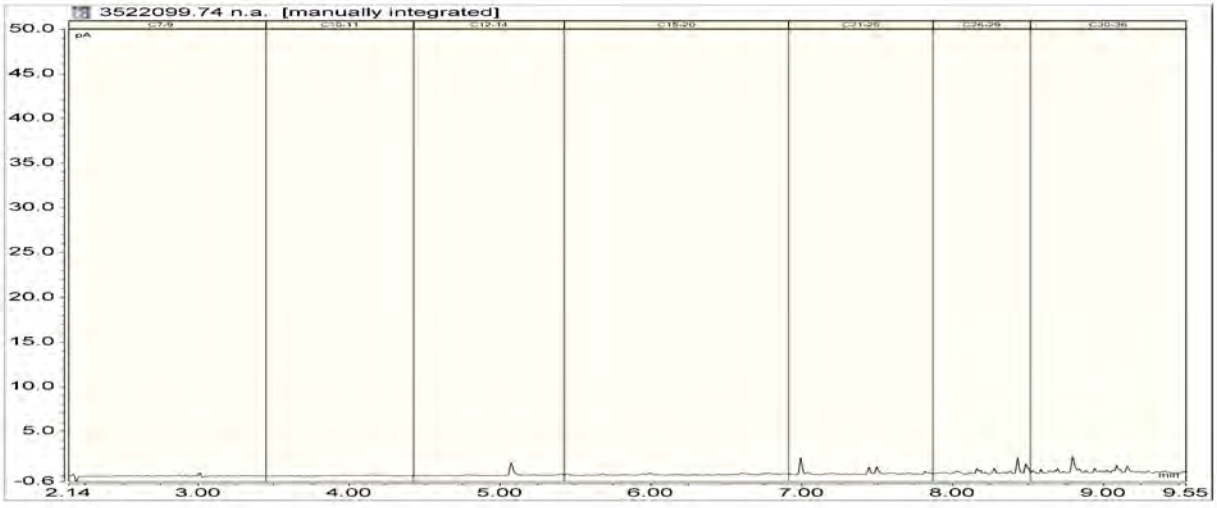
3522099.72
Composite of S6-1 @ 0.1m, S6-2 @ 0.1m, S6-3 @ 0.1m & S6-4 @ 0.1m
Client Chromatogram for TPH by FID



3522099.73
Composite of S7-1 @ 0.3m, S7-2 @ 0.3m & S7-4 @ 0.3m
Client Chromatogram for TPH by FID



3522099.74
Composite of S8-1 @ 0.3m, S8-2 @ 0.3m, S8-3 @ 0.3m & S8-4 @ 0.3m
Client Chromatogram for TPH by FID



Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%.	-	41, 43, 46, 51, 53, 56, 58, 61, 65, 67-74
Total of Reported PAHs in Soil	Sonication extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.03 mg/kg dry wt	41, 43, 46, 51, 53, 56, 58, 61, 65, 67-74
Dry Matter	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	41, 43, 46, 51, 53, 56, 58, 61, 65, 67-74
Composite Environmental Solid Samples*	Individual sample fractions mixed together to form a composite fraction.	-	1-4, 6-9, 11-14, 16-19, 21-24, 26-29, 31-32, 34, 36-39
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	BaP Potency Equivalence calculated from; Benzo(a)anthracene x 0.1 + Benzo(b)fluoranthene x 0.1 + Benzo(j)fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Benzo(a)pyrene x 1.0 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Fluoranthene x 0.01 + Indeno(1,2,3-c,d)pyrene x 0.1. Ministry for the Environment. 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.	0.024 mg/kg dry wt	41, 43, 46, 51, 53, 56, 58, 61, 65, 67-74
Benzo[a]pyrene Toxic Equivalence (TEF)*	Benzo[a]pyrene Toxic Equivalence (TEF) calculated from; Benzo[a]pyrene x 1.0 + Benzo(a)anthracene x 0.1 + Benzo(b) fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Indeno(1,2,3-c,d)pyrene x 0.1. Guidelines for assessing and managing contaminated gasworks sites in New Zealand (GMG) (MfE, 1997).	0.024 mg/kg dry wt	41, 43, 46, 51, 53, 56, 58, 61, 65, 67-74
TPH Oil Industry Profile + PAHscreen	Sonication extraction, GC-FID and GC-MS/MS analysis. Tested on as received sample. In-house based on US EPA 8015 and US EPA 8270.	0.010 - 70 mg/kg dry wt	41, 43, 46, 51, 53, 56, 58, 61, 65, 67-74
7 Heavy metals plus Boron	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 20 mg/kg dry wt	41, 43, 46, 51, 53, 56, 58, 61, 65, 67-74
Multiresidue Pesticides in Soil samples by GCMS	Sonication extraction, GC-ECD and GC-MS analysis. In-house based on US EPA 8081 and US EPA 8270.	0.003 - 0.06 mg/kg dry wt	51, 53, 65
Organochlorine Pesticides Screening in Soil	Sonication extraction, GC-ECD analysis. Tested on as received sample. In-house based on US EPA 8081.	0.010 - 0.06 mg/kg dry wt	41, 43, 46, 56, 67-74
Total Petroleum Hydrocarbons in Soil			
Client Chromatogram for TPH by FID	Small peaks associated with QC compounds may be visible in chromatograms with low TPH concentrations. QC peaks are as follows: one peak in the C12 - 14 band, the C21 - 25 band and the C30 - 36 band. All QC peaks are corrected for in the reported TPH concentrations.	-	41, 43, 46, 56, 58, 61, 67-74
C7 - C9	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	20 mg/kg dry wt	41, 43, 46, 51, 53, 56, 58, 61, 65, 67-74
C10 - C14	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	20 mg/kg dry wt	41, 43, 46, 51, 53, 56, 58, 61, 65, 67-74
C15 - C36	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	40 mg/kg dry wt	41, 43, 46, 51, 53, 56, 58, 61, 65, 67-74

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	70 mg/kg dry wt	41, 43, 46, 51, 53, 56, 58, 61, 65, 67-74

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 30-Mar-2024 and 16-Apr-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Ara Heron BSc (Tech)
Client Services Manager - Environmental

RMA ECOLOGY LTD

Memo

To:	Scott Williams, Fletcher Building	Job No:	2412
From:	Graham Ussher; RMA Ecology Ltd	Date:	27 June 2024
cc:	Maddie Dillon, Fletcher Building		
Subject:	Waipapa Pine sawmill, Waipapa: proposed dispatch yard area ecological effects assessment		

Dear Scott,

Waipapa Pine Limited (Waipapa Pine) is seeking resource consents under the Resource Management Act (RMA) 1991 to construct and operate a new boon treatment plant and dispatch yard in the eastern part of its Waipapa sawmill site at 1945B State Highway 10 in Waipapa, near Kerikeri, Northland (Figure 1).

RMA Ecology Ltd has been engaged to provide an assessment of the ecological values and the potential for adverse effects arising from the development of the new plant and dispatch yard[1].

1 Site visit and methods

Within Waipapa Pine's sawmill site, the proposed plant location and dispatch yard area (hereafter 'the site' in this memo) was visited by Principal Ecologist, Dr Graham Ussher on 27 March 2024, who undertook a full site walkover assessment.

The following methods were employed:

- Bats – an assessment of the quality of potential bat roost habitat.
- Lizards – manual search under debris for skinks, and assessment of habitat for skinks and (arboreal) geckos.
- Watercourses – mapping of watercourses and classification according to the definitions in the Proposed Regional Plan for Northland 2024 and the RMA 1991, in particular the definition an artificial watercourse, an ephemeral stream and an intermittently flowing stream.
- Birds – birds seen or heard on site were recorded.
- Vegetation – discrete vegetation communities were mapped and described, including indigenous vegetation and exotic-dominant vegetation communities.
- Wetlands – natural inland wetlands were classified and delineated according to the methodology laid out in the companion guidance documents to the National Policy Statement for Freshwater (NPS-FM), as well as by using expert judgement. See Appendix A for a detailed description of the methodology applied for this site.

The ecological values of the site were assessed in relation to the National Policy Statement for Indigenous Biodiversity (NPS-IB), in particular for existing or qualifying Significant Natural Areas (SNA) and the presence of highly mobile indigenous species.

[1] This work was undertaken in accordance with our contract dated 26 March 2024.

Figure 1. Waipapa sawmill site (turquoise boundary). See Figure 2 for the proposed dispatch investigations area.

Figure 2. Dispatch investigations area (red boundary). Orange dots mark locations of bird counts, vegetation assessments, soil coring, manual search for lizards, and photopoints. The blue dotted line is the existing open drain that runs the length of the southern boundary and discharges to the Kerikeri River (left, out of picture).

2 Site ecological values

The site is a flat paddock that has been used for grazing for many decades. Historic aerial photographs (sourced from Retrolens) show that the site has been grazed or had hay taken off it regularly until around 2021, after which parts of it have been used to store topsoil sourced from other parts of the sawmill site.

The are no listed SNAs across the site. The characteristics of the site (see below descriptions) do not trigger any of the significance criteria in the NPS-IB. As far as we know, Northland Regional Council has not identified this site as an important location for highly mobile species under the NPS-IB.

Site photos are included in Appendix B.

The western part of the site supports hard stand gravel areas, an access road to the sawmill, and grassed flat areas around a mound that is the dispersal area for wastewater from the site. In this part of the site there are no streams, no wetlands, no indigenous vegetation or rare of threatened native plants, or any habitat for bats or lizards.

The western part of the site is separated from the central and eastern parts of the site by a mature macrocarpa pine shelterbelt, much of which has died or blown over, and where exotic weeds including tree privet and woolly nightshade have established.

The central and eastern parts of the site comprise a mown paddock of pasture grasses - mostly kikuyu *Cenchrus clandestinus*, but with large areas of paspalum grass *Paspalum dilatatum*, and some cocksfoot *Dactylis glomerata* and sweet vernal *Anthoxanthum odoratum*. This entire area has a history of grazing and is still managed for pasture – and supports pasture grasses. Part of the paddock area supports recently disturbed ground because it is the storage area for topsoil, which is occasionally moved, shaped, or maintained as a pile in the paddock.

Along the southern boundary of the site there is a well-defined drain. The drain was dry at the time of the site visit. We understand that the drain receives water from part of the site, as well as from the adjoining property to the south, and drains to State Highway 10 to the east (the western half of Waipapa Pine's sawmill site drains west to the Kerikeri River). The drain has virtually no ecological value as it lacks riparian cover, lacks habitat for fish or macro-invertebrates, and lacks water for most of the year. This is not a natural watercourse.

At the northern boundary of the site, there is a stormwater basin that has been constructed on the adjoining property. This basin appears to support a mix of planted and self colonised wetland plants, including purei *Carex secta*, wiwi *Ficinia nodosa* with margins planted in flax *Phormium tenax*, akeake *Dodonaea viscosa*, and cabbage tree *Cordyline australis*, with wildling pines *Pinus radiata* self-established. The basin of the pond has self-colonised exotic soft rush *Juncus effusus*. As the pond is an artificially created waterbody, it is not subject to the provisions of the NPS-FM.

Along the northern boundary of the site there is a tall (ca. 10 m) shelterbelt of sheoak (*Allocasuarina verticillata* and bamboo.

Habitat for native lizards is very poor across the site. Manual hand searching through rubble piles and fallen logs produced no lizards or lizard sign (not even the introduced plague skink *Lampropholis delicata*). The history of vegetation modification across the site for a very long period of time makes it extremely unlikely that native skinks or geckos have persisted or recolonised this site.

There is no habitat for bats on the site as all trees are either young, managed as shelterbelts, or dead and fallen over. The closest record of bats to the site is 12 km to the west within Puketi Forest. The likelihood of bats travelling 12 km to use this area of developed rural-industrial land is extremely low.

Birdlife recorded is the usual mix of rural common native and exotic birds. The only native species recorded from the site were pukeko (two individuals), silvereye (transiting through site), and kingfisher (perching on tree adjoining the site). None are Threatened or At Risk listed species.

Vegetation across the site was assessed for triggers of wetland hydrotype communities. The site comprises pasture grassland and the dominant species within it are FACU and UPL species – none of which trigger the NPS-FM Rapid Test and none of which pass the Dominance or Prevalence Index threshold score.

Soil cores taken at three locations around the paddock margins show friable topsoil to a minimum depth of 400 mm, with no mottling, and no low chroma colours that would be expected if the soils were subject to cycles of saturation and hydric influences. The soils are not hydric wetland soils.

In summary:

- There are no streams or wetlands on the site; the existing drain along the southern boundary of the site drains overland flow to State Highway 10 to the east (the western half of Waipapa Pine's sawmill site drains west to the Kerikeri River).
- Vegetation across the site is exotic – there is no indigenous vegetation and no Threatened or At Risk native plant species.
- There is no habitat for bats.
- There is poor quality habitat for lizards, but native lizards are very unlikely to be present.
- Birdlife is a typical rural community of common native birds and any exotic species.
- The site is not an SNA, nor does it meet any of the basic criteria to qualify as an SNA.

Overall, the ecology values of the site are nil or very low.

3 Potential adverse effects and management

The proposed development will require that the site is cleared of all vegetation.

The southern drain will be maintained and used as part of the stormwater management process, by receiving treated stormwater from the site.

The stormwater management system proposed for the site includes a pond that will treat stormwater runoff and buffer flows to the drain/ Whiriwhiritoa Stream, such that water quality will be the same or improved over the current state, and so that hydraulic neutrality will be achieved.

During earthworks across the site, sediment control treatment devices that will be incorporated into the site development plans which will treat dirty water to standards set in the regional plan.

The effects of the development on indigenous biodiversity values will be nil.

No mitigation, offset or compensation is required on site in relation to ecological values or potential adverse effects.

4 Summary and recommendations

The proposed new boron plant and dispatch area at the Waipapa sawmill site is located on existing paddocks with nil or low ecology values.

The effects of the proposed removal of the existing shelterbelts and paddock grassland, and conversion to dispatch area use will have no ecological effects.

No mitigation, offset, or compensation is required on site in relation to ecological values or potential adverse effects.

No recommendations with respect to ecology are required, other than to support the proposed design for sediment and erosion controls, and stormwater management, both of which will minimise the risk of poor water quality being discharged to the nearby Kerikeri River.

If you have any further questions, please contact Graham Ussher on 027 2727 930 or graham.ussher@rmaecology.co.nz.

Yours sincerely,

Graham Ussher

Principal Ecologist[2]

RMA Ecology Ltd

27-Jun-24
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[2] This report has been prepared for the benefit of our Client with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose without our prior review and agreement. Any use or reliance by a third party is at that party's own risk. Where information has been supplied by the Client or obtained from other external sources, it has been assumed that it is accurate, without independent verification, unless otherwise indicated. No liability or responsibility is accepted by RMA Ecology Limited for any errors or omissions to the extent that they arise from inaccurate information provided by the Client or any external source.

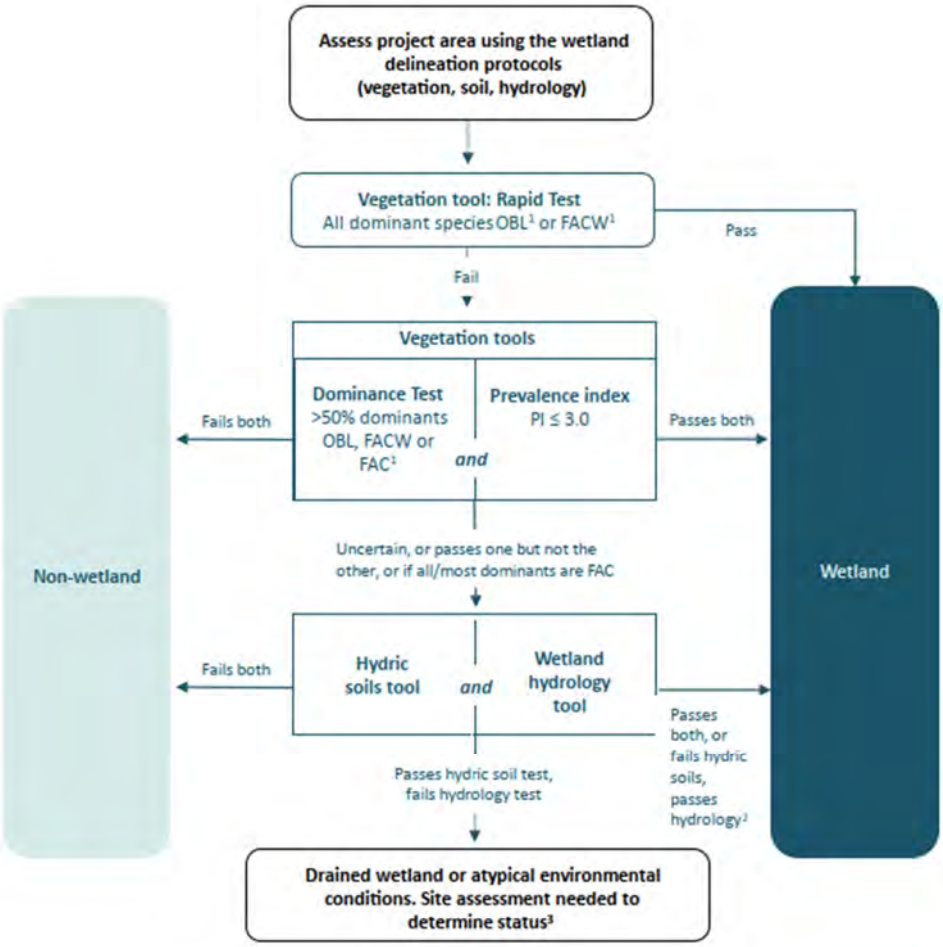
Appendix A – wetland assessment method

Areas of a site that are considered to be a potential wetland, based on an initial, visual assessment of vegetation and hydrological conditions, are then further assessed, following the steps detailed below:

- Visual assessment as to whether the potential wetland area could support a threatened species;
- Visual assessment as to whether the potential wetland and surrounding area is clearly dominated by pasture grass species (the Rapid Pasture Test) or whether the potential wetland is clearly dominated by wetland species (the Rapid Wetland Test);
- Visual assessment of areas where the vegetation composition includes species that are scored as wetland obligate, facultative wetland, or facultative (e.g., rushes, wet pasture or 'wetland-type' vegetation) as assessed by Clarkson *et al.*[3] (following the Pasture Exclusion Test, and Wetland Delineation Protocols as laid out in the Pasture Exclusion Assessment Methodology[4]);
- Where these compositions exist, an assessment of vegetation, soils, and hydrology is required according to the Pasture Exclusion Assessment Methodology:
    - Vegetation is assessed through plant identification and percentage cover estimates (as per the method described by Clarkson[5]) of 2 m x 2 m plot areas within each potential wetland area;
    - Soils are assessed by applying the criteria outlined in Fraser[6] for identifying hydric (wetland) soils – which involves excavation and examination for gleyed, mottled, peaty, or wet soils; and
    - Hydrology is assessed by applying the criteria outlined in the Ministry for the Environment tool[7].
- The boundaries of potential wetland areas are delineated by carrying out assessments of the various vegetation communities and through professional judgement.

Figure A1 below outlines the steps taken to determine the presence of a wetland.

[3] Clarkson B. R., Fitzgerald N. B., Champion P. D., Forester L., Rance B. D. (2021). *New Zealand wetland plant indicator status ratings 2021: Data associated with Manaaki Whenua - Landcare Research contract report LC3975* for Hawke's Bay Regional Council.
[4] Ministry for the Environment. 2022. *Pasture exclusion assessment methodology*. Wellington: Ministry for the Environment.
[5] Clarkson, B. (2013). *A vegetation tool for wetland delineation in New Zealand*. Report prepared for Meridian Energy Limited by Landcare Research.
[6] Fraser S., Singleton P., Clarkson B. (2018). *Hydric soils – field identification guide*. Envirolink Tools Contract C09X1702. Manaaki Whenua – Landcare Research Contract Report LC3233 for Tasman District Council.
[7] Ministry for the Environment. (2022). *Wetland delineation hydrology tool for Aotearoa New Zealand*. Wellington: Ministry for the Environment.



Footnotes:
[1] Wetland indicator status abbreviations: FAC = facultative, FACW = facultative wetland, OBL = obligate wetland.
[2] For example, recent wetland.
[3] The US procedures for atypical or problematic situations are recommended.

Figure A1. Flow chart of steps for wetland vegetation determination. Wetland indicator status abbreviations: FAC = facultative (equally likely to occur in wetlands or non-wetlands – estimated probability 34-66%); FACW = facultative wetland (occurs usually in wetlands – 67-99%); OBL = obligate wetland (occurs almost always in wetlands >99%).

Appendix B – Site photos

Plates 1-4: Views of the western part of the site showing pasture grass verge alongside main access road (top left), wastewater mound (top right), kikuyu pasture strip between wastewater mound and macrocarpa hedgerow (bottom left) and macrocarpa hedgerow (bottom right).




Plates 5-8: Views of the central and eastern part of the site showing southern drain with the subject site on the right and the neighbouring site on the left of the drain (top left), mown pasture paddock (top right and bottom right), and eastern part of the site with buildings and yards (bottom left).

Plates 9-11: Views of the existing farm track along the northern boundary of the site with the bamboo and sheoak shelterbelt; from the western end looking east (top left), from the middle section looking west (top right), and the middle section looking east (bottom left).

Traffic Impact Assessment
Proposed Boron Plant and Dispatch Yard
1945B State Highway 10, Waipapa
For
Waipapa Pine Limited

Haigh Workman reference 23 256

July 2024

Phone: +64 9 407 8327 • info@haighworkman.co.nz • www.haighworkman.co.nz

PO Box 89 • 6 Fairway Drive • Kerikeri 0245 • New Zealand

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Revision History

Revision Nº	Issued By	Description	Date
A	John McLaren	For Comment	22 May 2024
B	John McLaren	For Circulation	10 June 2024
C	John McLaren	For Consent	2 July 2024

Prepared by:	Reviewed by:	Approved by:
John McLaren Senior Civil Engineer BE (Civil), CMEng, CPEng	**Tom Adcock** Senior Civil Engineer BE (Civil) CMEng	**John Papesch** Senior Civil Engineer BE (Civil), CMEngNZ, CPEng

Executive Summary

Haigh Workman Ltd was commissioned by Waipapa Pine Limited to undertake a Traffic Impact Assessment to support a land use consent application for construction of a new boron treatment plant and timber dispatch area at its Waipapa Pine timber mill at 1945B State Highway 10, Waipapa. Changes to their dispatch yard are proposed to improve internal efficiency. As part of this proposal the client also plans to increase the timber production volume from the site.

The sole means of access to the Waipapa Pine site is through Industrial Way. Industrial Way is a privately owned right of way, over Lot 5 DP 69740 which adjoins the site's southern boundary, with access onto State Highway 10. The Right of Way granted in 2016 in favour of Waipapa Pine Limited allowed a total of 670 vehicles per day and 83 vehicles per hour to/ from the site. Forecast traffic volumes from the site indicate that the 5 day average peak hourly traffic is 496 vehicles per day and 55 vehicles per hour. The applicant is not seeking further extension to the existing approved traffic movements allowed under the right of way.

Industrial Way as a whole is allowed 2144 vehicles per day and 276 vehicles during the peak hour. Traffic tube counts undertaken in March 2024 showed the 5 day average peak hour traffic up to 2045 vehicles per day and 211 vehicles per hour. Peak hourly traffic does not coincide with State Highway 10 peak hour traffic, or peak hour traffic for the subject site. No upgrades to Industrial Way or the intersection are required as a result of the proposal / Waipapa Pine's activities.

For the assessment of effects, the higher consented volumes at the intersection were adopted for the SIDRA analysis to ensure that intersection will continue to function as intended. The analysis showed that the intersection will continue to function at level of service C. Levels of service A to C are considered acceptable.

Further to this, State Highway 10 traffic volumes are expected to drop from the current 12,000 vehicles per day to 8,000 vehicles per day when State Highway 1 reopens. The level of service is forecast to improve to level of service B.

There are no safety concerns at the intersection.

We have carefully considered the effect on State Highway 10 and do not consider NZTA being adversely affected as Waipapa Pine will not exceed the previously approved threshold. There are no safety concerns at the intersection, and there are no additional adverse effects.

Consent is to be applied for to increase the number of carparks from 74 to 116 carparks, below the 240 carparks that would be required by the Far North District Plan based on gross business area (GBA). Based on the current carpark surveys (15 free carparks) and increased number of staff, we consider that 116 carparks are sufficient for the needs of the development.

In conclusion, the proposal is supported and acceptable from a traffic perspective.

1 Introduction

1.1 Project Brief and Scope

Haigh Workman Ltd was commissioned by Waipapa Pine Limited to undertake a Traffic Impact Assessment to support a land use consent application for construction of a new boron treatment plant and timber dispatch area at its Waipapa Pine timber mill.

As part of this proposal the client also plans to increase the timber production volume from the site. This report addresses the effects of the development on Industrial Way and State Highway 10. It includes an assessment of traffic flows, car parking on site, and intersection design analysis for the purpose of resource consent applications.

Separate reports prepared by Haigh Workman address civil and geotechnical engineering.

1.2 Proposed Development

Waipapa Pine Limited proposes to expand the site operations by creating a new dispatch yard near the entrance to the site, and construction of a warehouse building to accommodate a Boron treatment plant. Concept drawings provided by Waipapa Pine indicate a single storey warehouse with a footprint of 58 x 40 m = 2,320 m^2, plus additional canopy and hardstand area on the southern side to accommodate the Boron tanks. The land to the east of the warehouse building will comprise a 150 m long x 100 m wide dispatch yard covering 15,000 m^2 and will be formed with granular hardfill.

1.3 Disclaimer

This report has been prepared for our Client, Waipapa Pine Limited, with respect to the particular brief given to us. The information and opinions contained within this report shall not be used in any other context for any other purpose without prior review and agreement by Haigh Workman Ltd. This report may not be read or reproduced except in its entirety.

2 Site Description

The Waipapa Pine sawmill is located over three lots (Lots 1 and 2 DP 376253 and Lot 3 DP 343062), comprising an approximate land area of 10.75 hectares and irregular in plan shape. The sites are accessed via Industrial Way. The proposed development area is located near the entrance into the sawmill, on the eastern side of the internal access road. The approximate proposed building development locations are shown in Figure 1.

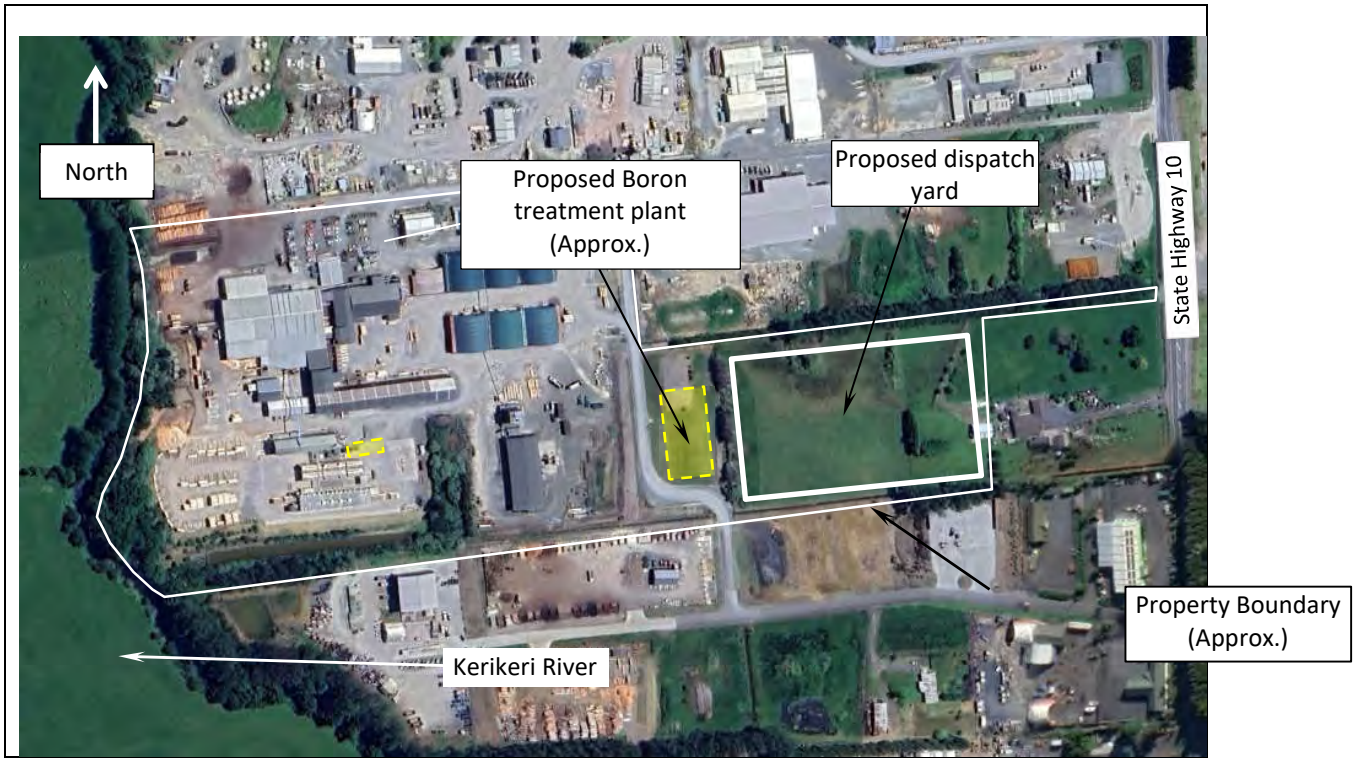


Figure 1 Site Location

3 Trip Generation

3.1 Consent History

A resource consent was issued to authorise use of the site as a sawmill in 2013 under RC 2130204-RMALUC.

Resource consent RC 2450320-RMALUC was issued in 2016 for the expansion of the sawmill which included allowing sawmill operations (processing timber) to occur Monday to Friday from 7.00am to 10.00pm and 7.00am to 7.00pm Saturday and Sunday, and for the construction of a new boron treatment plant. It is noted that the consented boron treatment plant was never established, and it was subsequently deleted from the approved plans under variation 2150320-RMAVAR/A issued in 2022.

In 2013, right of way approval 3000349-LGA348 was issued to enable the establishment of Industrial Way over Lot 5 DP 69740. In 2016, a Right of Way easement (below) was granted over Lot 5 DP 69740 in favour of the Waipapa Pine site.

3. The Grantor and the Grantee will ensure that their respective use of the right of way by themselves and their other authorised persons does not exceed the following vehicle movements per day (VPD) and vehicle movement per hour (VPH) to and from the servient and dominant lands.

4. The grant of right of way and the provisions of clauses 2, 3 and 4 shall apply only until such time as the right of way is vested as public road. The written approval of both the registered proprietor of the servient land and the registered proprietors of the dominant lands must be obtained before the right of way may be vested as public road.

	VPD	VPH
Grantor	1474	193
Grantee	670	83

Figure 2 Easement Instrument EI 9571379.3 Excerpt

The current easement notice provides for up to 2144 vehicles per day on Industrial Way, of which 670 vehicles per day and 83 vehicles per hour are allocated to Waipapa Pine.

Further to the above, Waipapa Pine's consultant planner has advised that previously approved traffic quantities from the site's consent documents are as follows:

1. *Under the 2013 retrospective consent 2130204-RMALUC, 175 movements were proposed and approved.*
2. *Under the 2016 expansion consent 2150320-RMALUC, 670 movements were proposed and approved (comprising 270 movements for the proposal and sought an allowance of 400 additional movements for future expansion).*

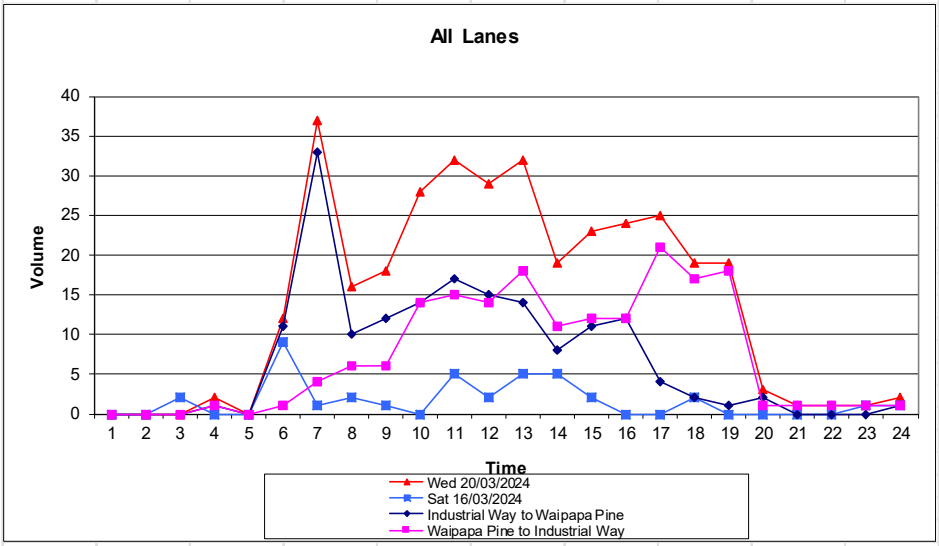
As approved, the applicant has 670 traffic movements or trips without seeking further extension. For the purpose of this report, vehicles per day (VPD) is the total number of one way movements during a 24 hour

period. A trip is defined as a one way traffic movement. The approved 670 vehicles per day is equivalent to 335 vehicles travelling to the site and 335 vehicles leaving the site.

3.2 Surveyed Trip Generation from the Subject Site

A tube counter was installed at the Waipapa Pine gate, being the access point to Industrial Way. The count was to measure traffic movements over the week 16 – 22 March 2024. Waipapa Pine advises that during this week of the tube count there were 45 staff on site and + 15 visitors contractors on the Thursday.

WAIPAPA PINE ACCESS			Outside Entrance			Site:	4.0843		
0		**Road ID -**	0						
All Lanes			16/03/2024	-	22/03/2024				



Summary For All Lanes				
Total Volume For Week	1800	Weekday AM Average (6-10am)	28	V/Hr
Average Daily Volume (7 Days)	257	Weekday Midday Average (10am-3pm)	25	V/Hr
Average Daily Volume (Mon - Fri)	349	Weekday PM Average (3-9pm)	23	V/Hr

	Day								
	Mon	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**	**Sun**	**5 Day**	**7 Day**
Hour End	18/03/2024	19/03/2024	20/03/2024	21/03/2024	22/03/2024	16/03/2024	17/03/2024	**Ave**	**Ave**
0-1	2	1	0	0	0	0	2	**1**	**1**
1-2	1	0	0	0	2	0	1	**1**	**1**
2-3	1	0	0	0	0	2	1	**0**	**1**
3-4	0	2	2	2	2	0	1	**2**	**1**
4-5	0	0	0	0	0	0	1	**0**	**0**
5-6	12	13	12	12	13	9	2	**12**	**10**
6-7	40	37	37	39	42	1	0	**39**	**28**
7-8	20	23	16	32	28	2	1	**24**	**17**
8-9	27	25	18	29	29	1	0	**26**	**18**
9-10	32	8	28	21	20	0	0	**22**	**16**
10-11	18	18	32	20	15	5	1	**21**	**16**
11-12	29	19	29	22	25	2	0	**25**	**18**
12-13	33	31	32	22	24	5	2	**28**	**21**
13-14	37	33	19	30	25	5	0	**29**	**21**
14-15	17	32	23	17	19	2	0	**22**	**16**
15-16	33	18	24	17	16	0	0	**22**	**15**
16-17	20	27	25	31	18	0	0	**24**	**17**
17-18	35	36	19	30	28	2	2	**30**	**22**
18-19	15	11	19	18	17	0	0	16	11
19-20	0	0	3	4	2	0	0	**2**	**1**
20-21	1	9	1	2	1	0	0	**3**	**2**
21-22	0	1	1	0	0	0	0	**0**	**0**
22-23	2	3	1	3	0	1	1	**2**	**2**
23-24	1	1	2	2	0	1	1	**1**	**1**
6am-6pm	341	307	302	310	289	25	6	**310**	**226**
4am-8pm	368	331	336	344	321	34	9	**340**	**249**
3am-9pm	369	342	339	348	324	34	10	**344**	**252**
24 Hour	376	348	343	353	326	38	16	**349**	**257**

Figure 3 Waipapa Pine Site Traffic Count for Current Operations (two-way) March 2024

As part of our investigations a traffic count was conducted for State Highway 10 which identified the following peak hours. Peak hour traffic for State Highway 10 is 8:00-9:00 and 16:00-17:00, with an interpeak at 11:00-12:00 (refer Figure 8). Peak hour traffic at those times is close to 26 vehicles per hour.

The tube count showed 5 day average peak hour traffic as 39 vehicles per hour 6-7am and 349 vehicles per day. Critical traffic flows are those that coincide with peak hour on State Highway 10. Hourly traffic that coincides with the am and pm peak hourly traffic on State Highway 10 is highlighted in light green. As it can be seen above, peak hourly traffic does not coincide with peak hourly traffic on State Highway 10.

As mentioned above, the current easement notice provides for up to 2144 vehicles per day on Industrial Way, of which 670 vehicles per day and 83 vehicles per hour are allocated to Waipapa Pine. The tube count demonstrates that the 5 day peak hourly traffic is well within their current allocation of 670 vehicles per day and 83 vehicles per hour.

3.3 Future Trip Generation from the Subject Site

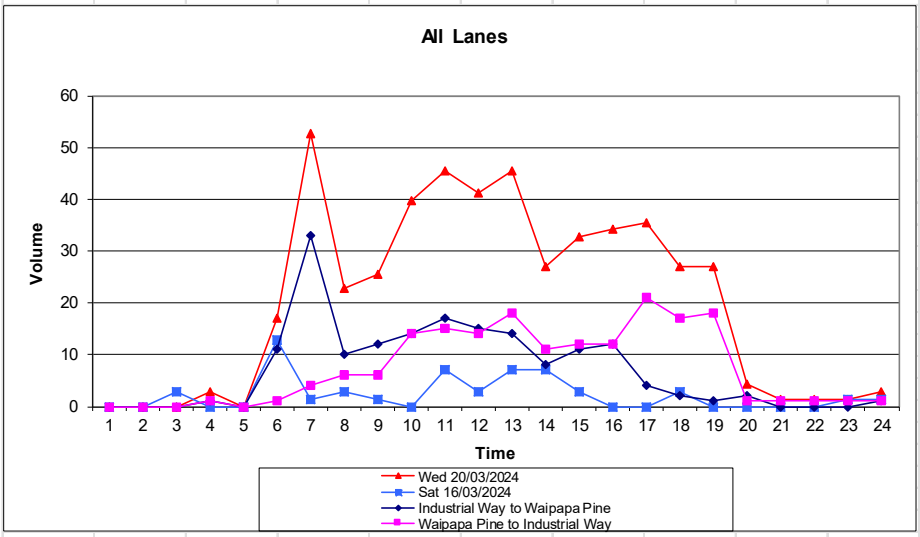
Extensions to the mill are to increase production from 115,000 tonnes to 250,000 tonnes per day. Figure 4 below shows that increasing production at the mill could generate an additional 328 – 181 = 147 vehicles per day.

Waipapa Site Traffic Movements

	Last finanical yr - manned time over Mon-Fri	**Future manned time over Mon-Fri**	
WPL site people	63 people Mon-Fri Weekend only maintenance and kiln operation	104 people Mon-Fri Weekend only maintenance and kiln operation	
Log volume (tonnes)	**115000**	**250000**	29.87 tonnes per log truck
Trucks per year	3850	8370	
Trucks per week	80	174	48 week year
Trucks per day	16	35	
Total sawn timber volume	**71300**	**155000**	62% of log
Kiln Dried timber m3	45989	99975	64.5% of all cut wood
Wet timber m3	25312	55025	35.5% of all cut wood
Residues and other m3	28750	62500	25% of log
KD timber trucks per year	1188	2583	60m3 per truck
Wet timber trucks per year	744	1618	34m3 per truck
Residues trucks per year	846	1838	34m3 per truck
TOTAL outbound trucks p.a	**2778**	**6040**	
TOTAL outbound trucks/wk	**58**	**126**	48 production weeks
TOTAL outbound trucks/day	**12**	**25**	outbound all 5 days per week
Vehicle peak movements Monday to Friday (each vehicle counts as two movements)			
Light vehicle movements	126	208	
Log truck movements	32	70	
Finished good truck movements	23	50	
TOTAL DAILY MOVEMENTS	181	328	

Figure 4 Trip Generation

WAIPAPA PINE ACCESS			Outside Entrance			Site:	4.0843		
0		**Road ID -**	0						
All Lanes			16/03/2024	-	22/03/2024				



Summary For All Lanes				
Total Volume For Week	2558	Weekday AM Average (6-10am)	39	V/Hr
Average Daily Volume (7 Days)	365	Weekday Midday Average (10am-3pm)	35	V/Hr
Average Daily Volume (Mon - Fri)	496	Weekday PM Average (3-9pm)	32	V/Hr

	Day								
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	5 Day	7 Day
Hour End	18/03/2024	19/03/2024	20/03/2024	21/03/2024	22/03/2024	16/03/2024	17/03/2024	**Ave**	**Ave**
0-1	3	1	0	0	0	0	3	**1**	**1**
1-2	1	0	0	0	3	0	1	**1**	**1**
2-3	1	0	0	0	0	3	1	**0**	**1**
3-4	0	3	3	3	3	0	1	**2**	**2**
4-5	0	0	0	0	0	0	1	**0**	**0**
5-6	17	18	17	17	18	13	3	**18**	**15**
6-7	57	53	53	55	60	1	0	**55**	**40**
7-8	28	33	23	45	40	3	1	**34**	**25**
8-9	38	36	26	41	41	1	0	**36**	**26**
9-10	45	11	40	30	28	0	0	**31**	**22**
10-11	26	26	45	28	21	7	1	**29**	**22**
11-12	41	27	41	31	36	3	0	**35**	**26**
12-13	47	44	45	31	34	7	3	**40**	**30**
13-14	53	47	27	43	36	7	0	**41**	**30**
14-15	24	45	33	24	27	3	0	**31**	**22**
15-16	47	26	34	24	23	0	0	**31**	**22**
16-17	28	38	36	44	26	0	0	**34**	**25**
17-18	50	51	27	43	40	3	3	**42**	**31**
18-19	21	16	27	26	24	0	0	23	16
19-20	0	0	4	6	3	0	0	**3**	**2**
20-21	1	13	1	3	1	0	0	**4**	**3**
21-22	0	1	1	0	0	0	0	**1**	**0**
22-23	3	4	1	4	0	1	1	**3**	**2**
23-24	1	1	3	3	0	1	1	**2**	**2**
6am-6pm	485	436	429	441	411	36	9	**440**	**321**
4am-8pm	523	470	478	489	456	48	13	**483**	**354**
3am-9pm	524	486	482	495	460	48	14	**489**	**359**
24 Hour	534	495	487	502	463	54	23	**496**	**365**

Figure 5 Waipapa Pine Site Traffic Count (two-way) Scaled for Future Production

As can be seen in Figure 5 above, by scaling for future operations, the peak hourly traffic of 55 vehicles per hour remains between the period of 6:00am and 7:00am in the morning and does not coincide with the State Highway 10 peak. The peak hourly traffic of 55 vehicles per hour is less than the consented peak hourly traffic volume of 83 vehicles per hour. As will be mentioned elsewhere, future peak hourly traffic from the subject site will not coincide with peak hourly traffic on Industrial Way, or on State Highway 10.

The takeaway from the traffic projection, is that the forecast shows that while production and trip generation are to increase, peak hourly traffic movements and average daily traffic remain below consented limits. Both peak hour traffic and daily traffic are projected to be within existing approved allocations. No change in the approved allocation on the easement or at State Highway 10 is being sought.

For analysis – the higher approved volumes for Industrial Way will be used to check that the intersection of Industrial Way and State Highway 10 continues to function as intended.

4 Industrial Way

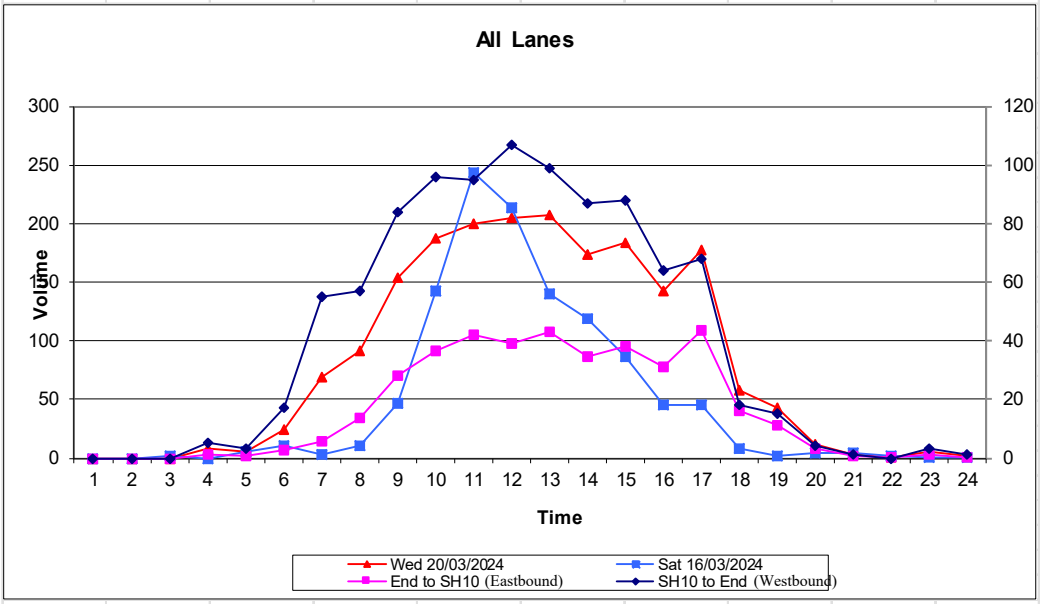
In 2013 a traffic impact assessment was undertaken for Waipapa Pine to relocate its access to Industrial Way and to close its existing access point. The relocated access was to combine access locations on State Highway 10 to a single safe developed access point.[1]

As shown in Figure 2, the approval allows for 2144 vehicles per day and 276 vehicles during the peak hour. The safe and efficient function of the intersection predominately relies on the ability of the intersection to function adequately during high traffic volume periods i.e. peak hourly traffic.

A traffic tube count was carried out on Industrial Way approximately 20m from the State Highway 10 intersection between the dates of 16 – 22 March 2024. A copy of the count data is shown below.

[1] Addendum to the Traffic "Impact Assessment (July 2012) for Solid Holdings Ltd & JSB Construction Ltd, Lot 5 DP 69740 NA 25C/985, 1913 SH10, Kerikeri; Combined Access with Waipapa Pine Ltd; Haigh Workman Limited (12 February 2013)

INDUSTRIAL WAY			Intersection with SH10			Site:	4.0842		
0		**Road ID -**	0						
All Lanes			16/03/2024	-	22/03/2024				



Summary For All Lanes				
Total Volume For Week	12171	Weekday AM Average (6-10am)	133	V/Hr
Average Daily Volume (7 Days)	1739	Weekday Midday Average (10am-3pm)	200	V/Hr
Average Daily Volume (Mon - Fri)	2045	Weekday PM Average (3-9pm)	110	V/Hr

	Day								
	Mon	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**	**Sun**	**5 Day**	**7 Day**
Hour End	18/03/2024	19/03/2024	20/03/2024	21/03/2024	22/03/2024	16/03/2024	17/03/2024	**Ave**	**Ave**
0-1	4	1	0	0	0	0	2	**1**	**1**
1-2	3	0	0	2	4	0	1	**2**	**1**
2-3	7	1	0	0	6	2	1	**3**	**2**
3-4	2	4	8	9	9	0	7	**6**	**6**
4-5	4	1	5	5	10	5	1	**5**	**4**
5-6	27	31	24	22	19	11	2	**25**	**19**
6-7	91	81	69	73	77	3	6	**78**	**57**
7-8	92	106	91	127	85	10	5	**100**	**74**
8-9	148	179	154	180	157	47	29	**164**	**128**
9-10	201	174	187	194	193	142	84	**190**	**168**
10-11	219	196	200	173	195	243	139	**197**	**195**
11-12	202	219	205	211	220	214	137	**211**	**201**
12-13	200	238	207	206	196	140	101	**209**	**184**
13-14	185	182	174	217	238	119	79	**199**	**171**
14-15	163	191	183	188	199	86	73	**185**	**155**
15-16	182	202	142	152	172	45	76	**170**	**139**
16-17	153	177	177	131	142	45	40	**156**	**124**
17-18	88	95	58	94	70	8	20	**81**	**62**
18-19	30	26	43	28	31	2	5	32	24
19-20	6	5	12	13	10	4	4	**9**	**8**
20-21	20	9	3	7	1	4	0	**8**	**6**
21-22	0	3	1	19	0	2	0	**5**	**4**
22-23	8	5	6	6	0	1	1	**5**	**4**
23-24	1	10	2	9	0	1	1	**4**	**3**
6am-6pm	1924	2040	1847	1946	1944	1102	789	**1940**	**1656**
4am-8pm	1991	2103	1931	2014	2014	1124	801	**2011**	**1711**
3am-9pm	2013	2116	1942	2030	2024	1128	808	**2025**	**1723**
24 Hour	2036	2136	1951	2066	2034	1134	814	**2045**	**1739**

Figure 6 Industrial Way Traffic Count (two-way) March 2024

Peak hour traffic is used to check performance and level of service of an intersection. We discuss peak hourly traffic in more detail below. The tube count data in Figure 6 above showed the 5 day ADT of 2045 vehicles per day and peak hour traffic of 238 vehicles per hour on a weekday and 243 vehicles per hour during the weekend. The 5 day average hourly traffic count that coincides with the peak hourly traffic

counts on State Highway 10 is highlighted above. As it can be seen above, the peak hour traffic on Industrial Way does not coincide with State Highway 10 peak hour traffic in the am and pm periods.

Traffic is spread across the day, with the peak hour traffic between 11:00 – 12:00am based on the 5 day ADT data.

To test effects from the development, the higher approved traffic volumes of 276 vehicles per hour has been adopted for analysis to ensure the intersection continues to function as intended.

A traffic survey was conducted on 9 April 2024 between 16:00-17:00pm (to coincide with peak hourly traffic on State Highway 10) to confirm turning direction north and south, in and out of the accessway.

Table 1 Camera Count Turning Movements - Matrix Survey

	OUT					IN				
	A		B			C		D		
	Left turn onto SH10		Right turn onto SH10			In from Waipapa		In from Kerikeri		Total
	Car	Truck	Car	Truck		Car	Truck	Car	Truck	
4.00-4.15	17	5	9			7	4	8	1	51
4.15-4.30	10	5	10	2		11	4	3	1	46
4.30-4.45	8	3	7	2		11	1	5	0	37
4.45-5.00	8	1	4	0		4	1	4	1	23
5.00-5.15	11	0	5	1		2	1	1	1	22
Total	54	14	35	5		35	11	21	4	179
	68		40		108	46		25		71
	63%		37%			65%		35%		

The survey showed around 35% to and from the south (Kerikeri direction) and 65% to and from the north (Waipapa direction). This is considered quite high, and a 60% bias to and from Waipapa has been adopted for analysis.

During the sensitivity analysis later in the report, it was found that a 70% bias towards the north improves the level of service at the intersection with the ease of the left turn out.

Using the higher consented traffic volumes as opposed to actual, distribution of traffic adopted for analysis is as follows:

Table 2 Industrial Way traffic distribution adopted for analysis

Industrial Way am interpeak and pm peak Traffic		SH10 (South)	SH10 (North)	Total
		40%	60%	
In	50%	55	83	138
Out	50%	55	83	138
		110	166	276

5 State Highway 10

The NZTA traffic data portal shows around 8000 vehicles per day during with 6.9% HCV over 35 count days during 2021, located approximately 3.1km south of the subject site.

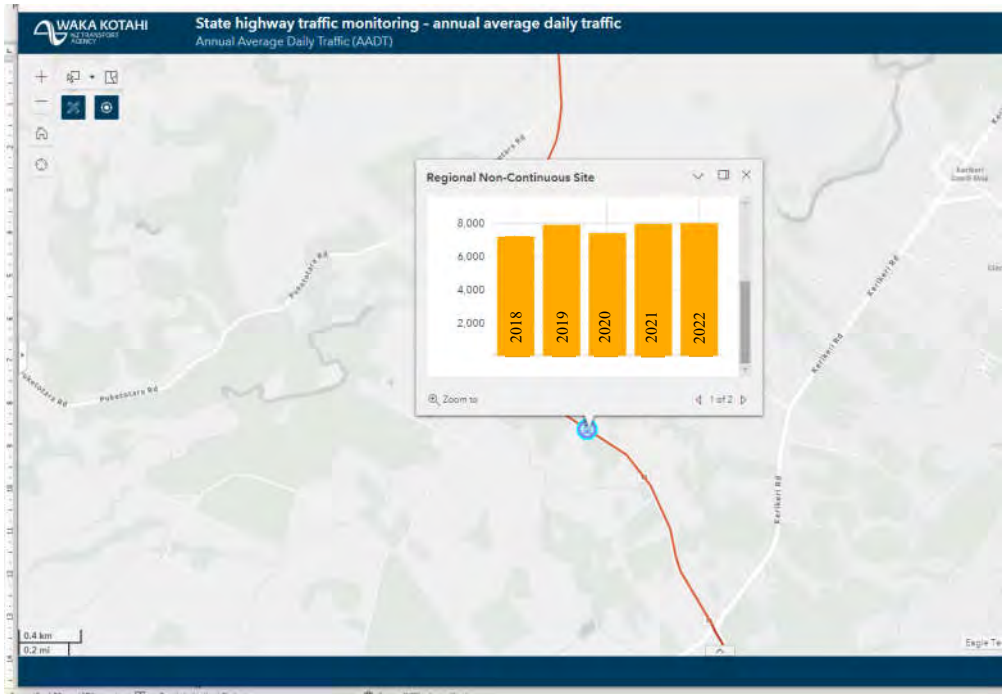


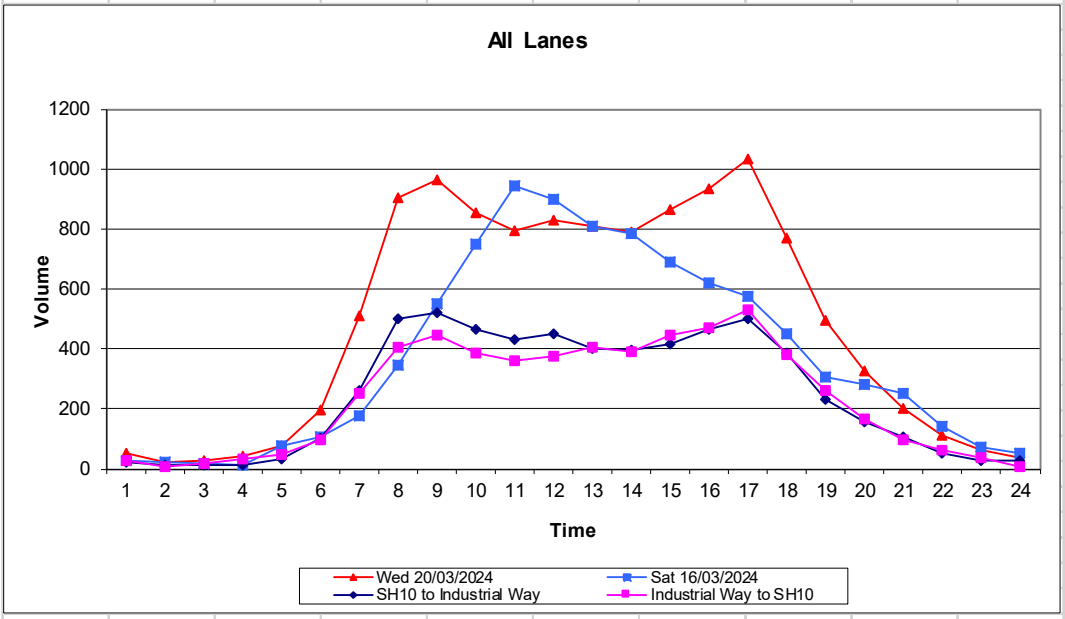
Figure 7 SH 10 Count Data (South of Waimate North Road – 3.1km south of site) : source Waka Kotahi

To obtain detailed traffic information and the latest data, a tube count was carried out along the straight just south of the site. The tube count data indicated that the highway currently carries around 11,500 vehicles per day. This can be explained due to the current closure of SH1 through the Mangamuka Gorge. The road is predicted to open late 2024[2], after which traffic volumes are predicted to drop back to around 8000 vehicles per day.

A copy of the tube count is shown in Figure 8 below. Traffic data for each direction is contained in the appendices.

[2] NZ Herald, 11 October 2023

SH10 INDUSTRIAL WAY			1901 SH10			Site:	4.0841		
0		**Road ID -**	0						
All Lanes			16/03/2024	-	22/03/2024				



Summary For All Lanes				
Total Volume For Week	74728	Weekday AM Average (6-10am)	778	V/Hr
Average Daily Volume (7 Days)	10675	Weekday Midday Average (10am-3pm)	833	V/Hr
Average Daily Volume (Mon - Fri)	11548	Weekday PM Average (3-9pm)	799	V/Hr

	Day								
	Mon	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**	**Sun**	**5 Day**	**7 Day**
Hour End	18/03/2024	19/03/2024	20/03/2024	21/03/2024	22/03/2024	16/03/2024	17/03/2024	**Ave**	**Ave**
0-1	20	14	51	25	34	27	45	**29**	**31**
1-2	17	26	21	18	21	24	26	**21**	**22**
2-3	23	27	28	28	26	16	14	**26**	**23**
3-4	32	42	44	49	57	14	16	**45**	**36**
4-5	84	76	79	87	81	78	46	**81**	**76**
5-6	183	201	196	202	170	107	77	**190**	**162**
6-7	548	523	510	547	469	176	139	**519**	**416**
7-8	885	863	905	852	832	344	252	**867**	**705**
8-9	868	952	965	946	865	551	367	**919**	**788**
9-10	781	786	855	810	790	751	655	**804**	**775**
10-11	754	798	795	805	830	946	739	**796**	**810**
11-12	801	890	828	843	892	899	822	**851**	**854**
12-13	775	847	808	851	888	807	810	**834**	**827**
13-14	701	773	791	865	847	782	739	**795**	**785**
14-15	813	842	863	924	994	691	690	**887**	**831**
15-16	920	945	934	969	990	620	675	**952**	**865**
16-17	993	968	1031	1043	972	575	557	**1001**	**877**
17-18	781	782	769	839	778	450	493	**790**	**699**
18-19	380	382	496	512	497	306	331	453	415
19-20	234	295	327	374	304	279	235	**307**	**293**
20-21	141	167	204	175	177	249	156	**173**	**181**
21-22	68	109	114	132	139	142	78	**112**	**112**
22-23	38	52	62	69	85	71	43	**61**	**60**
23-24	29	30	35	38	31	51	25	**33**	**34**
6am-6pm	9620	9969	10054	10294	10147	7592	6938	**10017**	**9231**
4am-8pm	10501	10923	11152	11469	11199	8362	7627	**11049**	**10176**
3am-9pm	10674	11132	11400	11693	11433	8625	7799	**11266**	**10394**
24 Hour	10869	11390	11711	12003	11769	8956	8030	**11548**	**10675**

Figure 8 State Highway 10 Traffic Count (two-way) March 2024

Peak hour traffic was found to be during the times of 8:00-9:00am and 16:00-17:00pm with an interpeak between 11:00-12:00am. The following data has been adopted for SIDRA analysis.

Table 3 State Highway 10 traffic volumes adopted to measure performance

SH10 am 8:00 - 9:00 am		Adopted
Two way am traffic		919
Northbound	55%	505
Southbound	45%	414
SH10 interpeak 11:00 -12:00 am		
Two way am traffic		851
Northbound	50%	426
Southbound	50%	426
SH10 pm 16:00 - 17:00 pm		
Two way am traffic		1001
Northbound	45%	450
Southbound	55%	551

The Waka Kotahi count recorded the percentage of heavy commercial vehicles (HCV) on State Highway 10 as 6.9% HCV. A figure of 8% HCV has been adopted for input to the traffic model.

The speed limit at the Industrial Way intersection is 100km/hr. We understand that it is proposed the drop the speed limit to 80km/hr. The 85th percentile vehicle speed was recorded as 82km/hr on State Highway 10. A figure of 90km/hr has been adopted for the analysis.

There will be further discussion under sensitivity, but traffic volumes are approximately 50% too high, 11,500 ADT vs 8,000 ADT when SH1 is programmed to reopen later this year.

6 Industrial Way / SH 10 Intersection

6.1 Intersection Layout

State Highway 10 has a dedicated right turn bay and a dedicated left turn bay into the Industrial Way.

Figure 9 Existing Industrial Way Intersection with State Highway 10 (Google Maps)

Figure 10 Existing right turn bay at Industrial Way Intersection (Google Maps)

6.2 Sight Distances

The Intersection is located on the western side of State Highway 10, approximately 500m south of Kahikatearoa Lane in Waipapa. The alignment of the highway is straight and flat and there is excellent visibility from the entrance – approximately 800m in each direction. It is considered that the sight distances are sufficient to allow the entrance to continue to operate as safely as any other similar entrance in the district.

Figure 11 Visibility south onto State Highway 10 (Google Maps)

Figure 12 Visibility North onto State Highway 10 (Google Maps)

6.3 Level of Service

Austroads Levels of Service range from A (free flow) to F (stop-start).
Acceptable Levels of Service A to D are defined as:

> ***Level of Service A*** *is a condition of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.*
>
> ***Level of Service B*** *is in the zone of stable flow and drivers still have reasonable freedom to select their desired speed and to manoeuvre within the traffic stream, although the general level of comfort and convenience is a little less than with level of service A.*
>
> ***Level of Service C*** *is also in the zone of stable flow, but most drivers are restricted to some extent in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience declines noticeably at this level.*
>
> ***Level of Service D*** *is close to the limit of stable flow and is approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor and small increases in traffic flow will generally cause operational problems."*

Levels of Service A to C are considered acceptable. Level of Service D may be acceptable for private property access, but is not acceptable for through traffic on public roads.

The SIDRA analysis showed that the Level of Service remains a LOS C. It is worth noting that Level of Service C is achieved with all the conservatisms built into the analysis.

6.4 Intersection Capacity

A SIDRA analysis was carried out to determine the level of service at Industrial Way intersection following expansion of the Waipapa Pine timber mill.

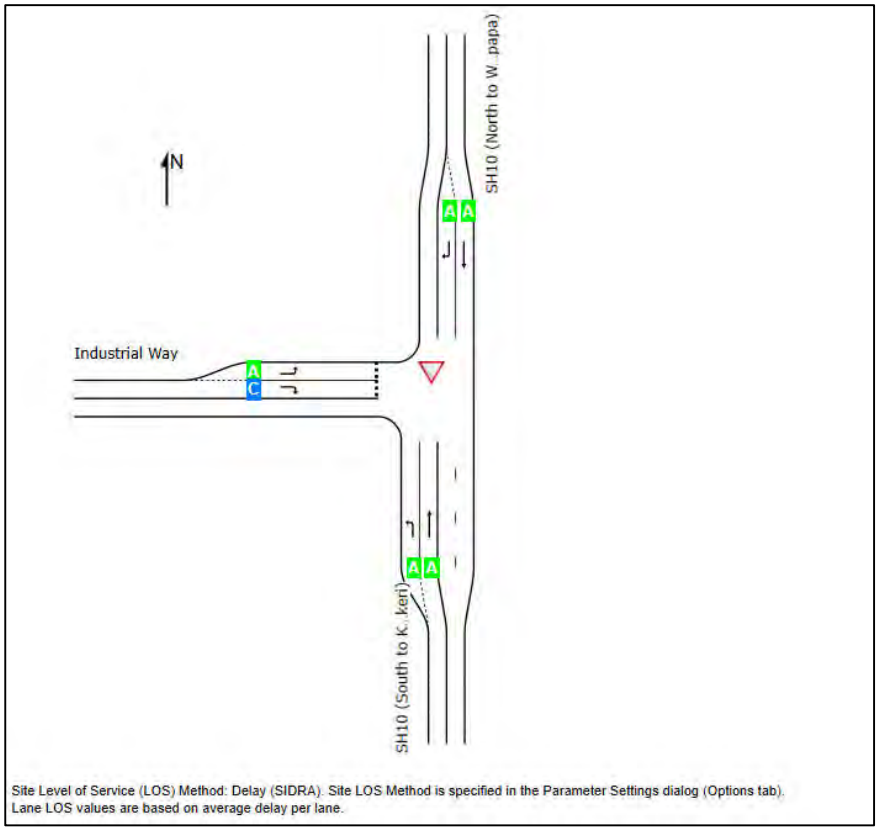


Figure 13 Level of Service am peak

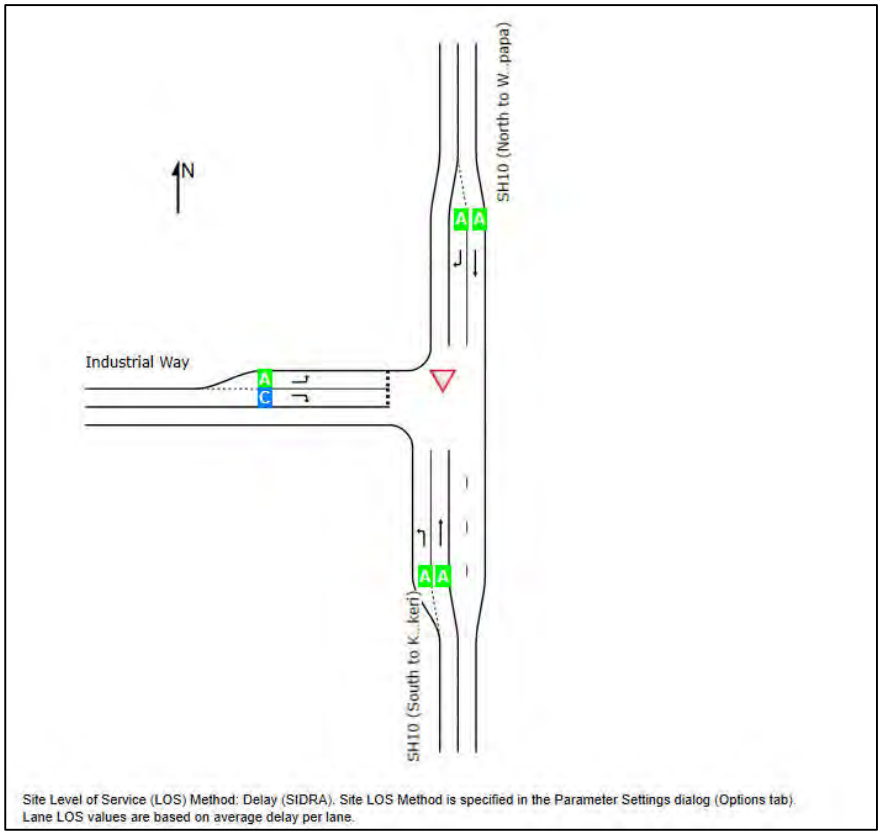


Figure 14 Interpeak Level of Service

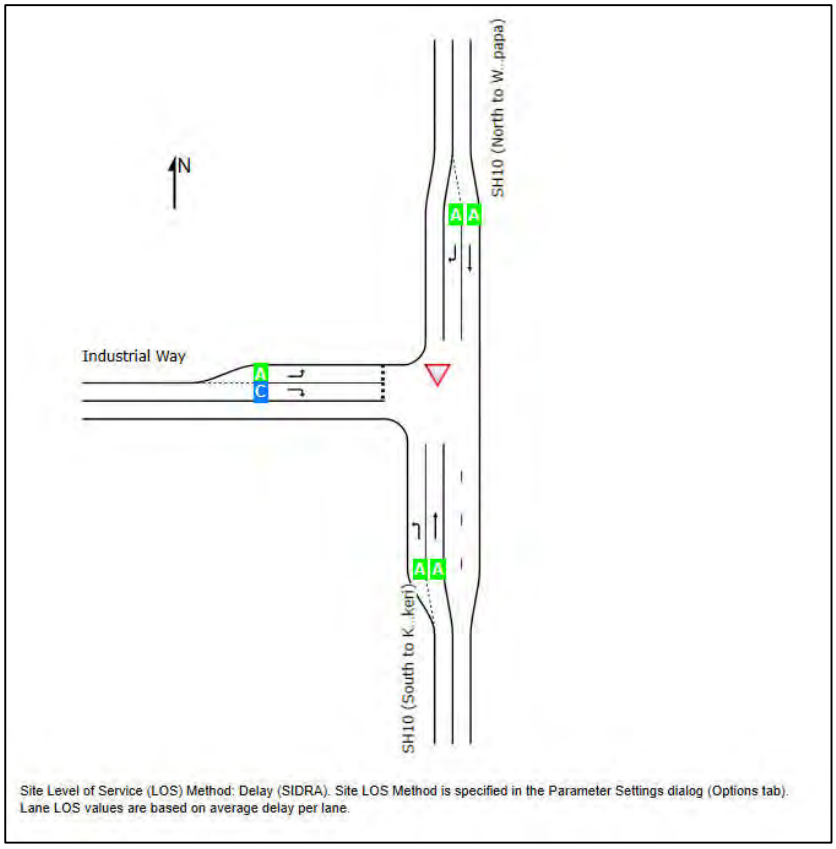


Figure 15 Level of Service pm peak

The SIDRA analysis was conservatively carried out using consented peak hourly traffic volumes.

Conditions on State Highway 10 are described as Austroads Level of Service A. This is the highest level of service defined by Austroads.

The level of service on the side road, Industrial Way, is Level of Service C, which is within the acceptable range. It is worth noting that only the right turn out of Industrial Way is Level of Service C; all other traffic movements are Level of Service A.

The SIDRA analysis shows that the network has adequate capacity to accommodate the additional traffic generated by the plant expansion. It is considered from the above analysis that effects from the development on State Highway 10 and surrounds are no more than minor.

6.5 Calibration and Reality Check

An intersection survey was conducted 8 April 2024 at the intersection to estimate delay and gap acceptance for right turn traffic exiting Industrial Way. The survey was conducted during the hours of 16:00 and 17:00 to coincide with peak hour traffic on State Highway 10. The survey showed that delays at the intersection were circa LOS C when compared to total delay. Gap acceptance for the right turn out was adjusted to 6 seconds to better emulate reality.

Follow up headway was also minimal; however no changes were made to the follow up headway, and the parameter of 4 seconds was conservatively used unadjusted.

23 256					
Industrial Way Traffic Turning Right onto SH10					
08/04/2024 4-5pm peak hour count					
	Time	Vehicle Type	**Queue Time First Car** wait time at give way line (seconds)	Headway wait (second car turning onto SH10 without stopping) (seconds)	Comments
1	4:03	Car	9		Raining 4-4:15 approx
2	4:05	Truck	5		
3	4:07	Car	10		
4	4:09	Car	18		Waiting for cars turning into industrial way
5	4:09	Car	7		
6	4:09	Car	22		
7	4:12	Car		0.5	Following car 6
8	4:12	Car	11		
9	4:14	Car	4		Rain eased
10	4:17	Car	29		Queue: 1 car at give way line with 1 truck waiting behind (2)
11	4:21	Car	21		
12	4:22	Car	7		
13	4:25	Car	9		
14	4:29	Car	38		
15	4:34	Car	1		Queue: 1 car at give way line and 2 cars behind. Cleared in less than 10 seconds at 4:33 (3)
16	4:37	Car	35		
17	4:38	Car	9		Car towing trailer
18	4:44	Car	16		
19	4:44	Car		1	Following car 18
20	4:48	Car	2		
21	4:53	Car	19		Car towing trailer
22	4:56	Car	2		
23	4:57	Car	5		
24	4:57	Car	8		
25	5:02	Truck	25		
26	5:03	Car	11		
27	5:04	Car	10		Queue: 1 car at give way line with 1 car behind. Cleared in less than 10 seconds (2)
28	5:07	Car	3		Car towing trailer. Queue: 1 car at give way line with 1 car behind. Cleared in less than 10 seconds (2)
29	5:10	Car	17		
30	5:12	Car	10		Car towing trailer
31	5:12	Car	2		
		Average	12.6		
Estimated >75% of cars turned left onto SH10					
		Queue			
	Time	Max No. of vehicles			
	4:00-4:15	No queue			
	4:15-4:30	1 car 1 truck			
	4:30-4:45	3 cars			
	4:45-5:00	No queue			
	5:00-5:15	2 cars			

Figure 16 Industrial Way Intersection Right Turn Out Manual Time Delay Survey

Following calibration, the modelled stop line delay is conservatively higher than reality (stop line delay 16.2 seconds modelled vs 12.6 seconds measured).

6.6 Sensitivity

The intersection was tested using 70% in/out to the north, and 30% to and from the south. Level of service actually improved. Delays at the intersection showed a small improvement (total control delay reduced from 21.1 seconds to 20.7 seconds. The sensitivity showed that increasing the bias towards the north did not adversely affect performance of the site.

Finally, the intersection was tested with reduced SH volumes on the expectation that SH1 will be opened through the Mangamuka Gorge.

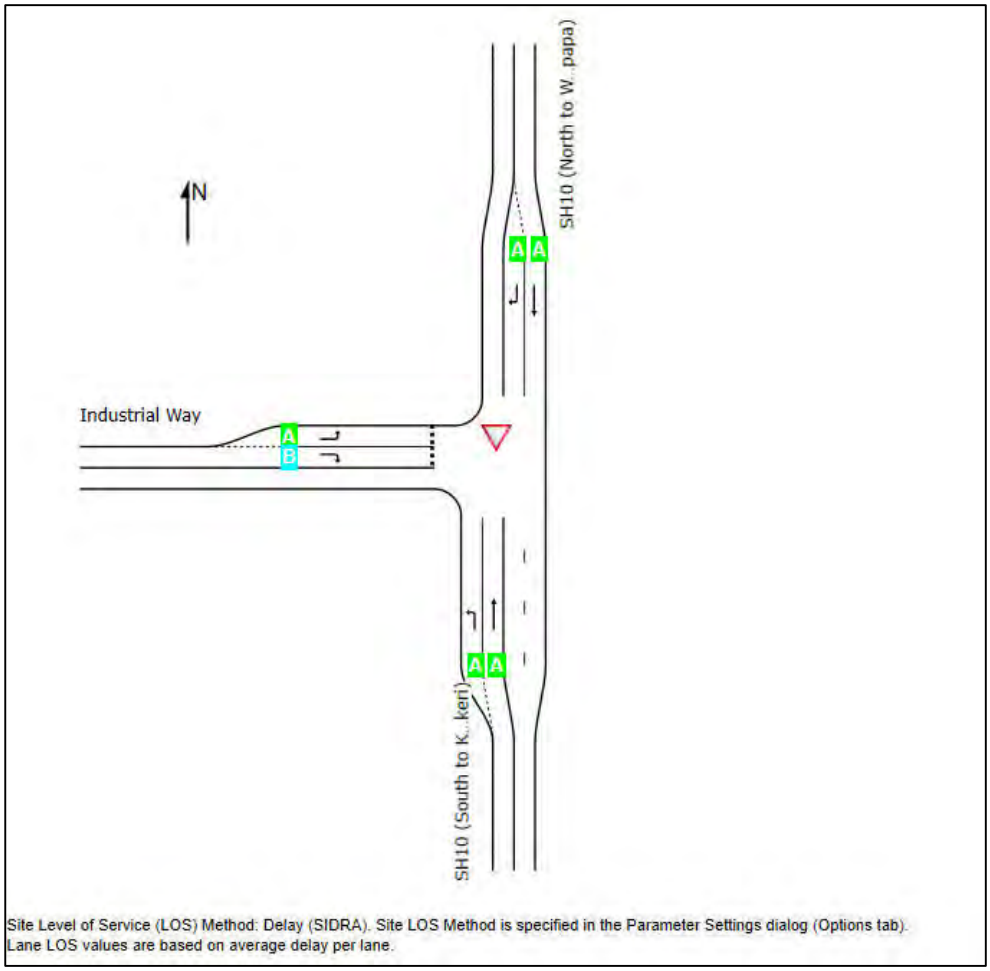


Figure 17 Intersection Level of Service in the pm following reopening of the SH 1 Mangamuka Gorge

In conclusion, the intersection traffic volumes will continue to perform to acceptable levels. It has been shown that no control changes are required at the intersection. Delays are all contained on the side road. No upgrades to Industrial Way or the intersection are required as a result of the proposal / Waipapa Pine's activities.

7 Safety

The NZTA Crash Analysis System (CAS) was checked for State Highway 10 in vicinity of Industrial Way for the years 2014 – 2023 inclusive (10 years). There were two non-injury crashes and one serious crash that involved a pedestrian recorded.

The northern crash was a vehicle turning into a driveway. That driveway has since been upgraded to a full right turn bay.

The central crash occurred south of the intersection. A southbound vehicle lost its load and struck a northbound vehicle. The northbound vehicle pulled into the intersection to check damage.

The southern crash occurred with a north bound vehicle passing a parked vehicle on the shoulder of the road. The pedestrian stepped out from behind the vehicle. The pedestrian was travelling to a stall on the opposite side of the highway. The north bound vehicle struck the pedestrian who was crossing the road.

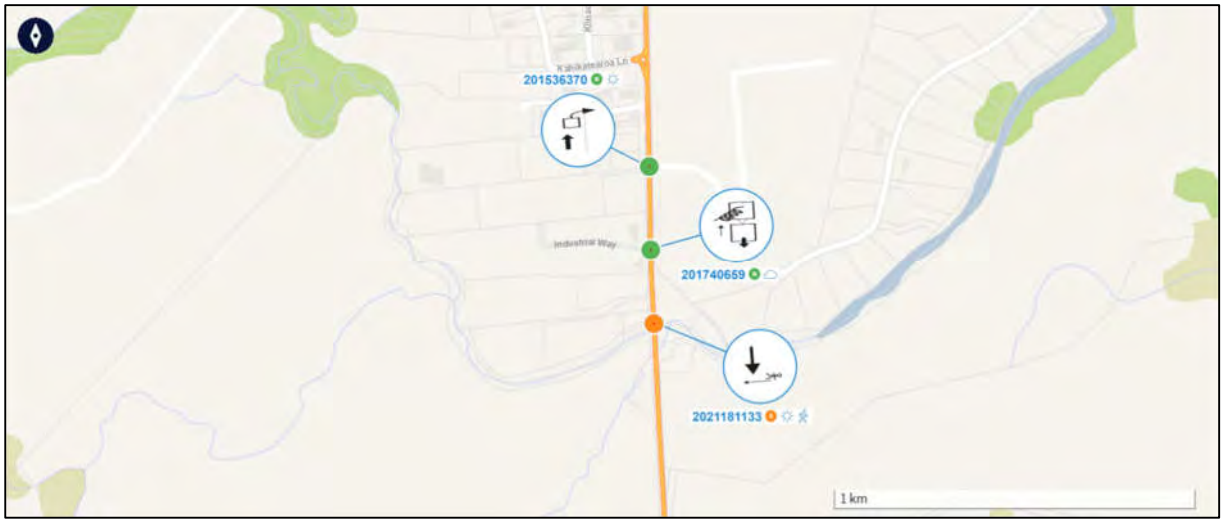


Figure 18 Collision diagram

The current intersection has operated safely over the last 10 years. There were no crashes that would suggest that continued use of Industrial Way and of State Highway 10 intersection would be unsafe.

The CAS printout is included in Appendix D.

8 Geometry within the Development

Access and parking will be constructed in compliance with the FNDC District Plan. All turning will be undertaken off-street.

Figure 19 Entrance to Waipapa Pine site from Industrial Way

9 On-Site Parking

On-site parking has been assessed in accordance with Far North District Plan Appendix 3C as follows:

Table 4 Parking Summary

Land Use	Units	Calculation	Car Parks Required	Car Parks Proposed
Industrial Activities	25,700m^2 GBA	1 / 100 m^2 GBA	257	116

The Operative Far North District Plan defines gross business area as:

> **GROSS BUSINESS AREA**
>
> a) the gross floor area of any building measured from the outside faces of the exterior walls; plus
>
> b) the area of any part of the site used solely or principally for the storage, sale, display or servicing of goods or the provision of services on the site but not including permanently designated vehicle parking, manoeuvring, loading and landscaped areas.
>
> The "gross business area" will exclude the area of network infrastructure including pipes, lines and installations, roads, water supply, wastewater, and stormwater collection and management systems, but will include the area of buildings occupied by network service providers, including offices, workshops, warehouses and any outside areas used for carrying out their normal business

Based on this definition, the site has a GBA of approximately 25,700m^2. With a parking requirement of 1 space per 100m2 GBA, a total of 257 parking spaces would be required.

For the activity on site being timber processing, we believe the GBA calculation isn't reflective of the true parking requirement as the timber milling and treatment activities require large processing buildings and outdoor storage areas. A more accurate method of calculation would be based on the number of staff present on site.

There are 72 staff parking spaces available made up of 68 marked formal spaces and 4 informal spaces around the site. There are 2 visitor parking spaces in addition to this.

Haigh Workman surveyed the parking on 21 and 22 March 2024 around noon, being a Thursday and Friday at which time there were 57 occupied car parks and 15 vacant carparks. We consider that the current number of carparks is adequate for the current land use.

In terms of occupancy, on Thursday 21 March there were 60 people onsite made up of 45 staff and 15 contractors. Assuming each contractor has one carpark, there was 57 – 15 = 42 carparks occupied by staff, or an occupancy rate of 42/45 = 0.93 staff occupancy rate.

If the occupancy rate is applied to production with 108 staff onsite at any one time, then this would require 0.93 x 108 = 101 staff parking spaces required + 15 visitor carparks = 116 car parks.

As per rule 15.1.6B.1.4 Accessible Car Park Spaces, four accessible carparks will be provided. We consider that 116 carparks inclusive of accessible carparks are adequate for the needs of the development.

Layout of the carparking is included in Appendix A – Drawings. The dimensions / design standards for the new driveway / parking / manoeuvring arrangements are compliant with the FNDP Appendix 3.

10 Assessment Criteria

10.1 FNDP Assessment Criteria

Average daily traffic for the subject site has been calculated using Council Traffic Intensity Factors (TIF) in Appendix 3A of the Far North District Plan. The proposal will maintain the existing consented traffic generation of up to 670 VPD.

The existing land use consent 2150320-RMALUC (2016) consented a future increase in traffic generation from the site of up to 670 vpd. While the proposal will maintain traffic generation within this existing consented threshold, a non-compliance with Rule 15.1.6A.2.1 Traffic Intensity is applied for as:

- *The application for land use consent 2150320-RMALUC identified future expansion on only the western part of Lot 1 DP 376253. The new dispatch yard will be located on the eastern part of Lot 1 DP 376253 which was not identified as an expansion area at the time.*

- *670 vpd exceeds the permitted activity threshold of 30 vpd for sites in the Rural Production Zone accessed via a state highway. Traffic generation of more than 200 vpd from any Rural Production Zone site is a discretionary activity.*

Activities may be granted consent when appropriately assessed under the assessment criteria described in the Far North District Plan. The following numbering refers to that of the Operative District Plan.

11.12 TRAFFIC INTENSITY

Criterion	Comment	Acceptable
(a) The extent by which the expected traffic intensity exceeds the threshold set by the Traffic Intensity Factor contained in Appendix 3A in Part 4 of the Plan.	*Access for the site has consented thresholds that will not be exceeded. The intersection was testing to confirm that the intersection continues to operate safely and efficiently which it does.*	*Yes*
(b) The time of day when the extra vehicle movements will occur.	*No adverse effects expected from the time of day that additional vehicle movements are expected to occur. Peak hourly traffic to/from the site does not coincide with Industrial Way or State Highway 10 peak hourly traffic.*	*Yes*
(c) The distance between the location where the vehicle movements take place and any adjacent properties.	*Historically there have been positive benefits from a net reduction in access points onto State Highway 10. No further changes are proposed.*	*Yes*
(d) The width and capability of any street to be able to cope safely with the extra vehicle movements.	*Geometry of Industrial Way and State Highway 10 are suitable to accommodate the additional traffic movements.*	*Yes*

Criterion	Comment	Acceptable
(e) The location of any footpaths and the volume of pedestrian traffic on them.	*There are no footpaths in the vicinity of the subject site.*	*N/A*
(f) The sight distances associated with the vehicle access onto the street.	*Sight distances are excellent.*	*Yes*
(g) The existing volume of traffic on the streets affected.	*The SIDRA analysis showed effects as no adverse effects.*	*Yes*
(h) Any existing congestion or safety problems on the streets affected.	*No immediate congestion or safety issues were identified on the adjoining highway adjacent to the site. State Highway 10 traffic volumes are expected to reduce once State Highway 1 reopens.*	*Yes*
(i) With respect to effects in local neighbourhoods, the ability to mitigate any adverse effects through the design of the access, or the screening of vehicle movements, or limiting the times when vehicle movements occur.	*No adverse effects on local neighbourhoods are anticipated. Generated traffic will emulate existing traffic patterns and be spread over the day into off-peak periods.*	*Yes*
(j) With respect to the effects on through traffic on arterial roads, strategic roads and State Highways, any measures such as right-turn bays, flush medians, left turn deceleration tapers, etc. proposed to be installed on the road as part of the development to accommodate traffic turning into and out of the site.	*No adverse effects on State Highway 10 or arterial roads, no need for additional turning bays, etc.*	*Yes*
(k) The extent to which the activity may cause or exacerbate natural hazards or may be adversely affected by natural hazards, and therefore increase the risk to life, property and the environment.	*The additional traffic is not expected to exacerbate effects from natural hazards that would increase risk to life, property or the environment.*	*Yes*
(l) The extent to which the activity may result in adverse effects on the safety and efficiency of the State Highway system and its connections to the local roading network.	*No adverse effects on the safety or efficiency of State Highway 10.*	*Yes*
(m) the effects on the safety and/or efficiency on any State Highways, its connections to the local road network and the provision of written approval from the NZ Transport Agency.	*No adverse effects on the safety or efficiency of State Highway 10 or its connections to the local roading network.*	*Yes*
(n) The effects of the activity where it is located within 500m of reserve land administered by the Department of Conservation upon the ability of the Department to manage and administer that land.	*No adverse effects on DOC land.*	*Yes*

15.1.6B.5 PARKING

Criterion	Comment	Acceptable
(a) Whether it is physically practicable to provide the required car parks on site.	Construction of the required number of carparks are physically possible, however are not needed. The number of car parks proposed are adequate for the requirements of the proposed land use.	Yes
(b) Whether there is an adequate alternative supply of parking in the vicinity, such as a public car park or angled road parking.	Not required.	Yes
(c) Whether there is another site nearby where a legal agreement could be entered into with the owner of that site to allow it to be used for the parking required for the application.	Not required.	Yes
(d) Whether it can be shown that the actual parking demand will not be as high as that indicated in Appendix 3C.	The site already has adequate parking for the current land use. Additional car parks will be provided for the new land use (e.g. additional employees) in an identical proportion to the existing situation.	Yes
(e) Adequacy of the layout and design of the car parking areas in terms of other recognised standards, including the provision made to mitigate the effects of stormwater runoff, and any impact of roading and access on waterways, ecosystems, drainage patterns or the amenities of adjoining properties.	Engineering standards are being complied with.	Yes
(f) Degree of user familiarity with the car park and length of stay of most vehicles.	There is compliance in this respect. Car parking will be used by staff and contractors that are familiar with the site.	Yes
(g) Total number of spaces in the car park.	Number of car parks provided is sufficient to accommodate the needs of the development.	Yes.
(h) Clear space for car doors to be opened even if columns, walls and other obstructions intrude into a car parking space.	No known obstacles.	Yes
For sites with a frontage with Kerikeri Road between its intersection with SH10 and Cannon Drive: (i) the visual impact of hard surfaces and vehicles on the natural environment; (ii) the effectiveness of any landscape plantings in screening hard surfaces and vehicles associated with parking areas.	No frontage onto Kerikeri Road – Not applicable.	Yes

Criterion	Comment	Acceptable
(j) Whether cycling facilities or open green space have been considered or are appropriate as an alternative to car parking.	There is a car-pool programme in place at the site.	Yes
(k) Whether adequate consideration has been given to providing accessible car parking spaces for those with disabilities, the location of these spaces and regulating inappropriate use of the spaces.	Four accessible car parks will be provided.	Yes
(l) The extent to which the site can be accessed by alterative transport means such as buses, cycling or walking.	There is a car-pool programme in place at the site.	Yes
(m) The extent to which the reduced number of car parking spaces may increase congestion along arterial and strategic roads.	No spill-over parking from the site is anticipated.	Yes
(n) The degree to which provision of on-site car parking spaces may have resulted in adverse visual effects or fragmented pedestrian links.	Not applicable.	Yes
(o) Whether a financial contribution in lieu of car parking spaces is appropriate.	Not required – adequate car parking for the land use is to be provided.	Yes
(p) Consideration given to shared parking options between adjacent sites and activities that have varying peak parking demands.	Not required.	Yes
(q) The varying parking requirements for staff and customers.	Adequate parking will be provided for staff and visitors.	Yes

15.1.7.2 VEHICLE ACCESS

Criterion	Comment	Acceptable
(a) Adequacy of sight distances available at the access location.	Sight distances comply with the relevant Austroads Standards.	Yes
(b) Any current traffic safety or congestion problems in the area.	The CAS database was reviewed, and no safety issues were identified on Industrial Way or State Highway 10.	Yes
(c) Any foreseeable future changes in traffic patterns in the area.	A reduction in the volume of State Highway 10 traffic is anticipated once SH1 reopens.	Yes
(d) Possible measures or restrictions on vehicle movements in and out of the access.	No restrictions are required on vehicle movements.	Yes
(e) The adequacy of the engineering standards proposed and the ease of access to and from, and within, the site.	No changes are required to improve access.	Yes

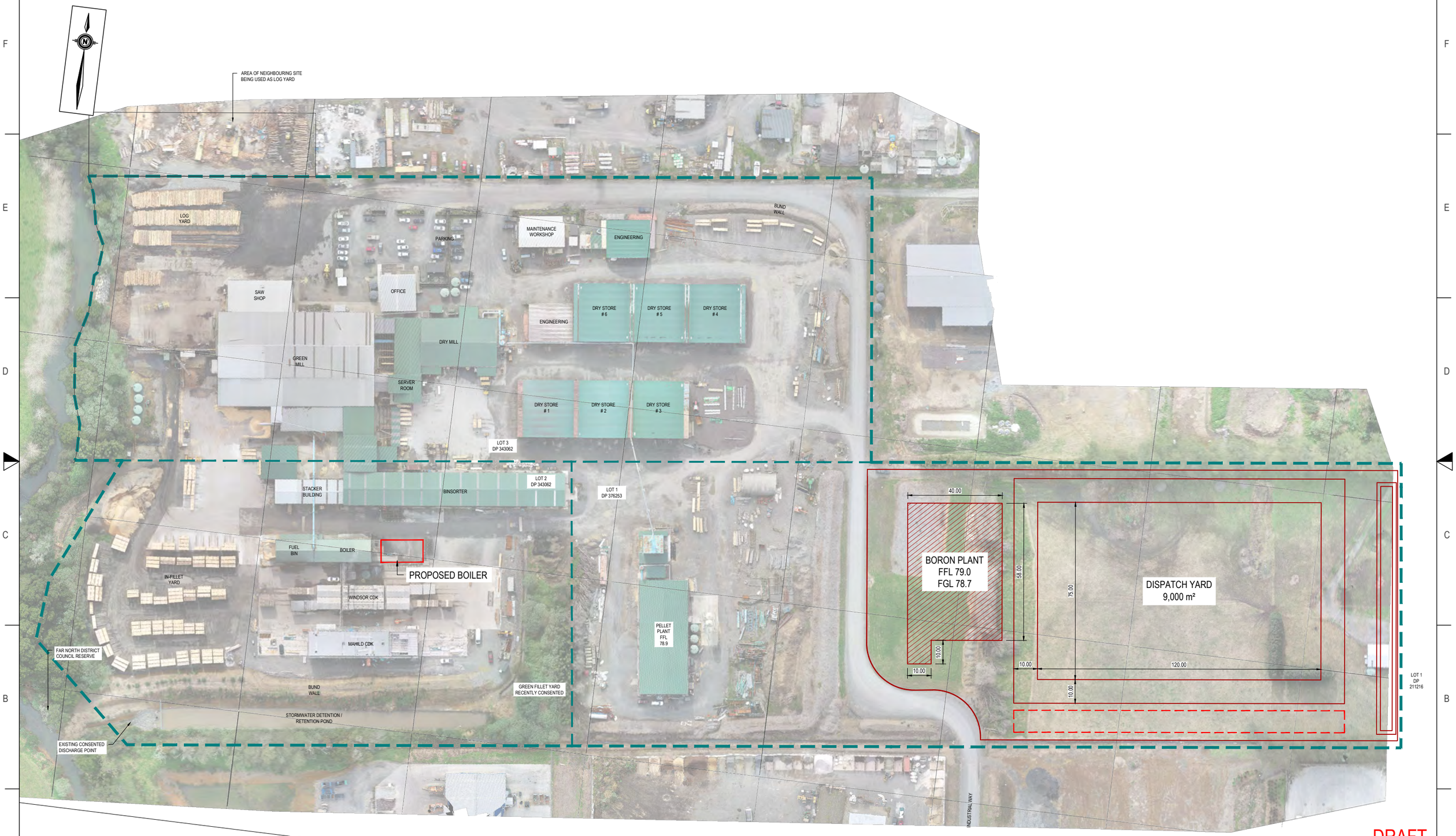
Criterion	Comment	Acceptable
(f) The provision of access for all persons and vehicles likely to need access to the site, including pedestrian, cycle, disabled, vehicular.	Four accessible carparks will be provided. Three of the accessible carparks are new carparks.	Yes
(g) The provision made to mitigate the effects of stormwater runoff, and any impact of roading and access on waterways, ecosystems, drainage patterns or the amenities of adjoining properties.	Covered in the engineering report prepared by Haigh Workman.	Yes
(h) For sites with a road frontage with Kerikeri Road between its intersection with SH10 and Cannon Drive: the visual impact of hard surfaces and vehicles on the natural character; the cumulative effects of additional vehicle access onto Kerikeri Road and the potential vehicle conflicts that could occur; possible use of right of way access and private roads to minimise the number of additional access points onto Kerikeri Road; (iv) the vehicle speed limit on Kerikeri Road at the additional access point and the potential vehicle conflicts that could occur.	No frontage to Kerikeri Road. Not applicable.	Yes
(i) The provisions of the roading hierarchy, and any development plans of the roading network.	A reduction in the volume of State Highway 10 traffic is anticipated once SH1 reopens.	Yes
(j) The need to provide alternative access for car parking and vehicle loading in business zones by way of vested service lanes at the rear of properties, having regard to alternative means of access and performance standards for activities within such zones.	The alternative access was closed to group access points onto State Highway 10. Not applicable	Yes
(k) Any need to require provision to be made in a subdivision for the vesting of reserves for the purpose of facilitating connections to future roading extensions to serve surrounding land; future connection of pedestrian accessways from street to street; future provision of service lanes; or planned road links that may need to pass through the subdivision; and the practicality of creating such easements at the time of subdivision application in order to facilitate later development.	None required.	Yes
(l) Enter into agreements that will enable the Council to require the future owners to form and vest roads when other land becomes available (consent notices shall be registered on such Certificates of Title pursuant to Rule 13.6.7)	None required.	Yes

Criterion	Comment	Acceptable
(m) With respect to access to a State Highway that is a Limited Access Road, the effects on the safety and/or efficiency on any SH and its connection to the local road network and the provision of written approval from the New Zealand Transport Agency.	We have carefully considered the effects on State Highway 10 and do not consider NZTA as being adversely affected as we will not exceed the previously approved threshold. There are no safety concerns at the intersection, and there are no additional adverse effects.	Yes

15.1.6A.7 TRAFFIC INTENSITY

Refer Assessment Criteria 11.12.

Appendix A – Drawings



DRAFT

Rev	Date	Description	By	Checked
A	03/05/2024	DRAFT	JT	JM

DWG SITE PLAN

A3 SCALE 1:1500 0 30.m 60.0m

Date 03/05/2024

Drawn JT | Checked JM | Approved

File O:\SUITEFILES - 23 256 - WAIPAPA MILL -1945B STATE HIGHWAY 10, WAIPAPA\ENGINEERING\DRAWINGS\01_CIVIL\23_256_CIVIL_DESIGN_C3D.DWG

HAIGH WORKMAN Ltd
Civil & Structural Engineers
6 Fairway Drive
Kerikeri, BOI
T: 09 407 8327
F: 09 407 8378
E: info@haighworkman.co.nz

Project: OUTLINE PLAN OF WORKS
WAIPAPA MILL - 1945B STATE HIGHWAY 10, WAIPAPA

Client: WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

Dwg No. RDP03

Sheet No.

AT - 95th - Car	
Overall Length	5.060m
Overall Width	1.923m
Overall Body Height	1.784m
Min Body Ground Clearance	0.231m
Max Track Width	1.888m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.450m

DRAFT

Rev	Date	Description	By	Checked
A	13/05/2024	DRAFT	JT	-

DWG ACCESS & PARKING PLAN (NORTH)

A3 SCALE 1:500 0 10m 25m

Date 13/05/2024

Drawn JT | Checked | Approved

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HAIGH WORKMAN Ltd
Civil & Structural Engineers
6 Fairway Drive
Kerikeri, BOI
T: 09 407 8327
F: 09 407 8378
E: info@haighworkman.co.nz

Project BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client WAIPAPA PINE LIMITED

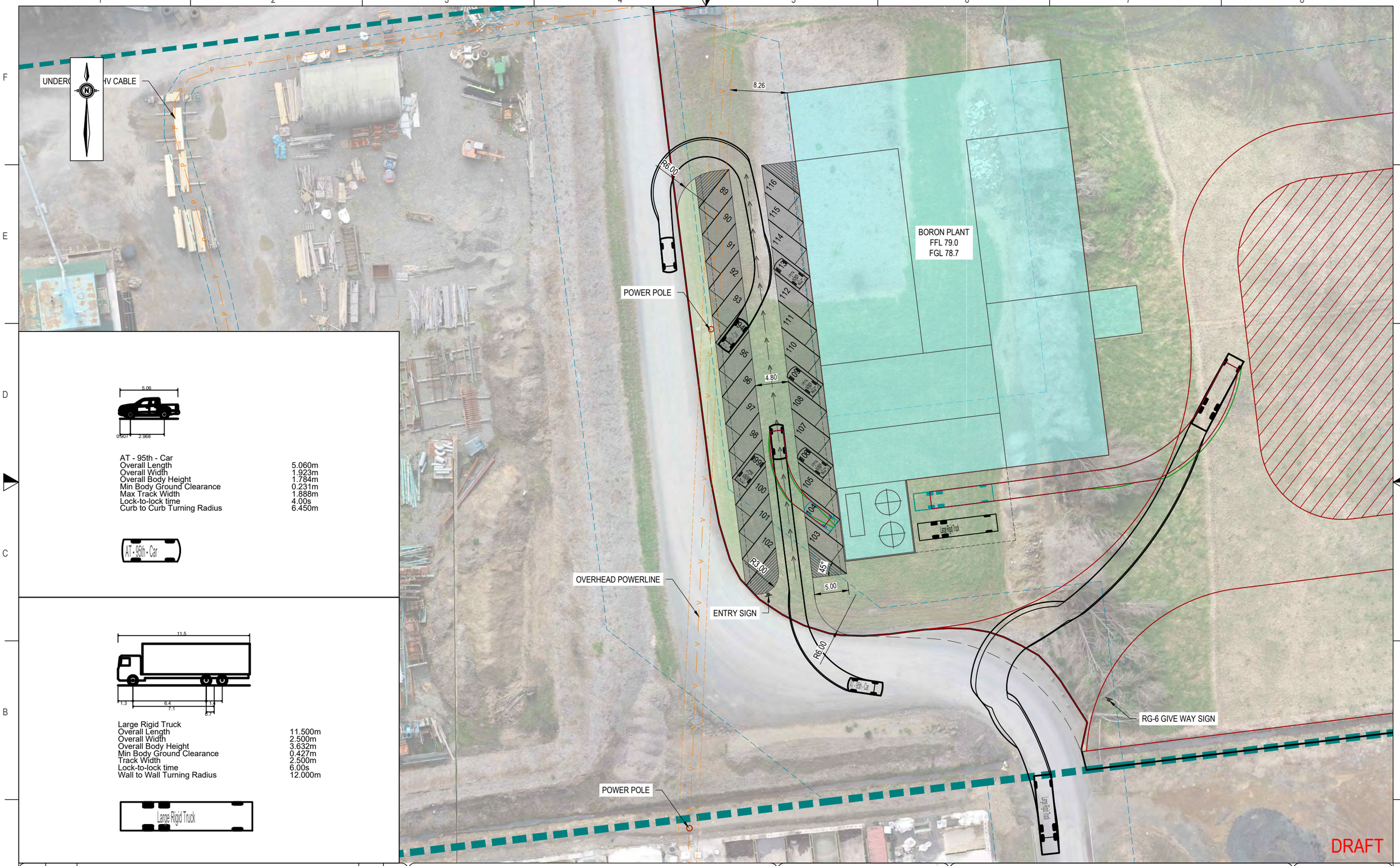
Project No. 23 256

RC no.

Stage

Dwg No. CPP01

Sheet No. 1 of 3



AT - 95th - Car

Overall Length	5.060m
Overall Width	1.923m
Overall Body Height	1.784m
Min Body Ground Clearance	0.231m
Max Track Width	1.888m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.450m

Large Rigid Truck

Overall Length	11.500m
Overall Width	2.500m
Overall Body Height	3.632m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	12.000m

Rev	Date	Description	By	Checked
A	13/05/2024	DRAFT	JT	

DWG ACCESS & PARKING PLAN (BOARON PLANT)

A3 SCALE 1:500 — 0 — 10m — 25m

Date 13/05/2024

Drawn JT | Checked | Approved

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HAIGH WORKMAN LTD
Civil & Structural Engineers
6 Fairway Drive
Kerikeri, BOI
T: 09 407 8327
F: 09 407 8378
E: info@haighworkman.co.nz

Project: BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client: WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

Stage

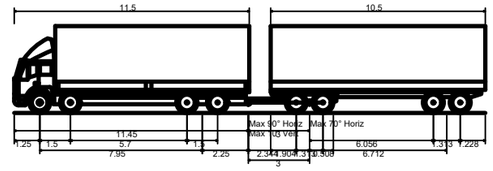
Dwg No. CPP02

Sheet No. 2 of 3

BORON PLANT
FFL 79.0
FGL 78.7

DISPATCH YARD
9,000 m²

RG-6 GIVE WAY SIGN



AT - Truck - HPMV - 23.0m Truck and Trailer

Overall Length	23.046m
Overall Width	2.500m
Overall Body Height	4.250m
Min Body Ground Clearance	0.373m
Track Width	2.500m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	12.500m

DRAFT

Rev	Date	Description	By	Checked
A	13/05/2024	DRAFT	JT	-

DWG ACCESS & PARKING PLANT (DISPATCH YARD)

A3 SCALE 1:500 0 10m 25m

Date 13/05/2024

Drawn JT | Checked | Approved

File O:\SUITEFILES - 23 256 - WAIPAPA MILL -1945B STATE HIGHWAY 10, WAIPAPA\ENGINEERING\DRAWINGS\01_CIVIL\23_256_CIVIL_DESIGN_C3D.DWG

HAIGH WORKMAN Ltd
Civil & Structural Engineers
6 Fairway Drive
Kerikeri, BOI
T: 09 407 8327
F: 09 407 8378
E: info@haighworkman.co.nz

Project: BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client: WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

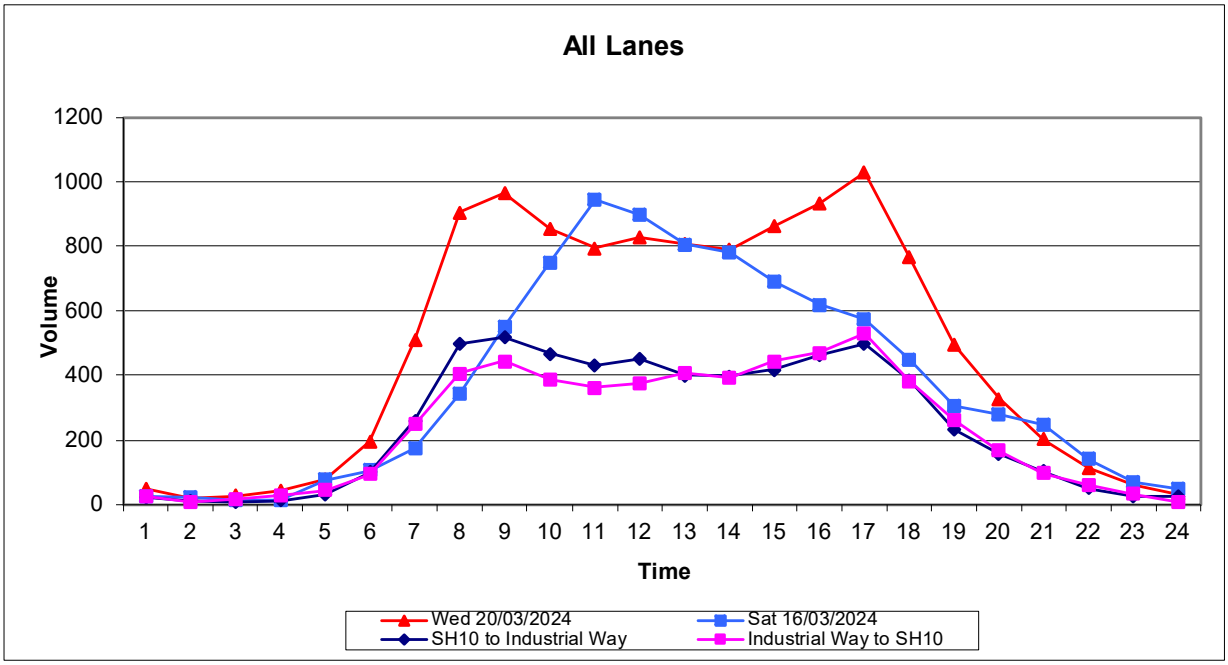
Stage

Dwg No. CPP03

Sheet No. 3 of 3

Appendix B – Traffic Count Data

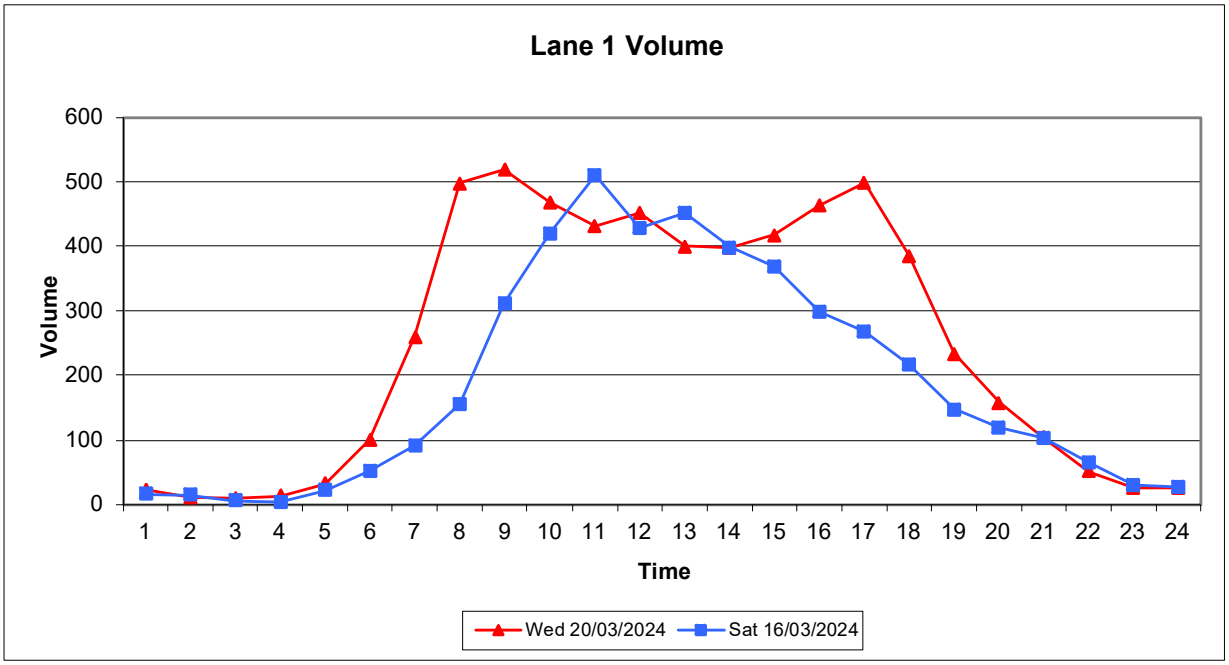
SH 10 1901 SH10 Site: 4.0841
0 **Road ID -** 0
All Lanes 16/03/2024 - 22/03/2024



Summary For All Lanes				
Total Volume For Week	74728	Weekday AM Average (6-10am)	778	V/Hr
Average Daily Volume (7 Days)	10675	Weekday Midday Average (10am-3pm)	833	V/Hr
Average Daily Volume (Mon - Fri)	11548	Weekday PM Average (3-9pm)	799	V/Hr

	Day								
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	5 Day	7 Day
Hour End	18/03/2024	19/03/2024	20/03/2024	21/03/2024	22/03/2024	16/03/2024	17/03/2024	Ave	Ave
0-1	20	14	51	25	34	27	45	**29**	**31**
1-2	17	26	21	18	21	24	26	**21**	**22**
2-3	23	27	28	28	26	16	14	**26**	**23**
3-4	32	42	44	49	57	14	16	**45**	**36**
4-5	84	76	79	87	81	78	46	**81**	**76**
5-6	183	201	196	202	170	107	77	**190**	**162**
6-7	548	523	510	547	469	176	139	**519**	**416**
7-8	885	863	905	852	832	344	252	**867**	**705**
8-9	868	952	965	946	865	551	367	**919**	**788**
9-10	781	786	855	810	790	751	655	**804**	**775**
10-11	754	798	795	805	830	946	739	**796**	**810**
11-12	801	890	828	843	892	899	822	**851**	**854**
12-13	775	847	808	851	888	807	810	**834**	**827**
13-14	701	773	791	865	847	782	739	**795**	**785**
14-15	813	842	863	924	994	691	690	**887**	**831**
15-16	920	945	934	969	990	620	675	**952**	**865**
16-17	993	968	1031	1043	972	575	557	**1001**	**877**
17-18	781	782	769	839	778	450	493	**790**	**699**
18-19	380	382	496	512	497	306	331	453	415
19-20	234	295	327	374	304	279	235	**307**	**293**
20-21	141	167	204	175	177	249	156	**173**	**181**
21-22	68	109	114	132	139	142	78	**112**	**112**
22-23	38	52	62	69	85	71	43	**61**	**60**
23-24	29	30	35	38	31	51	25	**33**	**34**
6am-6pm	9620	9969	10054	10294	10147	7592	6938	**10017**	**9231**
4am-8pm	10501	10923	11152	11469	11199	8362	7627	**11049**	**10176**
3am-9pm	10674	11132	11400	11693	11433	8625	7799	**11266**	**10394**

SH 10 1901 SH10 Site: 4.0841
0 **Road ID -** 0
Lane 1 16/03/2024 - 22/03/2024 **SH10 to Industrial Way**

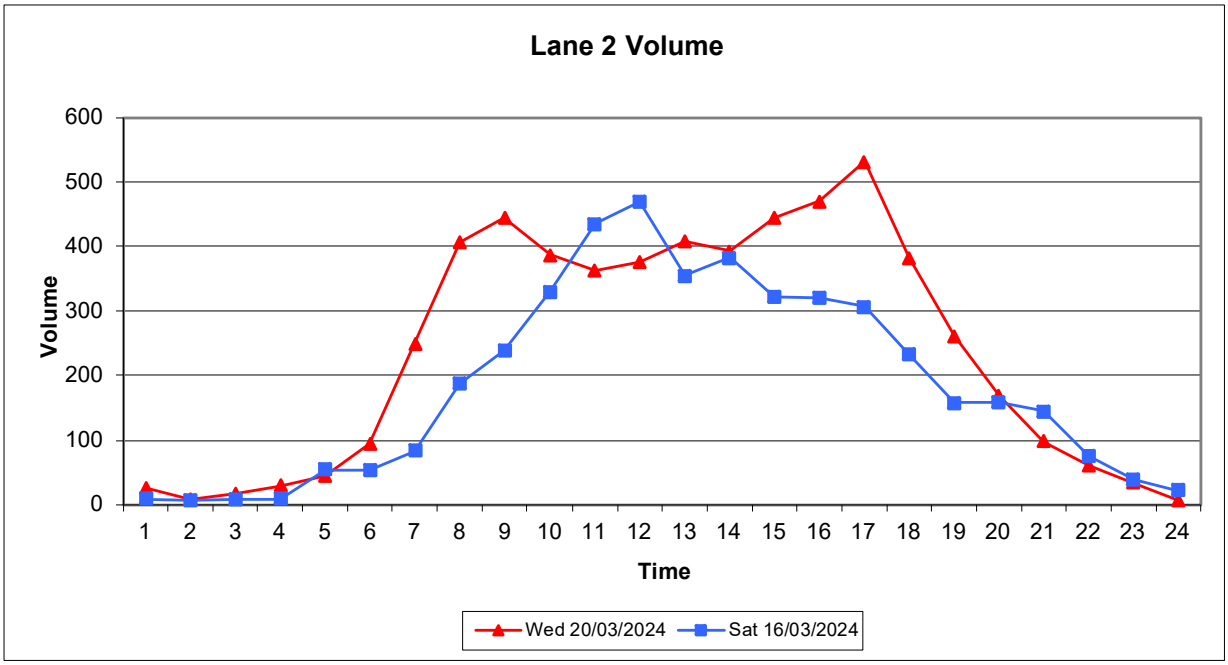


Summary For SH10 to Industrial Way				
Total Volume For Week	36956	Weekday AM Average (6-10am)	415	V/Hr
Average Daily Volume (7 Days)	5279	Weekday Midday Average (10am-3pm)	406	V/Hr
Average Daily Volume (Mon - Fri)	5711	Weekday PM Average (3-9pm)	376	V/Hr

	Day								
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	5 Day	7 Day
Hour End	18/03/2024	19/03/2024	20/03/2024	21/03/2024	22/03/2024	16/03/2024	17/03/2024	Ave	Ave
0-1	10	9	24	16	20	17	25	**16**	**17**
1-2	11	12	12	9	14	16	12	**12**	**12**
2-3	9	15	10	14	10	7	6	**12**	**10**
3-4	9	22	14	18	15	4	11	**16**	**13**
4-5	36	29	33	35	40	23	12	**35**	**30**
5-6	95	105	101	102	98	53	32	**100**	**84**
6-7	319	277	260	324	257	92	72	**287**	**229**
7-8	466	467	498	458	458	156	125	**469**	**375**
8-9	465	507	520	510	422	312	189	**485**	**418**
9-10	407	406	468	441	360	421	323	**416**	**404**
10-11	368	421	432	400	378	511	357	**400**	**410**
11-12	418	458	452	399	417	429	381	**429**	**422**
12-13	389	399	400	417	376	452	362	**396**	**399**
13-14	350	386	398	399	388	399	341	**384**	**380**
14-15	424	400	418	440	428	369	315	**422**	**399**
15-16	428	486	464	474	437	299	320	**458**	**415**
16-17	463	501	499	489	357	268	265	**462**	**406**
17-18	411	405	386	394	312	217	252	**382**	**340**
18-19	169	180	234	242	192	148	170	**203**	**191**
19-20	106	113	158	171	123	120	119	**134**	**130**
20-21	71	92	105	85	82	104	83	**87**	**89**
21-22	31	56	52	68	68	66	44	**55**	**55**
22-23	21	26	27	35	45	31	28	**31**	**30**
23-24	21	18	27	21	20	28	13	**21**	**21**
6am-6pm	**4908**	**5113**	**5195**	**5145**	**4590**	**3925**	**3302**	**4990**	**4597**
4am-8pm	**5314**	**5540**	**5721**	**5695**	**5043**	**4269**	**3635**	**5463**	**5031**
3am-9pm	**5394**	**5654**	**5840**	**5798**	**5140**	**4377**	**3729**	**5565**	**5133**
24 Hour	**5497**	**5790**	**5992**	**5961**	**5317**	**4542**	**3857**	**5711**	**5279**

Volume Report

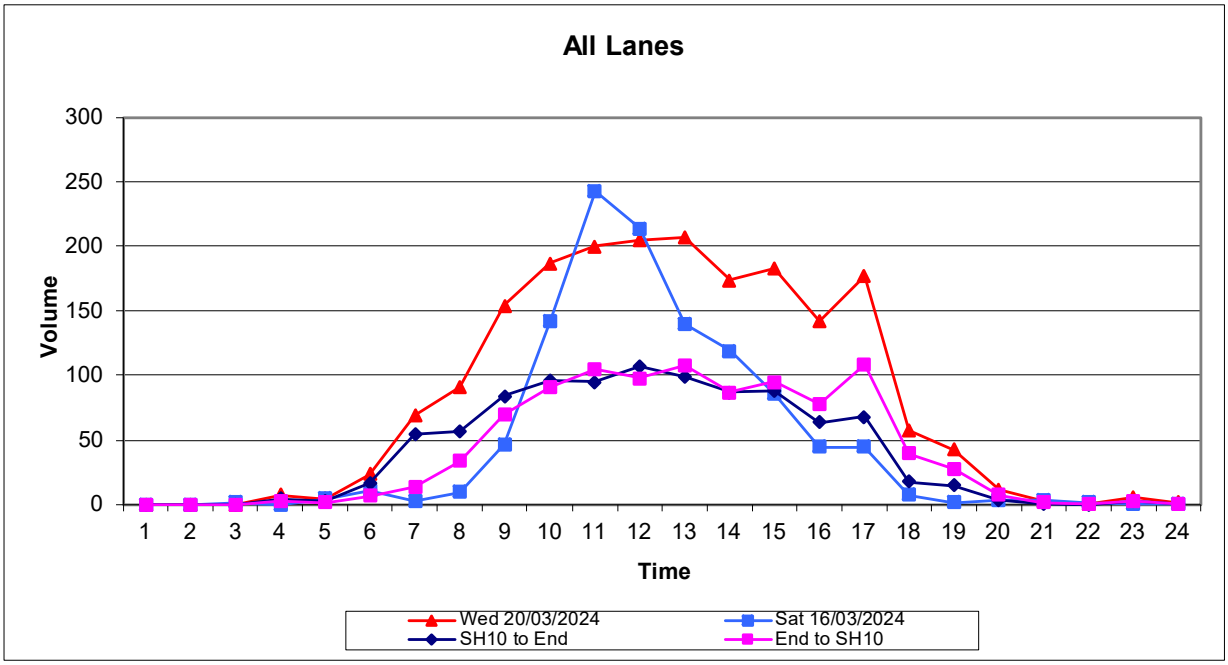
SH 10 1901 SH10 Site: 4.0841
0 **Road ID -** 0
Lane 2 16/03/2024 - 22/03/2024 **Industrial Way to SH10**



Summary For Industrial Way to SH10				
Total Volume For Week	37772	Weekday AM Average (6-10am)	363	V/Hr
Average Daily Volume (7 Days)	5396	Weekday Midday Average (10am-3pm)	427	V/Hr
Average Daily Volume (Mon - Fri)	5837	Weekday PM Average (3-9pm)	423	V/Hr

	Day								
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	5 Day	7 Day
Hour End	18/03/2024	19/03/2024	20/03/2024	21/03/2024	22/03/2024	16/03/2024	17/03/2024	Ave	Ave
0-1	10	5	27	9	14	10	20	**13**	**14**
1-2	6	14	9	9	7	8	14	**9**	**10**
2-3	14	12	18	14	16	9	8	**15**	**13**
3-4	23	20	30	31	42	10	5	**29**	**23**
4-5	48	47	46	52	41	55	34	**47**	**46**
5-6	88	96	95	100	72	54	45	**90**	**79**
6-7	229	246	250	223	212	84	67	**232**	**187**
7-8	419	396	407	394	374	188	127	**398**	**329**
8-9	403	445	445	436	443	239	178	**434**	**370**
9-10	374	380	387	369	430	330	332	**388**	**372**
10-11	386	377	363	405	452	435	382	**397**	**400**
11-12	383	432	376	444	475	470	441	**422**	**432**
12-13	386	448	408	434	512	355	448	**438**	**427**
13-14	351	387	393	466	459	383	398	**411**	**405**
14-15	389	442	445	484	566	322	375	**465**	**432**
15-16	492	459	470	495	553	321	355	**494**	**449**
16-17	530	467	532	554	615	307	292	**540**	**471**
17-18	370	377	383	445	466	233	241	**408**	**359**
18-19	211	202	262	270	305	158	161	250	224
19-20	128	182	169	203	181	159	116	**173**	**163**
20-21	70	75	99	90	95	145	73	**86**	**92**
21-22	37	53	62	64	71	76	34	**57**	**57**
22-23	17	26	35	34	40	40	15	**30**	**30**
23-24	8	12	8	17	11	23	12	**11**	**13**
6am-6pm	**4712**	**4856**	**4859**	**5149**	**5557**	**3667**	**3636**	**5027**	**4634**
4am-8pm	**5187**	**5383**	**5431**	**5774**	**6156**	**4093**	**3992**	**5586**	**5145**
3am-9pm	**5280**	**5478**	**5560**	**5895**	**6293**	**4248**	**4070**	**5701**	**5261**
24 Hour	**5372**	**5600**	**5719**	**6042**	**6452**	**4414**	**4173**	**5837**	**5396**

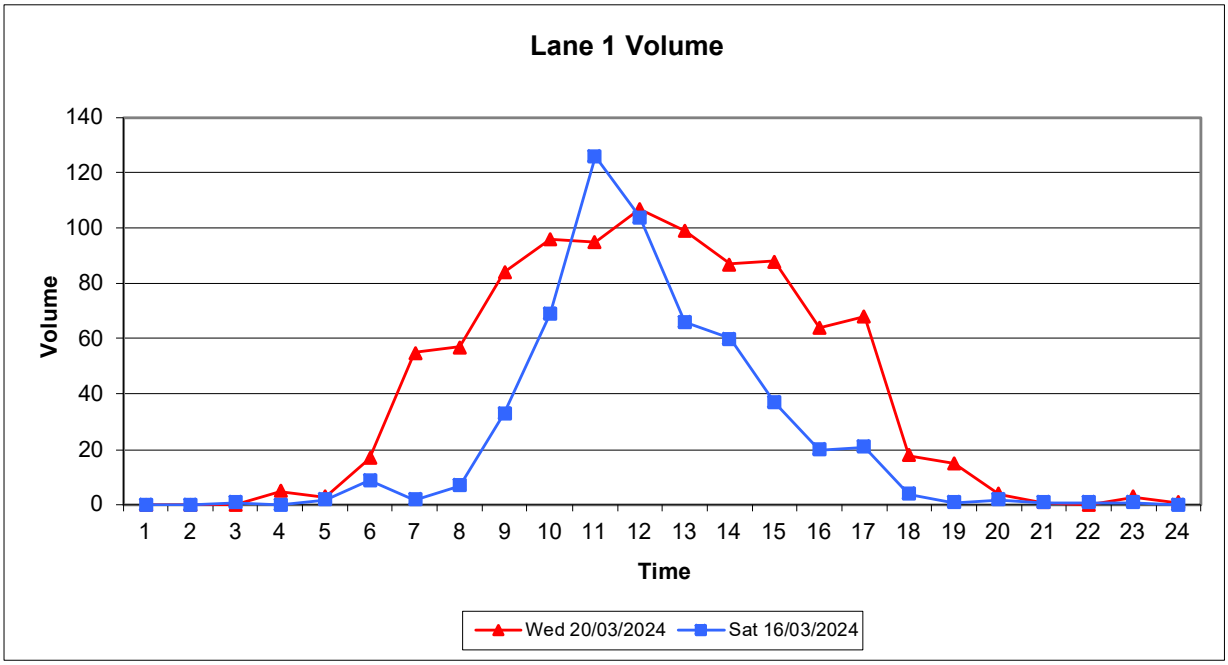
INDUSTRIAL WAY Intersection with SH10 Site: 4.0842
0 **Road ID -** 0
All Lanes 16/03/2024 - 22/03/2024



Summary For All Lanes				
Total Volume For Week	12171	Weekday AM Average (6-10am)	133	V/Hr
Average Daily Volume (7 Days)	1739	Weekday Midday Average (10am-3pm)	200	V/Hr
Average Daily Volume (Mon - Fri)	2045	Weekday PM Average (3-9pm)	110	V/Hr

	Day								
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	5 Day	7 Day
Hour End	18/03/2024	19/03/2024	20/03/2024	21/03/2024	22/03/2024	16/03/2024	17/03/2024	Ave	Ave
0-1	4	1	0	0	0	0	2	1	1
1-2	3	0	0	2	4	0	1	2	1
2-3	7	1	0	0	6	2	1	3	2
3-4	2	4	8	9	9	0	7	6	6
4-5	4	1	5	5	10	5	1	5	4
5-6	27	31	24	22	19	11	2	25	19
6-7	91	81	69	73	77	3	6	78	57
7-8	92	106	91	127	85	10	5	100	74
8-9	148	179	154	180	157	47	29	164	128
9-10	201	174	187	194	193	142	84	190	168
10-11	219	196	200	173	195	243	139	197	195
11-12	202	219	205	211	220	214	137	211	201
12-13	200	238	207	206	196	140	101	209	184
13-14	185	182	174	217	238	119	79	199	171
14-15	163	191	183	188	199	86	73	185	155
15-16	182	202	142	152	172	45	76	170	139
16-17	153	177	177	131	142	45	40	156	124
17-18	88	95	58	94	70	8	20	81	62
18-19	30	26	43	28	31	2	5	32	24
19-20	6	5	12	13	10	4	4	9	8
20-21	20	9	3	7	1	4	0	8	6
21-22	0	3	1	19	0	2	0	5	4
22-23	8	5	6	6	0	1	1	5	4
23-24	1	10	2	9	0	1	1	4	3
6am-6pm	1924	2040	1847	1946	1944	1102	789	1940	1656
4am-8pm	1991	2103	1931	2014	2014	1124	801	2011	1711
3am-9pm	2013	2116	1942	2030	2024	1128	808	2025	1723
24 Hour	2036	2136	1951	2066	2034	1134	814	2045	1739

INDUSTRIAL WAY Intersection with SH10 Site: 4.0842
0 **Road ID -** 0
Lane 1 16/03/2024 - 22/03/2024 **SH10 to End**

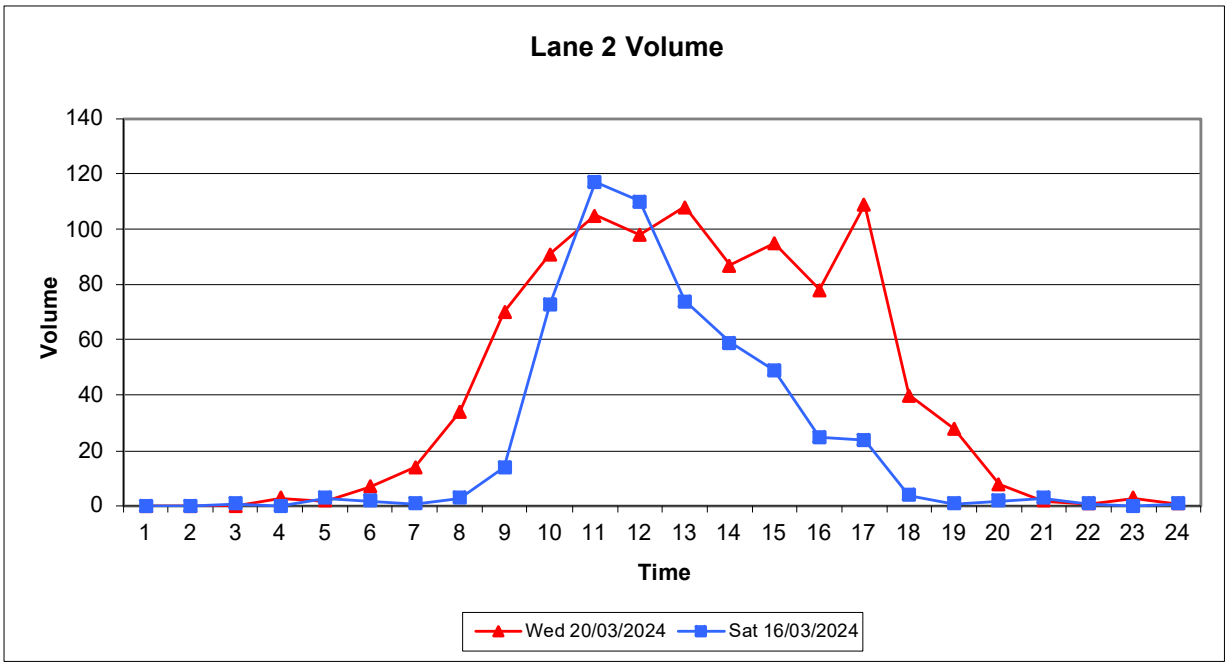


Summary For SH10 to End				
Total Volume For Week	6067	Weekday AM Average (6-10am)	77	V/Hr
Average Daily Volume (7 Days)	867	Weekday Midday Average (10am-3pm)	100	V/Hr
Average Daily Volume (Mon - Fri)	1018	Weekday PM Average (3-9pm)	43	V/Hr

	Day								
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	5 Day	7 Day
Hour End	18/03/2024	19/03/2024	20/03/2024	21/03/2024	22/03/2024	16/03/2024	17/03/2024	Ave	Ave
0-1	2	0	0	0	0	0	1	0	0
1-2	2	0	0	1	2	0	1	1	1
2-3	3	1	0	0	3	1	0	1	1
3-4	1	2	5	6	4	0	3	4	3
4-5	1	0	3	2	4	2	0	2	2
5-6	20	21	17	16	16	9	1	18	14
6-7	67	60	55	63	66	2	3	62	45
7-8	53	64	57	74	52	7	4	60	44
8-9	80	98	84	97	81	33	19	88	70
9-10	104	93	96	95	101	69	44	98	86
10-11	112	102	95	94	97	126	73	100	100
11-12	102	112	107	115	118	104	66	111	103
12-13	101	113	99	102	95	66	48	102	89
13-14	82	93	87	105	111	60	41	96	83
14-15	77	88	88	98	96	37	38	89	75
15-16	84	97	64	61	77	20	38	77	63
16-17	62	70	68	51	58	21	17	62	50
17-18	29	28	18	31	18	4	9	25	20
18-19	6	6	15	5	7	1	2	8	6
19-20	3	3	4	6	4	2	2	4	3
20-21	13	6	1	4	0	1	0	5	4
21-22	0	1	0	6	0	1	0	1	1
22-23	3	2	3	2	0	1	1	2	2
23-24	1	5	1	5	0	0	0	2	2
6am-6pm	953	1018	918	986	970	549	400	969	828
4am-8pm	983	1048	957	1015	1001	563	405	1001	853
3am-9pm	997	1056	963	1025	1005	564	408	1009	860
24 Hour	1008	1065	967	1039	1010	567	411	1018	867

Volume Report

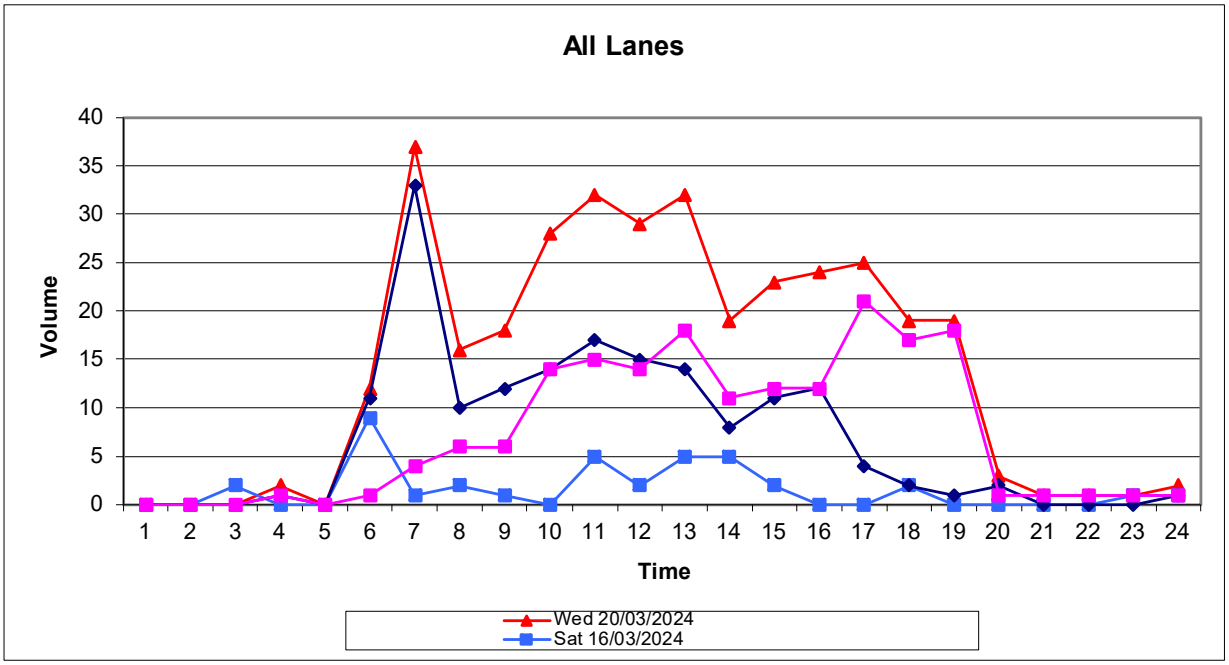
INDUSTRIAL WAY Intersection with SH10 Site: 4.0842
0 **Road ID -** 0
Lane 2 16/03/2024 - 22/03/2024 **End to SH10**



Summary For End to SH10				
Total Volume For Week	6104	Weekday AM Average (6-10am)	56	V/Hr
Average Daily Volume (7 Days)	872	Weekday Midday Average (10am-3pm)	101	V/Hr
Average Daily Volume (Mon - Fri)	1027	Weekday PM Average (3-9pm)	67	V/Hr

	Day								
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	5 Day	7 Day
Hour End	18/03/2024	19/03/2024	20/03/2024	21/03/2024	22/03/2024	16/03/2024	17/03/2024	Ave	Ave
0-1	2	1	0	0	0	0	1	1	1
1-2	1	0	0	1	2	0	0	1	1
2-3	4	0	0	0	3	1	1	1	1
3-4	1	2	3	3	5	0	4	3	3
4-5	3	1	2	3	6	3	1	3	3
5-6	7	10	7	6	3	2	1	7	5
6-7	24	21	14	10	11	1	3	16	12
7-8	39	42	34	53	33	3	1	40	29
8-9	68	81	70	83	76	14	10	76	57
9-10	97	81	91	99	92	73	40	92	82
10-11	107	94	105	79	98	117	66	97	95
11-12	100	107	98	96	102	110	71	101	98
12-13	99	125	108	104	101	74	53	107	95
13-14	103	89	87	112	127	59	38	104	88
14-15	86	103	95	90	103	49	35	95	80
15-16	98	105	78	91	95	25	38	93	76
16-17	91	107	109	80	84	24	23	94	74
17-18	59	67	40	63	52	4	11	56	42
18-19	24	20	28	23	24	1	3	24	18
19-20	3	2	8	7	6	2	2	5	4
20-21	7	3	2	3	1	3	0	3	3
21-22	0	2	1	13	0	1	0	3	2
22-23	5	3	3	4	0	0	0	3	2
23-24	0	5	1	4	0	1	1	2	2
6am-6pm	971	1022	929	960	974	553	389	971	828
4am-8pm	1008	1055	974	999	1013	561	396	1010	858
3am-9pm	1016	1060	979	1005	1019	564	400	1016	863
24 Hour	1028	1071	984	1027	1024	567	403	1027	872

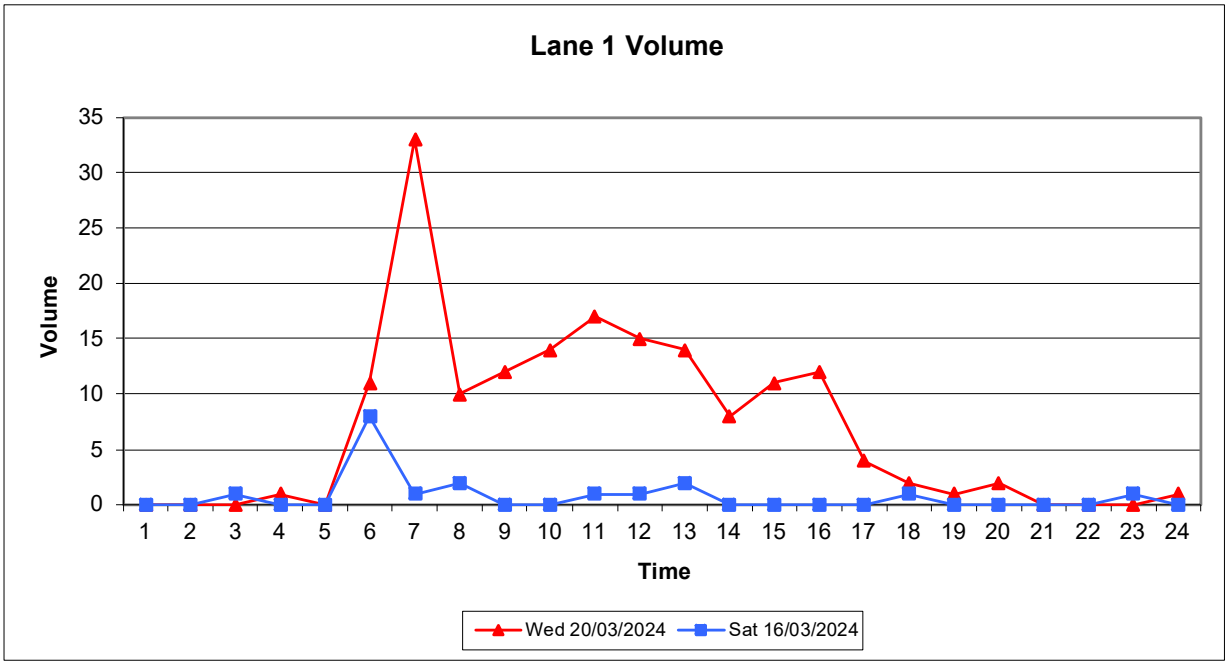
WAIPAPA PINE ACCESS Outside Entrance Site: 4.0843
0 **Road ID -** 0
All Lanes 16/03/2024 - 22/03/2024



Summary For All Lanes				
Total Volume For Week	1800	Weekday AM Average (6-10am)	28	V/Hr
Average Daily Volume (7 Days)	257	Weekday Midday Average (10am-3pm)	25	V/Hr
Average Daily Volume (Mon - Fri)	349	Weekday PM Average (3-9pm)	23	V/Hr

	Day								
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	5 Day	7 Day
Hour End	18/03/2024	19/03/2024	20/03/2024	21/03/2024	22/03/2024	16/03/2024	17/03/2024	Ave	Ave
0-1	2	1	0	0	0	0	2	1	1
1-2	1	0	0	0	2	0	1	1	1
2-3	1	0	0	0	0	2	1	0	1
3-4	0	2	2	2	2	0	1	2	1
4-5	0	0	0	0	0	0	1	0	0
5-6	12	13	12	12	13	9	2	12	10
6-7	40	37	37	39	42	1	0	39	28
7-8	20	23	16	32	28	2	1	24	17
8-9	27	25	18	29	29	1	0	26	18
9-10	32	8	28	21	20	0	0	22	16
10-11	18	18	32	20	15	5	1	21	16
11-12	29	19	29	22	25	2	0	25	18
12-13	33	31	32	22	24	5	2	28	21
13-14	37	33	19	30	25	5	0	29	21
14-15	17	32	23	17	19	2	0	22	16
15-16	33	18	24	17	16	0	0	22	15
16-17	20	27	25	31	18	0	0	24	17
17-18	35	36	19	30	28	2	2	30	22
18-19	15	11	19	18	17	0	0	16	11
19-20	0	0	3	4	2	0	0	2	1
20-21	1	9	1	2	1	0	0	3	2
21-22	0	1	1	0	0	0	0	0	0
22-23	2	3	1	3	0	1	1	2	2
23-24	1	1	2	2	0	1	1	1	1
6am-6pm	341	307	302	310	289	25	6	310	226
4am-8pm	368	331	336	344	321	34	9	340	249
3am-9pm	369	342	339	348	324	34	10	344	252
24 Hour	376	348	343	353	326	38	16	349	257

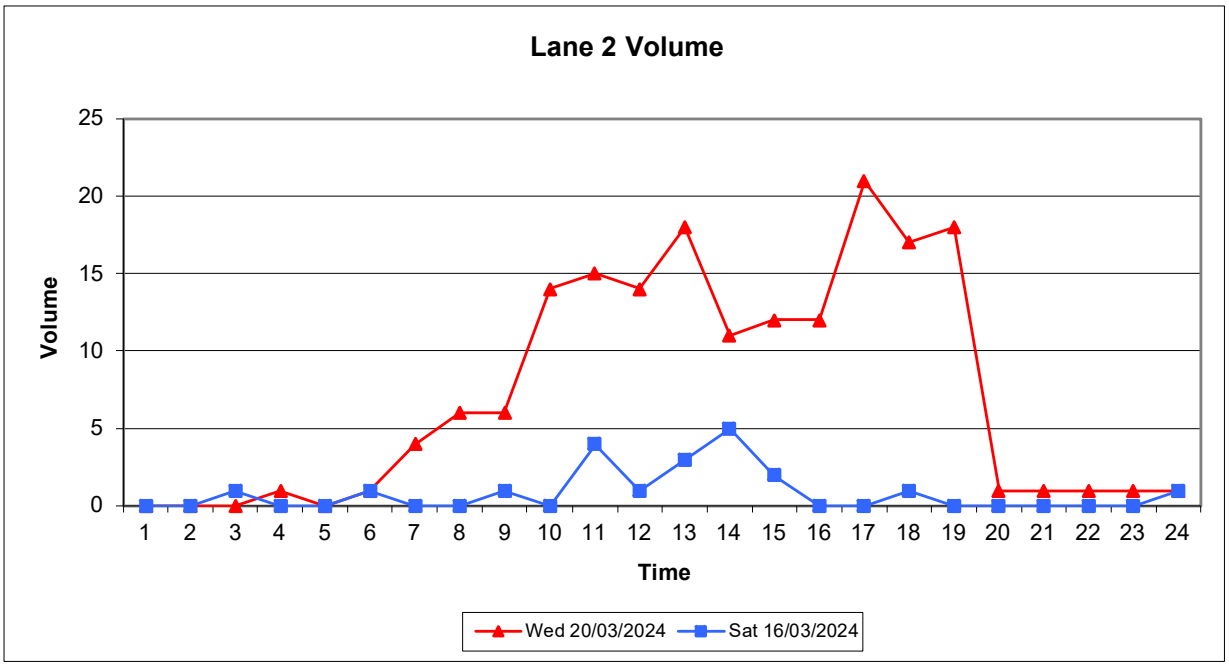
WAIPAPA PINE ACCESS Outside Entrance Site: 4.0843
0 **Road ID -** 0
Lane 1 16/03/2024 - 22/03/2024 **Industrial Way to Waipapa Pine**



Summary For Industrial Way to Waipapa Pine				
Total Volume For Week	872	Weekday AM Average (6-10am)	18	V/Hr
Average Daily Volume (7 Days)	125	Weekday Midday Average (10am-3pm)	12	V/Hr
Average Daily Volume (Mon - Fri)	169	Weekday PM Average (3-9pm)	6	V/Hr

	Day								
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	5 Day	7 Day
Hour End	18/03/2024	19/03/2024	20/03/2024	21/03/2024	22/03/2024	16/03/2024	17/03/2024	Ave	Ave
0-1	1	0	0	0	0	0	1	0	0
1-2	1	0	0	0	1	0	1	0	0
2-3	0	0	0	0	0	1	0	0	0
3-4	0	1	1	1	1	0	1	1	1
4-5	0	0	0	0	0	0	0	0	0
5-6	11	12	11	11	12	8	1	11	9
6-7	35	32	33	35	39	1	0	35	25
7-8	10	16	10	19	17	2	1	14	11
8-9	14	12	12	12	13	0	0	13	9
9-10	18	4	14	10	9	0	0	11	8
10-11	8	11	17	11	9	1	1	11	8
11-12	13	10	15	10	11	1	0	12	9
12-13	19	15	14	11	10	2	0	14	10
13-14	15	15	8	15	14	0	0	13	10
14-15	7	12	11	6	8	0	0	9	6
15-16	14	8	12	6	8	0	0	10	7
16-17	5	7	4	11	6	0	0	7	5
17-18	8	6	2	4	5	1	0	5	4
18-19	0	1	1	0	3	0	0	1	1
19-20	0	0	2	2	0	0	0	1	1
20-21	0	4	0	1	0	0	0	1	1
21-22	0	0	0	0	0	0	0	0	0
22-23	0	1	0	0	0	1	1	0	0
23-24	1	0	1	1	0	0	0	1	0
6am-6pm	166	148	152	150	149	8	2	153	111
4am-8pm	177	161	166	163	164	16	3	166	121
3am-9pm	177	166	167	165	165	16	4	168	123
24 Hour	180	167	168	166	166	18	7	169	125

WAIPAPA PINE ACCESS Outside Entrance Site: 4.0843
0 **Road ID -** 0
Lane 2 16/03/2024 - 22/03/2024 **Waipapa Pine to Industrial Way**



Summary For Waipapa Pine to Industrial Way				
Total Volume For Week	928	Weekday AM Average (6-10am)	9	V/Hr
Average Daily Volume (7 Days)	133	Weekday Midday Average (10am-3pm)	13	V/Hr
Average Daily Volume (Mon - Fri)	180	Weekday PM Average (3-9pm)	17	V/Hr

	Day								
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	5 Day	7 Day
Hour End	18/03/2024	19/03/2024	20/03/2024	21/03/2024	22/03/2024	16/03/2024	17/03/2024	Ave	Ave
0-1	1	1	0	0	0	0	1	0	0
1-2	0	0	0	0	1	0	0	0	0
2-3	1	0	0	0	0	1	1	0	0
3-4	0	1	1	1	1	0	0	1	1
4-5	0	0	0	0	0	0	1	0	0
5-6	1	1	1	1	1	1	1	1	1
6-7	5	5	4	4	3	0	0	4	3
7-8	10	7	6	13	11	0	0	9	7
8-9	13	13	6	17	16	1	0	13	9
9-10	14	4	14	11	11	0	0	11	8
10-11	10	7	15	9	6	4	0	9	7
11-12	16	9	14	12	14	1	0	13	9
12-13	14	16	18	11	14	3	2	15	11
13-14	22	18	11	15	11	5	0	15	12
14-15	10	20	12	11	11	2	0	13	9
15-16	19	10	12	11	8	0	0	12	9
16-17	15	20	21	20	12	0	0	18	13
17-18	27	30	17	26	23	1	2	25	18
18-19	15	10	18	18	14	0	0	15	11
19-20	0	0	1	2	2	0	0	1	1
20-21	1	5	1	1	1	0	0	2	1
21-22	0	1	1	0	0	0	0	0	0
22-23	2	2	1	3	0	0	0	2	1
23-24	0	1	1	1	0	1	1	1	1
6am-6pm	175	159	150	160	140	17	4	157	115
4am-8pm	191	170	170	181	157	18	6	174	128
3am-9pm	192	176	172	183	159	18	6	176	129
24 Hour	196	181	175	187	160	20	9	180	133

Appendix C – SIDRA Analysis

MOVEMENT SUMMARY

Site: 101 [Industrial Way am (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: SH10 (South to Kerikeri)															
1	L2	All MCs	53	8.0	53	8.0	0.030	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	45.8
2	T1	All MCs	532	8.0	532	8.0	0.287	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	89.8
Approach			584	8.0	584	8.0	0.287	0.5	NA	0.0	0.0	0.00	0.05	0.00	82.7
North: SH10 (North to Waipapa)															
8	T1	All MCs	436	8.0	436	8.0	0.235	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	89.9
9	R2	All MCs	98	8.0	98	8.0	0.148	7.6	LOS A	0.6	4.1	0.57	0.75	0.57	39.7
Approach			534	8.0	534	8.0	0.235	1.4	NA	0.6	4.1	0.11	0.14	0.11	72.9
West: Industrial Way															
10	L2	All MCs	98	8.0	98	8.0	0.149	7.1	LOS A	0.5	3.8	0.54	0.73	0.54	36.7
12	R2	All MCs	53	8.0	53	8.0	0.219	17.6	LOS C	0.6	4.8	0.80	0.92	0.87	33.2
Approach			151	8.0	151	8.0	0.219	10.8	LOS B	0.6	4.8	0.63	0.79	0.65	35.4
All Vehicles			1268	8.0	1268	8.0	0.287	2.1	NA	0.6	4.8	0.12	0.17	0.12	68.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: HAIGH WORKMAN LIMITED | Licence: PLUS / 1PC | Processed: Sunday, 14 April 2024 6:33:26 PM
Project: C:\Users\JohnMcLaren.AzureAD\Haigh Workman Limited\SuiteFiles - 23 256 - Waipapa Mill -1945B State Highway 10, Waipapa \Engineering\Traffic\SIDRA\Waipapa Pine 2.sip9

MOVEMENT SUMMARY

Site: 101 [Industrial Way interpeak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: SH10 (South to Kerikeri)															
1	L2	All MCs	53	8.0	53	8.0	0.030	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	45.8
2	T1	All MCs	448	8.0	448	8.0	0.242	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	89.8
Approach			501	8.0	501	8.0	0.242	0.5	NA	0.0	0.0	0.00	0.06	0.00	81.6
North: SH10 (North to Waipapa)															
8	T1	All MCs	448	8.0	448	8.0	0.242	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	89.8
9	R2	All MCs	98	8.0	98	8.0	0.130	6.7	LOS A	0.5	3.7	0.53	0.70	0.53	40.1
Approach			546	8.0	546	8.0	0.242	1.2	NA	0.5	3.7	0.10	0.13	0.10	73.5
West: Industrial Way															
10	L2	All MCs	98	8.0	98	8.0	0.131	6.3	LOS A	0.5	3.4	0.49	0.67	0.49	37.0
12	R2	All MCs	53	8.0	53	8.0	0.189	15.0	LOS C	0.6	4.1	0.76	0.89	0.80	34.0
Approach			151	8.0	151	8.0	0.189	9.3	LOS A	0.6	4.1	0.58	0.75	0.60	35.9
All Vehicles			1198	8.0	1198	8.0	0.242	2.0	NA	0.6	4.1	0.12	0.17	0.12	67.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 101 [Industrial Way pm (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: SH10 (South to Kerikeri)															
1	L2	All MCs	53	8.0	53	8.0	0.030	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	45.8
2	T1	All MCs	474	8.0	474	8.0	0.256	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	89.8
Approach			526	8.0	526	8.0	0.256	0.5	NA	0.0	0.0	0.00	0.05	0.00	82.0
North: SH10 (North to Waipapa)															
8	T1	All MCs	580	8.0	580	8.0	0.313	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	89.8
9	R2	All MCs	98	8.0	98	8.0	0.135	6.9	LOS A	0.5	3.8	0.55	0.72	0.55	40.0
Approach			678	8.0	678	8.0	0.313	1.1	NA	0.5	3.8	0.08	0.10	0.08	76.1
West: Industrial Way															
10	L2	All MCs	98	8.0	98	8.0	0.136	6.5	LOS A	0.5	3.6	0.50	0.69	0.50	36.9
12	R2	All MCs	53	8.0	53	8.0	0.259	21.1	LOS C	0.7	5.6	0.84	0.95	0.95	32.2
Approach			151	8.0	151	8.0	0.259	11.6	LOS B	0.7	5.6	0.62	0.78	0.66	35.1
All Vehicles			1355	8.0	1355	8.0	0.313	2.0	NA	0.7	5.6	0.11	0.16	0.11	69.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 101 [Industrial Way pm - Sensitivity 70 30 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: SH10 (South to Kerikeri)															
1	L2	All MCs	45	8.0	45	8.0	0.026	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	45.8
2	T1	All MCs	474	8.0	474	8.0	0.256	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	89.8
Approach			519	8.0	519	8.0	0.256	0.4	NA	0.0	0.0	0.00	0.05	0.00	82.9
North: SH10 (North to Waipapa)															
8	T1	All MCs	580	8.0	580	8.0	0.313	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	89.8
9	R2	All MCs	105	8.0	105	8.0	0.144	6.9	LOS A	0.5	4.1	0.55	0.71	0.55	40.0
Approach			685	8.0	685	8.0	0.313	1.1	NA	0.5	4.1	0.08	0.11	0.08	75.4
West: Industrial Way															
10	L2	All MCs	105	8.0	105	8.0	0.146	6.5	LOS A	0.5	3.8	0.51	0.69	0.51	36.9
12	R2	All MCs	45	8.0	45	8.0	0.224	20.7	LOS C	0.6	4.7	0.83	0.94	0.91	32.3
Approach			151	8.0	151	8.0	0.224	10.8	LOS B	0.6	4.7	0.60	0.76	0.63	35.4
All Vehicles			1355	8.0	1355	8.0	0.313	1.9	NA	0.6	4.7	0.11	0.16	0.11	69.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 101 [Industrial Way pm - reduced SH volumes (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: SH10 (South to Kerikeri)															
1	L2	All MCs	53	8.0	53	8.0	0.030	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	45.8
2	T1	All MCs	318	8.0	318	8.0	0.172	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	89.9
Approach			371	8.0	371	8.0	0.172	0.7	NA	0.0	0.0	0.00	0.07	0.00	79.1
North: SH10 (North to Waipapa)															
8	T1	All MCs	388	8.0	388	8.0	0.210	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	89.9
9	R2	All MCs	98	8.0	98	8.0	0.108	5.6	LOS A	0.4	3.2	0.46	0.61	0.46	40.6
Approach			486	8.0	486	8.0	0.210	1.2	NA	0.4	3.2	0.09	0.12	0.09	72.2
West: Industrial Way															
10	L2	All MCs	98	8.0	98	8.0	0.109	5.2	LOS A	0.4	2.9	0.40	0.58	0.40	37.4
12	R2	All MCs	53	8.0	53	8.0	0.140	11.0	LOS B	0.4	3.1	0.66	0.82	0.66	35.3
Approach			151	8.0	151	8.0	0.140	7.2	LOS A	0.4	3.1	0.50	0.67	0.50	36.7
All Vehicles			1007	8.0	1007	8.0	0.210	1.9	NA	0.4	3.2	0.12	0.19	0.12	64.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Appendix D - Crash Analysis Output

CODED CRASH ID	Crash road	FEATURE	Distance	Direction	Side road	Date	Day of week	Time	Description of events	Crash factors	Surface condition	Natural light	Weather	Junction	Control	Casualty count fatal	Casualty count serious	Casualty count minor
1051918	SH 10		200	S	PATAKA LANE	12/05/2015	Tue	16:50	SUV1 NDB on SH 10 hit rear of Car/Wagon2 NDB on SH 10 turning right from centre line	SUV1, following too closely, other attention diverted, ENV: entering or leaving private house / farm	Dry	Bright sun	Fine	Driveway	Nil	0	0	0
1126953	SH 10	KERIKERI BR	190	N		13/05/2017	Sat	8:50	load or trailer from Car/Wagon1 SDB on SH 10 hit Truck2, Car/Wagon1 hit generic debris	CAR/WAGON1, load not well secured or load moved	Dry	Overcast	Fine	Nil (Default)	Unknown	0	0	0
1254841	SH 10	KERIKERI BR	116	N		12/03/2021	Fri	11:01	SUV1 SDB on SH 10 hit Pedestrian2 (Age 74) crossing road from left side	SUV1, alcohol test below limit, PEDESTRIAN2, other pedestrian crossing road	Dry	Bright sun	Fine	Nil (Default)	Nil	0	1	0


568
19.5
METRES:
4.2
CUBE:
36
www.waipapapine.co.nz
39

Level 2a, 3 Fairway Drive
Kerikeri 0230
M: 027 352 2884 T: +64 9 379 7822
www.marshallday.com

Project: **PROJECT NORTH – WAIPAPA PINE EXPANSION**

Prepared for: **Waipapa Pine**
1945B State Highway 10
Waipapa

Attention: **Scott Williams**

Report No.: **Rp 002 20221122**

Document control

Status:	Rev:	Comments	Date:	Author:	Reviewer:
Approved	1	For client review	21 May 2024	Peter Ibbotson	Aaron Staples
Approved	2	Minor changes	28 May 2024	Peter Ibbotson	External
Approved	3	Minor changes	29 May 2024	Peter Ibbotson	External
Approved	4	Minor changes	7 June 2024	Peter Ibbotson	External
Approved	5	Minor changes	10 June 2024	Peter Ibbotson	External
Approved	6	Minor changes	12 June 2024	Peter Ibbotson	External

TABLE OF CONTENTS

1.0 INTRODUCTION

Marshall Day Acoustics has been engaged to assess noise emissions from Waipapa Pine Limited's ("Waipapa Pine") existing and proposed operations at its sawmill located at 1945B State Highway 10, Waipapa ("the site").

The site comprises three lots: Lot 2 DP 343062, Lot 3 DP 343062 and Lot 1 DP 376253. The existing sawmill is currently located on Lots 2 and 3 DP 343062 and the western part of Lot 1 DP 376253. Waipapa Pine proposes to expand its operations, primarily onto the undeveloped eastern part of Lot 1 DP 376253 which is currently a vacant paddock.

The proposal includes:

- **Construct a new boron treatment plant on Lot 1 DP 376253.** The boron treatment plant will be a large building containing vessels within which timber will be treated. Relatively little plant (pumps and a compressor) will be required. A new boron plant was previously consented on site in 2016, but was never constructed. A 2022 variation to the consent removed the boron treatment plant from the approved plans.
- **Construct a new despatch yard on Lot 1 DP 376253.** The new despatch yard will provide for loading operations and truck despatch to the east of the new boron treatment plant. Currently, trucks are loaded to the east of the drymill on Lot 3 DP343062.
- **Construct a second boiler on Lot 2 DP 376253.** Two timber kilns and one boiler currently exist on site. The second kiln is currently unused and the second boiler will serve it. The second kiln will be installed adjacent to the existing boiler.

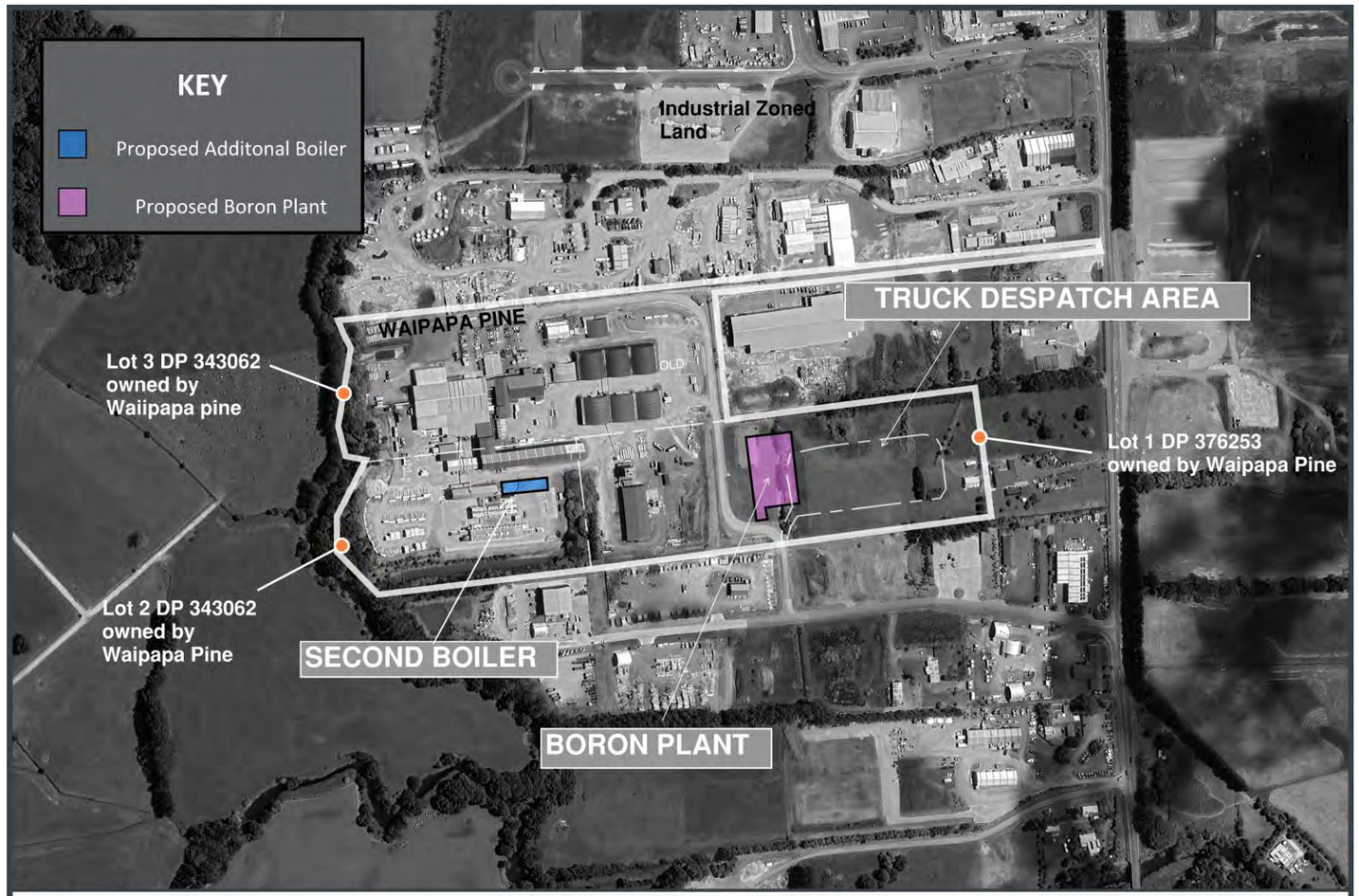
It is not proposed to change the consented hours of operation. The consented hours of operation for sawmill operations are between 7am to 10pm Monday to Friday and 7am to 7pm Saturday and Sunday. Other activities which do not involve the processing of timber are consented to occur outside these hours.

The consent does not seek to alter the noise limits associated with the operation. The operation will continue to operate within the consented noise limits.

A schematic showing the proposed changes is given in Figure 1.

A glossary of terminology is given in Appendix A.

Figure 1: Proposed consent (approximate only, not to scale)



PROJECT: WAIPAPA PINE	TITLE: PROPOSED CONSENT (NOT TO SCALE)		
JOB NO: 20221122	DRAWN: PETER IBBOTSON		DRAWING REF:
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2.0 NOISE PERFORMANCE STANDARDS

2.1 Currently Consented Noise Limits

Resource Consent RC 2150320-RMALUC contains the following conditions that are relevant to noise:

9. The Consent Holder shall ensure that the activities undertaken do not result in noise levels exceeding the following noise limits unless otherwise specified as measured at or within the boundary of any other zone or within the notional boundary of any dwelling existing at the date of commencement of this consent:

a) Monday to Friday from 7:00am to 10:00pm and 7:00am to 7:00pm Saturday to Sunday – 65 dB L_{A10} for sawmill operations involving the processing of timber except that the maximum noise level shall not exceed 70 dBA on the boundary with Lot 5 DP 69740

b) Monday to Friday from 10:00pm to 7:00am the following day and 7:00pm to 7:00am the following day on Saturday to Sunday – 45 dB L_{A10} for any other activities (not involving sawmill operations) except that the maximum noise level shall not exceed 46 dBA on the boundary with Lot 2 DP 69740

c) 70 dB L_{AFmax}

10. The consent holder shall, subject to any Worksafe New Zealand requirements, replace on all mobile equipment / vehicles (operating outside of a building) the reversing beepers with flashing strobe lights to warn of potential hazards

We have interpreted these consent conditions in the following table and in Figure 2 overleaf.

Table 1: Summary of Consented Noise Limits at Nearby Properties

Property	Noise Limit(s)
Industrial zone boundary (60 to 120m to the north-east)	**65 dB L_{A10} and 70 dB L_{AFmax}** (Monday to Friday 0700 to 2200 hours; Saturday to Sunday 0700 to 1900 hours) **45 dB L_{A10} and 70 dB L_{AFmax}** (Monday to Friday 2200 to 0700 hours; Saturday to Sunday 1900 to 0700 hours)
Waipapa Pine northern boundary	**46 dB $L_{A10\ (15\ min)}$** (Monday to Friday 2200 to 0700 hours; Saturday to Sunday 1900 to 0700 hours)
Waipapa Pine southern boundary	**70 dB $L_{A10\ (15\ min)}$** (Monday to Friday 0700 to 2200 hours; Saturday to Sunday 0700 to 1900 hours)
Dwellings in the area (e.g. 1897B SH10, 1897A SH10 (around 350 m to the south) and also 1927 SH10 to the east)	**65 dB L_{A10} and 70 dB L_{AFmax}** (Monday to Friday 0700 to 2200 hours; Saturday to Sunday 0700 to 1900 hours) **45 dB L_{A10} and 70 dB L_{AFmax}** (Monday to Friday 2200 to 0700 hours; Saturday to Sunday 1900 to 0700 hours)

A more detailed discussion of these matters is summarised in Appendix B.

2.2 Additional Consents

A resource consent (2150320-RMAVAR/A) was issued in 2022. The consent varied the approved site layout to allow for: relocation of drystore activities, the development of a compressed wooden pallet plant, deletion of the round table sorter, and removal of the boron treatment plant.

This consent related to activity on Lot 3 DP 343062, Lot 2 DP 376253, Lot 1 DP 376253

This consent did not change any noise conditions or hours of operations - the noise limits that apply are the same as those summarised in the previous section.

2.3 Operative District Plan Zoning and Noise Rules

The site is zoned *Rural Production* under the Far North District Plan as are all adjacent properties. Some sites farther northeast are zoned *Industrial*.

The Operative District Plan noise rule for noise received from *Rural Production* sites apply **at or within the site boundary of any other site zoned *Rural Production*.** Under the District Plan, this would mean that the following noise limits would need to be met at the immediate sawmill boundary.

- 0700 to 2200 hours: 65 dBA L_{10}
- 2200 to 0700 hours: 45 dBA L_{10} and 70 dBA L_{max}.

The above noise rules have likely formed the basis for the consented noise limits, noting that the consented noise rules apply at the *notional boundary* but the District Plan noise rules apply at the *site boundary*.

2.4 Proposed District Plan Noise Rules

The proposed District Plan noise rules are understood not to have any legal effect due to the stage of the hearings process and the potential for appeal.

2.5 Resource Management Act

Under the provisions of the Resource Management Act 1991 (RMA) there is a duty to adopt the best practicable option to ensure that noise (including vibration[1]) from any development does not exceed a reasonable level. Specifically, Section 16 references noise effects as follows.

Section 16 states that "every occupier of land (including any premises and any coastal marine area), and every person carrying out an activity in, on, or under a water body or the coastal marine area, shall adopt the best practicable option to ensure that the emission of noise from that land or water does not exceed a reasonable level".

Compliance with the currently consented daytime noise limits at the notional boundary of nearby dwellings could still be considered "unreasonable" in terms of the RMA. However the exact effect will depend on the actual level of noise received and the nature of the receiving environment (e.g. the existing ambient noise environment).

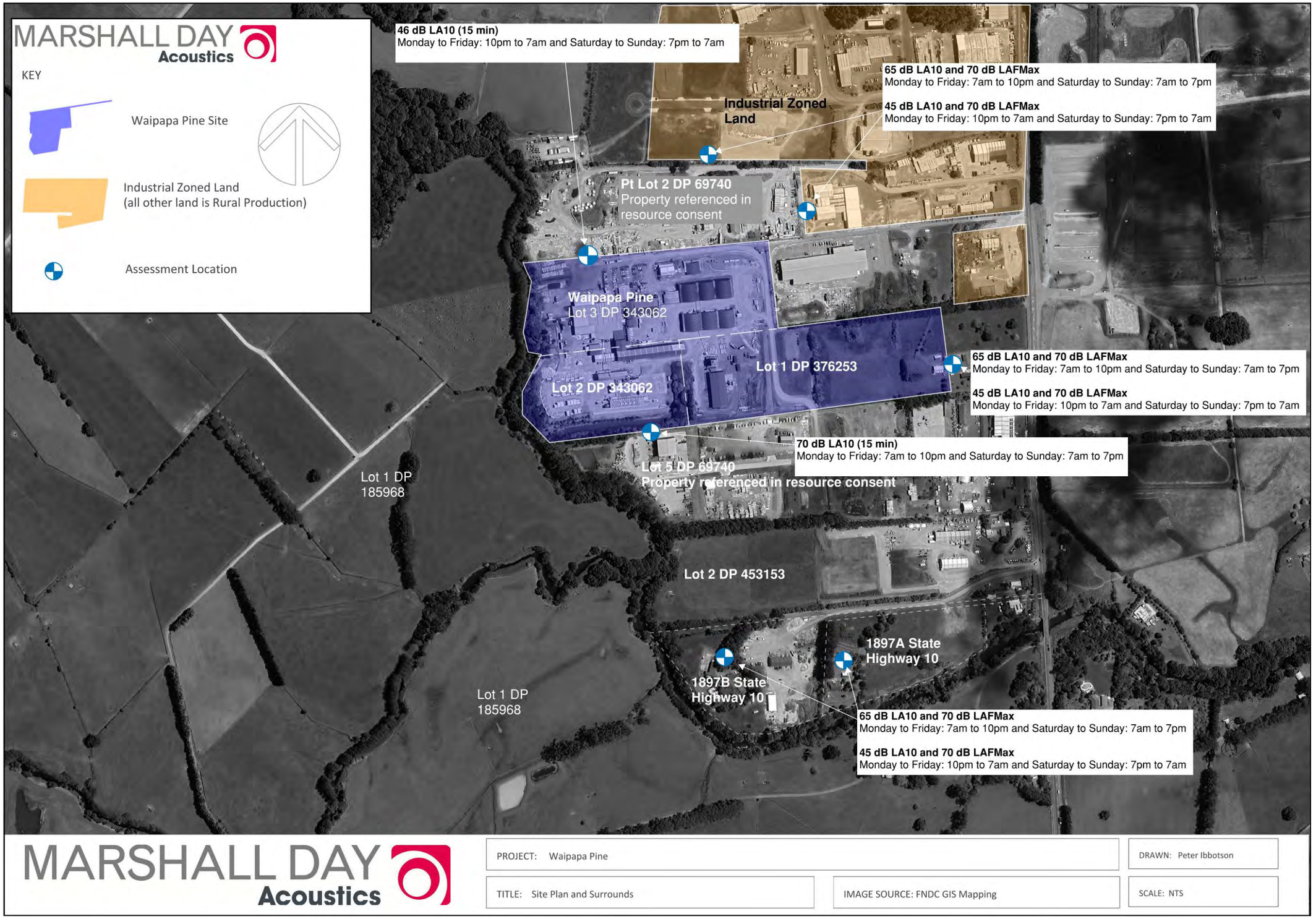
2.6 Noise Limits for the Site

It is proposed to install a new boron plant, new despatch yard and second boiler on the site.

These activities will need to ensure that compliance with the existing consented noise limits will continue to occur for the Waipapa Pine operation.

[1] RMA 1991 Part 1 Section 2 Interpretation: Noise includes vibration.

Figure 2: Site and Surrounds (and summary of noise limits)



3.0 CALCULATED NOISE LEVELS FROM THE SITE

3.1 Changes at the site

Since 2016, changes have occurred at the site, largely as intended by the 2022 consent variation. These are understood to be the removal of the outdoor sorting table and the construction of the replacement binsorter building. A pallet plant[2] and additional kiln has also been constructed. These are likely to have changed the noise emission from the site somewhat as they have reduced some sources of noise and increased acoustic screening (attenuation) to others.

Figure 3: Site at May 2016

Figure 4: Site as of Nov 2023

4.0 NOISE MODELLING

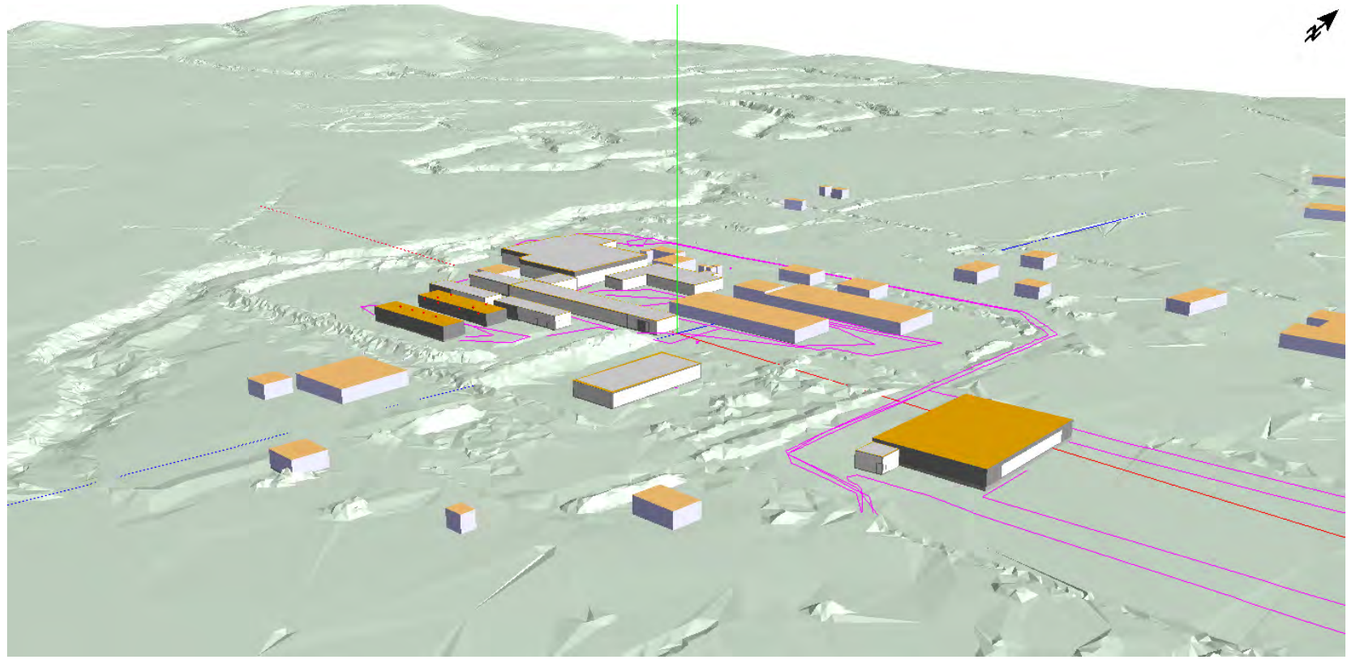
We have prepared a detailed noise model of the site. This has been based on a comprehensive noise survey at the site, including measurements of the green and dry mills, boilers, debarker, kilns, pallet plant, mobile plant and static outdoor plant (e.g. dust collectors, compressors, etc). Input data is summarised in Appendix D.

Noise modelling has been carried out using SoundPLAN 9.0 implementing the International Standard ISO 9613-2:1996 *Acoustics - Attenuation of sound during propagation outdoors – Part 2: General method of calculation.*

The noise model has calibrated to within +/- 2 decibels at a range of locations around the site. We checked the noise model by measuring in downwind conditions to the north at a distance of 250 metres from the greenmill: the model agreed with the measured noise levels to the nearest decibel during typical operation.

The noise model is considered to be the most accurate method for calculating current noise levels at other distances.

Figure 5: Waipapa Pine Noise Model



4.1 Noise Model Scenarios

We have calculated noise from the following scenarios:

1. **Existing daytime:** noise from the existing daytime 7am and 6pm operation of the sawmill. Including cutting in the greenmill and drymill, log deliveries, log unloading using front end loader, truck loading and despatch (in the existing area), kiln use, debarker, binsorter and boiler.
2. **Existing night-time:** kiln (typically one) and loading of kilns.
3. **Proposed daytime operation:** noise from the above sources (with relocated despatch area) plus noise from the proposed boron treatment plant and additional boiler.
4. **Proposed night-operations:** kilns (typically two) and loading of kilns.

Noise levels from the above scenarios are summarised in Table 1. Figure 6 and Figure 7 shows the noise levels graphically.

[2] Pallet in this context means fuel type pallets

Table 1: Summary of Noise Levels (green values indicate compliance with relevant limit)

				Rating Noise Level[3] at:				
	Scenario	**Time of day DAY: 0700 to 2200 hrs NIGHT: 2200 to 0700 hrs**	**Operating Plant in each scenario**	**1897A/B State Highway 10 (dwellings 350m south)** Day limit: 65 dB L_{A10} Night-limit: 45 dB L_{A10} All times: 70 dB L_{AFmax}	**1927 State Highway 10 (dwelling east)** Day limit: 65 dB L_{A10} Night-limit: 45 dB L_{A10} All times: 70 dB L_{AFmax}	**Northern Site Boundary** Day limit: no limit Night-limit: 46 dB $L_{A10\,(15\,min)}$	**Southern Site Boundary** Day limit: 70 dB $L_{A10(15min)}$ Night-limit: no limit	**Industrial Boundary** Day limit: 65 dB L_{A10} Night-limit: 45 dB L_{A10} All times: 70 dB L_{AFmax}
1	Existing operation (as consented by 2016 and 2022 consents)	DAY	• cutting in the greenmill and drymill • log deliveries (32 movements), log unloading using front end loader • truck loading and despatch (23 movements) in the existing despatch area • kiln (typically one operating) • debarker • binsorter • boiler (one) • pellet plant building • current hours of operation	52	56	71	62	63
2		NIGHT	• Kiln and occasional loading of kiln (operating between 10pm and 7am). • Boiler operation (one)	41[4]	43	36	57	40
3	Existing operation with additional boiler, truck loading in new area, new boron treatment plant	DAY	• cutting in the greenmill and drymill • log deliveries (46 movements), log unloading using front end loader • truck loading and despatch (33 movements) in the proposed new despatch area • kilns (two) • debarker • binsorter • boilers (two) • boron treatment plant • pellet plant building • current hours of operation	52	60	71	63	63
4		NIGHT	• Kilns (two, both already consented) and loading of kilns (two) between 10pm and 7am • Boiler operation (two)	44	45	38	58	42

[3] The consent does not reference any noise assessment standards (e.g. NZS6801 or NZS6802). For this assessment of rating noise level, any duration corrections (averaging) or special audible characteristics corrections have been added to the noise level. The limit does not require any adjustment using this method. This is broadly in accordance with the NZS6802:2008 versions of the noise standards.

[4] Note that no SAC is applied to the kilns and boiler operating at night in this calculation (and in scenario 4), however SAC would be applied to the overall level if cutting occurred in the night period.

Figure 6: SITUATION 3 – DAYTIME noise emission from expanded operations

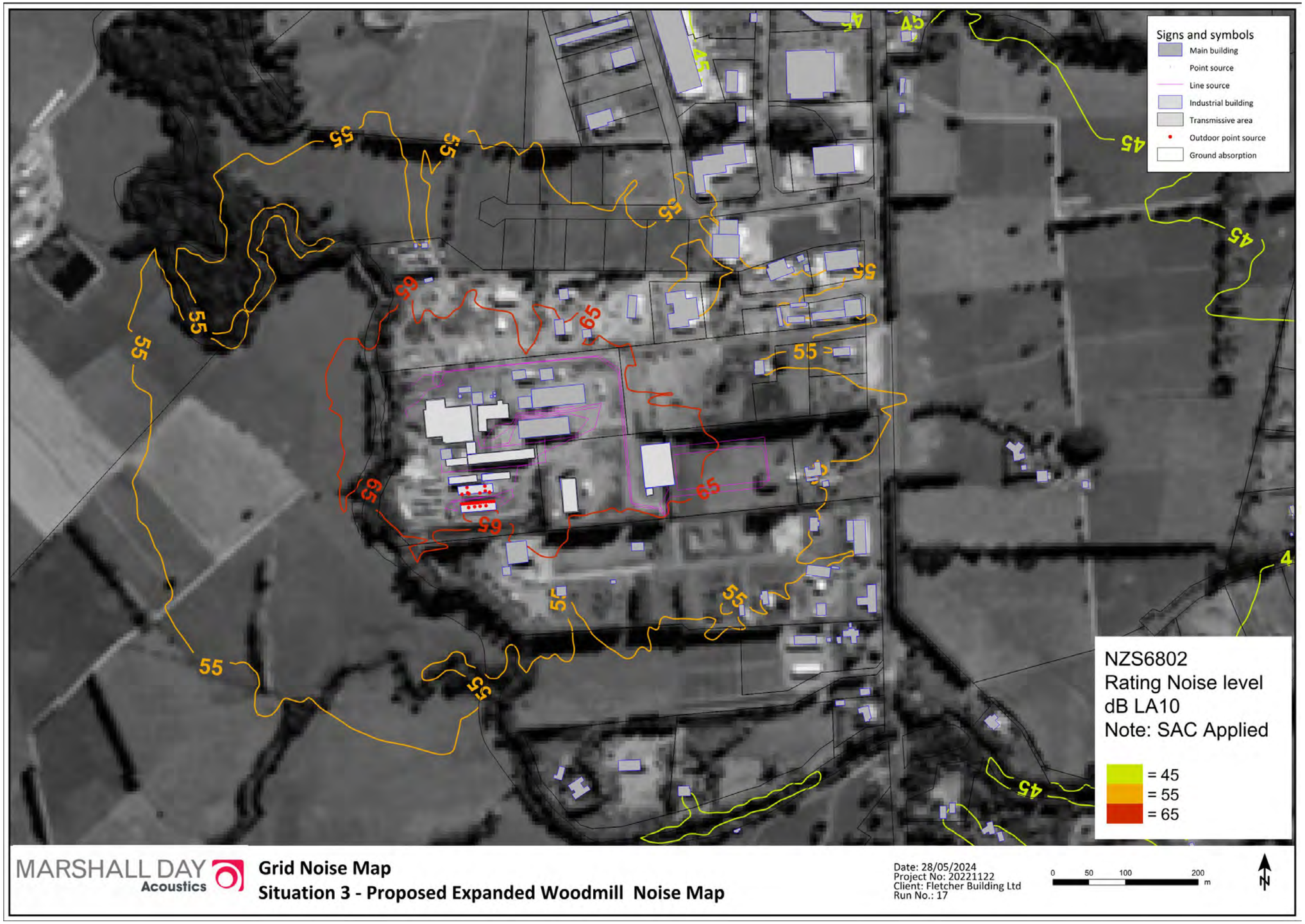


Figure 7: SITUATION 4 – NIGHT TIME noise emission from kilns, boilers and associated forklift movements

5.0 DISCUSSION OF CALCULATED NOISE LEVELS

The calculations show the following:

Daytime

- The proposed change in operation (the inclusion of the boron plant, new boiler, relocated truck despatch area) will result in a negligible change in noise during the daytime at most assessment locations. There will be an increase in noise at 1927 State Highway 10 of four decibels[5].
- Noise levels will continue to readily comply with the consented daytime noise limits in RC 2150320-RMALUC.
- Noise from the proposed new activities within Lot 1 DP 376253 (boron treatment plant and truck despatch and loading only) will comply with the Operative District Plan daytime noise limit (65 dB L_{A10}) at the adjacent site boundaries.
- Rating daytime noise levels at 1897A and 1897B State Highway 10 (the dwellings well south of the mill) are likely to be 52 dB L_{A10} during a northerly wind. This is calculated to be the case irrespective of whether the proposed changes are consented.

Night-time

- The proposed increase in the number of boilers (and the associated increased use of the **already consented** kilns) will result in little change to the night-time noise level.
- Noise levels will continue to comply with the Operative District Plan noise limits in RC2150320-RMALUC

6.0 CONCLUSIONS

Marshall Day Acoustics has assessed noise emissions from the proposed changes to operation at Waipapa Pine. These changes will generally result in negligible / slight increases in noise emission at most locations. A noticeable increase in noise emissions may occur at 1927 State Highway 10, however the site will continue to comply with the consented daytime and night-time noise limits at all locations.

[5] There is a no complaints covenant with the owner of this dwelling.

APPENDIX A GLOSSARY OF TERMINOLOGY

Frequency	The number of pressure fluctuation cycles per second of a sound wave. Measured in units of Hertz (Hz).
Hertz (Hz)	Hertz is the unit of frequency. One hertz is one cycle per second. One thousand hertz is a kilohertz (kHz).
Noise	A sound that is unwanted by, or distracting to, the receiver.
Ambient	The ambient noise level is the noise level measured in the absence of the intrusive noise or the noise requiring control. Ambient noise levels are frequently measured to determine the situation prior to the addition of a new noise source.
Special Audible Characteristics	Distinctive characteristics of a sound which are likely to subjectively cause adverse community response at lower levels than a sound without such characteristics. Examples are tonality (e.g. a hum or a whine) and impulsiveness (e.g. bangs or thumps).
dBA	The unit of sound level which has its frequency characteristics modified by a filter (A-weighted) so as to more closely approximate the frequency bias of the human ear.
A-weighting	The process by which noise levels are corrected to account for the non-linear frequency response of the human ear.
$L_{Aeq\ (t)}$	The equivalent continuous (time-averaged) A-weighted sound level. This is commonly referred to as the average noise level. The suffix "t" represents the time period to which the noise level relates, e.g. (8 h) would represent a period of 8 hours, (15 min) would represent a period of 15 minutes and (2200-0700) would represent a measurement time between 10 pm and 7 am.
$L_{A95\ (t)}$	The A-weighted noise level equalled or exceeded for 95% of the measurement period. This is commonly referred to as the background noise level. The suffix "t" represents the time period to which the noise level relates, e.g. (8 h) would represent a period of 8 hours, (15 min) would represent a period of 15 minutes and (2200-0700) would represent a measurement time between 10 pm and 7 am.
$L_{A90\ (t)}$	The A-weighted noise level equalled or exceeded for 90% of the measurement period. This is commonly referred to as the background noise level. The suffix "t" represents the time period to which the noise level relates, e.g. (8 h) would represent a period of 8 hours, (15 min) would represent a period of 15 minutes and (2200-0700) would represent a measurement time between 10 pm and 7 am.
$L_{A10\ (t)}$	The A-weighted noise level equalled or exceeded for 10% of the measurement period. This is commonly referred to as the average maximum noise level. The suffix "t" represents the time period to which the noise level relates, e.g. (8 h) would represent a period of 8 hours, (15 min) would represent a period of 15 minutes and (2200-0700) would represent a measurement time between 10 pm and 7 am.
L_{Amax}	The A-weighted maximum noise level. The highest noise level which occurs during the measurement period.

APPENDIX B DISCUSSION OF NOISE LIMITS

B1 Consent Conditions

Resource Consent RC 2150320-RMALUC contains the following conditions that are relevant to noise:

9. The Consent Holder shall ensure that the activities undertaken do not result in noise levels exceeding the following noise limits unless otherwise specified as measured at or within the boundary of any other zone or within the notional boundary of any dwelling existing at the date of commencement of this consent:

a) Monday to Friday from 7:00am to 10:00pm and 7:00am to 7:00pm Saturday to Sunday – 65 dB L_{A10} for sawmill operations involving the processing of timber except that the maximum noise level shall not exceed 70 dBA on the boundary with Lot 5 DP 69740

b) Monday to Friday from 10:00pm to 7:00am the following day and 7:00pm to 7:00am the following day on Saturday to Sunday – 45 dB L_{A10} for any other activities (not involving sawmill operations) except that the maximum noise level shall not exceed 46 dBA on the boundary with Lot 2 DP 69740

c) 70 dB L_{AFmax}

10. The consent holder shall, subject to any Worksafe New Zealand requirements, replace on all mobile equipment / vehicles (operating outside of a building) the reversing beepers with flashing strobe lights to warn of potential hazards

Note the following with regard to these consent provisions:

- The consent does not specify that noise should be measured and assessed in accordance with NZS6801 / NZS6802. As the consent was granted in 2016, the 2008 version of the standard would have been current at the time. Complicating this however is the fact that the noise limits are set as L_{A10} limits (which are used in the 1991 versions) rather than L_{Aeq} (which are used in the 2008 versions) and the District Plan rules clearly reference NZS6801:1991. We consider that the 2008 version should be the standard used for the assessment. This is important in regard to meteorological effects.
- The consent applies a daytime L_{A10} noise limit at the **notional boundary**[6] of any dwelling existing at the date of consent of 65 dB L_{A10}[7]. This is a high noise limit that is greater than recognised national or international guidelines on environmental noise effects. It is probable that the District Plan noise limit has simply been applied at the notional boundary, rather than the site boundary as set out in the District Plan. The consents clearly reference the *"transgression of those permitted activity rules detailed within the application including stormwater, traffic, intensity, noise, scale of activity, parking and storage of hazardous substances"*
- The consent applies specific noise limits at the **site boundary** of two nearby properties. The daytime noise limit is stated as ***"...the maximum noise level shall not exceed 70 dBA..."*** and this applies at Lot 5 DP 69740 (this is the property to the immediate south of the timber mill). During the night-time, the consent states that ***"...the maximum noise level shall not exceed 46 dBA..."*** at the site boundary of Lot 2 DP 69740 (the property to the immediate north of the mill). The reasons for the application of these noise limits at the two different site boundaries (rather than at any point on any site boundary) is not explained.

  It is not explicit in the consent condition whether the noise limit that applies at the site boundary of Lot 5 DP69740 is intended to be a noise limit of **70 dB L_{A10}** measured over any assessment period (i.e. the "maximum L_{A10}") or whether the limit is intended to be **70 dB L_{AFmax}**.[8] This is important, as the noise limits would be quite different. The condition uses the word "maximum" but this does not necessarily mean the limit is an L_{AFmax} limit. We consider that the intention would have been for the limits to refer to a "maximum L_{A10}" noise limit for the following reasons:

- The condition initially specifies a notional boundary noise limit of 65 dB L_{A10} (the measurement parameter is explicitly stated). The condition goes on to state *"...except that the maximum noise level shall not exceed 70 dBA on the boundary with Lot 5 DP 69740"*. It is considered that the author of the condition would have intended that the "70 dBA" limit would be read in the context of L_{A10} parameter that preceded it. The use of the word "maximum" is interpreted to mean a "maximum L_{A10}" noise level, i.e. that the L_{A10} noise level over any measurement period shall not exceed 70 dB $L_{A10\,(15\,min)}$.
- The consent condition states that during the night-time *"...the maximum noise level shall not exceed 46 dBA..."* at the site boundary of Lot 2 DP 69740. This noise limit, if set as an L_{AFmax} noise limit, would be an unreasonably low noise limit, especially given that there are no sensitive landuses to the north. It is much more likely that the intention would have been to set a maximum 46 dB L_{A10} noise limit than a 46 dB L_{AFmax} noise limit during this period (noting that the purpose of applying a night noise limit at this boundary has not been explained: the land is used for industrial purposes and there are no dwellings on the site to the north).
- A separate limit of 70 dB L_{AFmax} is given which applies at the notional boundary of any dwelling existing at the time of consent[9]. It is not logical to apply a noise limit of 70 dB L_{AFmax} at the notional boundary of the dwelling, but include the same noise limit at the southern site boundary of the timber mill (a point much closer to the mill). Nor would it be logical to apply a night-time noise limit of 70 dB L_{AFmax} at the notional boundary of the dwelling during the night period, but apply a much more restrictive 46 dB L_{AFmax} noise limit at the northern site boundary.

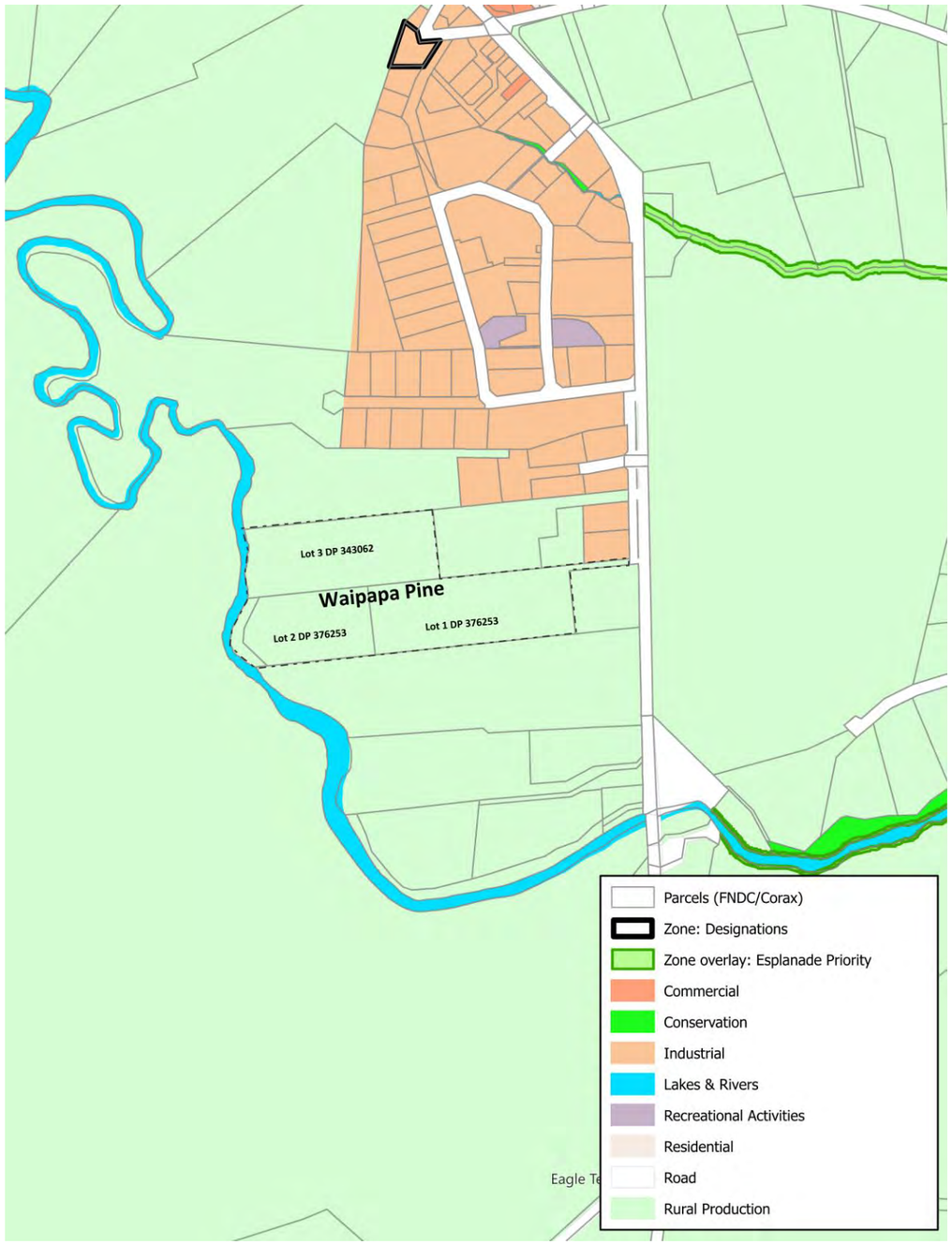
[6] The notional boundary is a line 20m from any side of any dwelling, or the legal boundary where this is closer

[7] The consent also applies this limit at the commercial zone to the north of the Waipapa Pine timber mill

[8] The same issue is relevant to the night-time noise limit that applies at "Lot 2 DP69740".

[9] This limit also applies at the commercial zone to the north of the mill.

APPENDIX C OPERATIVE DISTRICT PLAN ZONE MAP AND NOISE LIMITS



Operative Noise rules for the Rural Production Zone:

8.6.5.1.7 NOISE

(a) All activities except Temporary Military Training Activities shall be so conducted as to ensure that noise from the site shall not exceed the following noise limits as measured at or within the boundary of any other site in this zone, or at any site in the Residential, Coastal Residential or Russell Township Zones, or at or within the notional boundary of any dwelling in any other rural or coastal zone:

0700 to 2200 hours	65 dBA L_{10}
2200 to 0700 hours	45 dBA L_{10} and
	70 dBA L_{max}

Exemptions: The foregoing noise limits shall not apply to airport operations at Kaitaia, Kerikeri and Kaikohe including aircraft being operated during or immediately before or after flight. For the purposes of this exemption aircraft operations shall include all aircraft activity from start up to shut down of engines. The noise limits shall also not apply to activities periodically required by normal farming and plantation forestry activities and the use of aircraft, provided that the activity shall comply with the requirements of s.16 of the Act.

Noise Measurement and Assessment:

Sound levels shall be measured in accordance with NZS 6801:1991 "Measurement of Sound" and assessed in accordance with NZS 6802:1991 "Assessment of Environmental Sound".

The notional boundary is defined in NZS 6802:1991 "Assessment of Environmental Sound" as a line 20m from any part of any dwelling, or the legal boundary where this is closer to the dwelling.

Construction Noise:

Construction noise shall meet the limits recommended in, and shall be measured and assessed in accordance with, *NZS 6803P:1984 "The Measurement and Assessment of Noise from Construction, Maintenance and Demolition Work".*

Noise rules for the Industrial Zone:

7.8.5.1.6 NOISE

(a) All activities within the zone shall be conducted so that noise measured at any point within any other site in the zone shall not exceed:

0700 to 2200 hours	65 dBA L_{10}
2200 to 0700 hours	55 dBA L_{10} and
	80 dBA L_{max}

(b) All activities within the zone shall be conducted so as to ensure that noise measured at any point within any site in the Residential, Coastal Residential or Russell Township Zone or at and within the notional boundary of any other dwelling in any other rural or coastal zone shall not exceed:

0700 to 2200 hours	55 dBA L_{10}
2200 to 0700 hours	45 dBA L_{10} and
	70 dBA L_{max}

Noise Measurement and Assessment:

Sound levels shall be measured in accordance with *NZS 6801:1991 "Measurement of Sound"* and assessed in accordance with *NZS 6802:1991" Assessment of Environmental Sound".*

The notional boundary is defined in *NZS 6802:1991 "Assessment of Environmental Sound"* as a line 20m from any part of any dwelling, or the legal boundary where this is closer to the dwelling

Construction Noise:

Construction noise shall meet the limits recommended in, and shall be measured and assessed in accordance with, *NZS 6803P:1984 "The Measurement and Assessment of Noise from Construction, Maintenance and Demolition Work".*

APPENDIX D NOISE DATA USED IN NOISE MODEL

Source	Octave Band Centre Frequency (Hz) 63	125	250	500	1000	2000	4000	dBA	L_p (pressure) or L_{WA} (power)	Notes
Reverberant Noise Levels										
Greenmill reverberant noise level	89	92	94	94	93	91	87	**98**	L_p	Significant saws, conveyors, log movement noise
Drymill reverberant noise level	84	89	89	92	91	88	82	**95**	L_p	Planner, saw noise, timber movement noise
Binsorter reverberant noise level	81	81	86	90	88	83	80	**92**	L_p	Binsorter noise, timber movement noise, saw noise
Binsorter annex	77	79	81	88	81	75	74	**87**	L_p	Timber movement noise
Boilerhouse (louder end, near ID fan)	78	79	75	73	76	75	78	**83**	L_p	ID fan noise (note, quieter boilerhouse end is 5 dBA quieter)
Pellethouse louder end	79	87	82	81	77	79	80	**86**	L_p	Pellethouse near plant (northend), south end is 6 dBA quieter)
Blowers and pumps in boron plantroom	67	86	87	95	96	92	73	**98**	L_p	An allowance (noise budget) for loud blower plant. Actual noise levels are likely to be lower
Sound Power Levels										
Drymill cyclone transfer to pellethouse	124	121	115	112	107	108	102	**115**	L_w	Dust extractor on drymill roof
Front end Loader Komatsu Unloading Logging Truck	112	109	104	99	93	92	88	**102**	L_w	Loader is noted as particularly quiet and modern
Front end Loader Komatsu Trailer Lift (brief)	110	111	105	101	96	97	97	**105**	L_w	Loader is noted as particularly quiet and modern
Forklift louder movement	113	110	104	105	100	98	92	**106**	L_w	Forklift movement, pass-by, back-and-forth
Forklift quieter movement	109	107	101	100	97	95	88	**103**	L_w	Forklift movement, back-and-forth
Debarker	110	106	109	108	107	103	101	**111**	L_w	Continuous operation of debarker, logs fed and processed
Kiln fans (each)	97	95	93	89	90	92	88	**97**	L_w	There are more than 20 kiln fans on the kilns, including roof and wall fans.
Pellethouse dust extractor	113	106	100	95	93	87	87	**99**	L_w	Pellethouse roof plant
Truck movements	110	106	103	100	100	98	93	**105**	L_w	Typical truck movement on site roads
Pellethouse compressor	108	102	100	103	93	86	82	**102**	L_w	Compressor cycles on and off

Technical Memorandum

To:	Waipapa Pine Limited	**From:**	Emma Trembath
			SLR Consulting New Zealand
		Date:	13 May 2024
		Project No.	810.V16525.00001

RE: Waipapa Pine Limited – Boron Treatment Plant Hazardous Substances Regulatory Assessment

1.0 Introduction

SLR Consulting Limited (SLR) has been engaged by Waipapa Pine Limited (Waipapa) to prepare a regulatory assessment of hazardous substance storage and use in support of the proposed development of a new timber treatment plant at the sawmill site located on State Highway 10, Waipapa, New Zealand (the site). The site is zoned rural production land under the Far North District Plan (the District Plan).

This assessment is intended to support the resource consent application lodged in support of the development.

2.0 Summary of the Proposed Development and Hazardous Substance Storage

2.1 Proposed Development

Waipapa proposes to install a new timber treatment facility on the currently undeveloped eastern portion of the site. All timber pre-treatment, treatment, post treatment activities will be completed within a purpose-built building with concrete floors. Refer to Attachment A for a copy of the draft facility development plan and proposed floor plan.

No other timber treatment activities are currently being undertaken at the site. The timber treatment plant proposed and consented for establishment in 2016, was never commissioned.

2.2 Summary of Hazardous Substance Storage and Use

Since the decommissioning of the former timber treatment plant at the site, there has been no significant hazardous substance storage or use.

The proposed timber treatment plant will comprise two bunded 40,000 litre above ground storage tanks of made-up FramePro timber preservative manufactured by Koppers Performance Chemicals New Zealand.

FramePro is a boron-based substance containing a mixture of hazardous ingredients. The major ingredient is disodium octaborate tetrahydrate (10-30% of the total weight) which is an organic compound primarily used as an insecticide, fungicide and algicide. Refer to Attachment B for a copy of the safety data sheet (SDS) for the substance.

FramePro will be delivered by bulk tanker. With a specific gravity of 1.28, the site will hold a maximum on 102 tonnes of the substance at any one time.

3.0 Description of Hazardous Substance

3.1.1 Hazard Properties

FramePro is considered a hazardous substance in accordance with the Hazardous Substances (Classification) Notice 2017. Refer to Table 1 for a summary of hazard properties associated with the substance, which has been derived from the SDS.

Table 1 – Summary of FramePro Hazard Properties

Item	**Summary**
Chemical and Physical Properties	
Colour	Clear colourless liquid.
Odour	Sweet odour.
State	Liquid.
Flammability	Not considered to be flammable but will burn in a fire.
Explosivity	Not considered to be explosive.
Solubility	100% soluble in water.
Stability and Reactivity	
Stability	Considered to be stable.
Incompatible Materials	Strong acids and oxidising agents.
Possibility of hazardous reactions	Unlikely under normal conditions of use.
Human Health Information	
Ingestion	Harmful if swallowed.
Skin Contact	Known to cause skin irritation.
Eye Contact	Can cause serious eye damage.
Environmental Information	
Toxicity	Can accumulate in plants and be toxic. Acutely and chronically toxic to aquatic life.
Soil Persistence	Dependant on soil type and rainfall. Leaches rapidly in high rainfall areas.
Biotransformation	Does not transform.

3.1.2 Hazard Classification

Under the Hazardous Substances and New Organisms Act 1996 (HSNO) the hazardous properties of a substance classify how a risk should be managed. Refer to Table 2 for a

summary of the applicable hazard classes for transformer oil under both HSNO and the Globally Harmonised System (GHS 7)[1].

Table 2 – Summary of FramePro Hazard Classifications

Hazard Code	HSNO Classification and Statement		GHS 7 Classification
H302	6.1D	Harmful if swallowed	Acute oral toxicity Category 4
H315	6.3A	Causes skin irritation	Skin irritation Category 2
H361	6.8B	Suspected of damaging fertility or the unborn child	Reproductive toxicity Category 2
H318	8.3A	Causes serious eye damage	Serious eye damage Category 1
H410	9.1A	Very toxic to aquatic life with long lasting effects	Hazardous to the aquatic environment acute Category 1 Hazardous to the aquatic environment chronic Category 1

3.1.3 Hazard Management

Given the potential hazard FramePro poses to human health and the environment during handling and under a discharge associated with an emergency event the following hazard management is recommended for the site:

- All handling of FramePro should occur under cover within a purpose-built facility. In this stormwater will not encounter timber receiving treatment.
- Secondary containment should be provided for the above ground storage tanks and tanker loading bay. The containment will be designed in accordance with WorkSafe New Zealand requirements. This will equate to the full volume of the above ground storage tanks plus at least 10% additional storage.
- Handling of the substance will be completed in strict accordance with SDS requirements.
- A spill response plan (SRP) should be developed which will outline how to safely identify and contain and mange the substance should an emergency event occur, including procedures for:
  - Spill management.
  - Clean up and disposal of soiled materials.
  - Post emergency regulatory reporting.
- Spill kits containing sand and/or absorbent materials such as granules will be provided in the vicinity of the above ground storage tanks.

[1] The HSNO Classification system was replaced by GHS 7 on 30 April 2021. However, as many district council planning documents were developed prior to 2021, these reference the historical HSNO classification system. Therefore, for the purpose of this assessment both classification systems have been included in Table C.

4.0 District Council Regulatory Assessment

The District Plan contains objectives, policies, rules, and maps for managing land use and development in the district. The rules of the District Plan set out what activities that can be completed as of right (permitted activities) and what activities will require a resource consent.

Section 12.8 of the District Plan relates to hazardous substances[2]. Namely:

- Issue 12.8.1 of the District Plan acknowledges that the use, storge, transport, and disposal of hazardous substances has the potential for highly adverse effects on people and the environment.
- Policy 12.8.4.1 of the District Plan states that activities and facilities involving the use of hazardous substances be designed, located, constructed, and operated so as to avoid adverse effects on people and the environment and to minimise risk to people and the environment.

To assess the potential effects of activities involving hazardous substances and ensure that the level of potential risk is acceptable for a given zone, Method 12.8.5.1 of the District Plan requires the adoption of the Hazardous Facility Screening Procedure (HFSP) in the assessment of proposed activities which involve hazardous substances. The HFSP determines the level of risk posed by the presence of hazardous substances. In turn, the level of risk establishes the status of an activity (Permitted, Controlled, or Discretionary) relative to the rules in the plan. This is called the Consent Status Index.

Refer to Table 3 for a summary of the calculated Consent Status Index for the storage and use of FramePro at the site, utilising the HSFP utilising the procedure and associated adjustment factors presented in Appendix 2 of the District Plan. The calculated Consent Status Index for the proposal is 112.2; this exceeds the Permitted Activity threshold index for the rural production zone of under 0.75. Therefore, a resource consent as a Discretionary Activity, under Rule 12.8.6.3 is required to authorise the proposal.

Table 3 – FramePro Calculated Consent Status Index

Effect Type	Hazard Rating	Base Quantity (tonnes)	Adjustment Factors			Adjusted Base Quantity (tonnes)	Proposed Quantity	Quantity Ratios
			Substance Form	Distance from Boundary	Type of Activity			
Human Health	Medium	10	1	1	1	10	102	10.2
Environment	High	1	1	1	1	1	102	102
							Consent Status Index	**112.2**

[2] chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.fndc.govt.nz/__data/assets/pdf_file/0022/18652/12-natural-and-physical-resources-full-chapter-for-oc.pdf

5.0 Conclusions

Waipapa proposes to construct and operate a timber treatment plant at the site. As part of the operations, FramePro will be utilised. FramePro is a boron-based timber preservative that is considered a hazardous substance.

Due to the volume of FramePro required to be stored and used at the site, the proposal requires a resource consent as a Discretionary Activity in accordance with Rule 12.8.6.3 of the District Plan.

The risk posed to human health and the environment by the completion of timber treatment activities at the site will be managed and mitigated through the:

- Completion of all activities under cover within a purpose-built facility that provides adequate secondary containment.
- The implementation of administrative controls by way of the development of a SRP which will provide guidance and procedures to site operators with respect to hazardous substance management during an emergency event.

6.0 Limitations

This report has been prepared by SLR with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Waipapa. Information reported herein is based on the interpretation of data provided by Waipapa which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Waipapa. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Waipapa and others in respect of any matters outside the agreed scope of the work.

7.0 Closure

Should you require any further clarification please contact the undersigned.

Regards,

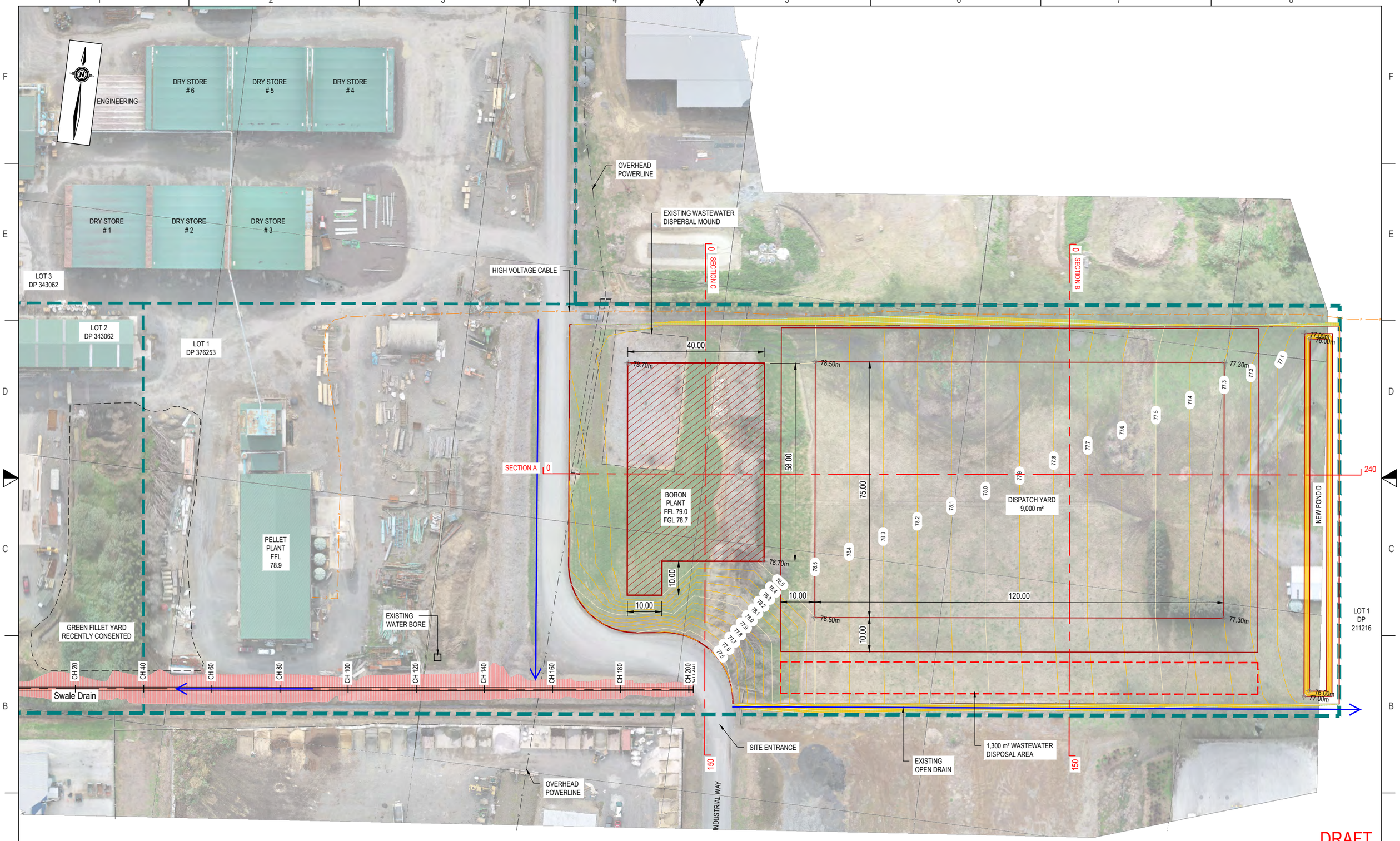
SLR Consulting New Zealand

Emma Trembath
Technical Director – Environmental Services

Nigel Mather
Technical Discipline Manager – Environmental Services

Attachments A – Site Figures and Plans, B – Safety Data Sheet

Attachment A – Site Figures and Plans



DRAFT

Rev	Date	Description	By	Checked
A	24/04/2024	DRAFT	JT	AP

DWG SITE PLAN

A3 SCALE 1:1000 (0 – 20m – 50m)

Date 24/04/2024

Drawn JT | Checked AP | Approved

File O:\SUITEFILES - 23 256 - WAIPAPA MILL -1945B STATE HIGHWAY 10, WAIPAPA\ENGINEERING\DRAWINGS\01_CIVIL\23_256_CIVIL_DESIGN_C3D.DWG

HAIGH WORKMAN LTD
Civil & Structural Engineers
6 Fairway Drive
Kerikeri, BOI
T: 09 407 8327
F: 09 407 8378
E: info@haighworkman.co.nz

Project: FACILITIES DEVELOPMENT
WAIPAPA MILL - 1945B STATE HIGHWAY 10, WAIPAPA

Client: WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

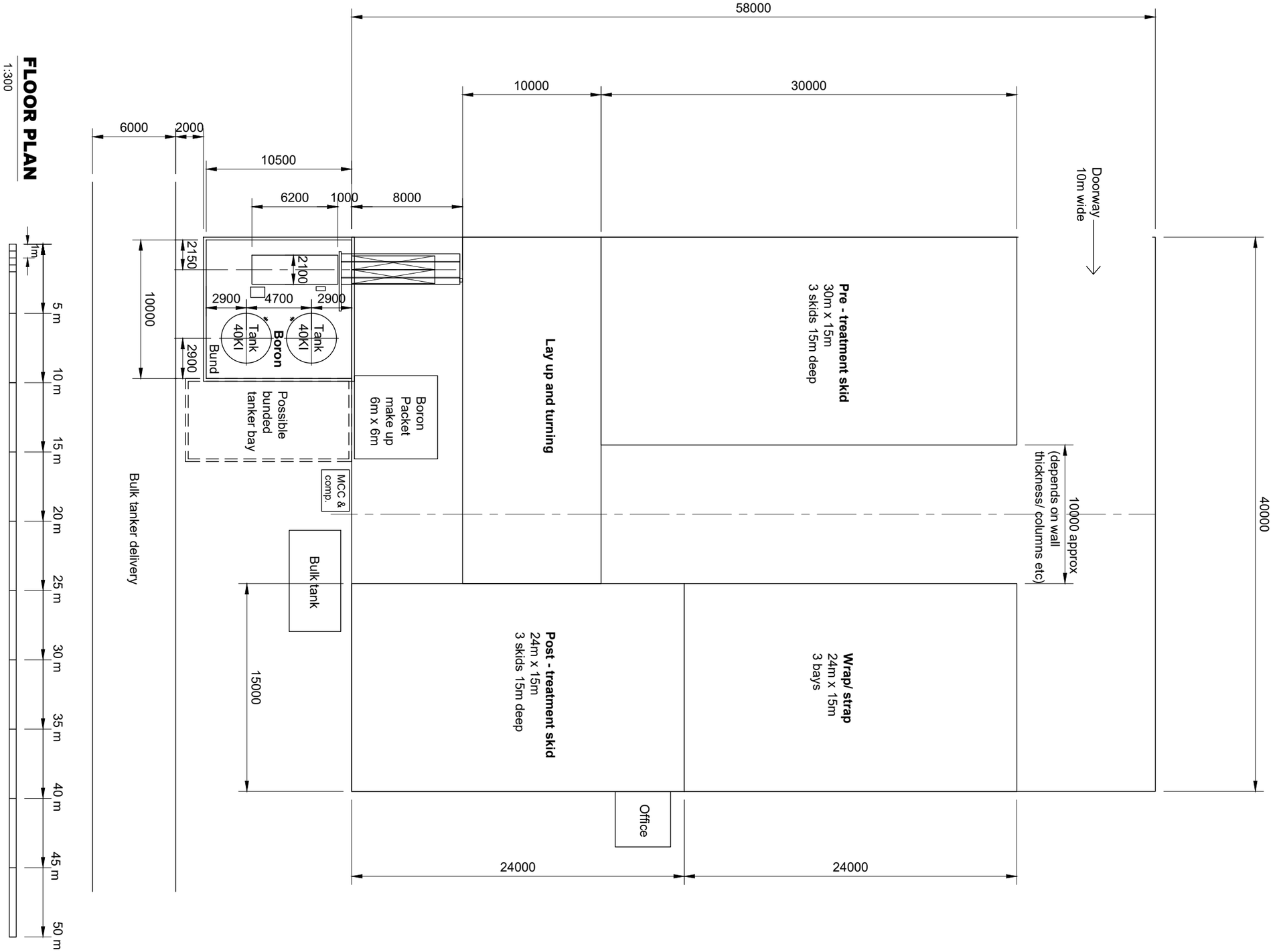
Stage

Dwg No. RDP01

Sheet No. 1 of 2

FLOOR PLAN

1:300



Rev:	Date:	By:	Details:
C	29/04/24	WS	Building length reduced, issued for site planning
B	09/04/24	WS	Updated & issued for site planning
A	02/12/23	WS	Issued for site planning

Prepared By:
Will Sumner Design Ltd
M. 021 577 124
E. willsumner@xtra.co.nz

WAIPAPA PINE
TIMBER PRODUCTS NEW ZEALAND

PROPOSED FLOOR PLAN

Project: NEW BORON PLANT

Design:	Date: 02/12/23	Drg No: S01	Rev: C
Drawn: WILL	Scale: 1:300 @ A3		

Attachment B – Safety Data Sheet

SAFETY DATA SHEET

Section 1 Identification of the material and the supplier

Product:	FramePro™
Other Names:	
Product Code:	
Product Use:	**Timber Preservative**
Restriction for use:	Refer to Section 15
New Zealand Supplier:	**Koppers Performance Chemicals New Zealand**
Address:	**14 Mayo Road,** **Wiri,** **Auckland, New Zealand**
Telephone:	(09) 277 7770
Fax Number:	(09) 277 8011
Emergency Telephone:	**0800 243 622**
Date of SDS Preparation:	**20 July 2020 version 8**

Section 2 Hazards Identification

This substance is hazardous according to the EPA Hazardous Substances (Classification) Notice 2017.

EPA Approval No. HSR000907

Pictograms

Toxic Corrosive Chronic Ecotoxic

Signal Word: **DANGER**

HSNO Classification	Hazard Code	Hazard Statement	GHS Category
6.1D (oral)	H302	Harmful if swallowed.	Acute Tox. 4
6.3A	H315	Causes skin irritation.	Skin Irrit. 2
6.8B	H361	Suspected of damaging fertility or the unborn child	Repr. 2
8.3A	H318	Causes serious eye damage.	Eye Corr. 1
9.1A	H410	Very toxic to aquatic life with long lasting effects.	Aquatic Chronic 1

Prevention Code	Prevention Statement
P102	Keep out of reach of children.
P103	Read label before use.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P264	Wash hands and face thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.

P280	Wear; eye protection in the form of goggles; PVC or rubber gloves; boots and overalls should be worn when manufacturing or handling the concentrated product.
P281	Use personal protective equipment as required.

Response Code	**Response Statement**
P101	If medical advice is needed, have product container or label at hand.
P310	Immediately call a POISON CENTER or doctor/physician.
P321	Specific treatment (see ... <reference to supplemental first aid instruction> on this label).
P330	Rinse mouth.
P362	Take off contaminated clothing and wash before re-use.
P391	Collect spillage.
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P305 + P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.

Storage Code	**Storage Statement**
P405	Store locked up.

Disposal Code	**Disposal Statement**
P501	Dispose of contaminated residues or waste by liaising with a waste disposal company or by disposing at a site approved by relevant local authorities.

Section 3 Composition / Information on Ingredients

Hazardous Ingredients	**Wt%**	**CAS Number**
Disodium Octaborate Tetrahydrate	10-30%	12008-41-2
Benzalkonium Chloride	<10%	8001-54-5
Mono Ethylene Glycol	<65%	107-21-1
Basazol Red GRL Liquid	<0.5%	62163-53-5
Mixture of: 5-chloro-2-methyl -2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1)	<0.1%	55965-84-9 / 26172-55-4
Magnesium Nitrate	<0.2%	10377-60-3
Water	To 100%	7732-18-5

Section 4 First Aid Measures

Recommended on site emergency facilities:

Ensure an eye-wash and safety showers are available and ready for use.

Routes of Exposure:

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting**.** If vomiting occurs, place victim face downwards, with the head turned to the side and lower than the hips to prevent vomit entering the lungs. Seek medical advice if you feel unwell.

IF IN EYES: Hold eyelids open and rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Obtain immediate medical attention.

IF ON SKIN: Remove contaminated clothing. Wash affected skin immediately with soap and water. Seek medical advice if large area involved or irritation occurs.

IF INHALED: Remove victim to fresh air. Loosen tight clothing and remove any contaminated clothing. Keep victim warm and at rest until recovered. If breathing has stopped, ensure airway is clear and apply resuscitation.

Most important symptoms and effects, both acute and delayed
Symptoms:

Ingestion:	Harmful if swallowed.
Skin:	Causes skin irritation.
Eye:	Causes serious eye damage.
Chronic:	Suspected of damaging fertility or the unborn child.

Advice to Doctor:

Treat symptomatically. Early diagnosis and treatment of ingestion is important. Ensure emesis is satisfactory. Test for correct metabolic acidosis and hypocalcaemia. If evidence of renal insufficiency apply rapid and sustained diuresis with the use of hypertonic mannitol. Evaluate renal status and begin haemodialysis if indicated.

Section 5 Fire Fighting Measures

Hazard Type	Toxic, ecotoxic, Non-flammable liquid but will burn in a fire.
Hazards from decomposition products	When heated to decomposition Benzalkonium Chloride it emits very toxic fumes of hydrogen chloride and nitrogen oxides.
Suitable Extinguishing media	Use water spray to cool containers exposed to heat. Use alcohol foam, water fog, dry chemical or carbon dioxide to extinguish fire.
Precautions for fire-fighters and special protective clothing	Remain upwind and notify those downwind of potential hazard. Wear full protective equipment (see section 8) including Self Contained Breathing Apparatus (SCBA) when combating fire.
HAZCHEM CODE	3Z

Section 6 Accidental Release Measures

Ensure that non-protected personnel are removed from the area. Eliminate or isolate the source of leak or spill. Wear splash-proof goggles, PVC/rubber gloves, coveralls or protective clothing and boots. Where an inhalation risk exists, wear a Type A (Organic vapour) respirator.

Land Spill or Leaks

This material is highly toxic to the aquatic environment. Do not allow into drains or water-courses. Contain spill by absorbing with sand, earth or other absorbent material. Notify Police or local Health Protection if there is any risk of contamination of water courses. Wash down spill area with copious quantities of water but ensure run off liquid can be safely contained. Transfer contaminated material to suitable drums for disposal. Waste and empty containers must be disposed on it accordance with local government regulations.

Dispose of all wastes by liaising with a waste disposal company or by disposing at a site approved by relevant local authorities.

Water Spill or Leaks

This product is toxic to aquatic life with long lasting effects. Serious loss of aquatic life may result. Ensure that non-protected personnel are removed from the area. Eliminate or isolate the source of leak or spill. Endeavour to contain the contaminated water by pumping out to waste tanks. If not feasible, block off all but the main drainage routes for the contaminated plume. Immediately advise the nearest Regional Council Pollution Control office.

Section 7 Handling and Storage

Precautions for safe handling:

- Keep out of reach of children.
- Read label before use.
- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Wash hands and face thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Avoid release to the environment.
- Wear; eye protection in the form of goggles; PVC or rubber gloves; PVC boots and overalls should be worn when manufacturing or handling the concentrated product.
- Use personal protective equipment as required.
- In case of inadequate ventilation wear respiratory protection (Type A Organic Vapour Respirator).

Conditions for safe Storage:

- Store locked up.
- Store in a dry place away from foodstuffs at all times.
- Store away from sources of heat or ignition.

Section 8 Exposure Controls / Personal Protection

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

Substance	CAS # (a)	TWA ppm(b)	TWA mg/m^3(c)	STEL ppm(b)	STEL mg/m^3(c)
Ethylene glycol (vapour & mist)	[107-21-1]	Ceiling 50 ppm (127 mg/m^3)			

Workplace Exposure Standard – Time Weighted Average (WES-TWA). The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Workplace Exposure Standards and Biological Exposure Indices NOV 2017 9TH EDITION.

Engineering Controls:
Good Ventilation is required. Local exhaust should be provided if handled in confined or poorly ventilated areas.

Personal Protective Equipment:

Eyes	Wear goggles with side shields. Avoid wearing contact lenses.
Hands and Skin	PVC or rubber gloves, PVC boots and overalls should be worn when manufacturing or handling the concentrated product
Respiratory	A Type A (Organic Vapour) respirator should be used during any spraying operations.
General	At the end of the job, wash gloves and remove, then remove goggles and wash, then remove other protective clothing, finally remove respirator. If using a cartridge type respirator, cartridges should be removed and discarded. If the respirator is disposable, it should be discarded after use. If the respirator is reusable, it should be thoroughly cleaned as per the manufacturer's instruction. Clothing must be changed once contaminated. Protective clothing must be washed after each days work. Contaminated clothing should not be washed with normal household laundry.

Section 9 Physical and Chemical Properties

Appearance	Clear colourless liquid
Odour	Sweet odour
Odour Threshold	N/A
pH	7.0
Boiling Point	>100°C
Melting Point	<0^0C
Freezing Point	Not available
Flash Point	Non Flammable
Flammability	Non Flammable
Upper and Lower Exposure Limits	Not applicable
Vapour Pressure	Negligible
Vapour Density	Not available
Specific Gravity	1.232 g/mL @ 20ºC
Solubility in water	100%
Partition Coefficient:	Not available
Auto-ignition Temperature	>400^0C
Decomposition Temperature	Not available
Volatile component	Not available
Particle Characteristics	Not available

Section 10 Stability and Reactivity

Chemical Stability:	Stable.
Conditions to Avoid:	Store away from sources of heat or ignition.
Incompatibility:	Avoid contact with strong acids and oxidising agents.
Hazardous Decomposition Products:	None reported under normal recommended conditions

Section 11 Toxicological Information

Acute Effects:

Swallowed	Harmful if swallowed. Oral LD50 (rat) 621.6 mg/kg.
Dermal	Not applicable.
Inhalation/Respiratory	Not applicable.
Eye	Causes serious eye damage.
Skin	Causes skin irritation.

Chronic Effects:

Carcinogenicity	Not applicable.
Reproductive Toxicity	Suspected of damaging fertility or the unborn child.
Germ Cell Mutagenicity	Not applicable.
Systematic	Not applicable.
STOT/SE	Not applicable.
STOT/RE	Not applicable.
Aspiration	Not applicable.

Individual component information:

Acute Toxicity:

Chemical Name	Oral – LD50	Dermal – LD50	Inhalation – LC50
Disodium Octaborate Tetrahydrate (12008-41-2)	2550 mg/kg (Rat)	-	-
Benzalkonium Chloride (8001-54-5)	150 mg/kg (Mouse)	1420 mg/kg (rat)	-
Mono EthyleneGlycol (107-21-1)	1670mg/kg(Cat)	-	-
CMIT/MIT Mix (3:1) (55965-84-9 / 26172-55-4)	472 mg/kg (rat)	> 1000 mg/kg (rat)	1.23 mg/l (rat – 4h)

Section 12 Ecotoxicological Information

HSNO Classifications: 9.1A = Very Toxic to aquatic life with long-lasting effects,

Environmental Precautions

- Avoid release to the environment
- Collect spillages
- Prevent spillages from entering waterways.

Individual component information (Please refer to www.epa.govt.co.nz for full details):

Benzalkonium Chloride (Cas No 8001-54-5):

Route	Species	Duration	Value LC50/EC50
Acute aquatic, fish	Fathead Minnow (Pimephales promelas)	96 hr	0.28 mg/L
Chronic aquatic, fish	Fathead Minnow (Pimephales promelas)	34 days	0.0322 mg/L
Acute aquatic, Crustacean	Daphnia magna (Water flea)	48 hr	0.0059 mg/L
Chronic aquatic, Crustacean	-	-	-
Acute aquatic, Algal	Scenedesmus pannonicus (Green algae)	72hr (static)	0.08 mg/L
Chronic aquatic, Algal	-	-	-
Bioaccumulative	No		
Rapidly Degradable	Yes		

CMIT/MIT Mix (3:1) (Cas No 55965-84-9 / 26172-55-4):

Route	Species	Duration	Value LC50/EC50
Acute aquatic, fish	Rainbow trout	96 hr	0.22 mg/l
Chronic aquatic, fish	-	-	-
Acute aquatic, Crustacean	Skeletonema costatum	48 hr	0.0052 mg/l
Chronic aquatic, Crustacean	Daphnia magna (Water flea)	48 hr	0.1 mg/l
Acute aquatic, Algal	Pseudokirchneriella subcapitata (Micro algae)	72hr (static)	0.048 mg/l
Chronic aquatic, Algal	-	-	-
Bioaccumulative	No		
Rapidly Degradable	Yes		

Environmental Fate

Boron Compounds
Terrestrial fate: Persistent for one or more years depending on soil type and rainfall. Less persistent in acid soils. In high rainfall areas leaches rapidly.

If released to water, borates may be taken up by plants with toxic effects. Borates are toxic to plants at low levels (eg above 0.001 ppm for sodium borate, 0.5 ppm for boric acid). Calcium may precipitate out some of the borate, but this process will not significantly reduce toxicity to plants. Borates may be toxic to fish above 3000 ppm.

Environmental Biodegradation:
No biotransformation processes have been reported for boron compounds. Borax has been shown to be a mild antiseptic agent with bacteriostatic action.

Environmental Bioconcentration: Accumulates in plants.

Section 13 Disposal Considerations

Dispose of contaminated residues or waste by liaising with a waste disposal company or by disposing at a site approved by relevant local authorities.
Ensure waste container is labelled “Hazardous Waste – Ecotoxic”

Precautions or methods to avoid: Do not allow into drains or water courses. Notify pollution control authorities if material contaminates drains, sewers or waterways.

Regulations:
Dispose of in accordance with the EPA Hazardous Substances (Disposal) Notice 2017.

Section 14 Transport Information

This product is classified as a Dangerous Good for transport in NZ ; NZS 5433:2012

Road and Rail Transport

UN No	UN3082
Class-primary	9
Packing Group	III
Proper Shipping Name	Environmentally Hazardous Substance N.O.S
HAZCHEM Code	3Z

Marine Transport

UN No	UN3082
Class-primary	9
Packing Group	III
Proper Shipping Name	Environmentally Hazardous Substance N.O.S
Marine Pollutant	Yes

Air Transport

UN No	UN3082
Class-primary	9
Packing Group	III
Proper Shipping Name	Environmentally Hazardous Substance N.O.S

Limited Quantities Statement:
If the product's individual container is below 5L/kg, it can be transported as a non-DG as long as the product packaging is still labelled as per DG requirements and the driver is given safety information in accordance with Chapter 3.4 of the UNRTDG.

Under the NZ Land Transport Rule Dangerous Goods 2007 this product must not be loaded into any container alongside food items.
In Schedule 1 of the Rule a maximum of 250 litres may be transported on land as a tool-of-trade, agricultural use or for commercial purposes without a DG endorsement on the driver's license or vehicle placarding (Class 9 PG111)

Section 15 Regulatory Information

EPA approval No. HSR000907
Hazardous Classifications: 6.1D(oral), 6.3A, 6.8B, 8.3A, 9.1A

HSNO CONTROLS
Trigger quantities for this substance

For more information refer to the controls document on EPA website www.epa.govt.nz

HSW (HS) Regulations 2017	**Trigger Quantity**
Certified Handlers	Not required
Location Certificate	Not required
Signage Trigger Quantities (Schedule 3)	100L (9.1A)
Emergency Response Plan (Schedule 5)	100L (9.1A)
Secondary Containment (Schedule 5)	100L (9.1A)
Tracking (Schedule 26)	Not required
HSNO Additional Controls (Restrictions of use)	
77A	No person may use this substance for any purpose other than the treatment of timber.
Hazardous Property Controls Notice 2017	
HPC Notice Part 4 Clause 47	Equipment for class 9 substances must be appropriate
HPC Notice Part 4 Clause 48	Records of application of class 9 pesticides and plant growth regulators
HPC Notice Part 4 Subpart A	Site and storage controls for class 9 substances
Packaging	Refer to Hazardous Substances (Packaging) Regulations 2001
Labelling and advertising	Refer to Hazardous Substances (Labelling) Notice 2017.
Tolerable Exposure Level (TEL)	No TEL set
Environmental Exposure Level (EEL)	No EEL set

Section 16 Other Information

Glossary

EC50 Median effective concentration.
EEL Environmental Exposure Limit.
EPA Environmental Protection Authority
HSNO Hazardous Substances and New Organisms.
HSW Health and Safety at Work.
LC50 Lethal concentration that will kill 50% of the test organisms inhaling or ingesting it.
LD50 Lethal dose to kill 50% of test animals/organisms.
LEL Lower explosive level.
OSHA American Occupational Safety and Health Administration.
TEL Tolerable Exposure Limit.
TLV Threshold Limit Value-an exposure limit set by responsible authority.
UEL Upper Explosive Level
WES Workplace Exposure Limit

References:

1. EPA Hazardous Substances (Safety Data Sheets) Notice 2017
2. Workplace Exposure Standards and Biological Exposure Indices Nov 2017 edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2012
5. HSW (Hazardous Substances) Regulations 2017

Disclaimer

This document has been compiled by TCC (NZ) Ltd on behalf of the manufacturer of the product and serves as the manufacturer's Safety Data Sheet ('SDS'). It is based on information concerning the product which has been provided to TCC (NZ) Ltd by the manufacturer or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer. While TCC (NZ) Ltd has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, TCC (NZ) Ltd accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

The information herein is given in good faith, but no warranty, express or implied is made.
Please contact the New Zealand proprietor, Koppers Performance Chemicals New Zealand, phone 64 9 277 7770, www.kopperspc.co.nz if further information is required.

Issue Date: 20 July 2020 Review Date: 20 July 2025

PERMITS & DECISION

Far North District Council

Private Bag 752, Memorial Ave
Kaikohe 0440, New Zealand
Freephone: 0800 920 029
Phone: (09) 401 5200
Fax: (09) 401 2137
Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

Te Kaunihera o Tai Tokerau Ki Te Raki

The top place where talent wants to live, work and invest

Application No: 3000349-LGA348

25 September 2013

Solid Holdings Ltd
C/- Donaldsons Surveyors
P O Box 211
Kerikeri 0245

Dear Sir/Madam

Re: RESOURCE CONSENT APPLICATION BY Solid Holdings Ltd

I am pleased to inform you that your application for resource consent has been approved. The decision is enclosed for your information. The application was considered and determined under authority delegated to the Team Leader Resource Consents of the Far North District Council, pursuant to Section 34A of the Resource Management Act 1991.

It is very important that you understand and comply with any conditions of consent. If you have any questions or concerns about any aspect of your consent or its conditions, please contact the planner who prepared the decision.

Please note that you will be sent either an invoice or credit note depending on the actual cost of processing your application. Any additional costs shown on an invoice need to be paid by the 20th of the month following the date of the invoice. If you receive a credit note, you have the option of requesting a refund by bank transfer, or transferring the amount to any other Council account. Please advise and supply a printed bank deposit slip and allow 10 working days for the refund to be processed.

If you have any further queries regarding this matter, please contact the reporting Planner.

Yours faithfully

Sharon Tipene
Customer Services Officer - Planning
Environmental Management

Far North District Council

FAR NORTH DISTRICT COUNCIL

DECISION ON RIGHT OF WAY APPLICATION (SECTION 348 OF THE LOCAL GOVERNMENT ACT 1974)

Consent Number: 3000349-LGA348

Pursuant to section 348 of the Local Government Act 1974 (the Act), the Far North District Council hereby grants consent to:

Solid Holdings Ltd

The activity to which this decision relates -

Right of way A is proposed over Lot 5 DP 69740 (CFR NA25C/985) in favour of two title areas, being Lot 1 DP 376253 (CFR 306629), and Lot 2 DP 37653 and Lot 3 DP 343062 (CFR 306630).

Subject Site Details

Address: 1913 State Highway 10, Kerikeri

Legal Description: Servient tenement –

Lot 5 DP 69740 (CFR NA25C/985)

Dominant tenements –

Lot 1 DP 376253 (CFR 306629)

Lot 2 DP 376253 and Lot 3 DP 343062 (CFR 306630)

Decision

THAT pursuant to section 348 of the Local Government Act 1974, Far North District Council grants its permission to the application being 3000349-LGA348 by Solid Holdings Ltd to form a right of way over Lot 5 DP 69740 (CFR NA25C/985) in favour of Lot 1 DP 376253 (CFR 306629), and Lot 2 DP 37653 and Lot 3 DP 343062 (CFR 306630), as shown as right of way A on the approved right of way plan *'Proposed right of way over Lot 5 DP 69740'* prepared by Donaldsons Registered Land Surveyors, reference 6341, dated 15 July 2013, and attached to this consent with the Council's 'Approved Stamp' affixed to it.

This approval is subject to the following conditions:

1. That right of way A shall be formed, kerbed and sealed as detailed on the plan of the *'Proposed right of way over Lot 5 DP 69740'* prepared by Donaldsons Registered Land Surveyors, reference 6341, dated 15 July 2013. The carriageway shall have a minimum sealed width of 8 metres and the corners shall be designed to facilitate the passage of heavy rigid vehicles.
2. Stormwater reticulation shall be completed as per the '*Assessment of stormwater runoff and the capacity of the receiving network*', prepared by Donaldsons Registered Land Surveyors, dated 4 September 2013 and submitted in support of the application. This includes the plan of the '*Stormwater assessment of proposed works on Lot 5 DP 69740 by Solid Holdings Ltd*' prepared by Donaldsons Registered Land Surveyors, reference 6341, dated August 2013, and attached to this consent with the Council's 'Approved Stamp' affixed to it.

And subject to the following conditions as volunteered by the consent holder:

3. CP76 shall be upgraded to Austroads CHL/CHR standard.

4. Following the upgrade of CP76, the consent holder shall provide evidence to the satisfaction of Council's duly delegated officer that all traffic accessing Lot 1 DP 376253 is prevented from using CP77.

5. Following the upgrade of CP76, all traffic accessing Lot 2 DP 376253 and Lot 3 DP 343062 is to be prevented from using CP78.

   Note: Conditions 4 and 5 may require written confirmation that the New Zealand Transport Agency is satisfied that suitable measures have been instigated to ensure on-going compliance.

   Refer to advice note 1 below, with respect to timeframes imposed by RC2130204.

6. That detailed drawings of the crossing place improvements onto State Highway 10 are to be submitted to the New Zealand Transport Agency prior to works commencing. The consent holder shall provide evidence that the New Zealand Transport Agency has approved the plan, with all works thereon completed to their satisfaction.

Advice Notes

1. The decision does not incorporate any right of way proposal over Lot 1 DP 376253 to allow for formal access to Lot 2 DP 376253 and Lot 3 DP 343062. Whilst Council's records indicate that these titles are not as yet held in the same ownership, the right of way plan submitted indicates Waipapa Pine as being the common landowner.

   Information submitted in support of RC2130204 (which relates to Waipapa Pine) indicates that Waipapa Pine's sawmill activities are undertaken on Lot 2 DP 376253 and Lot 3 DP 343062, and Lot 1 DP 376253 has been purchased for access purposes to provide linkage to the proposed right of way. Through RC2130204, Waipapa Pine indicated that they do not propose to create an easement over Lot 1 DP 376253 as they consider this land to be part of their site. They do however acknowledge the consequences if Lot 1 DP 376253 is on-sold and they have not secured their access arrangements. Conditions of RC2130204 require:

   - All traffic from Lot 2 DP 376253 and Lot 3 DP 343062 to access and exit the site via Lot 5 DP 69740 and CP76 (State Highway 10) as of the 1 January 2014.
   - A six metre wide metalled carriageway over Lot 1 DP 376253, with the formation to be constructed to a suitable alignment and standard for the passage of logging trucks, and shall include water table drains and culverts as required to direct and control stormwater runoff.

   An advice note attached to R2130204, highlights that if Lot 1 DP 376253 is subdivided or sold separately from the timber mill operation, the consent holder will need to ensure that the access arrangements continue to comply with the conditions of consent or alternatively further consent may be required to approve any new access arrangements.

   On the basis of this prior assessment and the conditions of RC2130204, the current proposal only has regard to the proposed right of way over Lot 5 DP 69740.

2. The application as initially lodged by Solid Holdings Ltd also sought land use resource consent approval as a discretionary activity to exceed the traffic intensity factor applying within the Rural Production zone (Council reference RC2140028 which has been superceded by 3000349-LGA348), seeking land use consent for an additional 1,400 daily movements (totalling 2,144 to be serviced by the proposed right of way). Whilst this request was subsequently withdrawn on 24 September 2013 for technical reasons,

Council has assessed the proposed right of way as adequate for the purposes of servicing up to 2,144 daily vehicle movements.

The New Zealand Transport Agency has also assessed and supported the right of way proposal on the basis of the easement servicing up to 2,144 daily vehcile movements.

3. Should right of way A later vest in Council, the Council will require RAMM data and as-built plans which comply with Schedule 1D of Council's engineering standards and NZS 44.04:2004.

Approval

This consent has been prepared by Liz Searle (Senior Resource Consents Planner) and is granted under delegated authority (pursuant to section 34A of the Resource Management Act 1991 and Clause 32 of the 7th Schedule of the Local Government Act 2002) from the Far North District Council by:

Lynley Newport, Team Leader Resource Consents

25th September 2013

Date

Lapsing Of Consent

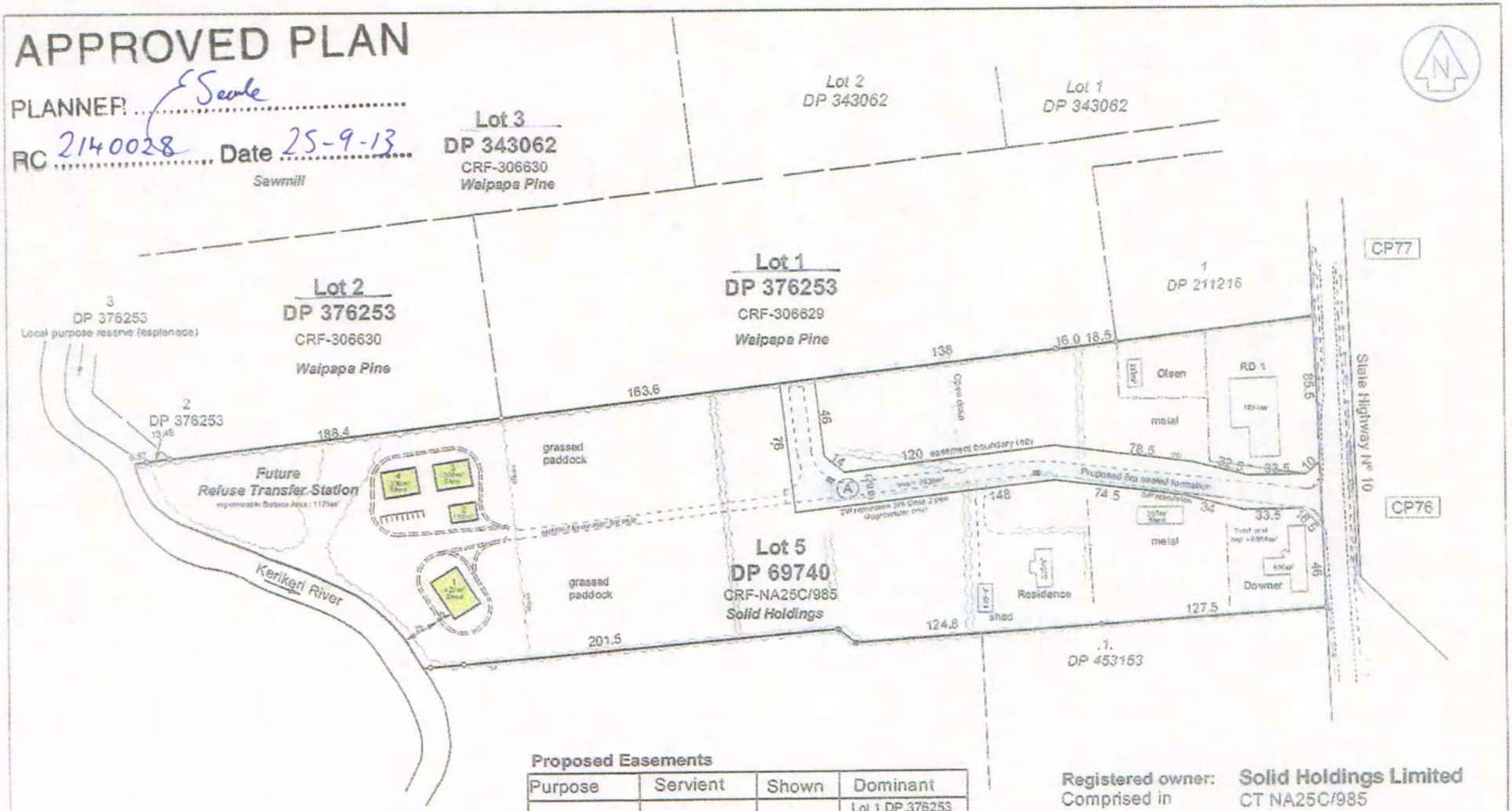
Pursuant to section 348(3) of the Local Government Act 1974, this consent will lapse 3 years after the granting of this consent unless the work has been completed to the satisfaction of the Council; but may from time to time be extended by the Council for a period or periods not exceeding one year at any time.

APPROVED PLAN

PLANNER: E Searle

RC 2140028 Date 25-9-13

Sawmill



Proposed Easements

Purpose	Servient	Shown	Dominant
Right of Way	Lot 5 DP-69740 (CFR NA25C/985)	(A)	Lot 1 DP.376253 (CFR 306629)
			Lot 2 DP.376253 and Lot 3 DP.343062 (CFR 306630)

Registered owner: Solid Holdings Limited
Comprised in CT NA25C/985
Total area 8.9410 ha
Zoned Rural production

Proposed impermeable surface area
Total site impermeable surface area = 13217m² being 14.7%

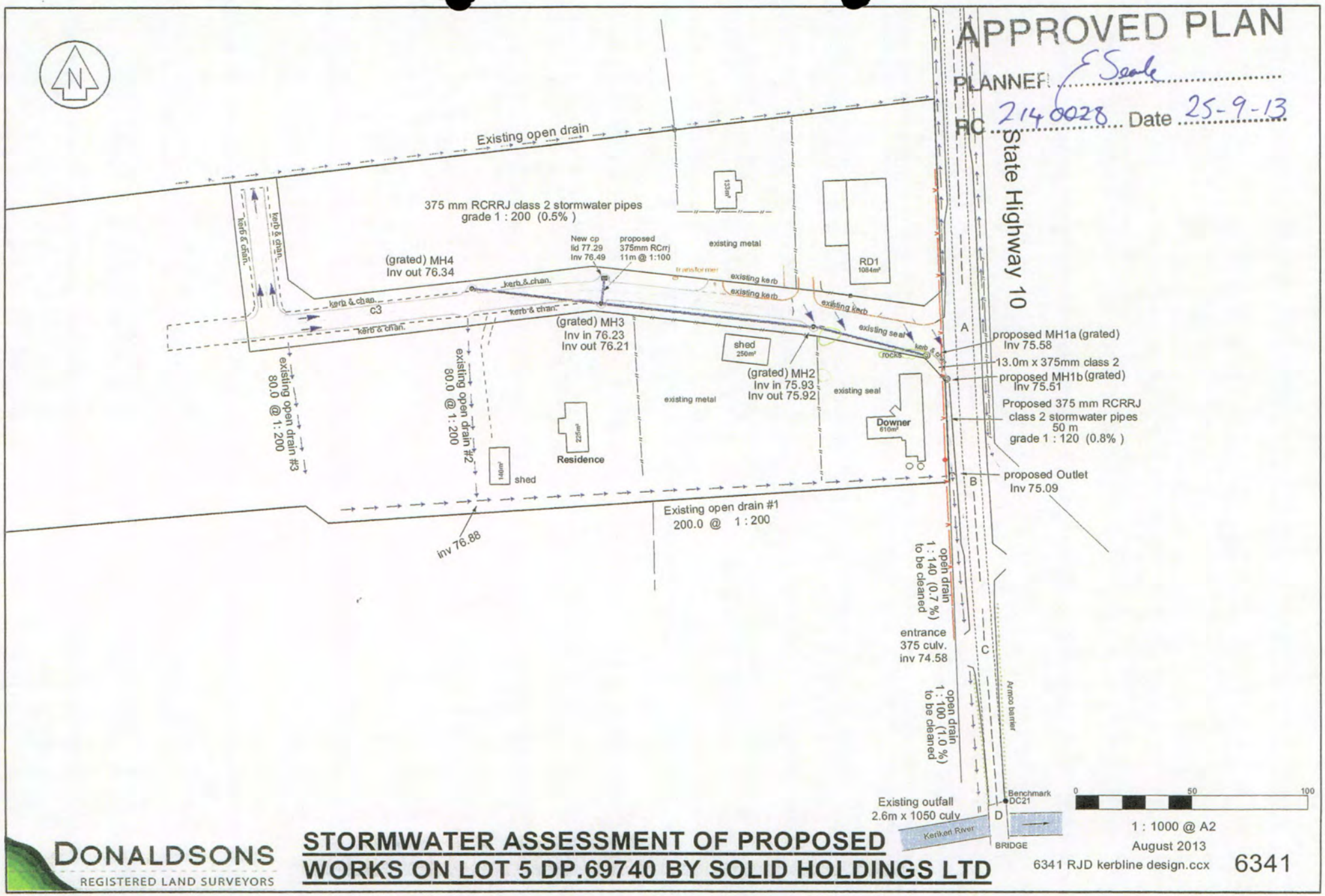
Scale (m)

DONALDSONS
REGISTERED LAND SURVEYORS

Proposed Right of Way over Lot 5 DP 69740

Date 15 July 2013
Scale 1:1500 (A2) 1:3000 (A4)
6341-RoW

Ref 6341



DONALDSONS
REGISTERED LAND SURVEYORS

STORMWATER ASSESSMENT OF PROPOSED WORKS ON LOT 5 DP.69740 BY SOLID HOLDINGS LTD

RECORD OF DECISION ON SECTION 348 RIGHT OF WAY APPLICATION

Participants:
Lynley Newport
Liz Searle

Decision Date: .....
Granted Date: .....
Issued Date:

RMA Number : 3000349-LGA348

RFS Type : Section 348 – new right of way easement

Legal Description : Servient tenement –

Lot 5 DP 69740 (CFR NA25C/985)

Dominant tenements –

Lot 1 DP 376253 (CFR 306629)

Lot 2 DP 376253 and Lot 3 DP 343062 (CFR 306630)

Applicant : Solid Holdings Ltd

Start Date : 29 July 2013

Location : 1913 State Highway 10, Kerikeri

Outcome : Approved

Proposal : Right of way A is proposed over Lot 5 DP 69740 in favour of two title areas, being Lot 1 DP 376253, and Lot 2 DP 37653 and Lot 3 DP 343062.

Issues : Formation standards for number of vehicle movements, stormwater management

Property File	Utilities	Roading	Com Fac	Finance	NZTA	DoC	Projects	Property Co-ordinator
✓					✓			
Monitoring	Env Health	Liq License	Legal	NZHPT	NRC	PIMS	Comm. Brd	Kerikeri Irrigation Co / Doubtless Bay Water Supply Co
✓								

PERMITS & DECISION

Far North
District Council

Private Bag 752, Memorial Ave
Kaikohe 0440, New Zealand
Freephone: 0800 920 029
Phone: (09) 401 5200
Fax: (09) 401 2137
Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

Te Kaunihera o Tai Tokerau Ki Te Raki

The top place where talent wants to live, work and invest

Application No: 2130204-RMALUC

12 August 2013

Waipapa Pine Ltd
Bay of Islands Planning Ltd
PO Box 795
Kerikeri 0245

Dear Sir/Madam

Re: RESOURCE CONSENT APPLICATION BY Waipapa Pine Limited

I am pleased to inform you that your application for resource consent has been approved. The decision is enclosed for your information. The application was considered and determined under authority delegated to the Team Leader Resource Consents of the Far North District Council, pursuant to Section 34A of the Resource Management Act 1991.

It is very important that you understand and comply with any conditions of consent. If you have any questions or concerns about any aspect of your consent or its conditions, please contact the planner who prepared the decision.

Please note that you will be sent either an invoice or credit note depending on the actual cost of processing your application. Any additional costs shown on an invoice need to be paid by the 20th of the month following the date of the invoice. If you receive a credit note, you have the option of requesting a refund by bank transfer, or transferring the amount to any other Council account. Please advise and supply a printed bank deposit slip and allow 10 working days for the refund to be processed.

If you have any further queries regarding this matter, please contact the reporting Planner.

Yours faithfully

Gayle Andersen
Team Leader RMA Support
Environmental Management

Far North
District Council

FAR NORTH DISTRICT COUNCIL

FAR NORTH OPERATIVE DISTRICT PLAN
DECISION ON RESOURCE CONSENT APPLICATION (LANDUSE)

Resource Consent Number: 2130204-RMALUC

Pursuant to section 104B of the Resource Management Act 1991 (the Act), the Far North District Council hereby grants retrospective resource consent to:

Waipapa Pine Limited

For the establishment and operation of a sawmill in a Rural Production Zone.

Subject Site Details

Address:	State Highway 10, Waipapa
Legal Description:	Lot 3 DP 343062, Lot 2 DP 376253 & Lot 1 DP 376253
Certificate of Title reference:	CT-306630 & CT 3066229

Pursuant to Section 108 of the Act, this consent is issued subject to the following conditions:

1. The activity shall be carried out in accordance with the approved plans prepared by:

   - Haigh Workman Civil & Structural Consultants Ltd, referenced Access to Existing Timber Mill, dated 10/07/2013;
   - Land & Survey, referenced Top Plan of WPine Site Waipapa, dated May 2012;
   - Williams & King, referenced Site Plan of Lot 3 DP 343062 & Lot 2 DP 376253, dated July 2009

   all attached to this consent with the Council's "Approved Stamp" affixed to them.

2. The Consent Holder shall provide car parking in accordance with the approved Land & Survey plan, and shall ensure that this parking area is marked, surfaced and drained.

3. All traffic shall access and exit the site via Lot 1 DP 376253, Lot 5 DP 69740 and CP76 (State Highway 10), as of the 1 January 2014.

4. To prevent the continuing use of CP78 (existing access), upon the Consent Holder being able to use the upgraded CP76, they shall install a physical barrier that will prevent vehicles from their site utilising CP78. This shall be done no later than the 6 January 2014.

5. Prior to the use of CP76 the Consent Holder shall provide evidence that a 6m wide metalled carriageway over Lot 1 DP 376253 has been created in general accordance with the approved Haigh Workman plan. The formation of this carriageway shall be constructed to a suitable alignment and standard for the passage of logging trucks and shall include water table drains and culverts as required to direct and control stormwater runoff.

6. The operation of the mill shall only be Monday to Friday, within the hours of 6am to 8pm except dispatch (loading of products onto trucks) is allowed to occur on Saturday within the hours of 8am to 3pm.

7. All activities undertaken shall be conducted to ensure that the noise from the site shall not exceed the following noise limits as measured at or within the boundary of any other site in this zone:

0700 to 2200 hours	65dBA L_{10}
2200 to 0700 hours	45dBA L_{10} and
	70dBA L_{max}

8. Within 3 months of this consent being granted, the Consent Holder shall have re-vegetated all exposed earth bund areas.

9. Within 1 month of this consent being granted, the Consent Holder shall have undertaken maintenance on all existing silt controls mechanisms, and where required repair or replace them to ensure that no silt enters the Kerikeri River from the site.

10. Within 1 month of this consent being granted, the Consent Holder shall metal all hard stand areas to minimise silt mobilization and runoff.

Advice Notes

1. If in the future Lot 1 DP 376253 is subdivided or sold separately from the Timber Mill operation, the Consent Holder will need to ensure that access arrangements still complies with conditions of consent or alternatively further consent may be required to approve any new access arrangements.

Statutory Information

1. Pursuant to section 102 of the Local Government Act 2002, the Far North District Council has prepared and adopted a development contributions policy. Under this policy, the activity to which this consent relates is subject to development contributions.

   You will be advised of the assessment of the development contributions payable under separate cover in the near future.

   It is important to note that the development contributions must be paid prior to commencement of the work or activity to which this consent relates.

   Further information regarding council's development contributions policy may be obtained from the long term council community plan (LTCCP) or council's web page at www.fndc.govt.nz

Reasons for the Decision

1. **Description of the Activity:**
   Retrospective consent for the establishment and operation of a sawmill in a Rural Production Zone.

2. **District Plan Rules Affected:**
   The proposed activity does not comply with permitted activity rules 8.6.5.1.5 (Traffic Intensity), 12.3.6.1.1 (Earthworks), 12.7.6.1.1 (Setback from Rivers) and 15.1.6.1.1

(Parking) of the Operative District Plan and is a discretionary activity in accordance with rules 8.6.5.4 & 12.7.6.3 of the Operative District Plan.

3. Principal Issue[s] in Contention and Main Findings on those Issues:

The principal issue[s] in contention and main finding[s] on those issues were:

Issues:

a) Traffic effects on adjoining properties and State Highway 10;
b) Amenity values, due to the site being located in the Rural Production zone;
c) Effects on the adjoining Kerikeri River in terms of earthworks and impermeable surfaces;
d) Hours of operation in terms of noise.

Main Findings:

a) The applicant modified their application to have the access for the mill operation to be via land they had recently purchased, then via a right of way on a parcel of land that contains other industrial and commercial activities. This enables the mill operation to utilised CP76, which is to be upgraded as per the agreement reached with NZ Transport Agency. The applicant also agreed to stop using the existing access no later than the 1 January 2014. NZ Transport Agency advised that with the change in access that they supported the proposal;
b) After visiting the site and reviewing the surrounding area it was considered that while the zoning of the land is Rural Production, it adjoins land that is zoned Industrial and the majority of surrounding activities are either commercial or industrial, rather than residential or farming activities;
c) The earthworks had already been undertaken and there was already stormwater controls in place and silt control measures. Conditions have been imposed that requires re-vegetating earth bunds, maintaining silt control measures and covering hard stand area with metal. It was considered that this would mitigate any adverse effects on the adjoining Kerikeri River.
d) The applicant offered conditions of consent regarding hours of operation, to address noise effects associated with the operation of the mill during non standard hours of operation. This has been imposed as a condition of consent. The applicant also stated that they would comply with the noise standards of the Rural Production zone, and this has also been imposed as a condition of consent.

4. Relevant Statutory Provisions:

Policy Statements & Plan Provisions:

Due to the location of the subject site and the nature of the proposal it is considered that the most relevant provision is the Far North District Plan.

It was considered the proposal was not contrary to the following objectives and policies:

Objectives:

8.6.3.2 To enable the efficient use and development of the Rural Production Zone in a way that enables people and communities to provide for their social, economic, and cultural well being and for their health and safety.
15.1.3.1 To minimise the adverse effects of transport on the natural and physical environment.
15.1.3.3 To ensure that adequate provision is made for on-site car parking for all activities.
15.1.3.4 To ensure that adequate and efficient provision is made for loading and access for activities.
12.3.3.3 To avoid, remedy or mitigate adverse effects associated with soil excavation or filling.
12.7.3.5 To avoid the adverse effects from inappropriate use and development of the margins of lakes, rivers, indigenous wetlands and the coastline.

Policies

8.6.4.1 That a wide range of activities be allowed in the Rural Production Zone, subject to the need to ensure that any adverse effects, including any reverse sensitivity effects, on the environment resulting from these activities are avoided, remedied or mitigated.
8.6.4.2 That standards be imposed to ensure that the off site effects of activities in the Rural Production Zone are avoided, remedied or mitigated.
15.1.4.1 That the traffic effects of activities be evaluated in making decisions on resource consent applications.
12.3.4.1 That the adverse effects of soil erosion are avoided, remedied or mitigated.

Part 2 Matters
The Council has taken into account the purpose & principles outlined in sections 5, 6, 7 & 8 of the Act. It is considered that granting this resource consent application achieves the purpose of the Act.

5. Notification and Affected Parties
The Council has determined (by way of an earlier report and resolution) that the adverse environmental effects associated with the proposed activity are no more than minor and that there are no affected persons or affected order holders.

6. Overall Evaluation
It was considered that the applicant had demonstrated that the proposal would create no more than minor adverse effects, subject to the change in access and the overall activity is consistent with the sustainable management purpose of the RMA.

Approval
This resource consent has been prepared by Tammy Wooster, Resource Planner and is granted under delegated authority (pursuant to section 34A of the Resource Management Act 1991) from the Far North District Council by:

P.J. Killalea

Pat Killalea, Principal Planner Resource Consents

12th August 2013.

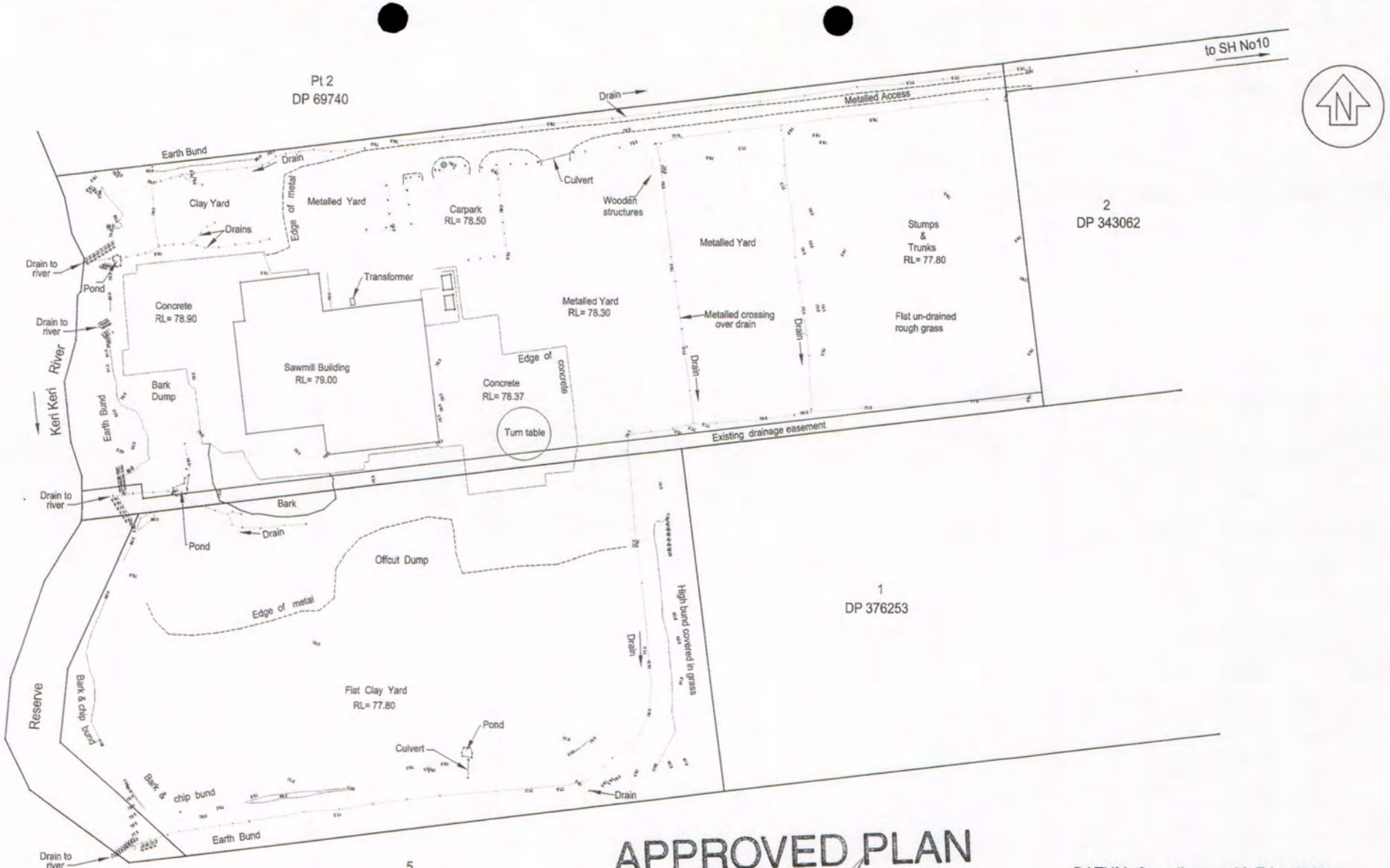
Date

Right of Objection
If you are dissatisfied with the decision or any part of it, you have the right (pursuant to section 357A of the Resource Management Act 1991) to object to the decision. The objection must be in writing, stating reasons for the objection and must be received by Council within 15 working days of the receipt of this decision.

Lapsing Of Consent
Pursuant to section 125 of the Resource Management Act 1991, this resource consent will lapse 5 years after the date of commencement of consent unless, before the consent lapses;

The consent is given effect to; or

An application is made to the Council to extend the period of consent, and the council decides to grant an extension after taking into account the statutory considerations, set out in section 125(1)(b) of the Resource Management Act 1991.



APPROVED PLAN

PLANNER D.R.Wood

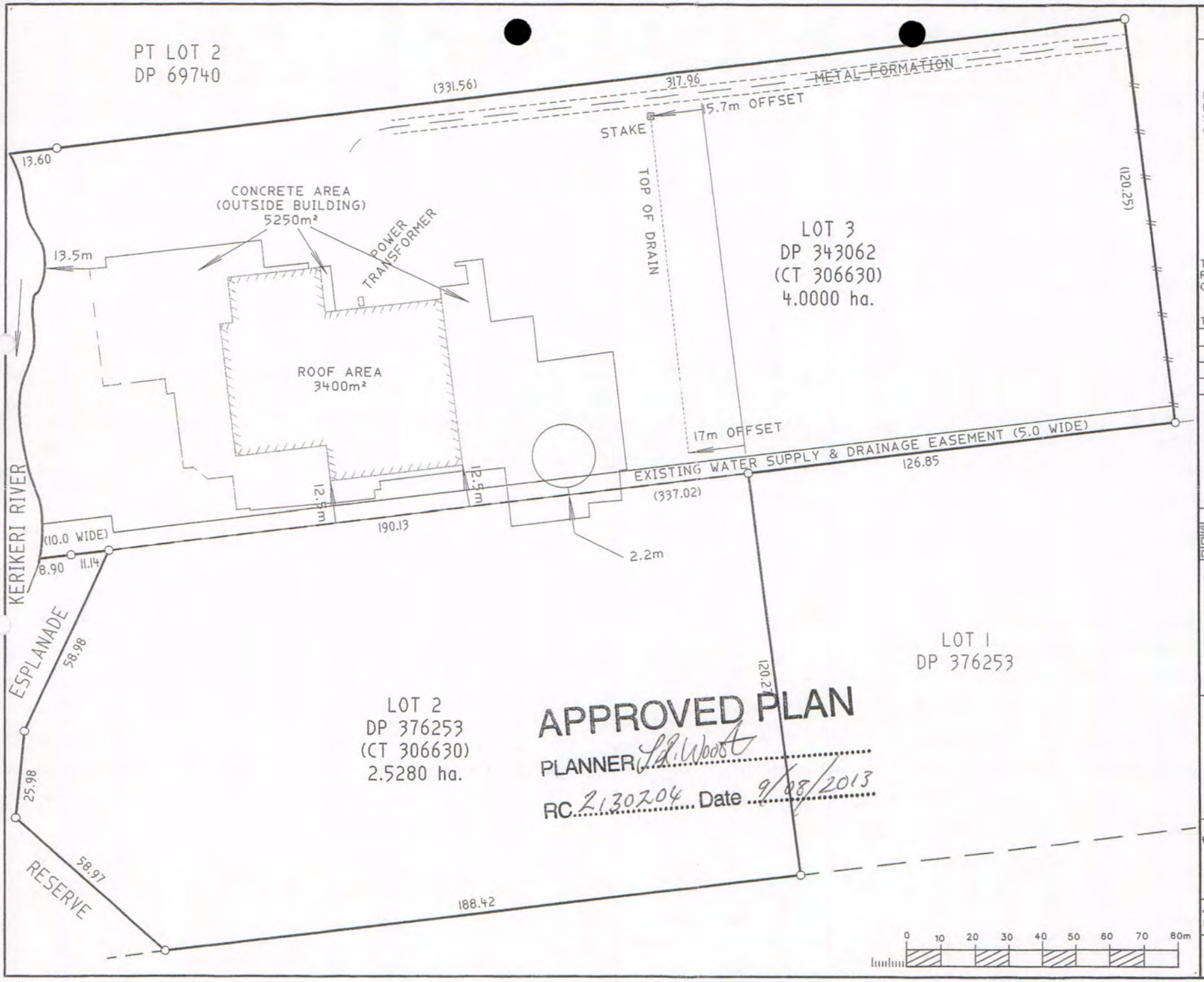
RC 2130204 Date 9/08/2013

DATUM Co ordinates - Mt Eden 2000
Heights - One Tree Point

lands & survey
LAND & ENGINEERING SURVEYORS
RESOURCE MANAGEMENT CONSULTANTS
CADASTRAL & TOPOGAPHICAL MAPS
TOURIST & AERIAL MAPS
GPS & SPATIAL INFORMATION SERVICES
WHANGAREI PO Box 744, 33 Clyde Street, Tel 09 438 7558 Fax 09 438 4327
DARGAVILLE (Visit) 97 Victoria Street, Tel 09 439 8034 Fax 09 439 8997
(Incorporating HODGES & ELRICK LTD)

Topo Plan of WPine Site Waipapa

PREPARED FOR	Gwilym Enviromental Services		SHEET 1
DRAWN PNM	CHECKED PNM	SCALE 1:1000 (A2)	SERIES OF 1 of 1
TRACED LJR	DATE May 2012		REF 9015/1/1/A



GENERAL NOTES

LOT 3 DP 343062 & LOT 2 DP 376253 ARE HELD IN THE SAME CERTIFICATE OF TITLE (CT 306630)

TOTAL IMPERMEABLE SURFACE
ROOF AREA = 3400m² +
CONC AREA = 5250m²
= 8650m²

TOTAL AREA = 6.5280 ha.

AMENDMENTS

	Name	Date
Surveyed	KW	JUL 09
Designed		
Drawn	KW	JUL 09

JOB/CLIENT:

Bay Lumber Limited
WAIPAPA

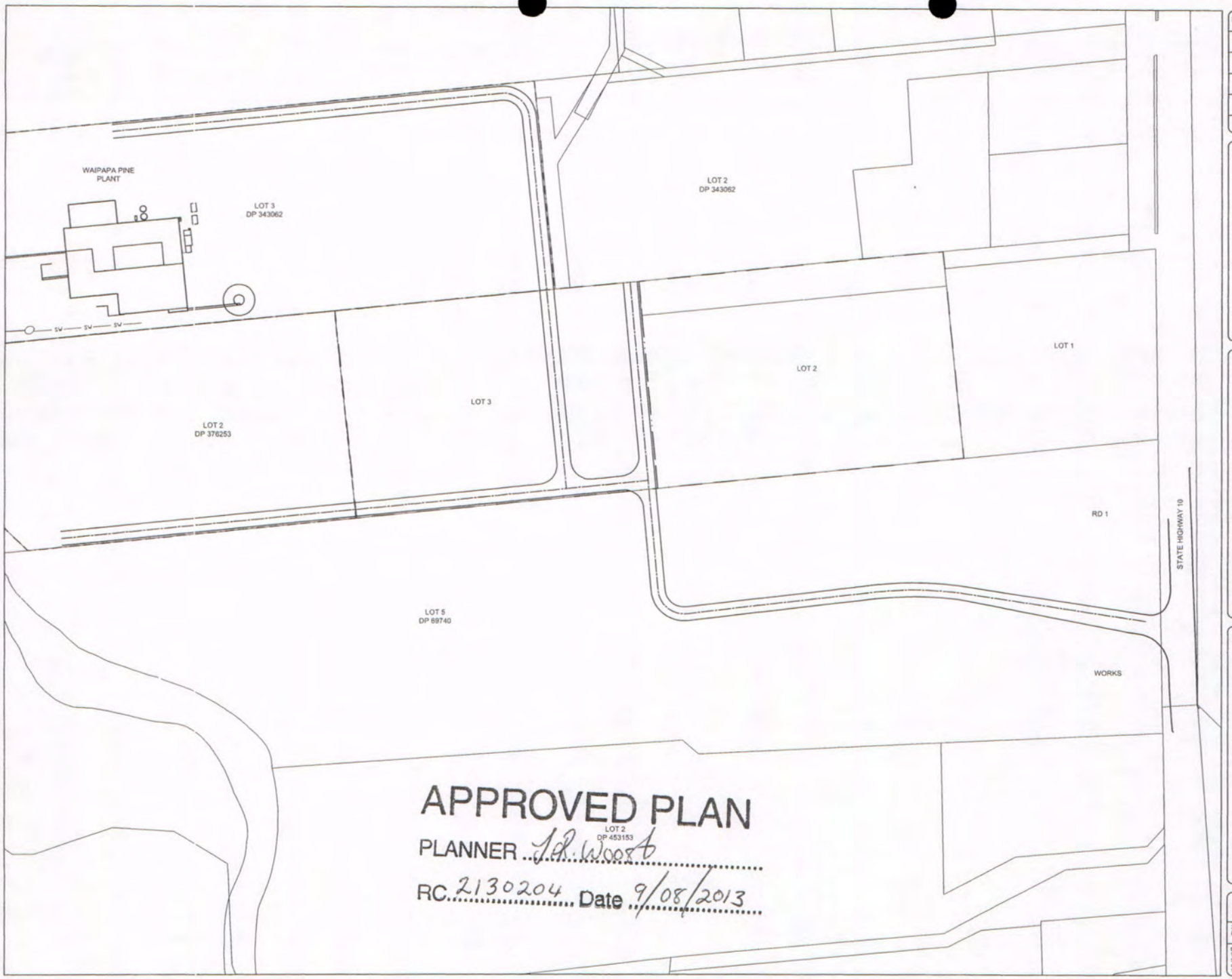
SHEET TITLE:

SITE PLAN OF
LOT 3 DP 343062 &
LOT 2 DP 376253
(CT 306630)

Williams & King
Registered Land Surveyors, Planners & Land Development Consultants
27 Hobson Ave
PO Box 937, Kerikeri
Tel: 09-407 6030 Fax: 09-4076032
Email: kerikeri@surveyandplanning.co.nz

Job No: 20606
File: TOPOGRAPHICAL PLAN 1-1000@A3

SCALE @ A3	SHEET No
1:1000	1/1



APPROVED PLAN

PLANNER ..J.R. Woodb.....

RC..2130204.... Date ..9/08/2013....

Issue	Date	Revision

Note

DWG

Access to Site Plan

Scale	1:500 @A3
DWG No.	P1
Sheet No.	1 of 1
Date	10/07/2013
Approved	
Checked	PW
Drawn	AP
File Name	Z:\HW FILES\12 JOBS\12 102 WAIPAPA PINE LTD\DRAWINGS\130716 ACCESS TO SITE.DWG

Project

Access to Existing Timber Mill

Client

Waipapa Pine Ltd.

Project No. 12 102

Consent No.

HAIGH WORKMAN
CIVIL & STRUCTURAL CONSULTANTS LTD.
310 Butler Road, Kerikeri, BOI.
T: 09 407 8327
F: 09 407 8378
E: info@haighworks.co.nz

Printed by Andy Peck at 11/07/2013 8:32:08 a.m.

RECORD OF DECISION ON RESOURCE CONSENT APPLICATIONS

Participants:
Pat Killalea, Rex Shand
Tammy Wooster

Decision Date:
Granted Date: 12/08/13
Issued Date:

RMA Number	2130204-RMALUC
RFS Type	Land Use
Legal Description	Lot 3 DP 343062, Lot 2 DP 376253 & Lot 1 DP 376253
Val. No.	00213-13700
Applicant	**Waipapa Pine Limited**
Start Date	12 February 2013
Location	State Highway 10, Kerikeri
Hearing Date	n/a
Activity	Discretionary
Outcome	Approved
Zone	Rural Production
Area of Site	6.856ha
Proposal	retrospective consent for the establishment and operation of a sawmill in a Rural Production Zone
Issues	Refer to s3 of the report

Property File	Sewerage	Roading	Com Fac	Finance	NZTA	DoC	Policy	Property Co-ordinator
✓								
Monitoring	**Env Health**	**Liq License**	**Legal**	**NZHPT**	**NRC**	**PIMS**	**Comm Brd**	**Doubtless Bay Water Supply Co.**
✓								

Gayle Andersen

From: Gayle Andersen
Sent: Monday, 12 August 2013 3:29 p.m.
To: 'BOI Planning'
Subject: FW: RC 2130204 Decision - Waipapa Pine
Attachments: 12082013152345-0001.pdf

Good Afternoon

Please find attached a copy of the decision for the above referenced resource consent application. The original will be forwarded via post.

Should you have any queries please contact Tammy Wooster who was the reporting planner.

Kind Regards

Gayle Andersen
Team Leader RMA Support
Environmental Management
Ph. 09 401 5200 or 0800 920 029

PERMITS & DECISION

Far North District Council

FAR NORTH DISTRICT COUNCIL

FAR NORTH OPERATIVE DISTRICT PLAN
DECISION ON RESOURCE CONSENT APPLICATION (LANDUSE)

Resource Consent Number: 2150320-RMALUC

Pursuant to section 104B of the Resource Management Act 1991 (the Act), the Far North District Council hereby grants resource consent to:

Waipapa Pine Ltd

The activities to which this decision relates include:

The use and expansion of an existing sawmill business as described within the application and including the following :

- **Saw mill operations (processing timber) Monday to Friday from 7.00am to 10.00pm and 7.00am to 7.00pm Saturday and Sunday;**
- **Other activities which do not involve the processing of timber including maintenance and monitoring of plan and machinery, site security and the operation of the boiler and kiln on Monday to Friday from 10.00pm to 7.00am the following day and 7.00pm to 7.00am the following day on Saturday and Sunday;**
- **Installation and use of two bunded timber treatment facilities using boron and an anti-sapstain product known as Antiblu;**
- **Transgression of those permitted activity rules detailed within the application including stormwater, traffic intensity, noise, scale of activity, parking and storage of hazardous materials;**
- **Construction of the stormwater management system incorporating bunds and detention ponds requiring earthworks with a volume of up to 10,000m3;**
- **The use, maintenance, operation and refuelling of the boiler and kiln; and,**
- **Dispensation from a requirement to provide an Esplanade Reserve.**

Subject Site Details

Address:	Current access is located at approximately 1945 State Highway 10, south of Waipapa
Legal Description:	Lot 3 DP 343062 and Lot 2 DP 376253 held in Identifier 306630 and Part of Lot 1 DP 376253. Lot 5 DP 69740 provides the new access to the mill site and operations.
Certificate of Title reference:	CT-306630, CT-306629

Pursuant to Section 108 of the Act, this consent is issued subject to the following conditions:

1. The activity shall be carried out in accordance with the approved plans and reports as detailed below and which are attached to this consent with the Council's "Approved Stamp" affixed to them:
    - Proposed Site Layout Plan; Layout 101 Rev F dated 29/11/15;

- Proposed Site Layout Plan; Layout 101 Rev D – Elevation detail and Soil deposit area dated 30/04/14;
- Stormwater Management Plan Issue A, dated 03/10/2014, Sheets 1-11 by Haigh Workman Consultants;
- Environmental Noise Assessment by Design Acoustics Auckland Limited, dated 26th January 2016; and the,
- Planning Report and Assessment of Environmental Effects dated February 2016 prepared by Bay of Islands Planning Limited.

2. The Consent Holder shall provide the additional car parking area in accordance with the approved Haigh Workman plan No PP1 entitled Proposed Plant Expansion – Waipapa Pine Limited, Project 12 102, dated 03/10/2014. The parking shall be completed in an all weather surface, suitably marked and drained accordingly. The required carparking shall be completed within 6 months of this decision.

3. Crossing Point 78 [CP78] may continue to be used until such time as the New Zealand Transport Agency have approved and authorised Crossing Point 76 [CP 76] as having meet their requirements and the Right of Way access (over Lot 5 DP 69740) has been registered on the title[s] of the application site.

4. Within six months of the application site being legally entitled to use CP76 in accordance with Condition 3, the Consent Holder shall erect a physical barrier that will prevent vehicles from using CP78. This barrier shall be erected along the eastern boundary of Lot 2 DP 343062 where the existing vehicle access is attained within Easement B shown on DP 343062.

5. The consent holder shall complete construction and formal landscaping of the following components within 6 months of this decision:
   - the earth bunds;
   - the stormwater management system in accordance with the approved plans; and,
   - re-vegetation of the earth bunds in general accordance with the plans provided. Temporary mulching or other suitable ground cover shall be applied to achieve total ground cover from any areas left bare or unprotected for more than one month.

6. For the purpose of ensuring effective slope stability, and to enable effective placement of topsoil, no fill batters shall be steeper than 1:3 (vertical:horizontal), and no cut batters shall be steeper than 1:2 (vertical:horizontal) unless retained by appropriately designed retaining structures. The Consent Holder shall monitor the as-built slopes and take all necessary actions to ensure their on-going stability.

7. Provide confirmation from a Chartered Professional Engineer (within one month of its completion) that the extended car park area, stormwater system, and earth bunds as detailed within conditions 2 & 5 have been completed in accordance with the approved design specifications. For the purposes of stormwater the design and works is to be completed by a Chartered Professional Engineer qualified in stormwater design and that a PS1 Design Certificate be provided.

8. All exterior lighting required for night time operations shall be directed away from the boundaries of adjoining sites, roads, and public places.

9. The Consent Holder shall ensure that the activities undertaken do not result in noise levels exceeding the following noise limits unless otherwise specified as measured at

or within the boundary of any other zone or the or within the notional boundary of any dwelling existing at the date of commencement of this consent:

(a) Monday to Friday from 7.00am to 10.00pm and 7.00am to 7.00pm Saturday and Sunday - 65dBA L_{10} for saw mill operations involving the processing of timber except that the maximum noise level shall not exceed 70dBA on the boundary with Lot 5 DP 69740;
(b) Monday to Friday from 10.00pm to 7.00am the following day and 7.00pm to 7.00am the following day on Saturday and Sunday - 45dBA L_{10} for any other activities (not involving saw mill operations) except that the maximum noise level shall not exceed 46dBA on the boundary with Lot 2 DP 69740;
(c) 70 dBA $L_{max.}$

10. The Consent Holder shall, subject to any Worksafe New Zealand requirements, replace on all mobile equipment/ vehicles (operating outside of a building) the reverse beepers with flashing strobe lights to warn of potential hazards.

Advice Notes

1. Archaeological sites are protected pursuant to the Heritage New Zealand Pouhere Taonga Act 2014. It is an offence, pursuant to the Act, to modify, damage or destroy an archaeological site without an archaeological authority issued pursuant to that Act. Should any site be inadvertently uncovered, the procedure is that work should cease, with the Trust and local iwi consulted immediately. The New Zealand Police should also be consulted if the discovery includes koiwi (human remains). A copy of Heritage New Zealand's Archaeological Discovery Protocol (ADP) is attached for your information. This should be made available to all person(s) working on site.

2. An application under section 348 of the Local Government Act should be applied for to secure access over Lot 5 DP 69740 in favour of the application site.

3. Whilst not part of the resource consent conditions the Consent Holder shall adopt all reasonable and practicable measures to ensure that risks associated with the storage, transportation and management of hazardous substances to be used at the timber mill are mitigated to the degree practicable and that the requirements of the Hazardous Substances and New Organisms Act 1996 ("HSNO") and HSNO regulations are complied with. This is to include the applicable monitoring and reporting regime required under the regulations.

REASONS FOR THE DECISION

1. Description of the Activity:

The application seeks consent for the proposed expansion of an existing sawmill operation located south of the Waipapa township. The current operation was consented under RC 2130204 and a number of conditions were imposed with respect to that consent. The details of the proposed expansion and related activities to which this consent relates are as follows:

The use and expansion of an existing sawmill business as described within the application and including the following:

- *Saw mill operations (processing timber) Monday to Friday from 7.00am to 10.00pm and 7.00am to 7.00pm Saturday and Sunday;*

- *Other activities which do not involve the processing of timber including maintenance and monitoring of plan and machinery, site security and the operation of the boiler and kiln on Monday to Friday from 10.00pm to 7.00am the following day and 7.00pm to 7.00am the following day on Saturday and Sunday;*
- *Installation and use of two bunded timber treatment facilities using boron and an anti-sapstain product known as Antiblu;*
- *Transgression of those permitted activity rules detailed within the application including stormwater, traffic intensity, noise, scale of activity, parking and storage of hazardous materials;*
- *Construction of the stormwater management system incorporating bunds and detention ponds requiring earthworks with a volume of up to 10,000m3;*
- *The use, maintenance, operation and refuelling of the boiler and kiln; and,*
- *Dispensation from a requirement to provide an Esplanade Reserve.*

The application details and defines what "sawmill operations" and "other operations" include. The specific components can be found within the applications' planning report and assessment of effects, and also within the noise report. References to these documents should be made in reviewing what activities and operations fall within each definition.

2. District Plan Rules Affected:

In considering the above application proposal the following rules are considered to be breached or applicable to the application for the expansion of the saw mill activities on the site.

8.6.5.1.3	Stormwater management – permitted level of 15% exceeded
8.6.5.1.5	Traffic Intensity – permitted 60 TIF's per day exceeded
8.6.5.1.7	Noise levels exceed the permitted standard at the boundary
8.5.5.1.11	Scale of Activity rule breached
8.6.5.2.1	Stormwater management – Controlled level of 20% exceeded
8.6.5.3.1	Traffic Intensity – restricted discretionary level of 61-200 TIF's per day is exceeded
8.6.5.3.5	Noise – Restricted Discretionary
12.3.6.1.1	Excavation and/ or filling – 5000m3 max per 12 months exceeded
12.8.6.1.1	Hazardous substances – exceeds the permitted ratio of less than or equal to 0.75 as defined within the plan for the rural production zone – discretionary
15.1.6.1.1	Parking provision not met – parking shortfall
14.6.1(a)(iii)	Esplanade waiver sought under this section

The application is overall considered to be a Discretionary activity.

4. Principal Issues in Contention and Main Findings on those Issues:

The principal issues in contention and main findings on the issues were as follows:

(a) Issues

- Rural Character, amenity, and Landscape
- Parking
- Stormwater management
- Earthworks

- Access
- Operational hours
- Noise
- Hazardous substances
- Esplanade waiver

(b) Main Findings

Rural Character, amenity, and Landscape

The site itself and the immediate area adjoining the site has the appearance of an industrial area located on the fringe of an broader industrial and rural servicing area. This change of land use (for the general area) from a rural emphasis has occurred with the establishment of industrial type activities and farm service uses within the immediate area. Some activities have occurred "as of right" having met the permitted standards for the Rural Production zone whilst other activities have provided sufficient evidence to conclude that effects from the operations will be not more than minor and that resource consent could be given. The current saw milling operation having sought and obtained resource consent for the current level of operations is one such example.

The zoning of the land is Rural Production and this zoning traverses the river where rural activities continue to occur with pastoral grazing prevalent and built form limited. Indispersed within this general area with an industrial emphasis are a number of residences on rural farms or smaller properties. The area is considered to be an evolving area currently zoned rural production but with an industrial emphasis.

It would be incorrect to assume that this site is typical of the rural environment but it is equally difficult to define a typical rural environment particularly given the extensive areas of the district it covers array of different patterns of development. It is however necessary that the activities characteristics within this industrial type area blend into the immediate area without compromising the rural environment adjacent to the site.

Council prepared Plan Change 15 in response to this change which seeks to control some of the industrial type uses which have evolved within the rural production zone and which have not got a distinctive need to be located there. For some industrial uses the plan change recognises a need to be within the rural environment. Processing of rural produce such as saw milling could be one example of this.

The site is surrounded by earth bunds and has perimeter vegetation on the western and southern boundaries. The eastern and northern boundaries are not screened and are open to the more industrial uses which occur on those sites.

Amenity values associated with rural character bring more subjective elements into consideration and not only deal with potential visual effects but also can be influenced by lighting, noise, dust, and traffic movements and other operational aspects. Noise, traffic and operational aspects are addressed in more detail later within this report.

It is considered that the visual effects of the plant and operation can be mitigated and that the river offers a natural barrier to these industrial type uses. Light glow from night time activities could affect rural amenity values however there are a number of additional contributors to this including the retail centres located further north of the site and general security lighting for nearby sites. Usual requirements such as directing lighting away from adjoining properties can be imposed and will assist in reducing potential effects from onsite lighting.

Dust can be managed on site through effective management of the respective onsite contributors. There was little evidence of fine material (which can increase dust)

within high usage areas although exposed earth bunds will need to be addressed with landscaping and mulch as required.

These effects are considered to be not more than minor and can be conditioned as required.

Parking

The original resource consent application (RC 2130204) proposed 36 car spaces in lieu of the required 70 spaces as required within the district plan. The dispensation for the 34 parking space shortfall was approved as part of that consent.

The applicant advises that the current number of parking required based on the formula detailed within the district plan is 201 spaces. It is noted that although up to 59 staff will be employed by the operations the maximum number of staff on site at any one time will be 28. It is contended within the application that the current supply of parking is sufficient and that no additional spaces are required in their opinion for the expanded operations.

In justifying the proposed supply it is noted that some staff car pool to work and that the provision of additional spaces could be achieved without any real difficulty within the site. Council considered whether this required a review clause under s128 and associated with the parking provision. In this regard I do not consider this necessary given the location of the parking spaces and the office.

With the subject site being located down a long right of way (this applies to both the current access and the future access points) it is not considered that parking would impact on the State Highway 10.

It is recognised that the high car parking figure is calculated using the size of the existing and proposed buildings rather than the staffing numbers or number of visitors to the site.

The parking area on the date of the site visit was well used and nearly full however any overflow would not affect other neighbouring lot owners. It is considered that the existing parking area, which can provide 36 parking spaces, can cater for the parking demand. It is recognised that the District Plan Appendix 3C has determined a figure that is not warranted for the type of activity being proposed by the applicant. It is not considered that this parking shortfall will adversely impact on any adjoining sites.

Councils Resource Consents Engineer has advised that based on the plans provided that there are 36 parking spaces available. The Engineer has also advised that not providing the required 201 car spaces will not adversely impact on adjoining properties. Standard parking conditions should be imposed within the decision.

It is considered that the proposed car park dispensation does not result in more than minor effects, due to the applicant providing 36 car parks, which will provide for the existing staffing numbers and any visitors to the site. Any overflow would result in effects that are contained within the site with little or no effects on adjoining lot owners. Changes to future parking demand will be able to be accommodated on site without adverse effects. It is considered that the effects of the parking shortfall are minor and that there is no requirement necessary for a s128 review clause relating to parking.

Stormwater management

Up to 80% of the site is to be covered by impermeable surfaces including buildings and the metalled yard. Although this percentage is significant and high in the context of the Rural Production Zone, the immediate area is more representative of an industrial area where up to 100% site coverage is possible. In this respect

immediately adjoining sites to the north enjoy the ability to have 100% site coverage. The stormwater measures proposed are considered to be satisfactory and Council's Resource Consents Engineer raises no concerns over the extent of the stormwater management controls proposed. The proposed stormwater ponds and earth bunds (and other minor components) will adequately deal with any onsite runoff. Northland Regional Council have issued consents for the stormwater works and confirm that such effects on the environment would be considered to be not more than minor.
The stormwater effects resulting from the proposal can be adequately dealt by the proposed design and associated conditions of consent.

Earthworks

The proposal involved additional earthworks exceeding the permitted standards within the district plan. These works will expand the existing bunds created under the earlier resource consent application. The bunds assist in screening parts of the existing buildings from the adjacent farmland (complimenting the existing boundary vegetation) and provide the basis for its primary role as stormwater management and to a lesser extent noise mitigation.
The earth bunds themselves do not in my opinion result in any adverse visual effects, as the site does not have high amenity. The earth bunds as previously noted assist in helping to screen the activities taking place on the site.
Councils Resource Consents Engineer has advised that all the earthworks should be re-vegetated where this has not yet occurred and that while there are silt controls in place they need to be maintained or replaced to ensure that silt management on the site are operating efficiently. The Engineer has also recommended a condition that requires all hard stand areas to be metalled to minimise silt mobilisation and runoff.
It is considered that subject to those conditions being imposed that the any adverse effects associated with the earthworks that have taken place will be no more than minor.

Access

The site obtains its current access off State Highway 10 via a shared right of way. This portion of State Highway is a Limited Access Road, and the entranceway is within the broader Waipapa industrial/business area. As previously noted this access is not the intended future access and is required to be barricaded as detailed within conditions of RC 2130204. The new access is via the "Solid Holdings" site (Lot 5 DP 69740). The legal right to use this access is almost complete and formation to the application site has already been completed.

The applicant is not proposing to create an easement over the newly purchased lot (Lot 1 DP 376253), as their agent has advised that they now consider this land to be part of the site. The applicant has advised that if the applicants sells this land it will only adversely impact on them if they do not secure access arrangements. It has also been indicated that the long term plans are to subdivide this lot into two titles. It is considered that conditions of consent should refer to access being provided over this land and that if the land is to be sold a right of way will be required.

To facilitate the access over the Solid Holdings land this landowner has applied for and granted a right of way application (RC 2140028) and it has been agreed to upgrade the existing vehicle crossing that adjoins the State Highway.

The NZ Transport agency has not commented specifically on this new land use proposal but did comment on earlier proposals and advised that they are not opposed to this application based on the new access arrangements.

Their letter at the time stated the following:

- *NZTA supports the Waipapa Pine/Solid Holdings joint access proposal using an upgraded CP76;*
- *NZTA will allow the ongoing use of CP78 by Waipapa Pine Ltd until 1 January 2014 (when CP 76 will be upgraded);*
- *NZTA is currently working with John McLaren of Haigh Workman to reach agreement on the upgrade design for CP76*

In a previous letter of support they advised that there approval was given based on CP78 being closed upon the upgrade of CP76. However Council advised NZTA that this crossing was being used by other landowners and that Council was not aware of any alternative access being provided for those properties. NZTA has now advised that the issues around the status of CP78 and the construction standard of CP78 will be dealt with by NZTA as a separate matter.

The applicant has advised that a physical barrier will be created to prevent traffic from continuing to use the current access arrangement. Conditions of consent for RC 2130204 required the applicant to cease using CP78 by 1 January 2014 and that their access shall be available only via CP76. Clearly this requirement has not been achieved but progress has been made on achieving this requirement.

Councils Resource Consents Engineer previously recommended conditions of consent regarding the carriageway formation on the new land purchased by the applicant that will provide a linkage to the right off way located on Solid Holdings land. The RC Engineer has also confirmed conditions of consent regarding not using the new access until NZTA have confirmed the required upgrading has been undertaken.

The traffic movements which occur as a result of the proposed expanded operation using the formula within Appendix 3A equates to just over 500 traffic movements. This number is far greater than actual numbers but the composition and timing of traffic movements will be slightly different to existing activities on site and also to those which surround the site.

The applicant proposes to operate the saw mill 7 days per week as detailed within the application. The saw mill operations will occur during daytime hours and defined as 0700 to 2200 Monday to Friday and 0700 to 1900 for Saturday and Sunday. Other activities which do not involve the processing of timber including maintenance and monitoring of plan and machinery, site security and the operation of the boiler and kiln on Monday to Friday from 10.00pm to 7.00am the following day and 7.00pm to 7.00am the following day on Saturday and Sunday.

Considerations such as noise, headlight impacts, and frequency and number of traffic movements will need to be considered for evening and night time use of the site.

The future route taken by the trucks has been considered and will result in noise generated within an area with reasonably low back ground levels. Noise considerations are assessed in greater detail later within this report.

Due to the new access arrangements and refined operational elements, it is considered that adverse effects associated with traffic movements during day time hours (as defined within the plan) are not more than minor. The effects on neighbouring properties are considered to be less than minor.

Operational hours

The revised proposal (as described within the Planning Report and Assessment of Environmental Effects dated February 2016 prepared by Bay of Islands Planning Limited) modifies the current consented hours of operation to those described within Condition 6 of RC 2130204. Since the lodgement of the application and original consideration of a more intensive application at least one commercial/ industrial premise operates 24 hours per day and there are many which have no operation

hours or restrictions. The land located immediately to the north of the site has no restrictions on hours and nor does the Rural Production zone per se. Strictly speaking hours of operation are not subject to any rules and therefore generally not considered to be an issue.

There are however differences in levels of noise and associated amenity levels within the zone. The noise assessment addresses this in much greater detail. The following activities have been refined since originally lodged to reflect changes in noise levels and to reflect related expectations within the zone. The following operations achieve this requirement in my opinion.

- Saw mill operations (processing timber) Monday to Friday from 7.00am to 10.00pm and 7.00am to 7.00pm Saturday and Sunday;
- Other activities which do not involve the processing of timber including maintenance and monitoring of plan and machinery, site security and the operation of the boiler and kiln on Monday to Friday from 10.00pm to 7.00am the following day and 7.00pm to 7.00am the following day on Saturday and Sunday.

The activities detailed above are considered to result in effects that are not more than minor on the immediate environment.

Noise

The application activities and operations have (since originally lodged) been changed and refined in an attempt to match the noise rules within the Rural Production zone. The resultant changes mean that the saw mill operations (as defined earlier within the application) will occur during "day time hours" and other operations (as defined) will occur during night time hours.

Council originally engaged Marshall Day Acoustics to review the resource consent application and in particular consider the noise report prepared for the proposed sawmill expansion and with particular emphasis on the proposed additional hours of operation. This resulted in further consideration of matters and more robust assessment. Council's original concerns were reviewed and resulted in an amended application together with additional noise assessments including background readings and testing.

A noise assessment was undertaken and tests completed during normal operations and for a defined period of time as detailed within the report. The data was collected and assessments completed with the outcomes detailed within the Environmental Noise Assessment prepared by Design Acoustics Auckland Limited which is dated 26th January 2016. This report identified and confirmed breaches of the noise rules for the zone and resulted in the applicant obtaining written approvals from two affected persons. The two properties on which the noise rules were breached are incorporated into the proposed conditions of consent. The operational noise breaches related to two sites and relate to both daytime and night time noise standards.

The condition recommended reads:

The Consent Holder shall ensure that the activities undertaken do not result in noise levels exceeding the following noise limits unless otherwise specified as measured at or within the boundary of any other zone or the or within the notional boundary of any dwelling existing at the date of commencement of this consent:

a) *Monday to Friday from 7.00am to 10.00pm and 7.00am to 7.00pm Saturday and Sunday - 65dBA L_{10} for saw mill operations involving the processing of timber except that the maximum noise level shall not exceed 70dBA on Lot 5 DP 69740.*

b) *Monday to Friday from 10.00pm to 7.00am the following day and 7.00pm to 7.00am the following day on Saturday and Sunday - 45dBA L_{10} for any other activities (not involving saw mill operations) except that the maximum noise level shall not exceed 46dBA on Lot 2 DP 69740;*

c) *70 dBA $L_{max;}$;*

In addition to the operations and impacts on immediately adjoining properties a review was also undertaken on three residences located within the general area. Two residences had previously raised a number of concerns relating to current operations. The Noise Assessment prepared by Design Acoustics Auckland Limited went into great detail to confirm the likely readings at these properties using modelling and additionally provided background readings. The report re-confirmed that although activities from the sawmill operations would be audible to these residences the noise generated was recorded as below the permitted thresholds. This assessment was completed using industry standards for noise assessment and taking into account the allowable noise limits as prescribed within the district plan.

The applicant did acknowledged several of the concerns including the removal of beepers (as allowed by Worksafe New Zealand requirements) and provided clarification over the daytime and nigh time operations.

Notwithstanding the rules of the plan and the securing of written approvals of neighbours where noise rules are breached Council could consider the development in terms of s16 of the Act.

The noise report identified breaches on two boundaries from which written approval has been obtained. Beyond these two properties compliance with the noise rules was achievable. Effects from noise on these neighbouring properties was considered to be less than minor.

Hazardous substances

Although the proposed hazardous material on site is significantly over the permitted standards for the zone it is considered that the industry standards for control and management of hazardous substances and the system proposed within the application will minimise the effects of the proposal and provide sufficient risk management measures for such substances.

The system where the hazardous substances are involved is a closed system with little or no discharge to air – no discharge consents were required from NRC. Additionally, it is understood that the timber when exiting the process is dry to touch so there is no dripping or concentration of residue substances from the treatment process outside the enclosed building.

The bunds surrounding the site provide protection from the contamination of the Kerikeri River should the plant leak any hazardous substances although there is an additional bund within the building which can adequately deal with any spills. When the substances are replenished suitable controls are also proposed to ensure effects are minimised. Effects are considered to be able to be mitigated via standard industry practice. In this instance it is concluded that there is no need to impose conditions of consent for this consideration rather that advice notes include appropriate references to industry requirements and for compliance to occur under the HSNO regulations including any specific reporting regime as required.

Esplanade Waiver

An esplanade waiver has been requested by the applicant. Part of the application site already has an esplanade reserve adjoining the river and a further reserve or strip could be required for the remaining portion.

The Eastern Community Board has requested an Esplanade Reserve where it is appropriate and that this area be planted. It must be noted that this portion of the river is not identified as an Esplanade Priority Area. The existing and proposed activities on the site could be problematic for the use of any esplanade reserve particularly given that this area is not clearly demarcated and a working site. Visitors to the sawmill site must check in with the office at arrival. If a reserve existed members of the public could wander close to or immediately adjacent to the site which could raise significant safety issues. In addition to onsite activities the nearby smaller tributaries, drains, small dams and containment areas within the general area also mean navigation through this area (along the river) would be difficult.

A preliminary review of this is that a reserve of some form not be required because of the type of activity occurring on the site. There is potential for further development within the site in the future and when this occurs then this may be a more opportune time. Council may in the future have a clear idea of land use for this location and there could be further opportunities available in the future.

4. Relevant Statutory Provisions:

Policy Statements & Plan Provisions:

Regional Planning and Policy documents.

The applicant has already secured various regional consents related to earthworks, discharges and emissions. These consents concluded that associated effects for the onsite saw milling operation are not more than minor and could be further mitigated by relevant conditions of consent. In this respect the proposed saw mill expansion is also considered to be consistent with the relevant objectives and policies of these respective planning documents. There have been no significant policy changes since the original approval of the saw milling operation to which this application for an expansion would be contradictory. The application is therefore considered to be consistent with the regional planning documents.

The Operative Far North District Plan;

The following sections of the Operative Far North District Plan were considered in reviewing ands assessing this application. The sections included rural environment, rural production zone, and district wide provisions including soils and minerals, hazardous substances, and transport. From these sections the following objectives and policies were of particular relevance to the application.

Objectives considered included 8.3.3, 8.3.6, 8.3.7, 8.3.10, 8.6.3.6, 8.6.3.8, 8.3.6.9 12.3.3.3, 12.8.3.1, 12.8.3.2, 15.1.3.1, 15.1.3.3 and 15.1.3.4.

Policies considered included 8.4.2, 8.4.8, 8.6.4.1, 8.6.4.2, 8.6.4.7, 8.6.4.8, 8.6.4.9, 12.3.4.4, 12.8.4.1 to 12.8.4.6 inclusive, and 12.8.4.2.

The emphasis of the objectives and policies is to ensure that proposed activities such as the proposed expanded saw mill operation are provided for within the respective zones but only where effects are considered to be minor or less than minor and where additional mitigation measures can be imposed to ensure the use is acceptable and compatible within the surrounding environment. The assessment of effects concludes that effects are not more than minor from the saw mill operation and that additional mitigation via conditions will further reduce such effects. The site is a modified rural site which is surrounded by industrial type uses. Residential

development and typical rural uses and activities are sufficiently far enough away to not result in adverse effects. It is therefore concluded that the application is consistent with the majority of the relevant objectives and policies.

Part 2 Matters
The Council has taken into account the purpose & principles outlined in sections 5, 6, 7 & 8 of the Act. It is considered that granting this resource consent application achieves the purpose of the Act.

5. Notification and Affected Parties

The Council has determined (by way of an earlier report and resolution) that the adverse environmental effects associated with the proposed activity are no more than minor and that there are no affected persons or affected order holders.

6. Overall Evaluation

The effects of the proposed saw milling operation expansion have been carefully considered and concluded as being not more than minor. These minor effects have been further mitigated by the imposition of appropriate conditions of consent. The proposal is considered to be consistent with the relevant objectives and policies of the district plan and other statutory considerations such as relevant regional planning documents. The application is also considered to be consistent with Part 2 of the Act and considered and deemed to be an activity which is consistent with the sustainable management purpose of the RMA.

Approval

This resource consent has been prepared by Wayne Smith, Team Leader Resource Consents and is granted under delegated authority (pursuant to section 34A of the Resource Management Act 1991) from the Far North District Council by:

P J Killalea

Pat Killalea, Principal Planner

8th April 2016.

Date

Right of Objection
If you are dissatisfied with the decision or any part of it, you have the right (pursuant to section 357A of the Resource Management Act 1991) to object to the decision. The objection must be in writing, stating reasons for the objection and must be received by Council within 15 working days of the receipt of this decision.

Lapsing Of Consent
Pursuant to section 125 of the Resource Management Act 1991, this resource consent will lapse 5 years after the date of commencement of consent unless, before the consent lapses;

The consent is given effect to; or

An application is made to the Council to extend the period of consent, and the council decides to grant an extension after taking into account the statutory considerations, set out in section 125(1)(b) of the Resource Management Act 1991.

Far North
District Council

Private Bag 752, Memorial Ave
Kaikohe 0440, New Zealand
Freephone: 0800 920 029
Phone: (09) 401 5200
Fax: (09) 401 2137
Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

Te Kaunihera o Tai Tokerau Ki Te Raki

The top place where talent wants to live, work and invest

Application No: 2150320-RMALUC

8 April 2016

Waipapa Pine Ltd
Bay of Islands Planning Ltd
PO Box 795
Kerikeri 0245

Dear Sir/Madam

Re: RESOURCE CONSENT APPLICATION BY Waipapa Pine Ltd

I am pleased to inform you that your application for resource consent has been approved. The decision is enclosed for your information. The application was considered and determined under authority delegated to the Team Leader Resource Consents of the Far North District Council, pursuant to Section 34A of the Resource Management Act 1991.

It is very important that you understand and comply with any conditions of consent. If you have any questions or concerns about any aspect of your consent or its conditions, please contact the planner who prepared the decision.

Please note that the approved plans will follow on Monday 11th April 2016. An invoice or credit note depending on the actual cost of processing your application will follow in due course. Any additional costs shown on an invoice need to be paid by the 20th of the month following the date of the invoice. If you receive a credit note, you have the option of requesting a refund by bank transfer, or transferring the amount to any other Council account. Please advise and supply a printed bank deposit slip and allow 10 working days for the refund to be processed.

If you have any further queries regarding this matter, please contact the reporting Planner.

Yours faithfully

Didi Paraone
Planning Support
Resource Consents Department

FAR NORTH OPERATIVE DISTRICT PLAN
DECISION ON APPLICATION TO CHANGE CONDITIONS OF A RESOURCE CONSENT
(Section 127)

Resource Consent Number: 2150320-RMAVAR/A

Pursuant to section 127 of the Resource Management Act 1991 (the Act), the Far North District Council hereby grants resource consent to:

Waipapa Pine Limited

The activity to which this decision relates:
To change the conditions of RC 2150320. The application seeks consent to vary the approved site layout plan to accommodate the following –

- Relocation of approved Dry Store activities ;
- Additional Dry Store activities within the Boron Treatment Plant location and part of the Wrapped & Stacked Ready For Delivery storage area ; Using a Compressed Wooden Pellet Plant production facility
- Replacing Green Store Pre Delivery activity (Deletion of the Round Table sorter).
- Removal of Green Store Pre Delivery activity ;
- Removal of Boron Treatment Plant ;

RC 2150320 was approved to use and the expand the existing sawmill business as described within the application and including the following:

- Saw mill operations (processing timber) Monday to Friday from 7.00am to 10.00pm and 7.00am to 7.00pm Saturday and Sunday;
- Other activities which do not involve the processing of timber including maintenance and monitoring of plan and machinery, site security and the operation of the boiler and kiln on Monday to Friday from 10.00pm to 7.00am the following day and 7.00pm to 7.00am the following day on Saturday and Sunday;
- Installation and use of two bunded timber treatment facilities using boron and an anti-sapstain product known as Antiblu;
- Transgression of those permitted activity rules detailed within the application including stormwater, traffic intensity, noise, scale of activity, parking and storage of hazardous materials;
- Construction of the stormwater management system incorporating bunds and detention ponds requiring earthworks with a volume of up to 10,000m3;
- The use, maintenance, operation and refuelling of the boiler and kiln;

Subject Site Details

Address:	1945B State Highway 10, Kerikeri 0470, Lot 1, State Highway 10, Kerikeri 0470
Legal Description:	LOT 3 DP 343062 LOT 2 DP 376253, Lot 1 DP 376253
Certificate of Title reference:	CT-306630, CT-306629

The following changes are made to the consent conditions:

Condition 1 amended to read:

1. The activity shall be carried out in accordance with the approved plans and reports as detailed below and which are attached to this consent with the Councils Approved Stamp affixed to them:

    - Proposed Site Layout Plan; Layout 101 Rev F dated 29/11/15;
    - Proposed Site Layout Plan; Layout 101 Rev D- Elevation detail and Soil deposit area dated 30/04/14;
    - Stormwater Management Plan Issue A, dated 03/10/2014, Sheets 1-11 by Haigh Workman Consultants;
    - Environmental Noise Assessment by Design Acoustics Auckland Limited, dated 26th January 2016; and the
    - Planning Report and Assessment of Environmental Effects dated February 2016 prepared by Bay of Islands Planning Limited.
    - *The preceding documents being amended in accordance with the attached plan prepared by Waipapa Pine, entitled – Site Layout, Drawing No. TM – 400 dated 22/08/21, to allow for the deletion of Round Table Sorter, and the Boron Treatment Plant and the Green Storage Pre Delivery storage area being replaced with a Compressed Wooden Pellet Processing Plant and Dry Store areas .*

For the purpose of clarity the complete amended conditions of consent are as follows:

1. The activity shall be carried out in accordance with the approved plans and reports as detailed below and which are attached to this consent with the Councils Approved Stamp affixed to them:

    - Proposed Site Layout Plan; Layout 101 Rev F dated 29/11/15;
    - Proposed Site Layout Plan; Layout 101 Rev D- Elevation detail and Soil deposit area dated 30/04/14;
    - Stormwater Management Plan Issue A, dated 03/10/2014, Sheets 1-11 by Haigh Workman Consultants;
    - Environmental Noise Assessment by Design Acoustics Auckland Limited, dated 26th January 2016; and the
    - Planning Report and Assessment of Environmental Effects dated February 2016 prepared by Bay of Islands Planning Limited.
    - The preceding documents being amended in accordance with the attached plan prepared by Waipapa Pine, entitled – Site Layout, Drawing No. TM – 400 dated 22/08/21, to allow for the deletion of Round Table Sorter, and the Boron Treatment Plant and the Green Storage Pre Delivery storage area being replaced with a Compressed Wooden Pellet Processing Plant and Dry Store areas .

2. The Consent Holder shall provide the additional car parking area in accordance with the approved Haigh Workman plan No PP1 entitled Proposed Plant Expansion - Waipapa Pine Limited, Project 12 102, dated 03/10/2014. The parking shall be

completed in an all-weather surface, suitably marked and drained accordingly. The required carparking shall be completed within 6 months of this decision.

3. Crossing Point 78 [CP78] may continue to be used until such time as the New Zealand Transport Agency have approved and authorised Crossing Point 76 [CP 76] as having meet their requirements and the Right of Way access (over Lot 5 DP 69740) has been registered on the title[s] of the application site.

4. Within six months of the application site being legally entitled to use CP76 in accordance with Condition 3, the Consent Holder shall erect a physical barrier that will prevent vehicles from using CP78. This barrier shall be erected along the eastern boundary of Lot 2 DP 343062 where the existing vehicle access is attained within Easement B shown on DP 343062.

5. The consent holder shall complete construction and formal landscaping of the following components within 6 months of this decision:
   • the earth bunds;
   • the stormwater management system in accordance with the approved plans; and,
   • re-vegetation of the earth bunds in general accordance with the plans provided. mulching or other suitable ground cover shall be applied to achieve total ground cover from any areas left bare or unprotected for more than one month.

6. For the purpose of ensuring effective slope stability, and to enable effective placement of topsoil, no fill batters shall be steeper than 1:3 (vertical:horizontal), and no cut batters shall be steeper than 1:2 (vertical:horizontal) unless retained by appropriately designed retaining structures. The Consent Holder shall monitor the as-built slopes and take all necessary actions to ensure their on-going stability.

7. Provide confirmation from a Chartered Professional Engineer (within one month of its completion) that the extended car park area, stormwater system, and earth bunds as detailed within conditions 2&5 have been completed in accordance with the approved design specifications. For the purposes of stormwater the design and works is to be completed by a Chartered Professional Engineer qualified in stormwater design and that a PS1 Design Certificate be provided.
8. All exterior lighting required for night time operations shall be directed away from the boundaries of adjoining sites, roads, and public places.

9. The Consent Holder shall ensure that the activities undertaken do not result in noise levels exceeding the following noise limits unless otherwise specified as measured at or within the boundary of any other zone or the or within the notional boundary of any dwelling existing at the date of commencement of this consent:

   a) Monday to Friday from 7.00am to 10.00pm and 7.00am to 7.00pm Saturday and Sunday - 65dBA Llo for saw mill operations involving the processing of timber except that the maximum noise level shall not exceed 70dBA on the boundary with Lot 5 DP 69740;
   b) Monday to Friday from 10.00pm to 7.00am the following day and 7.00pm to 7.00am the following day on Saturday and Sunday - 45dBA Llo for any other activities (not involving saw mill operations) except that the maximum noise level shall not exceed 46dBA on the boundary with Lot 2 DP 69740;
   c) 70 dBA Lmax.

10. The Consent Holder shall, subject to any Worksafe New Zealand requirements, replace on all mobile equipment vehicles (operating outside of a building) the reverse beepers with flashing strobe lights to warn of potential hazards.

Advice Notes

1. Archaeological sites are protected pursuant to the Heritage New Zealand Pouhere Taonga Act 2014. It is an offence, pursuant to the Act, to modify, damage or destroy an archaeological site without an archaeological authority issued pursuant to that Act. Should any site be inadvertently uncovered, the procedure is that work should cease, with the Trust and local iwi consulted immediately. The New Zealand Police should also be consulted if the discovery includes koiwi (human remains). A copy of Heritage New Zealand's Archaeological Discovery Protocol (ADP) is attached for your information. This should be made available to all person(s) working on site.

2. An application under section 348 of the Local Government Act should be applied for to secure access over Lot 5 DP 69740 in favour of the application site.

3. Whilst not part of the resource consent conditions the Consent Holder shall adopt all reasonable and practicable measures to ensure that risks associated with the storage, transportation and management of hazardous substances to be used at the timber mill are mitigated to the degree practicable and that the requirements of the Hazardous Substances and New Organisms Act 1996 ("HSNO") and HSNO regulations are complied with. This is to include the applicable monitoring and reporting regime required under the regulations.

Reasons for the Decision

1. The Council has determined (by way of an earlier report and resolution) that the adverse environmental effects associated with the proposed changes are no more than minor and that there are no affected persons or affected order holders.

2. There have been no changes to objectives and policies in the Operative District Plan since the original consent was issued, and the proposed changes being sought are considered to remain consistent with the existing objectives and policies in the Operative District Plan.

   Relevant Regional planning provisions include:

   (a) The Northland Regional Policy Statement 2016;
   (b) The Northland Regional Plan 2019;

3. Part 2 Matters
   The Council has taken into account the purpose & principles outlined in sections 5, 6, 7 & 8 of the Act. It is considered that granting this resource consent application for changes to consent conditions, achieves the purpose of the Act.

4. In summary it is considered that the proposed changes are consistent with the sustainable management purpose of the RMA.

Approval

This resource consent has been prepared by Whitney Peat, and is granted under delegated authority (pursuant to section 34A of the Resource Management Act 1991) from the Far North District Council by:

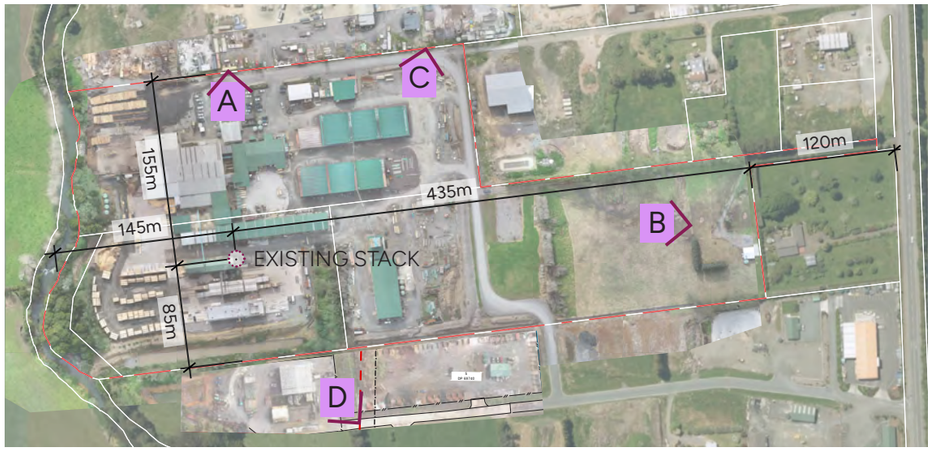
Pat Killalea, Principal Planner

Date: 9th August 2022

Right of Objection
If you are dissatisfied with the decision or any part of it, you have the right (pursuant to section 357A of the Resource Management Act 1991) to object to the decision. The objection must be in writing, stating reasons for the objection and must be received by Council within 15 working days of the receipt of this decision.

Lapsing of Consent
You should note that the granting of this consent for a change or cancellation of conditions does not affect the lapsing date of the underlying consent for the proposed activity.

Existing Stack Location & Form



SITE & VIEWPOINT LOCATION
1:5000 @ A3

STAFF CAR PARK NORTHERN BOUNDARY
Existing stack beyond office, dry mill, and bin sorter

EASTERN PROPERTY BOUNDARY
Existing stack behind pellet plant. Proposed boron plant to be located in paddock

NORTHEASTERN CORNER BOUNDARY
Existing stack (not visible) behind dry store sheds

ENTRANCE TO NORTHLAND WASTE SOUTH OF SITE
Existing stack beyond Northland Waste building

Landscape Review

Heading north on State Highway 10 (after the Kerikeri turn off) the area is characterised as rural. This comprises relatively level land, open paddocks, some crops and orchards. Rural dwellings and utility sheds/areas are dispersed throughout. All of this is visually fragmented by established shelter belts, bush stands, and exotic specimen trees and avenues.

Approaching Waipapa township (after crossing the Kerikeri River Bridge) the landscape evolves into a rural industrial character. The area is typified by farming/building warehouses and shops, gravel carparks, farming supply yards, car sales yards, petrol stations, new subdivision developments, street lights, open roadside drains and a lot of signage. The rural context remains apparent, due to the spacious set out of the large lot development enabling the mature vegetative framework to remain amongst and behind the industrial operations. The level nature of the land together with the vegetative framework typically inhibits views beyond the industrial area to rural or rural residential areas.

The Waipapa Pine site is located over 250 meters west of SHW10, accessed off Industrial Way, a short industrial street including a landscape supply yard and Northland Waste. Along with these industrial operations on its southern boundary Waipapa Pine has other industrial operations located on its northern and part of its eastern boundary including a transport yard and packing shed. Waipapa Pines' existing built infrastructure is of a scale and of a nature suitable to these environments.

Waipapa Pines western boundary abuts a Waipekakoura River tributary. This stream is well vegetated and in areas contains good stands of native bush characterised by large totara. This stream and the surrounding vegetation establishes a greenbelt providing physical and visual separation between the industrial site and rural land uses located to the west.

A singular rural residential lot is located along part of the sites eastern boundary. Currently an open paddock, this is where a Boron Plant and Dispatch Yard are now proposed. The configuration of this area has been designed with consideration of the neighbouring property. The Boron Plant is located at the western end, then a constructed wetland together and a bunded planting area is located along the boundary to buffer the neighbouring property from the dispatch yard. Page LA05 & 06 of the Landscape Package for Resource Consent dated May 2024 illustrates the proposed setback and landscape buffer.

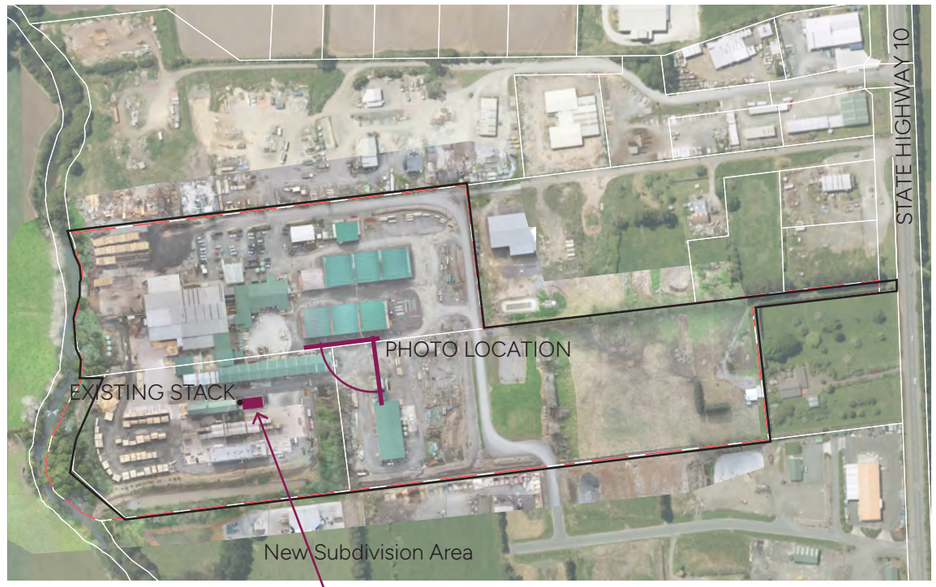
Cont. PG02

WAIPAPA PINE
TIMBER PRODUCTS NEW ZEALAND

Client	Waipapa Pine Ltd
Project Address	1945B State Highway 10, Waipapa, Northland
Project No	810.030758.00001
Date	01/07/2024

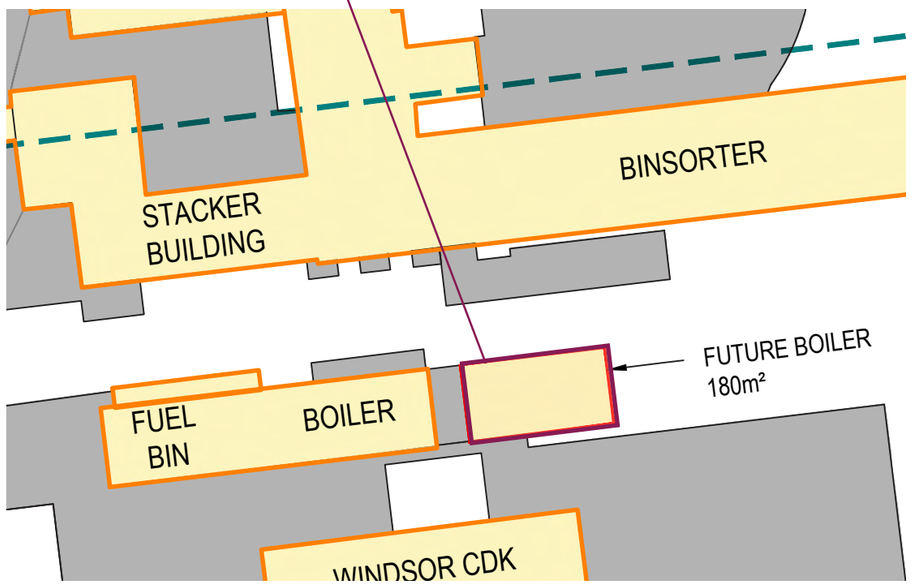
SLR

FOR RESOURCE CONSENT
PG01



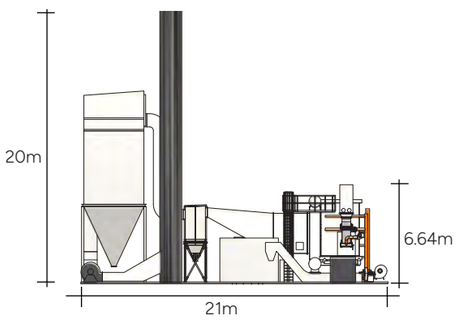
SITE & LOCATION

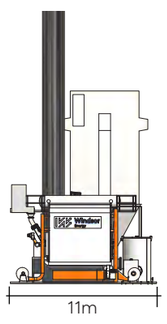
EXISTING STACK PHOTO



PROPOSED BOILER & STACK LOCATION

EXISTING & PROPOSED STACK





PROPOSED BOILER & STACK

EXISTING STACK

Illustrative Proposed Stack Location & Form

Landscape Review Continued

Waipapa Pines proposed development works also includes a new Stack and Boiler, as illustrated beside. Both are located near the middle of the site, as per dimensions mapped on page one above. From off site (even beyond the immediate surrounds of building elevations) the Boiler will not be visible. The proposed stack is 20m high (subject to detailed engineering design), the same height as the existing Stack. Site investigations in May 2024 mapped where the existing stack was visible from near the site boundary and from off site. It is not visually prominent within its industrial setting and when visible typically had vegetation of comparable height within the view shaft.

WAIPAPA PINE
TIMBER PRODUCTS NEW ZEALAND

Client	Waipapa Pine Ltd
Project Address	1945B State Highway 10, Waipapa, Northland
Project No	810.030758.00001
Date	01/07/2024

SLR

FOR RESOURCE CONSENT

PG02

Thomas Trevilla

From: Kipa Munro <kipa@ngatirehia.co.nz>
Sent: Tuesday, 25 June 2024 1:53 pm
To: Scott Williams (Industrial Development)
Cc: Patrick McDermott; Henare Tapuaetahi Account; Mariao Hohaia; Ian Jones (Fletcher Building); Thomas Trevilla; Maddie Dillon (Industrial Development); Val Panui (Fletcher Building)
Subject: RE: Ngāti Rēhia - Waipapa Pine Sawmill presentation hui

Follow Up Flag: Follow up
Flag Status: Flagged

Kia ora Scott,
The timing of the outage although not welcomed was certainly on our side and enabled us to see the whole plant operating. We were all very impressed with the plant and the size and scale was something that we were not aware of.

Will wait for the documents to come through and the visit certainly gives us an insight into what the plant expansion will look like.
Mauri ora,

KIPA MUNRO
Chairperson
Te Rūnanga o Ngāti Rēhia Charitable Trust
Cnr Hone Heke & Kerikeri Roads
PO Box 202, Kerikeri 0230

Contact: 027 232 8299

From: Scott Williams (Industrial Development) <Scott.Williams@fbu.com>
Sent: Tuesday, June 25, 2024 10:42 AM
To: Kipa Munro <kipa@ngatirehia.co.nz>
Cc: Patrick McDermott <Patrick@tuitechnology.co.nz>; Henare Tapuaetahi Account <henare@tapuaetahi.com>; Mariao Hohaia <mariao@tapuaetahi.com>; Ian Jones (Fletcher Building) <Ian.Jones@fbu.com>; Thomas Trevilla <thomas.trevilla@4sight.co.nz>; Maddie Dillon (Industrial Development) <Maddie.Dillon@fbu.com>; Val Panui (Fletcher Building) <Val.Panui@fbu.com>
Subject: RE: Ngāti Rēhia - Waipapa Pine Sawmill presentation hui

Kia ora Kipa,
Thanks very much for taking the time, with your fellow colleagues (apologies I don't have all of their contact details - so please pass on my thanks) to meet with us last week to discuss Waipapa Pine and its expansion. Luckily we got through the Mill tour before the power was cut!

In terms of the upcoming consents we are completing the draft resource consent for the new dispatch yard and the boiler this week and we will electronically send these too you hopefully by the end of this week (which is when we finish the review).

Our planned lodgment date is 5 July 2024 – appreciate you are busy and may not be able to undertake your review by then so we can lodge the consent noting that Ngāti Rēhia is currently reviewing the application.

Any questions, please let me know

Thanks

Scott Williams
Development Manager
Industrial Development

Fletcher Building Limited
M **027 279 6058**
E scott.williams@fbu.com

810 Great South Road, Penrose 1061
Private Bag 92114, Auckland 1142
New Zealand
www.fletcherbuilding.com

-----Original Appointment-----
From: Val Panui (Fletcher Building) <Val.Panui@fbu.com>
Sent: Friday, May 31, 2024 1:02 PM
To: Val Panui (Fletcher Building); Ian Jones (Fletcher Building); Scott Williams (Industrial Development); Kipa Munro
Cc: Dan Spake (Waipapa Pine); Leigh Knight (Fletcher Building); Buster Tahere (Waipapa Pine); Jody Mitchell (Waipapa Pine); Carmen Groves (Waipapa Pine); Dan McCollum (Waipapa Pine); Martin Stotter (Waipapa Pine); Jacqueline Tweedale (Waipapa Pine); Vee Kelleher (Waipapa Pine); Jenny Bosch (Waipapa Pine); Patrick McDermott; Henare Tapuaetahi Account; Mariao Hohaia
Subject: Ngāti Rēhia - Waipapa Pine Sawmill presentation hui
When: Thursday, 20 June 2024 9:30 am-11:00 am (UTC+12:00) Auckland, Wellington.
Where: @Waipapa Boardroom Waipapa

Kia ora koutou ma,

Just setting this up in our calendars for the 20th June, site tour of Waipapa Pine Sawmill site tour and presentation wānanga.

Ian, Scott please feel free to add to the invite list as will Ngāti Rēhia via Matua Kipa

Kia pai tō rā whakataa koutou ma

Nga Mihi, Kia pai to ra

Val Panui
Kaitohutohu Ahurea Matua – Senior Cultural Advisor
Nō Te Uri o Hau me Ngāti Whātua nui tonu, ā He mokopuna hoki nō te Kāhui Maunga heke iho ki 'Te Awa Tupua'
Corporate Affairs - Fletcher Building

Mobile: +64 27 2908468
Email: val.panui@fbu.com

Fletcher Wood Products Limited
Private Bag 92114
Auckland 1142
810 Great South Road
Penrose
Auckland 1061
New Zealand

6 March 2024

Te Rūnanga o Ngāti Rēhia:
Via email: terunanga@ngatirehia.co.nz

Tēnā koe e te Rangatira,

Nō Te Uri o Hau me Ngāti Whātua nui tonu, ā He mokopuna hoki o ōku mātua Papa Paikea Henare Toka rāua ko Nana Mihi Wanairangi Hikuroa.

I, write to you on behalf of Waipapa Pine Limited (Waipapa Pine), a business recently purchased by Fletcher Wood Products (FWP) Limited and a well-established producer of sawn timber products in Northland. Among Waipapa Pine's sites is an existing sawmill at 1945 State Highway 10, Waipapa.

As part of our kaupapa 'whanaungatanga' is an important piece of tikanga that we are learning and driving across our business. We would like an opportunity with you to hui and introduce ourselves, share a kaputī and a kōrero. We would like to see this hui lead to further kaputī and kōrero about our site, its operations and the surrounding whenua that you as mana whenua are connected to. Importantly, building a prosperous partnership with mana whenua to help us 'manaaki whenua, manaaki tangata, haere whakamua' as kaitiaki.

We look forward to a hui date with you all at your earliest convenience.

Tēnā koa whakapā mai ki tō mātou rangatira, he imera me waea pūkoro tēnei, email (Scott.Williams@fbu.com) or call mobile (027- 279-6058) in the first instance.

Nāku iti nei,

Val Panui
Kaitohutohu Ahurea Matua

Ian Jones
General Manager FWP

Fletcher Wood Products Limited
Private Bag 92114
Auckland 1142
810 Great South Road
Penrose
Auckland 1061
New Zealand

6 March 2024

Te Rūnanga-Ā-Iwi-O-Ngāpuhi:
Via email: tania.pene@ngapuhi.org

Tēnā koe e te Rangatira,

Nō Te Uri o Hau me Ngāti Whātua nui tonu, ā He mokopuna hoki o ōku mātua Papa Paikea Henare Toka rāua ko Nana Mihi Wanairangi Hikuroa.

I, write to you on behalf of Waipapa Pine Limited (Waipapa Pine), a business recently purchased by Fletcher Wood Products (FWP) Limited and a well-established producer of sawn timber products in Northland. Among Waipapa Pine's sites is an existing sawmill at 1945 State Highway 10, Waipapa.

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Nāku iti nei,

Val Panui
Kaitohutohu Ahurea Matua

Ian Jones
General Manager FWP

Far North District Council

NOTICE OF WRITTEN APPROVAL

Written Approval of Affected Parties in accordance with Section 95E of the Resource Management Act

PART A – To be completed by Applicant

Applicant/s Name:	Waipapa Pine Limited
Address of proposed activity:	1945B State Highway 10, Waipapa
Legal description:	Lots 2 and 3 DP 343062, Lot 1 DP 376253
Description of the proposal (including why you need resource consent):	Expansion and development at an existing sawmill incl. a new dispatch area, boron treatment building, second boiler, landscaping, on-site stormwater and domestic wastewater system upgrades, site works and additional staff. Land use consent required for non-compliances with the FNDP's stormwater management, building height, building coverage, scale of activities, earthworks, hazardous substances, traffic intensity and car parking rules.
Details of the application are given in the attached documents & plans (list what documents & plans have been provided to the party being asked to provide written approval):	1. Traffic Report RevB (prepared by Haigh Workman) 2. Assessment of Environmental Effects, prepared by SLR) 3. Waipapa Engineering & Landscape Plans 4. _____ 5. _____ 6. _____

Notes to Applicant:

1. Written approval must be obtained from all registered owners and occupiers.
2. The **original copy** of this signed form and **signed plans and accompanying documents** must be supplied to the Far North District Council.
3. The amount and type of information provided to the party from whom you seek written approval should be sufficient to give them a full understanding of your proposal, its effects and why resource consent is needed.

PART B – To be completed by Parties giving approval

Notes to the party giving written approval:

1. If the owner and the occupier of your property are different people then separate written approvals are required from each.
2. You should only sign in the place provided on this form and accompanying plans and documents if you **fully understand** the proposal and if you **support** or have **no opposition** to the proposal. Council will not accept conditional approvals. If you have conditions on your approval, these should be discussed and resolved with the applicant directly.
3. Please note that when you give your written approval to an application, council cannot take into consideration any actual or potential effects of the proposed activity on you unless you formally withdraw your written approval **before** a decision has been made as to whether the application is to be notified or not. After that time you can no longer withdraw your written approval.
4. Please sign and date all associated plans and documentation as referenced overleaf and return with this form.
5. If you have any concerns about giving your written approval or need help understanding this process, please feel free to contact the duty planner on 0800 920 029 or (09) 401 5200.

Full name/s of party giving approval:	SOLID HOLDINGS LTD.
Address of affected property including legal description	1913 SH10 Waipapa
Contact Phone Number/s and email address	Daytime: 027 290 3660 email: brad@jsbconstruction.co.nz

I am/we are the OWNER(S) / OCCUPIER(S) of the property (circle which is applicable)

Please note: in most instances the approval of ***all*** *the legal owners and the occupiers of the affected property will be necessary.*

1. I/We have been provided with the details concerning the application submitted to Council and understand the proposal and aspects of non-compliance with the Operative District Plan.
2. I/We have signed each page of the plans and documentation in respect of this proposal (these need to accompany this form).
3. I/We understand and accept that once I/we give my/our approval the Consent Authority (Council) cannot take account of any actual or potential effect of the activity and/or proposal upon me/us when considering the application and the fact that any such effect may occur shall not be relevant grounds upon which the Consent Authority may refuse to grant the application.
4. I/We understand that at any time before the notification decision is made on the application, I/we may give notice in writing to Council that this approval is withdrawn.

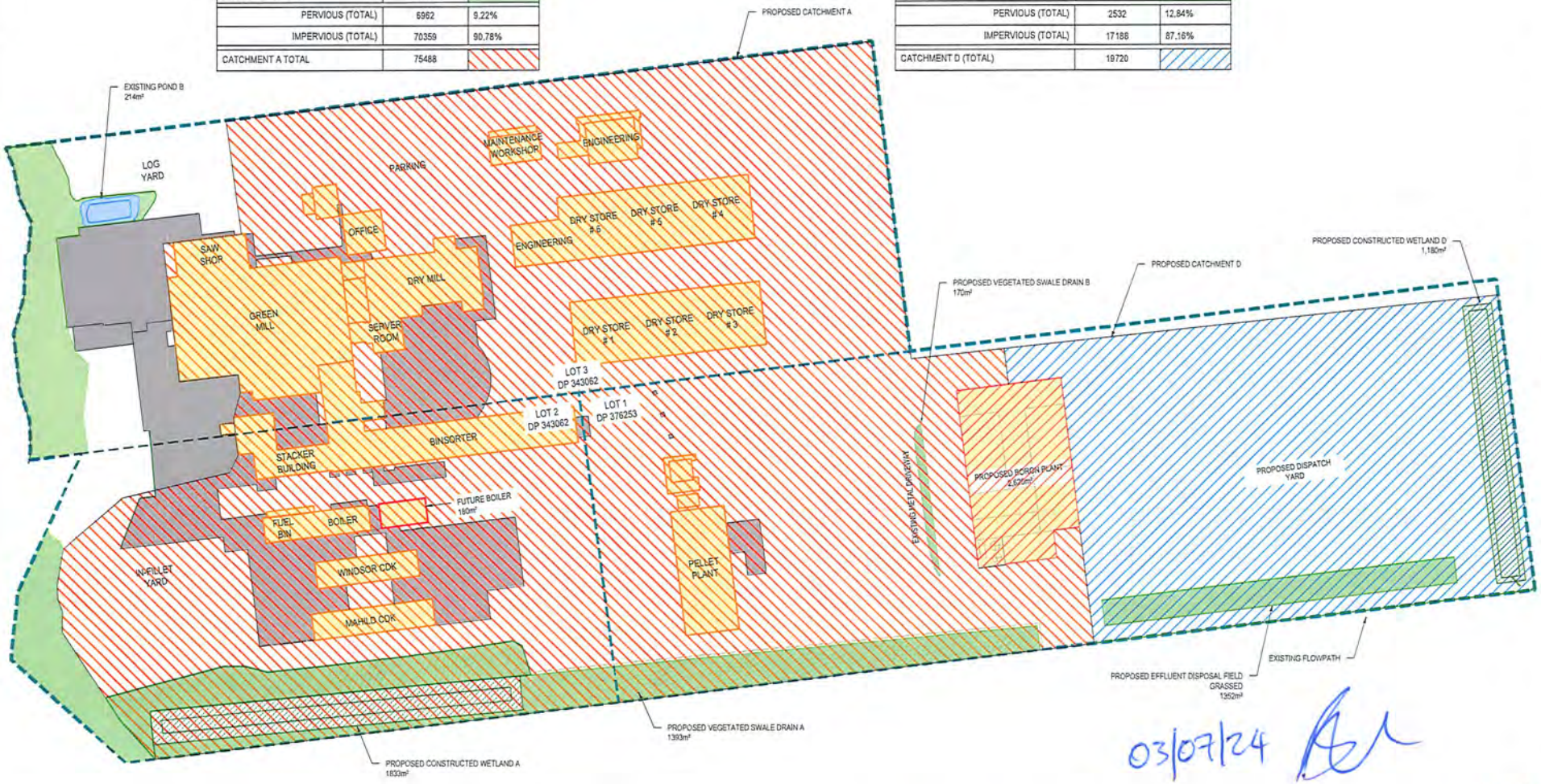
Signature		Date	03/07/24
Signature		Date	03/07/24
Signature		Date	
Signature		Date	

PROPOSED CATCHMENT A (WEST)		
AREA	m²	
ROOF AREA	17436	
CONCRETE	6715	
METAL	44375	
PERVIOUS - CONSTRUCTED WETLAND	1833	
PERVIOUS - VEGETATED	5129	
PERVIOUS (TOTAL)	6962	9.22%
IMPERVIOUS (TOTAL)	70359	90.78%
CATCHMENT A TOTAL	75488	

PROPOSED CATCHMENT D (EAST)		
AREA	m²	
ROOF AREA	0	
CONCRETE	0	
METAL	17188	
PERVIOUS - CONSTRUCTED WETLAND	1180	
PERVIOUS - VEGETATED	1352	
PERVIOUS (TOTAL)	2532	12.84%
IMPERVIOUS (TOTAL)	17188	87.16%
CATCHMENT D (TOTAL)	19720	

GENERAL NOTES:
1. All features are taken from Topo Plan by HG, dated March 2024, ref. 2414676-HG-XX-DR-XX-G-SS01-03.

Boundaries



03/07/24

FOR RC

Rev	Date	Description	By	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	LP	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG PROPOSED CATCHMENT A AND D

A3 Scale 1: 1500 (0, 30, 75) Date 13/05/2024

Drawn LP Checked JP Approved JP

File T:\CLIENTS\WAIPAPA PINE LIMITED\DWG\23 256 - WAIPAPA MILL HWD STATE HIGHWAY 10, WAIPAPA\ENGINEERING\DRAWINGS\01_CIVIL\23 256_20240507_DESIGN 20.DWG

HAIGH WORKMAN Ltd
Civil & Structural Engineers
5 Fairway Drive, Kerikeri, BOI
T: 09 407 6327
F: 09 407 6378
E: info@haighworkman.co.nz

Project	BORON PLANT AND DISPATCH YARD 1945B STATE HIGHWAY 10, WAIPAPA
Client	WAIPAPA PINE LIMITED
Project No.	23 256
RC no.	
Stage	
Dwg No.	EXP04
Sheet No.	

BUND 1 EARTHWORKS

Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume
1		-3.000 m	-2.000 m	551.9 m2	167.9 m3
2		-2.000 m	-1.000 m	564.3 m2	822.7 m3
3		-1.000 m	0.000 m	994.9 m2	1 537.9 m3
			Total Cut	2 111.1 m2	2 528.5 m3

BUND 2 EARTHWORKS

Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume
1		-4.000 m	-3.000 m	0.0 m2	0.0 m3
2		-3.000 m	-2.000 m	167.9 m2	86.3 m3
3		-2.000 m	-1.000 m	107.6 m2	222.1 m3
4		-1.000 m	0.000 m	119.8 m2	333.8 m3
			Total Cut	395.3 m2	642.2 m3

BUND 3 EARTHWORKS

Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume
1		-4.000 m	-3.000 m	0.7 m2	0.0 m3
2		-3.000 m	-2.000 m	117.6 m2	56.8 m3
3		-2.000 m	-1.000 m	139.0 m2	185.3 m3
4		-1.000 m	0.000 m	192.8 m2	342.8 m3
			Total Cut	450.1 m2	584.9 m3

DISPATCH YARD TOPSOIL STRIPPING (-0.2m)

Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume	Total Volume
1		-1.000 m	0.000 m	26 119.6 m2	5 223.9 m3	Total Cut (5 223.9 m3)

DISPATCH YARD EARTHWORKS

Number	Color	Minimum Elevation	Maximum Elevation	2D Area	Volume	Total Volume
1		-1.000 m	0.000 m	1 181.8 m2	508.1 m3	Total Cut (508.1 m3)
2		0.000 m	1.000 m	13 752.3 m2	19 105.3 m3	Total Fill (22 273.1 m3)
3		1.000 m	2.000 m	10 527.6 m2	3 166.9 m3	
4		2.000 m	3.000 m	9.4 m2	0.9 m3	

03/07/24

FOR RC

Rev	Date	Description	by	Checked
A	13/05/2024	REV A - FOR CLIENT REVIEW	JT	JP
B	29/05/2024	REV B - FOR RESOURCE CONSENT	LP	JP

DWG EARTHWORKS CUT AND FILL PLAN

A3 SCALE 1:1000 (0 — 20m — 50m)

Date 13/05/2024

Drawn JT | Checked JP | Approved JP

File T:\CLIENTS\WAIPAPA PINE LIMITED\23256 - WAIPAPA MILL - 1945 STATE HIGHWAY 10, WAIPAPA\ENGINEERING\DRAWINGS\01 CIVIL\23 256 CIVIL DESIGN C3D.DWG

HAIGH WORKMAN Civil & Structural Engineers
6 Fairway Drive, Kerikeri, BOI
T. 09 407 8327
F. 09 407 8376
E. info@haighworkman.co.nz

Project: BORON PLANT AND DISPATCH YARD
1945B STATE HIGHWAY 10, WAIPAPA

Client: WAIPAPA PINE LIMITED

Project No. 23 256

RC no.

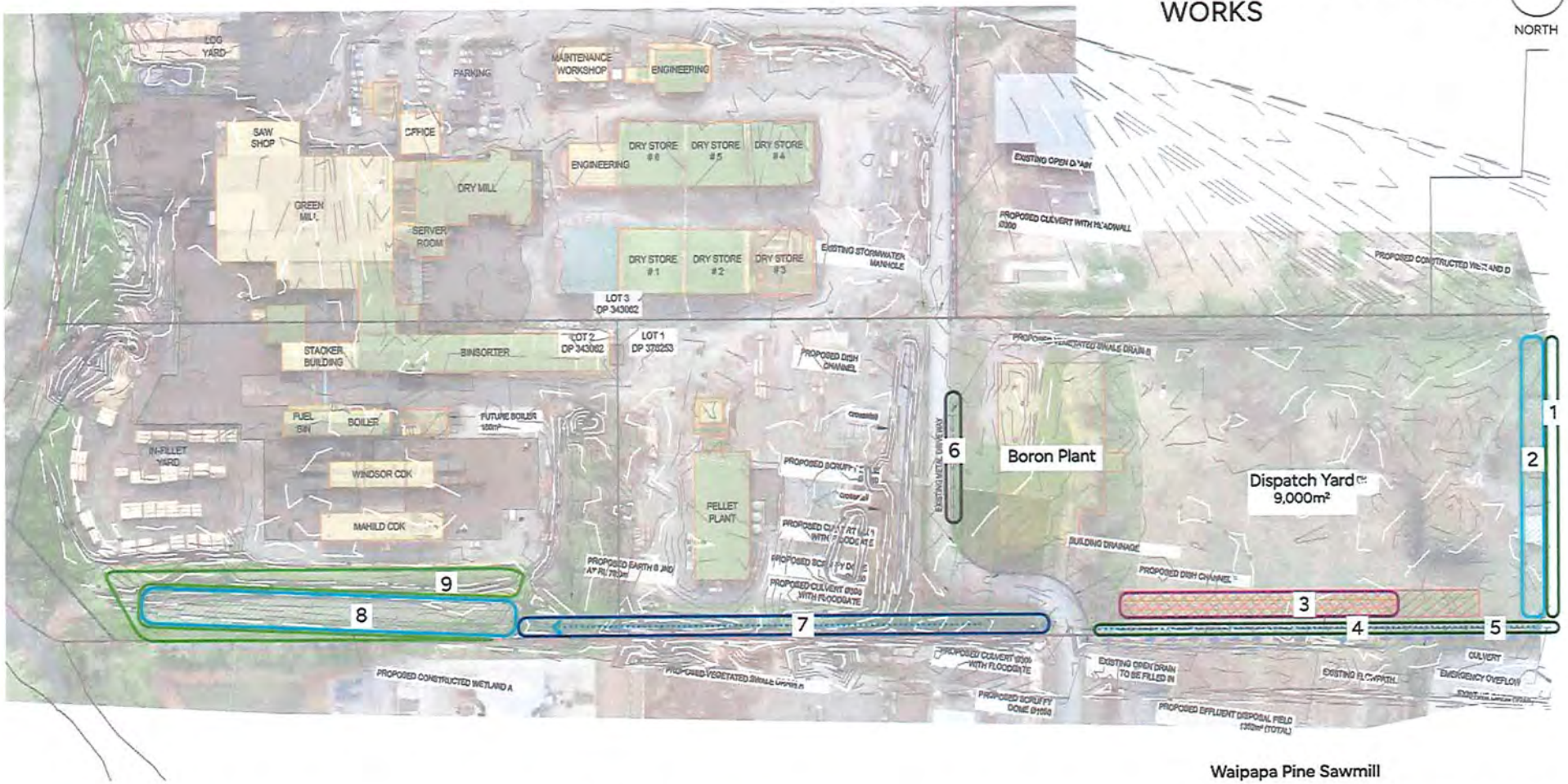
Stage

Dwg No. EWP02

Sheet No. 2 of 2

EXTENT OF LANDSCAPE WORKS

NORTH



1. Proposed buffer planting & bund (subject to agreement with the neighbour)
2. Proposed constructed wetland
3. Proposed effluent disposal field
4. Drain removal
5. Proposed buffer planting & she-oak shelter belt removal
6. Carpark groundcovers
7. Drain upgrade
8. Existing stormwater pond upgrade
9. Pond bund planting

Waipapa Pine Sawmill

Client	Waipapa Pine Ltd
Project Address	1945B State Highway 10, Waipapa, Northland
Project No	810.030758.00001
Date	31/05/2024
Scale	1:1500@A3

SLR

WAIPAPA PINE TIMBER PRODUCTS NEW ZEALAND

FOR RESOURCE CONSENT

LA02

03/07/24

MAKING SUSTAINABILITY HAPPEN

Example plant species


Karamu


Akeake


Turutu


Pukio


Titoki


Rewarewa


Kowhai


Harakeke


Coastal toetoe

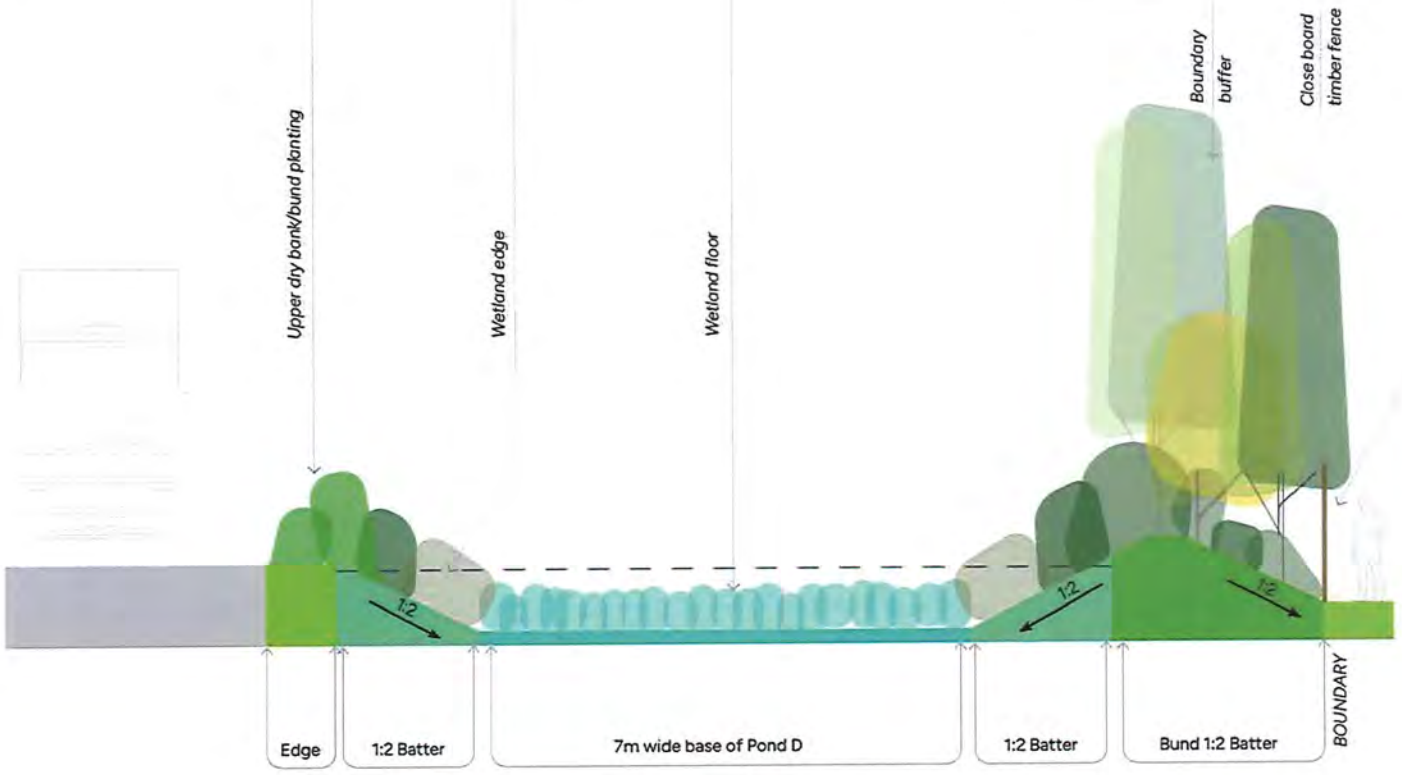

Pukio


Oioi


Kohukohu


Karo


Houpara



Proposed Constructed Wetland Cross Section AA

Refer to LA05 for Location

NOTE: The western boundary buffer planting species selection and close board timber fence is subject to agreement with the neighbour.

Waipapa Pine Sawmill

Client	Waipapa Pine Ltd
Project Address	1945B State Highway 10, Waipapa, Northland
Project No	810.030758.00001
Date	31/05/2024

SLR

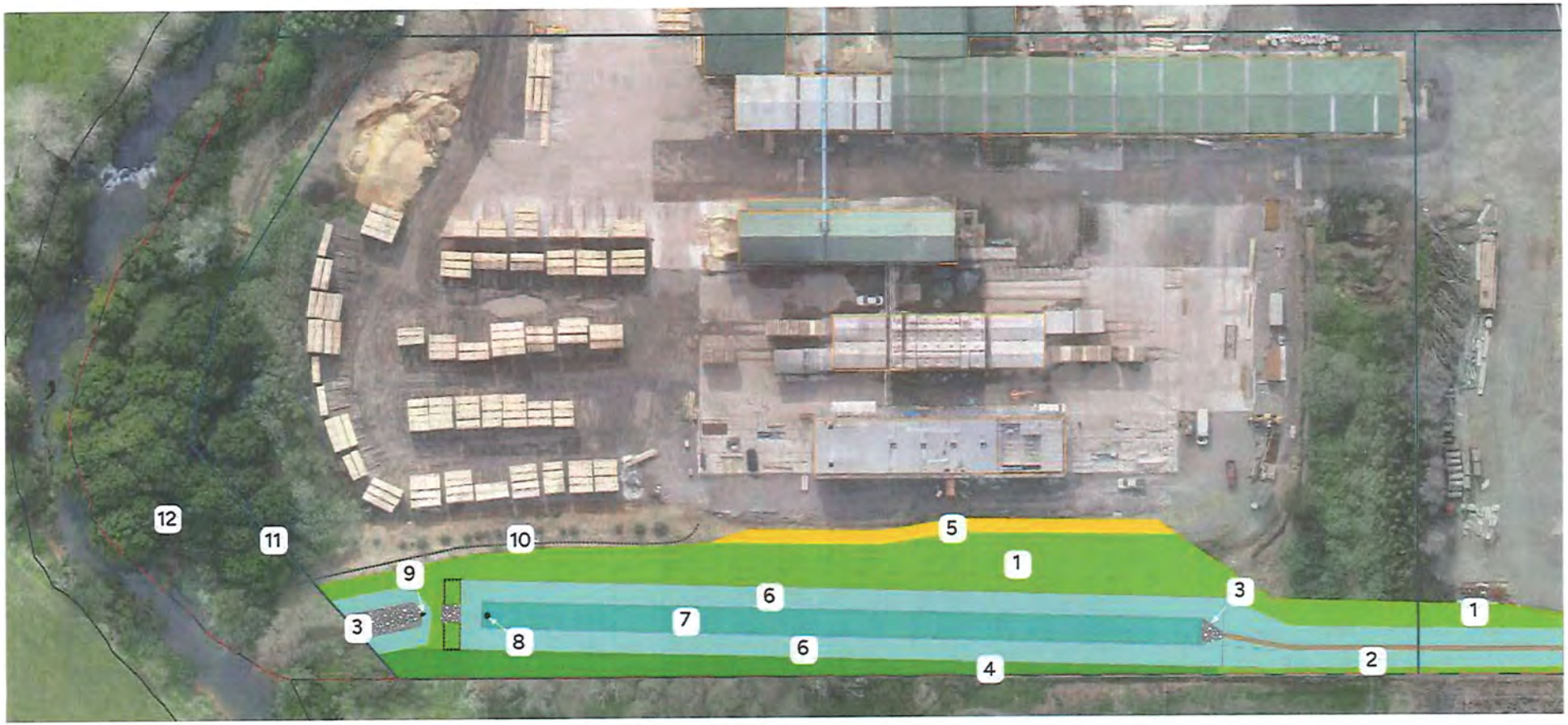
WAIPAPA PINE TIMBER PRODUCTS NEW ZEALAND

FOR RESOURCE CONSENT

LA06

03/07/24

Pond Upgrade - Stormwater West - Landscape Development Plan



KEY

1. Bund planting
2. Swale edge planting 1:2 slope
3. Riprap
4. Boundary buffer planting
5. Low planting on battered bank
6. Pond edge planting 1:2 slope
7. Pond floor planting, 5m wide
8. Pond outlet riser
9. Wetland outlet pipe
10. Existing site access
11. Esplanade reserve post and wire boundary fence
12. Esplanade reserve

Refer to LA10 for plant species schedule.
Plant setout subject to detailed Engineering design.

Waipapa Pine Sawmill

Client	Waipapa Pine Ltd
Project Address	1945B State Highway 10, Waipapa, Northland
Project No	810.030758.00001
Date	31/05/2024
Scale	1:750

SLR

WAIPAPA PINE TIMBER PRODUCTS NEW ZEALAND

FOR RESOURCE CONSENT

LA08

03/07/24 BC

MAKING SUSTAINABILITY HAPPEN

Name		Grade	Spacing	Mature Size		Characteristics			Comments
Botanical Name	Common Name	Grade	Spacing	Height (m)	Width (m)	Native / Exotic	Plant Flammability Low, Moderate to High	Growth Rate Slow, Moderate, Fast	
Boundary Buffer Planting									
Alectryon excelsus	titoki	25L east	5m	12	6	Native	Low/moderate	M	East Boundary only
Carpodetus serratus	Putaputaweta	2L	1/2m2	6	3	Native	Low	M	
Coprosma macrocarpa	Karamu	2L	1/2m2	8	3	Native	Low	M	
Coprosma repens	Taupata	2L	1/2m2	5	3	Native	Low	M	
Coprosma robusta	Karamu, glossy karamu	2L	1/2m2	5	3	Native	Low	M	
Geniostoma ligustrifolium	Hangahenge	2L	1/2m2	3	2	Native	Low	F	
Griselinia lucida	Puka	2L	1/2m2	5	2	Native	Low	M	
Hoheria populnea	Houhere, Lacebark	2L	1/m2	5	2	Native	Low/moderate	F	
Knightia excelsa	Rewarewa	10L sth / 25L east	5m	15	5	Native	Low/moderate	M	Larger Grade East Boundary
Melicytus ramiflorus	Mahoe	2L	1/2m2	9	3	Native		M	
Myrsine australis	red matipo, mapou	2L	1/2m2	5	2	Native		M	
Phormium tenax	Harakeke, NZ Flax	2L	1/m2	3	3	Native	Moderate	M	
Pittosporum crassifolium	Karo	2L sth / 10L east	1/2m2	5	3	Native	Low/moderate	F	Larger Grade East Boundary
Pittosporum eugenioides	Tarata/Lemonwood	2L sth / 10L east	1/2m2	12	3	Native	Low/moderate	M	Larger Grade East Boundary
Pittosporum tenuifolium	Kohukohu, black matipo	2L sth / 10L east	1/2m2	6	4	Native	Moderate	F	Larger Grade East Boundary
Pseudopanax lessonii	Houpara	2L sth / 10L east	1/2m2	4	3	Native	Low		Larger Grade East Boundary
Schefflera digitata	Patē, seven-finger	2L	1/2m2	4	4	Native	Low	M	
Sophora microphylla	Kowhai	10L east	5m	4	3	Native		M	East Boundary only
Wetland, Swale & Pond Edge Planting 1:2 batter									
Austroderia fulvida	Toetoe	1L	1/m2	1	1	Native		M	
Carex geminata	Rautahi	1L	2/m2	1	1	Native		M	
Carex virgata	Pukio	1L	2/m2	0.8	0.8	Native		M	
Coprosma robusta	Karamu, glossy karamu	1l	1/2m2	5	3	Native	Low	M	
Dianella nigra	Turutu	1L	2/m2	0.5	1	Native		M	
Hebe stricta var. stricta	Koromiko	1L	1/m2	3	2	Native	Low/moderate	M	
Melicytus ramiflorus	Mahoe	1L	1/2m2	9	3	Native		M	
Phormium tenax	Harakeke, NZ Flax	1L	1/m2	3	3	Native	Moderate	M	Wetland edge only, not swale edge
Wetland Floor Planting									
Apodasmia similis	Oioi	1L	2/m2	1	1	Native		F	
Carex secta	Purei, Pukio	1L	2/m2	1.5	2	Native		M	
Cyperus ustulatus	Giant umbrella sedge	1L	2/m2	1.5	2	Native		F	
Eleocharis acuta	Sharp Samp Sedge	1L	2/m2	0.9	0.8	Native		M	
Juncus pallidus	wiwi/giant rush	1L	2/m2	0.75	0.5	Native		M	
Ficinia nodosa	Wiwi/ Club Rush	1L	2/m2	1	1.5	Native		F	
Machaerina (Baumea) articlata	baumea	1L	2/m2	1	1	Native		M	
Effluent Disposal Field									
Apodasmia similis	Oioi	1L	2/m2	1	1	Native		F	
Austroderia fulvida	Toetoe	1L	1/m2	1	1	Native		M	
Carex geminata	Rautahi	1L	2/m2	1	1	Native		M	
Carex secta	Purei, Pukio	1L	2/m2	1.5	2	Native		M	
Cyperus ustulatus	Giant umbrella sedge	1L	2/m2	1.5	2	Native		F	
Dianella nigra	Turutu	1L	2/m2	0.5	1	Native		M	
Phormium tenax	Harakeke, NZ Flax	2L	1/m2	3	3	Native	Moderate	M	
Bund Planting									
Austroderia fulvida	Toetoe	2L	1/m2	1	1	Native		M	
Coprosma repens	Taupata	2L	1/2m2	5	3	Native	Low	M	
Coprosma rhamnoides	Twiggy coprosma	2L	1/m2	2	1	Native		M	
Coprosma robusta	Karamu, glossy karamu	2L	1/2m2	5	3	Native	Low	M	
Dodonaea viscosa	Ake-ake	2L	1/m2	3	2	Native	Moderate/high	F	
Griselinia lucida	Puka	2L	1/m2	5	2	Native	Low	M	
Hebe stricta var. stricta	Koromiko	2L	1/m2	3	2	Native	Low/moderate	M	
Myoporum laetum	Ngaio	2L	1/2m2	5	4	Native	Low/moderate	F	
Olearia furfuracea	Akepiro	2L	1/m2	3	2	Native		M	
Phormium cookianum	Harakeke, Mt Flax	2L	1/m2	1.5	1.5	Native	Moderate	M	
Low Planting									
Coprosma acerosa	Sand coprosma	1L	1/m2	0.2	1	Native			
Lomandra 'Tanika'	Lomandra	1L	1/m2	0.7	0.7	Exotic		M	
Muehlenbeckia complexa	Pohuehue, maidenhair vine	1L	1/m2	2	3	Native		F	
Phormium cookianum	Harakeke, Mt Flax	1L	1/m2	1.5	1.5	Native	Moderate	M	
Car Park Swale B Planting									
Carex virgata	Pukio	1L	2/m2	0.8	0.8	Native		M	
Dianella nigra	Turutu	1L	2/m2	0.5	1	Native		M	
Lomandra 'Tanika'	Lomandra	1L	1/m2	0.7	0.7	Exotic		M	

Summary Plant Species Schedule

NOTE: The western boundary buffer planting species selection is subject to agreement with the neighbour.

NOTE: Plant Species list not exhaustive, subject to detailed design and availability of locally sourced plants.

Plants selected with reference to Northland Regional Council planting guidelines.

Waipapa Pine Sawmill

Client	Waipapa Pine Ltd
Project Address	1945B State Highway 10, Waipapa, Northland
Project No	810.030758.00001
Date	31/05/2024
Scale	1:750

SLR

WAIPAPA PINE TIMBER PRODUCTS NEW ZEALAND

FOR RESOURCE CONSENT

LA10

03/07/24

Plants over 20 metres

Botanical name	Common name	What can the plant tolerate: Dry soil	Shade: light med heavy	Wind	Frost	Do possums eat it? 1-No 2-At times 3-Often	Bird food: Food for: bellbird tūī silvereye	Food for: pigeons (kōkupa)	Environs: Coast salt hardy	Damp margins wetlands	Growth: Growth rate	Final height metres
Agathis australis	kauri	•		•	•	1					slow	60
Beilschmiedia tarairi	taraire			•		2		•	•		med	20
Beilschmiedia tawa	tawa			•	•	2		•			med	24
Dacrycarpus dacrydioides	kahikatea				•	2	•	•		•	med	60
Dacrydium cupressinum	rimu			•	•	2	•	•	•	•	slow	25
Knightia excelsa	rewarewa	•		•	•	2	•	•			med	30
Laurelia novae-zelandiae	pukatea		M		•	2				•	slow	30
Libocedrus plumosa	kawaka	•		•		2			•		med	25
Metrosideros robusta	rātā			•	•	3	•				slow	25
Podocarpus totara	tōtara		L	•	•	3	•				fast	30
Pectinopitys ferruginea	miro		L		•	2		•			med	25
Prumnopitys taxifolia	mataī		L	•	•	2		•			med	25
Vitex lucens	pūriri	•		•		2	•	•	•		med	20

Low growing/Ground covers

Botanical name	Common name	What can the plant tolerate: Dry soil	Shade: light med heavy	Wind	Frost	Do possums eat it? 1-No 2-At times 3-Often	Bird food: Food for: bellbird tūī silvereye	Food for: pigeons (kōkupa)	Environs: Coast salt hardy	Damp margins wetlands	Growth: Growth rate	Final height metres
Arthropodium cirratum	rengarenga	•	L	•		2			•		fast	0.5
Astelia banksii	kowharawhara / coastal astelia	•	L	•		2	•		•		med	1.5
Calystegia soldanella	rauparaha / shore bindweed	•		•		1			•		med	0.5
Coprosma acerosa	sand coprosma	•		•	•	2	•		•		slow	2.0
Dianella nigra	turutu / NZ blueberry		M			1	•				fast	0.5
Elatostema rugosum	parataniwha		H			1				•	fast	1.5
Fuchsia procumbens	creeping fuchsia		M			2			•	•	fast	0.5
Hibiscus diversifolius	hibiscus	•		•		1			•		med	1.0
Libertia ixioides	mīkoikoi	•	L		•	1					med	0.5
Lobelia angulata	pānakenake / pratia		L			1	•			•	fast	0.2
Mazus novaezeelandiae	mazus		M			1					slow	0.1
Muehlenbeckia complexa	pōhuehue	•		•	•	1	•				med	1.0
Xeronema callistemon	Poor Knights lily	•	M			1	•		•		slow	0.5

Snail/slug control will be needed

Likely flammable plants (i.e. plant has low to moderate flammability)

Grasses-Rushes-Sedges

Botanical name	Common name	What can the plant tolerate: Dry soil	Shade: light med heavy	Wind	Frost	Do possums eat it? 1-No 2-At times 3-Often	Bird food: Food for: bellbird tūī silvereye	Food for: pigeons (kōkupa)	Environs: Coast salt hardy	Damp margins wetlands	Growth: Growth rate	Final height metres
Apodasmia similis	oioi / jointed wire rush			•	•	1			•	•	med	1.5
Austroderia fulvida	toetoe			•	•	1				•	med	1.5
Austroderia splendens	coastal toetoe	•		•	•	1			•		med	3.0
Austrostipa stipoides	needlegrass	•		•		1			•		med	0.45
Carex comans	longwood tussock / sedge		L		•	1				•	fast	0.25
Carex pumila	sand sedge			•		1			•		fast	0.4
Carex secta	pukio / purei			•	•	1				•	med	1.0
Carex species	tussock sedges	•	L		•	1			•	•	fast	0.3-1.5
Carex uncinata	hook sedge	•	M	•		1			•	•	med	0.45
Chionochloa bromoides	coastal tussock	•		•		1			•		med	0.45
Cyperus ustulatus	giant umbrella sedge			•	•	1				•	med	1.0
Ficinia nodosa	wīwī / knobby club rush	•		•		1			•		med	0.5
Gahnia xanthocarpa	tūpari maunga		M	•		1				•	med	3.5
Machaerina (=Baumea) articulata	jointed twig sedge				•	1				•	med	1.8

Ferns

Botanical name	Common name	What can the plant tolerate: Dry soil	Shade: light med heavy	Wind	Frost	Do possums eat it? 1-No 2-At times 3-Often	Bird food: Food for: bellbird tūī silvereye	Food for: pigeons (kōkupa)	Environs: Coast salt hardy	Damp margins wetlands	Growth: Growth rate	Final height metres
Adiantum cunninghamii	common maidenhair	•	M			1			•		med	0.35
Adiantum hispidulum	rosy maidenhair	•	L			1			•		med	0.2
Asplenium bulbiferum	pikopiko / hen & chicken fern	•	M			2					fast	0.8
Asplenium flaccidum	hanging spleenwort		M			1					slow	1.0
Asplenium lamprophyllum			L			1			•		slow	0.8
Parablechnum novae-zelandiae	kiokio		L	•	•	1				•	fast	3.5
Cyathea cunninghamii	gully tree fern		M			2				•	slow	20
Cyathea dealbata	ponga / silver fern		M			1					slow	12
Cyathea medullaris	mamaku / blackfern		M		•	3				•	slow	20
Dicksonia squarrosa	wheki		M		•	2				•	slow	7.0
Pteris bemula			M			2				•	med	2.0
Lomaria discolor	piupiu / crown fern		L		•	2					med	1.0
Polystichum neozelandicum	common shield fern	•				2			•		slow	0.8
Pneumatopteris pennigera	gully fern		M			2				•	fast	1.0
Pteris macilenta	sweet fern	•	M			2			•		med	1.4

Reference: A planter's handbook for Northland natives, by Northland Regional Council

05/07/24 KC