

PRELIM CIVIL INFRASTRUCTURE REPORT



Rangitopuni Forest Redevelopment Riverhead, Auckland

PROJECT INFORMATION

CLIENT: Rangitootuni Land Holdings Limited Partnership

PROJECT: 174007

DOCUMENT CONTROL

DATE OF ISSUE: 30 April 2024

REVISION B

AUTHOR

A handwritten signature in blue ink, appearing to read 'T. Mandeno'.

Toby Mandeno
Principal

REVIEWED BY

A handwritten signature in blue ink, appearing to read 'B. Verhoeff'.

Brendon Verhoeff
Director

APPROVED BY

A handwritten signature in blue ink, appearing to read 'T. Mandeno'.

Toby Mandeno
Project Manager

Table of Contents

PROJECT INFORMATION	I
DOCUMENT CONTROL	I
1. OVERVIEW.....	3
1.1 PROJECT.....	3
1.2 LEGAL DESCRIPTION	4
1.3 SITE DESCRIPTION	4
1.4 PROPOSED DEVELOPMENT	5
2. EARTHWORKS.....	6
2.1 GEOTECH REPORTING.....	6
3. FLOODING AND OVERLAND FLOW.....	6
3.1 OVERLAND FLOWPATHS ('OLFPS')	6
3.2 FLOODING	6
4. STORMWATER.....	7
4.1 STORMWATER RETICULATION	8
4.2 STORMWATER CAPACITY	8
4.3 STORMWATER QUALITY	8
5. WASTEWATER	9
5.1 WASTEWATER RETICULATION	9
5.2 WASTEWATER CAPACITY	9
6. WATER SUPPLY	9
6.1 POTABLE WATER RETICULATION	9
6.2 FIRE FIGHTING SUPPLY.....	10
7. OTHER SERVICES.....	10
8. CONCLUSION.....	10
9. APPENDICES	12
9.i Appendix A – Concept Engineering Plans (WIP)	12

1. OVERVIEW

1.1 PROJECT

The purpose of this report is to provide an assessment of the infrastructure associated with the proposed redevelopment of the Riverhead Forest. The report provides a high-level summary of civil infrastructure associated with the Fast Track application, which would see Lot 1 developed for 210 1ha countryside living lots; with Lot 2 developed for a Retirement Village for circa 350 units and associated amenities. The concept plan for the area is identified in Figure 1 Concept Plan (below).

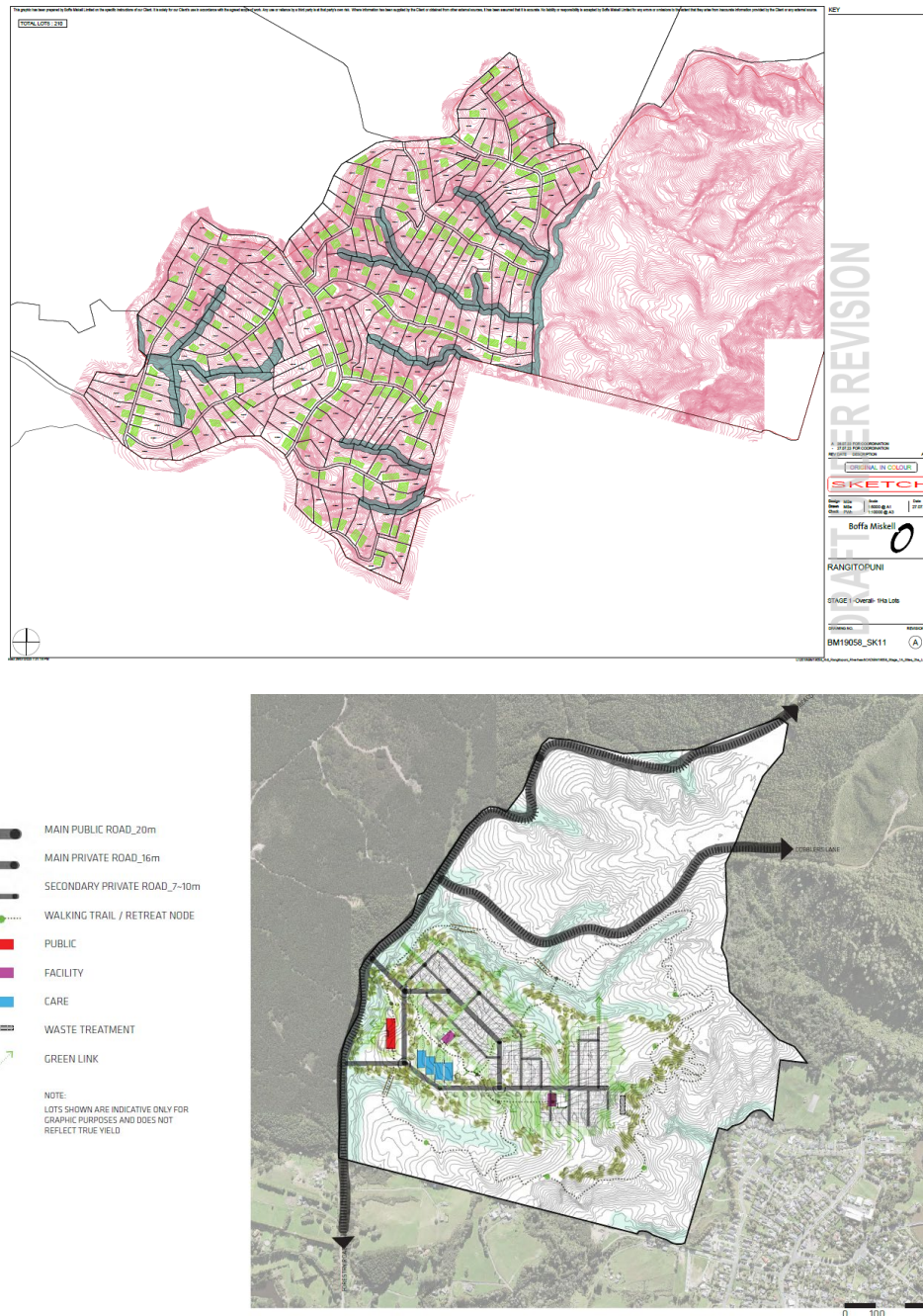


Figure 1: Concept Plans: Lot 1, 210 1ha lots (top) and Lot 2 Retirement Village concept (below)

The information provided herein relates to stormwater, wastewater, stormwater, water supply, and other service infrastructure and the potential capacity to service the proposed development.

The calculations and assessments included in this report are preliminary in nature based on the information available at the time of issue.

This report provides information in support of the Fast Track application, and further reporting and engineering design will be required before lodgement of a resource consent.

The calculations and assessments included in this report are 'desktop' analysis and are preliminary in nature based on information available at time of issue.

1.2 LEGAL DESCRIPTION

Applicant	Rangitootuni Land Holdings Limited Partnership
Record of Title	1055347 and 1129816
Legal Description	Lots 1 and 2 DP 590677
Site Area	222.75 ha (Lot 1), 173.6 ha (Lot 2)

1.3 SITE DESCRIPTION

The subject site forms part of the wider Riverhead (Rangitootuni) Forest holdings. The site is located between Riverhead Township to the east, and Kumeu/Huapai to the south-west. The site is well connected, having ease of connections to SH16 and the Northwestern motorway.

The site features frontage and access from Old North Road (to the south), Deacon Road and Forestry Road. The site has been recently logged, and is intended to be developed for residential purposes, with the balance of the land planted out in native vegetation as part of the development.

The site features moderate to steep rolling topography, with prominent ridgelines, gullies and identified streams contained within. The site is contained within two stormwater catchments – Lot 1 straddles the Kaipara Catchment (western half), with the eastern area in the Riverhead Catchment. Lot 2 is wholly contained within the Riverhead Catchment. The streams in the Riverhead Catchment flow east, to the rear of the Township, before discharge into the Rangitootuni River upstream of the Riverhead-Coatesville Highway bridge.

There is no existing building within the site. The site is benefited from several lawful and existing vehicle crossings and forestry roads within, of which is formed to a rural road standard (compacted gravel, table drains etc).

The location of the subject site is shown below in Figure 2.

There are existing power and communications network present within or nearby. The site is, however, not serviced by reticulated water, wastewater, or stormwater networks.

The intended development will see 210 1ha countryside living lots being created in Lot 1, with a Retirement Village (circa 350 units) being developed in Lot 2. The remaining balance lot/areas will be planted out in native vegetation as part of the redevelopment.

The Retirement Village will be supported by a communal wastewater treatment plant, with disposal to ground. Water would be roof caught and could be supplemented if needed by bore and or stream water sources. Stormwater discharge would be via the tributary of the Rangitopuni River.

CIVIL ENGINEERING ▼ SURVEYING ▼ LAND DEVELOPMENT

2. EARTHWORKS

Earthworks will be required to form the building platforms within the lots, and for the construction of roads/culverts and associated infrastructure. Widespread recontouring will not be required in support of the countryside living development, although bulk earthworks will be required in support of the Retirement Village complex, given intensity and need to adhere to flatter grades within.

For the most part, the building platforms are elevated above and removed from the streams and/or identified overland flowpaths. This minimises sediment risk to the receiving catchments. Future Resource Consent applications will need to be supported by sediment and erosion control drawings, which will demonstrate how the earthworks will be managed as to comply with GD05.

Resource consent will require that erosion and sediment control measures are implemented and maintained in accordance with the Engineering Drawings.

Silt control measures will need to be installed onsite prior to or during (as specified) earthworks commencement. All silt control measures will be checked and confirmed acceptable by the Engineer before relevant earthworks commence. A Geotech Completion Report will be provided at the completion of earthworks.

2.1 GEOTECH REPORTING

ENGEO have been engaged and have provided high-level Geotech commentary in support of the vacant lot subdivision recently completed which created the underlying lots (Lots 1 and 2 590677) to which will support the intended development. The desktop reporting confirmed there was no global instability issues, and that development can occur subject to further investigation.

Further Geotech reporting will be provided in support of any future resource consent application(s). A review and assessment of the earthwork drawings and design will be undertaken by ENGEO, and the final design will include any recommendations of the Geotech engineer.

3. FLOODING AND OVERLAND FLOW

3.1 OVERLAND FLOWPATHS ('OLFPS')

The overland flowpaths within the site are largely contained to the streams and associated margins. For the most part these are removed from the development areas and will be maintained as required by the future development.

It is noted that there are multiple existing culverts that cross the streams and/or overland flowpaths. These will be upgraded in support of the new private JOALs. The culverts will be sized and constructed in accordance with best engineering practice.

All building platforms and future buildings will be provided with minimum floor levels that comply with the Stormwater Code of Practice and the New Zealand building code as required.

3.2 FLOODING

There is known flooding within the site, however, this is limited to the streams and associated margins and is for the most part removed from the developable areas. Maven Associated will undertake HEC

RAS modelling in support of the future development, which will confirm existing and proposed flood depths, extents, and flows.

Accessways will be designed as to comply with the required standards of the AUP, ensuring safe and efficient vehicle and pedestrian movements to and from the site. Any culverts and/or stream crossings will be subject to detailed engineering design, ensuring sufficient capacity for culverts and safe passage during flood events.

The extent of current flooding (as an extract from the GeoMaps viewer) is shown below within Figure 3:

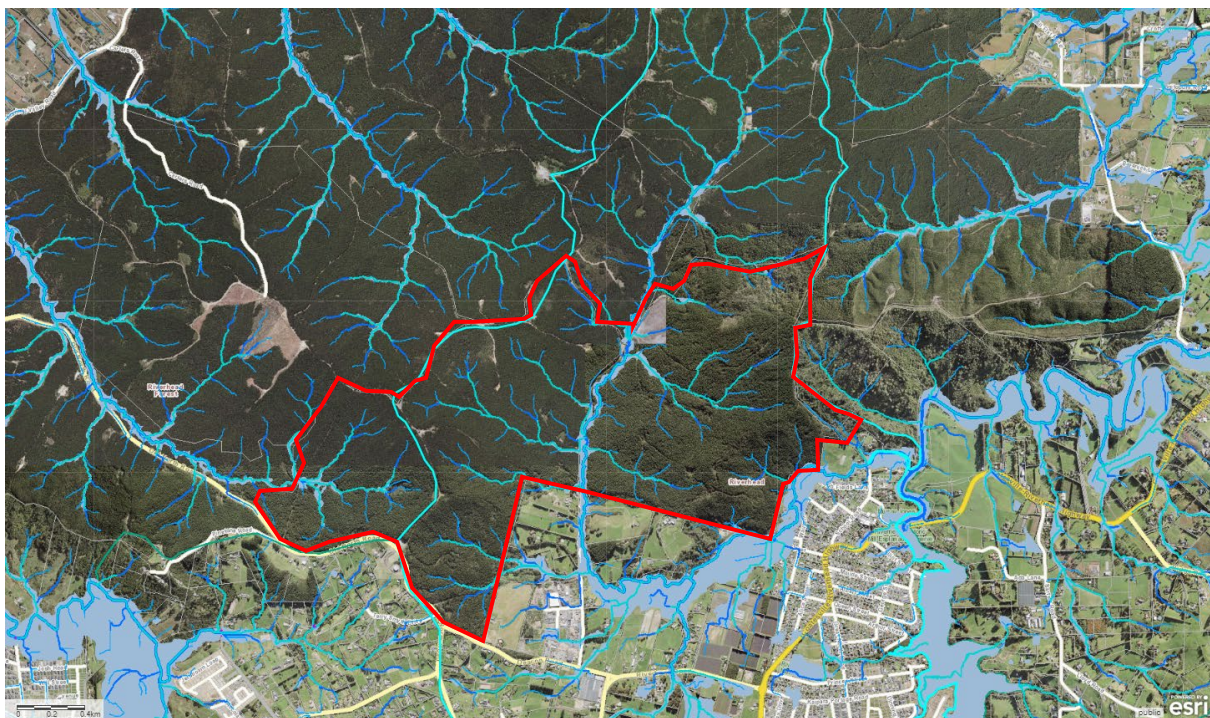


Figure 3: Existing Flooding and OLFPs. Site area in red. Source: AC Geomaps

There is known downstream flooding, although for the most part the flooding extents avoids people and property. If need be, attenuation of peak flows can be provided in support of future development, as to ensure no effect. The flood modelling and overarching stormwater design will set out to ensure that flooding is not worsened for an up to the 100-yr storm event.

4. STORMWATER

The Auckland Council Stormwater Code of Practice sets out design and construction standards for stormwater and requires all land development projects to be provided with a means of stormwater disposal and treatment.

The site is not located within the Rural Urban Boundary (RUB) and thus it has been confirmed by Healthy Waters, that the site is not bound by the Region Wide Network Discharge Consent (NDC).

4.1 STORMWATER RETICULATION

There is no existing stormwater network in the vicinity of the development area. The road networks are supported by table drains which discharge into streams / OLFPs.

A new stormwater network will be constructed in support of the development. This will provide a means of disposal for all impervious areas (carparks, common accessways, driveways and buildings).

Roof caught water will be piped into aboveground tanks, which will provide the primary means of potable and non-potable water supply.

The private accessways/ JOALs will feature (where the contour allows) swale drains, which will convey stormwater and provide some pre-treatment. In some steeper areas, a piped network will need to be constructed to convey flows via catchpits.

Discharge will be via outfalls to existing streams and overland flowpaths. A suitable means of disposal will need to be provided for each lot, and accessway. This will require Geotech input and some specific design to mitigate erosion and stability risks as required.

4.2 STORMWATER CAPACITY

The proposed stormwater connection and private stormwater network will be subject to future Engineering Approval / Building Consent and will be designed to have capacity for the 10-year rainfall event, as is required for Auckland Council. The sizing will be undertaken as part of the developed design process.

It is envisaged that each lot would be provided with a minimum of 45,000L of tanks, although it is likely that up to 90,000L of capacity may be provided within each lot, depending on number of bedrooms and water demand.

Attenuation of peak flows will be assessed as part of any future resource consent application, and if need be, the tank design can accommodate some detention volume to limit post development flows if/as required.

4.3 STORMWATER QUALITY

As the site is not bound by the NDC, treatment is instead required by the AUP. In this sense, treatment is not specifically required, as the private roads will be low volume (less than 5000 v/pd) and there will be no communal parking areas with 30 or more spaces.

Treatment is proposed via swales in the areas of the site which can accommodate this design. All flows will discharge via the stream/wetland networks, of which will also provide treatment, with a large replanting / revegetation program included as part of the development.

5. WASTEWATER

The Watercare Code of Practice sets out the design principles for wastewater drainage and requires any development project to be provided with a means of wastewater disposal.

5.1 WASTEWATER RETICULATION

There is no existing reticulated wastewater network within the site. The site is not contained within the Urban extent of Auckland, and thus Watercare have no long-term plan to provide reticulated wastewater infrastructure to the area.

Instead, the countryside living lots will discharge treated effluent to ground within the lots. The size of the lots (1ha) will ensure that there is sufficient space for this to occur. Geotech reporting in support of the future resource consent application(s) will confirm the location for the primary and secondary disposal areas, inclusive of required setbacks from streams, overland flowpaths and flooding.

The Retirement Village will be supported by a communal wastewater treatment system, which will dispose of treated effluent to ground. The design will be completed by GWE consulting engineers. The underlying size and nature of the site is such that a suitable disposal area can be provided.

5.2 WASTEWATER CAPACITY

The Geotech report for the countryside living subdivision will outline suitable disposal areas for each house site / lot. This will be based off a 4-bedroom house and will require primary and secondary disposal areas as required.

The communal treatment and disposal area for the retirement village will be subject to future design, inclusive of emergency storage, and disposal areas. This will be undertaken by GWE consulting engineers, and details will be provided in support of any resource consent application(s).

6. WATER SUPPLY

The Watercare code of Practice sets out the design principles for water supply and requires assessment against SNZPAS 4509:2008 NZ Fire Service Fire Fighting Water Supply Code of Practice.

6.1 POTABLE WATER RETICULATION

Although there is a water supply network nearby (Watercare Reservoir and trunk mains in Old North Road), the site is not urban zoned and thus is outside of Watercare's intended service area. As such, the primary potable and non-potable supply of water for the site will be roof caught.

If required, secondary non-potable supply can be investigated such as from streams or bores. However, given the size of all lots, there is sufficient space to provide the required storage volume to ensure drought resilience.

It is anticipated that each lot/unit will have a minimum of 45,000L of tank storage which will provide the primary potable and non-potable supply for each unit. Additional tank storage can be provided, and this is to be further investigated as the developed design progresses / at the discretion of future lot owners.

6.2 FIRE FIGHTING SUPPLY

The minimum firefighting water supply classification for residential developments is FW2. Therefore, any future residential development must meet the following water supply requirements:

The New Zealand Fire Service Firefighting Water Supplies Code of Practice (SNZ PAS 4509:2008) states that 45m³ of water storage must be available within 90m from each dwelling for firefighting purposes within non-reticulated developments, with FW2 water supply classification. The 90m distance is measured from the point where the water supply is available rather than the water source itself (i.e. to the coupling or suction source).

We note that in terms of NZ PAS 4509:2008, a minimum of 45,000 litres is available for Firefighting requirements for a dwelling that is sprinklered and only 7,000 litres for a sprinklered dwelling.

The required design for fire fighting supply will be worked through with Fire and Emergency NZ (FENZ) and will likely result in communal supply point(s) via above ground tanks.

It is envisaged a dedicated fire-service supply will be provided in support of the Retirement Village. For the countryside living lots, it is likely that each house/lot will be provided with 10,000L for firefighting supply, and this will be a consent notice registered against any lot created.

7. OTHER SERVICES

Telecommunications in the area are managed by Chorus, Power supply in the area is managed by Northpower/Vector. It is understood that services are available, however, upgrades will be required to service the development.

Underground services will be supplied to each lot/unit. A private power and telco network will be constructed within the private accessways, and a point of supply will be provided for each lot/unit created within the development.

Consultation with Vector and Chorus has been done, confirming that subject to upgrades/connections, supply is available.

8. CONCLUSION

The report outlines the high-level civil servicing strategy for the intended Fast Track development.

The concept plans demonstrate that the development will deliver circa 210 1ha countryside living lots, with a Retirement Village providing a further 350 units and associated amenities.

Earthworks will be required in support of any future proposal to allow for the construction of building platforms, accessways and services. The final design will be subject to Geotech input, and stability assessment. Specific details relative to sediment and erosion control will be provided in support of any future resource consent application(s).

A new stormwater network will need to be constructed, and this will provide a means of overflow from each lot/unit storage tanks and will convey surface waters associated with the accessway and parking

areas. The final location and design of the outfalls is subject to ecology and Geotech input and will be confirmed as part of the developed design stage.

Water supply for each unit will be via above ground tanks. The roof caught water could be supplemented from the bore and or stream source, although this is not considered necessary given the size of lots and yearly rainfall.

Firefighting supply will likely be provided within each countryside living lot, and via a communal system/design for the Retirement Village. The final design will require consultation and approval from FENZ.

There is known flooding and overland flowpaths within the development area. All units will be provided with freeboard in accordance with the NZBC and developable areas are removed from these hazards. The need to provide attenuation in support of the development will be worked through as part of the detailed design process, and flood modelling of the catchment.

Suitable wastewater disposal can be provided for the development. The wastewater will be treated and disposed to land, either within each countryside living lot, or via a communal system in support of the Retirement Village. The sizing and location of the disposal fields are subject to Geotech assessment, and this will be worked through the developed design stage by GWE as the development progresses.

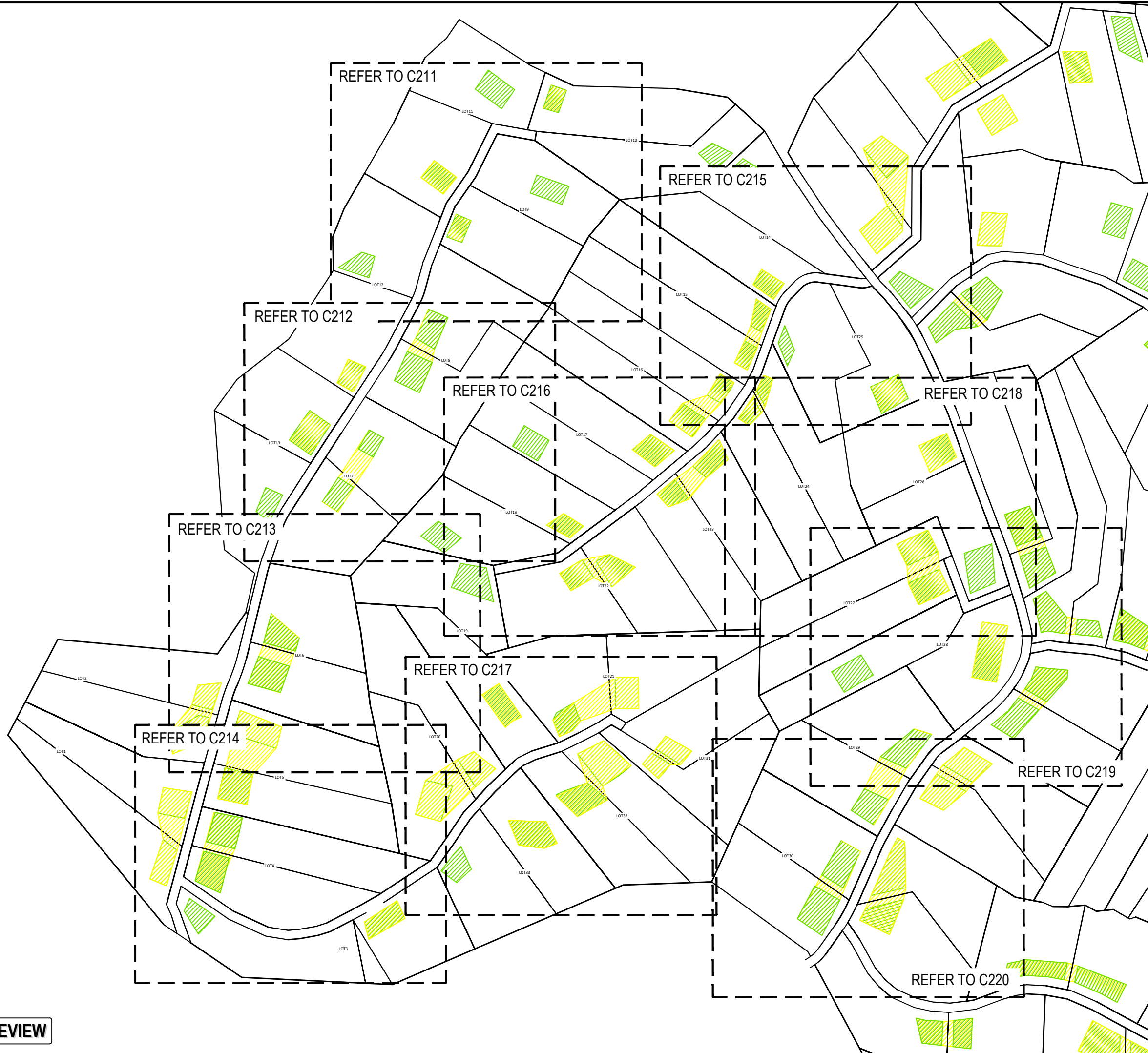
A telecommunications, power and gas network are present in the surrounding area and it is anticipated that service can be made available to the proposed development, subject to upgrades.

The development will be provided with legal and physical access via private JOALs / accessways. These will feature a combination of chipseal and/or concrete finishes. Upgraded vehicle crossings to the public road in support of the JOALs will also be required.

Information gathered to-date confirms the site is suitable for the proposed development.

9. APPENDICES

9.i APPENDIX A – CONCEPT ENGINEERING PLANS (WIP)



Notes

1. All works to be in accordance with Auckland council standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
3. Levels in terms of the Auckland Vertical Datum 1946.
4. Origin of Levels = SM XXXX SO XXXX(XXXX)
Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
5. It is the contractors responsibility to locate all services that may be affected by his operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

—	PROP BDY
- - - -	EX MAJOR CONTOUR
- . - .	EX MINOR CONTOUR
—	PR MAJOR CONTOUR
—	PR MINOR CONTOUR
▨	PR BUILDING PLATF.

A	FOR INFORMATION	JW	07/2022
Rev	Description	By	Date
Survey	RIDAR		03/22
Design	IZ		05/22
Drawn	IZ		05/22
Checked	##		###

M

M A E N

Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

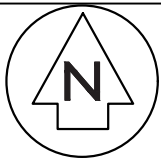
Project

**DEVELOPMENT OF
RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND
HOLDINGS LTD. PART.**

Title

**PROPOSED
EARTHWORK
PLAN**

Project no.	147007		
Scale	1:4000@A3		
Cad file	C200-S1A.DWG		
Drawing no.	C200	Rev	A



- Notes
1. All works to be in accordance with Auckland council standards.
 2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
 3. Levels in terms of the Auckland Vertical Datum 1946.
 4. Origin of Levels = SM XXXX SO XXXX(XXXX) Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
 5. It is the contractors responsibility to locate all services that may be affected by his operations.
 6. The contractor shall comply with all relevant Health and Safety requirements.
 7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
 8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
 9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PR BUILDING PLATF.

A	FOR INFORMATION	JW	07/2022
Rev	Description	By	Date
		By	Date
Survey	RIDAR		03/22
Design	IZ		05/22
Drawn	IZ		05/22
Checked	##		###

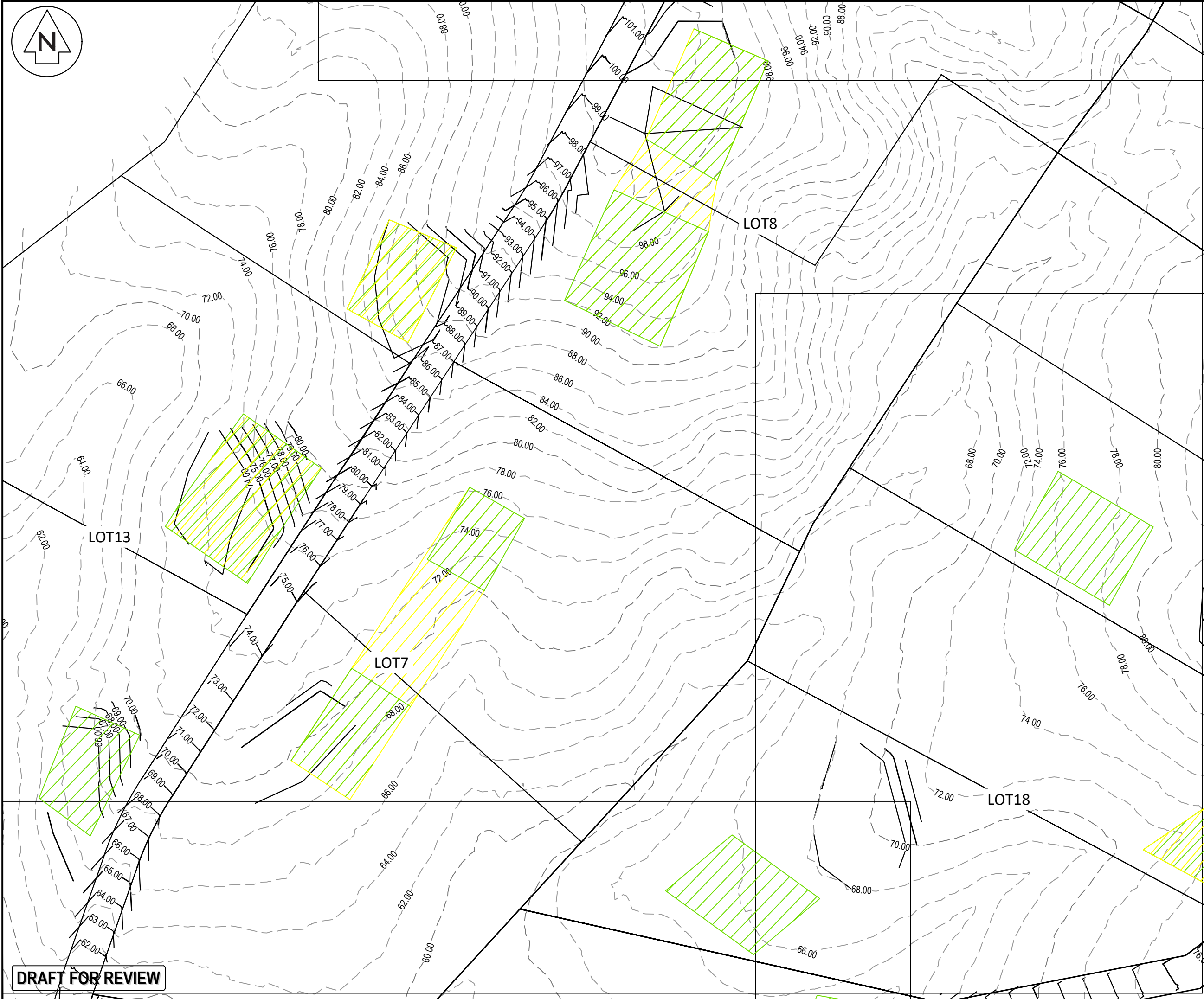
Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

Project
**DEVELOPMENT OF
RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND
HOLDINGS LTD. PART.**

Title
**PROPOSED
EARTHWORK
PLAN**

Project no.	147007		
Scale	1:1000@A3		
Cad file	C200-S1A.DWG		
Drawing no.	C211	Rev	A

DRAFT FOR REVIEW



- Notes
1. All works to be in accordance with Auckland council standards.
 2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
 3. Levels in terms of the Auckland Vertical Datum 1946.
 4. Origin of Levels = SM XXXX SO XXXX(XXXX)
Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
 5. It is the contractors responsibility to locate all services that may be affected by his operations.
 6. The contractor shall comply with all relevant Health and Safety requirements.
 7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
 8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
 9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PR BUILDING PLATF.

Rev	Description	By	Date
A	FOR INFORMATION	JW	07/2022
Rev	Description	By	Date
Survey	RIDAR		03/22
Design	IZ		05/22
Drawn	IZ		05/22
Checked	##	###	



Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

Project
**DEVELOPMENT OF
RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND
HOLDINGS LTD. PART.**

Title
**PROPOSED
EARTHWORK
PLAN**

Project no.	147007		
Scale	1:1000@A3		
Cad file	C200-S1A.DWG		
Drawing no.	C212	Rev	A



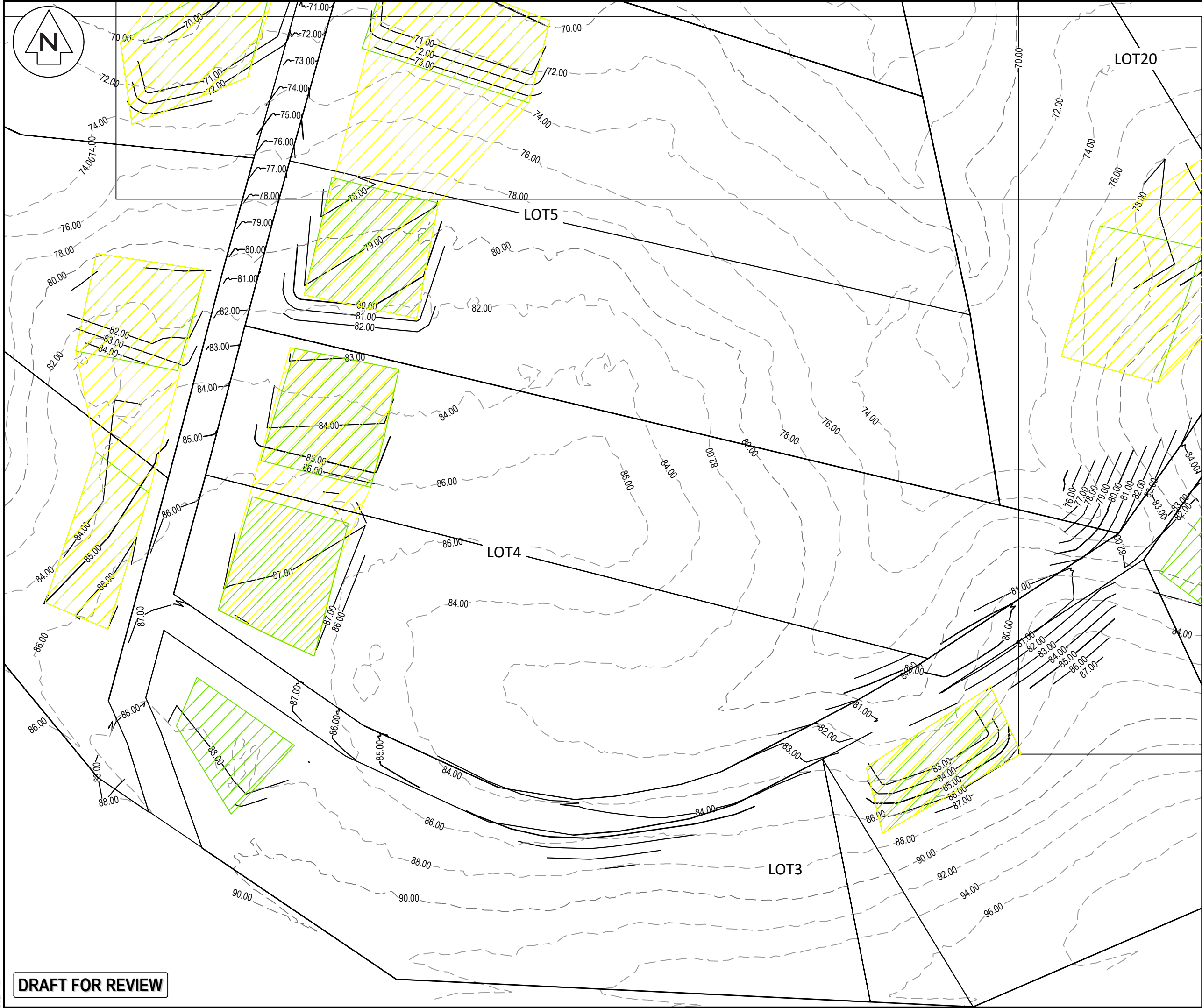
- Notes
1. All works to be in accordance with Auckland council standards.
 2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
 3. Levels in terms of the Auckland Vertical Datum 1946.
 4. Origin of Levels = SM XXXX SO XXXX(XXXX)
Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
 5. It is the contractors responsibility to locate all services that may be affected by his operations.
 6. The contractor shall comply with all relevant Health and Safety requirements.
 7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
 8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
 9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

- PROP BDY
- - - EX MAJOR CONTOUR
- - - EX MINOR CONTOUR
- PR MAJOR CONTOUR
- PR MINOR CONTOUR
- ▭ PR BUILDING PLATF.



A	FOR INFORMATION	JW	07/2022
Rev	Description	By	Date
Survey	RIDAR		03/22
Design	IZ		05/22
Drawn	IZ		05/22
Checked	##		###
M Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023			
Project DEVELOPMENT OF RIVERHEAD FOREST STAGE 1A FOR RANGITOPUNI LAND HOLDINGS LTD. PART.			
Title PROPOSED EARTHWORK PLAN			
Project no.	147007		
Scale	1:1000@A3		
Cad file	C200-S1A.DWG		
Drawing no.	C213	Rev	A



- Notes
1. All works to be in accordance with Auckland council standards.
 2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
 3. Levels in terms of the Auckland Vertical Datum 1946.
 4. Origin of Levels = SM XXXX SO XXXX(XXXX)
Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
 5. It is the contractors responsibility to locate all services that may be affected by his operations.
 6. The contractor shall comply with all relevant Health and Safety requirements.
 7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
 8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
 9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PR BUILDING PLATF.

A	FOR INFORMATION	JW	07/2022
Rev	Description	By	Date
Survey	RIDAR		03/22
Design	IZ		05/22
Drawn	IZ		05/22
Checked	##		###



Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

Project
**DEVELOPMENT OF
RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND
HOLDINGS LTD. PART.**

Title
**PROPOSED
EARTHWORK
PLAN**

Project no.	147007		
Scale	1:1000@A3		
Cad file	C200-S1A.DWG		
Drawing no.	C214	Rev	A

DRAFT FOR REVIEW

DATE: 4/2024



Notes

1. All works to be in accordance with Auckland council standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
3. Levels in terms of the Auckland Vertical Datum 1946.
4. Origin of Levels = SM XXXX SO XXXX(XXXX)
Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
5. It is the contractors responsibility to locate all services that may be affected by his operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

- PROP BDY
- - - EX MAJOR CONTOUR
- - - EX MINOR CONTOUR
- PR MAJOR CONTOUR
- PR MINOR CONTOUR
- ▭ PR BUILDING PLATF.

A	FOR INFORMATION	JW	07/2022
Rev	Description	By	Date
		By	Date
Survey	RIDAR		03/22
Design	IZ		05/22
Drawn	IZ		05/22
Checked	##		###



Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

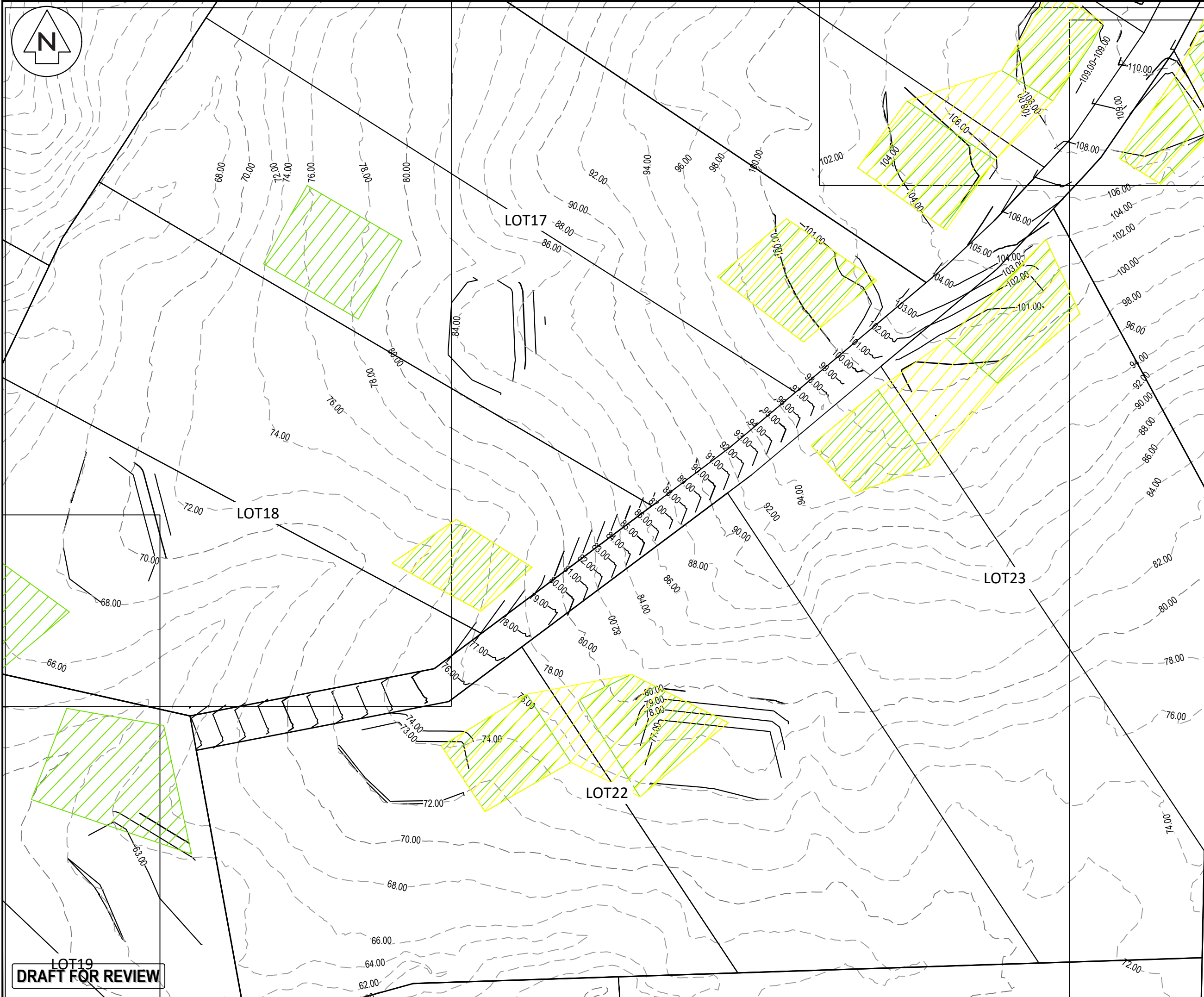
Project

**DEVELOPMENT OF
RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND
HOLDINGS LTD. PART.**

Title

**PROPOSED
EARTHWORK
PLAN**

Project no.	147007		
Scale	1:1000@A3		
Cad file	C200-S1A.DWG		
Drawing no.	C215	Rev	A



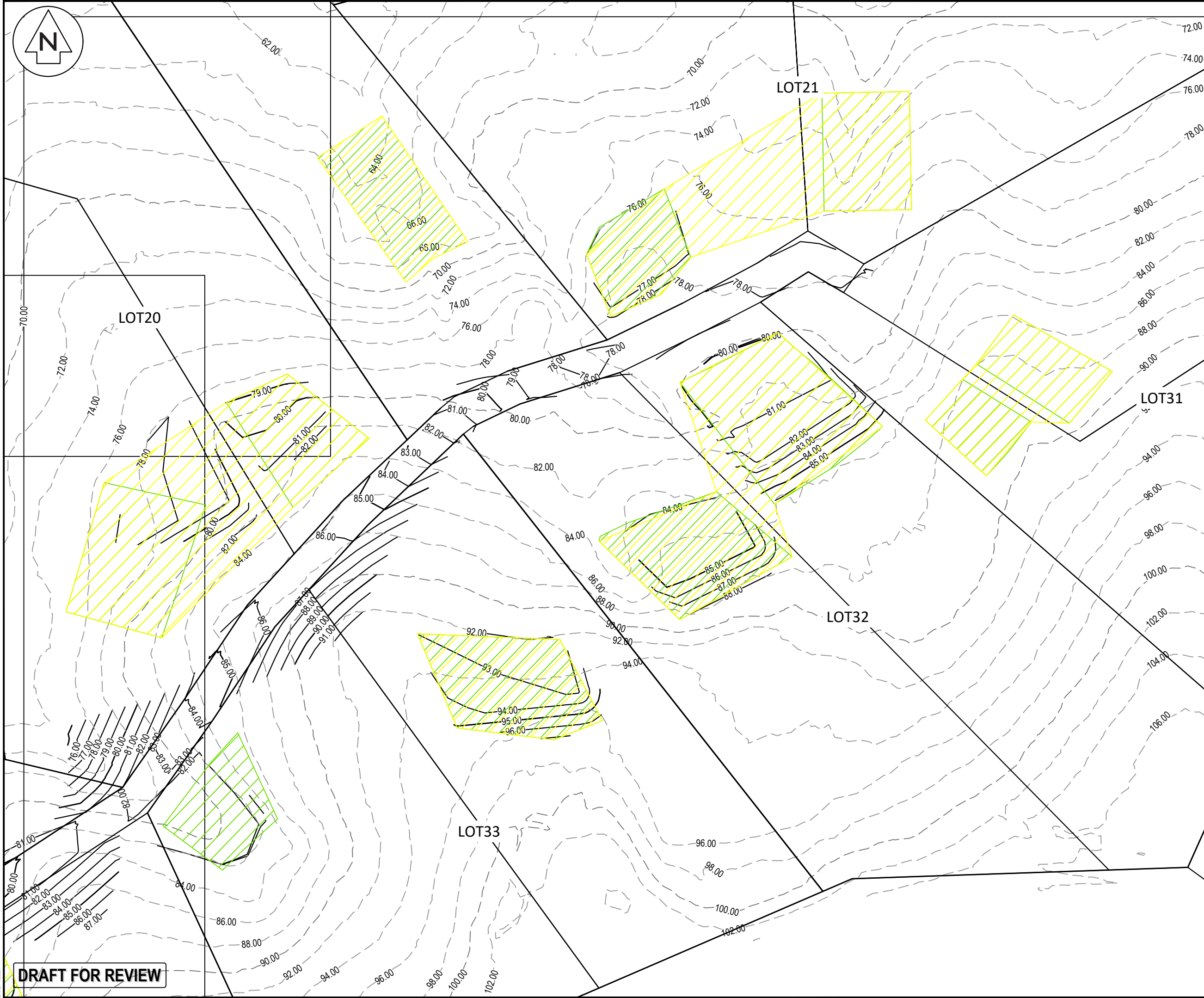
Notes

1. All works to be in accordance with Auckland council standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
3. Levels in terms of the Auckland Vertical Datum 1946.
4. Origin of Levels = SM XXXX SO XXXX(XXXX) Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
5. It is the contractors responsibility to locate all services that may be affected by his operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

—	PROP BDY
- - -	EX MAJOR CONTOUR
- - -	EX MINOR CONTOUR
- - -	PR MAJOR CONTOUR
- - -	PR MINOR CONTOUR
□	PR BUILDING PLATF.

A	FOR INFORMATION	JW	07/2022
Rev	Description	By	Date
		By	Date
Survey	RIDAR		03/22
Design	IZ		05/22
Drawn	IZ		05/22
Checked	##		###
M M A E N Maven Associates 09 571 0050 info@maven.co.nz www.maven.co.nz 5 Owens Road, Epsom Auckland 1023			
Project			
DEVELOPMENT OF RIVERHEAD FOREST			
STAGE 1A			
FOR RANGITOPUNI LAND HOLDINGS LTD. PART.			
Title			
PROPOSED EARTHWORK PLAN			
Project no.	147007		
Scale	1:1000@A3		
Cad file	C200-S1A.DWG		
Drawing no.	C216	Rev	A



Notes

1. All works to be in accordance with Auckland council standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
3. Levels in terms of the Auckland Vertical Datum 1946.
4. Origin of Levels = SM XXXX SO XXXX(XXXX) Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
5. It is the contractors responsibility to locate all services that may be affected by his operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PR BUILDING PLATF.

A	FOR INFORMATION	JW	07/2022
Rev	Description	By	Date
	By	Date	
Survey	RIDAR	03/22	
Design	IZ	05/22	
Drawn	IZ	05/22	
Checked	##	###	
Project DEVELOPMENT OF RIVERHEAD FOREST STAGE 1A FOR RANGITOPUNI LAND HOLDINGS LTD. PART.			
Title PROPOSED EARTHWORK PLAN			
Project no.	147007		
Scale	1:1000@A3		
Cad file	C200-S1A.DWG		
Drawing no.	C217	Rev	A

DATE: 4/2024



- Notes
1. All works to be in accordance with Auckland council standards.
 2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
 3. Levels in terms of the Auckland Vertical Datum 1946.
 4. Origin of Levels = SM XXXX SO XXXX(XXXX) Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
 5. It is the contractors responsibility to locate all services that may be affected by his operations.
 6. The contractor shall comply with all relevant Health and Safety requirements.
 7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
 8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
 9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PR BUILDING PLATF.

A	FOR INFORMATION	JW	07/2022
Rev	Description	By	Date
	By	Date	
Survey	RIDAR	03/22	
Design	IZ	05/22	
Drawn	IZ	05/22	
Checked	##	###	

 **Maven Associates**
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

Project
**DEVELOPMENT OF
RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND
HOLDINGS LTD. PART.**

Title
**PROPOSED
EARTHWORK
PLAN**

Project no.	147007		
Scale	1:1000@A3		
Cad file	C200-S1A.DWG		
Drawing no.	C218	Rev	A



Notes

1. All works to be in accordance with Auckland council standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
3. Levels in terms of the Auckland Vertical Datum 1946.
4. Origin of Levels = SM XXXX SO XXXX(XXXX)
Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
5. It is the contractors responsibility to locate all services that may be affected by his operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PR BUILDING PLATF.

A	FOR INFORMATION	JW	07/2022
Rev	Description	By	Date
	By	Date	
Survey	RIDAR	03/22	
Design	IZ	05/22	
Drawn	IZ	05/22	
Checked	##	###	

Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

Project

**DEVELOPMENT OF
RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND
HOLDINGS LTD. PART.**

Title

**PROPOSED
EARTHWORK
PLAN**

Project no.	147007		
Scale	1:1000@A3		
Cad file	C200-S1A.DWG		
Drawing no.	C219	Rev	A

DRAFT FOR REVIEW

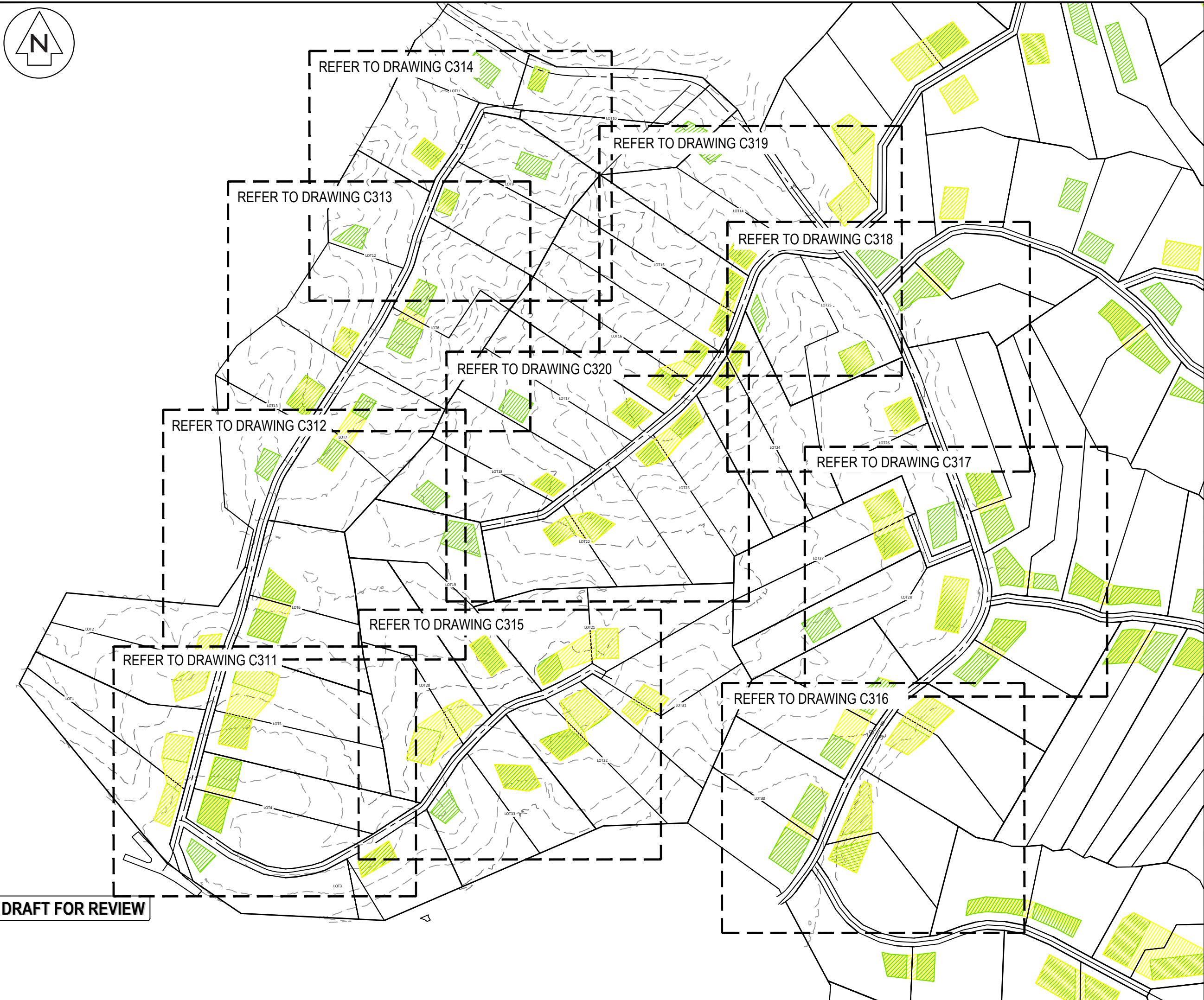


Project no.	147007		
Scale	1:4000@A3		
Cad file	C200-S1A.DWG		
Drawing no.	C221	Rev	A



DRAFT FOR REVIEW

DATE: 4/20/24



Notes

1. All works to be in accordance with Auckland council standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
3. Levels in terms of the Auckland Vertical Datum 1946.
4. Origin of Levels = SM XXXX SO XXXX(XXXX)
Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
5. It is the contractors responsibility to locate all services that may be affected by his operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

—	EX BDY
—	PROP BDY
- - -	EX MAJOR CONTOUR
- - -	EX MINOR CONTOUR
—	PR MAJOR CONTOUR
—	PR MINOR CONTOUR
- - -	PROP EXTENT WORK

A	DRAFT	JW	05/22
Rev	Description	By	Date
	By	Date	
Survey	Ridar	03/22	
Design	JW	04/22	
Drawn	JW	04/22	
Checked	AC	04/22	



Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

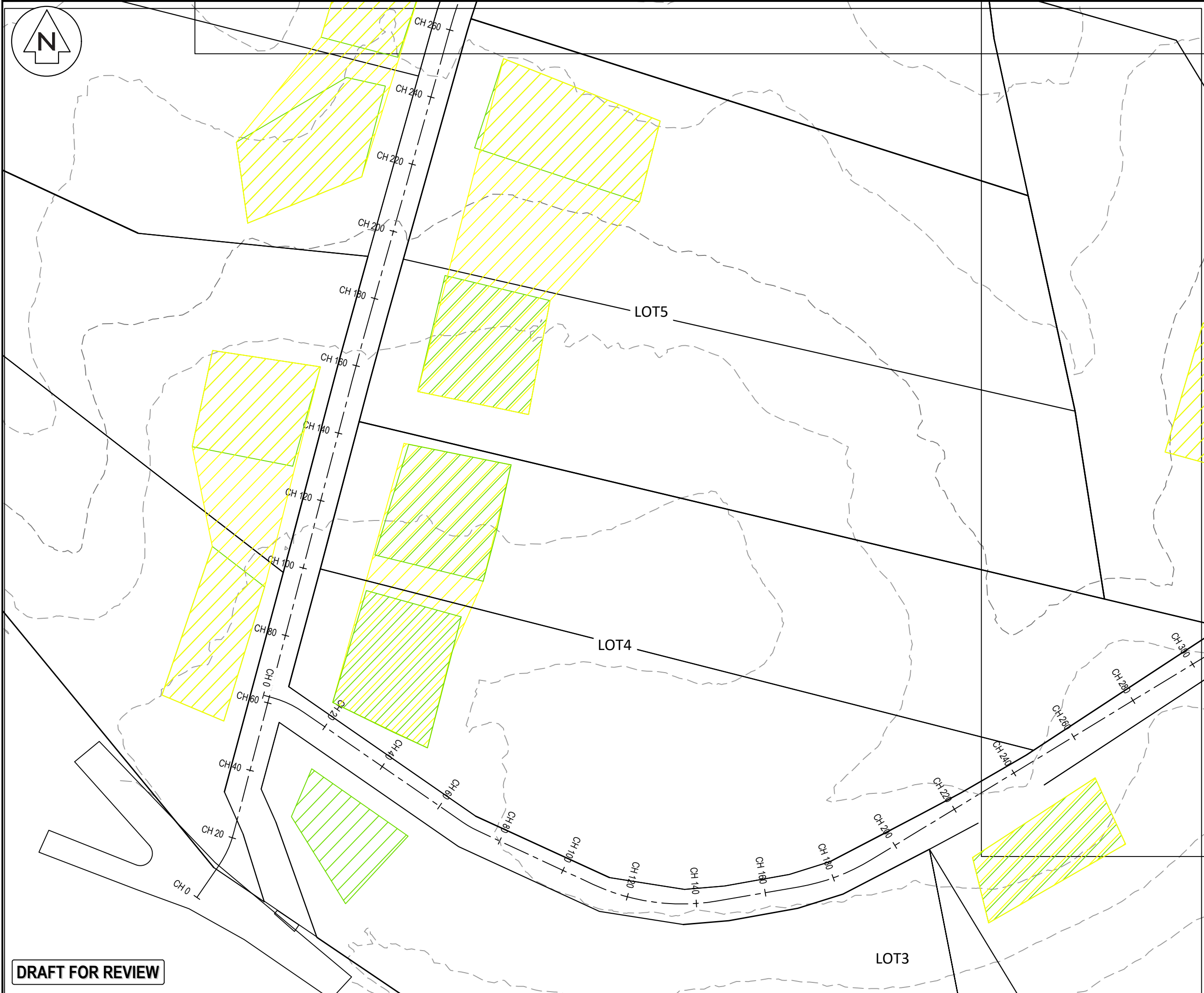
Project

**DEVELOPMENT OF
RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND
HOLDINGS LTD. PART.**

Title

**PROPOSED
ROADING
PLAN**

Project no.	147007		
Scale	1:5000 @ A3		
Cad file	C300-S1A.DWG		
Drawing no.	C300	Rev	A



Notes

1. All works to be in accordance with Auckland council standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
3. Levels in terms of the Auckland Vertical Datum 1946.
4. Origin of Levels = SM XXXX SO XXXX(XXXX) Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
5. It is the contractors responsibility to locate all services that may be affected by his operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

—	EX BDY
—	PROP BDY
- - -	EX MAJOR CONTOUR
- - -	EX MINOR CONTOUR
—	PR MAJOR CONTOUR
—	PR MINOR CONTOUR
- - -	PROP EXTENT WORK

A	DRAFT	JW	04/22
Rev	Description	By	Date
	By	Date	
Survey	Ridar	03/22	
Design	JW	04/22	
Drawn	JW	04/22	
Checked	AC	04/22	

M

M A V E N

Maven Associates

09 571 0050

info@maven.co.nz

www.maven.co.nz

5 Owens Road, Epsom

Auckland 1023

Project

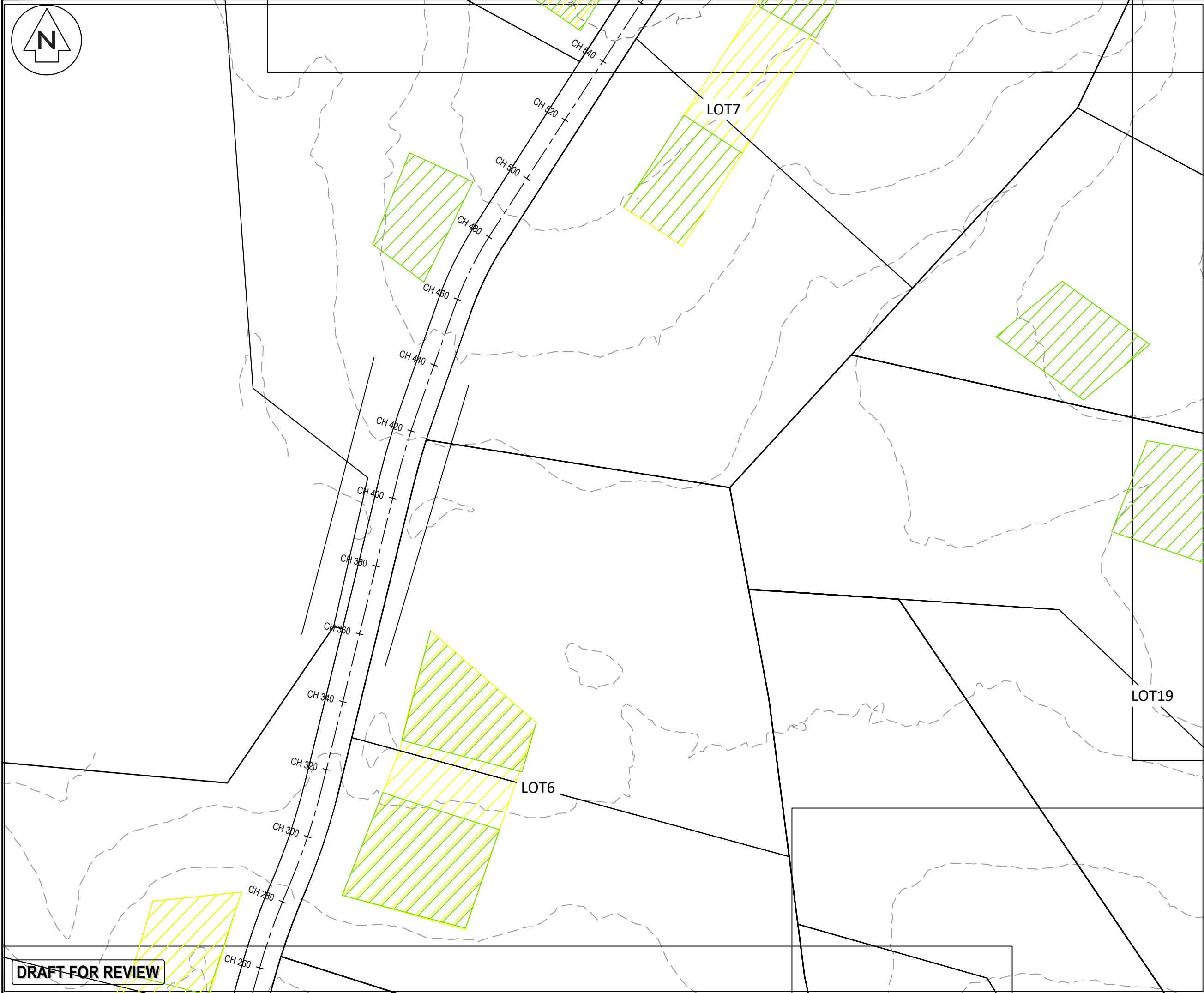
DEVELOPMENT OF RIVERHEAD FOREST STAGE 1A FOR RANGITOPUNI LAND HOLDINGS LTD. PART.

Title

PROPOSED ROADING PLAN

Project no.	147007		
Scale	1:1000 @ A3		
Cad file	C300-S1A.DWG		
Drawing no.	C311	Rev	A

DRAFT FOR REVIEW



Notes

1. All works to be in accordance with Auckland council standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
3. Levels in terms of the Auckland Vertical Datum 1946.
4. Origin of Levels = SM XXXX SO XXXX(XXXX) Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
5. It is the contractors responsibility to locate all services that may be affected by his operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

—	EX BDY
—	PROP BDY
- - -	EX MAJOR CONTOUR
- - -	EX MINOR CONTOUR
—	PR MAJOR CONTOUR
—	PR MINOR CONTOUR
- - -	PROP EXTENT WORK

A	DRAFT	JW	04/22
Rev	Description	By	Date
	By	Date	
Survey	Ridar	03/22	
Design	JW	04/22	
Drawn	JW	04/22	
Checked	AC	04/22	

M

M A E N

Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

Project

**DEVELOPMENT OF
RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND
HOLDINGS LTD. PART.**

Title

**PROPOSED
ROADING
PLAN**

Project no.	147007		
Scale	1:1000 @ A3		
Cad file	C300-S1A.DWG		
Drawing no.	C312	Rev	A



Notes

1. All works to be in accordance with Auckland council standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
3. Levels in terms of the Auckland Vertical Datum 1946.
4. Origin of Levels = SM XXXX SO XXXX(XXXX) Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
5. It is the contractors responsibility to locate all services that may be affected by his operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuiltof working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

—	EX BDY
—	PROP BDY
- - -	EX MAJOR CONTOUR
- - -	EX MINOR CONTOUR
—	PR MAJOR CONTOUR
—	PR MINOR CONTOUR
- - -	PROP EXTENT WORK

A	DRAFT	JW	04/22
Rev	Description	By	Date
		By	Date
Survey	Ridar		03/22
Design	JW		04/22
Drawn	JW		04/22
Checked	AC		04/22

M

M A E N

Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

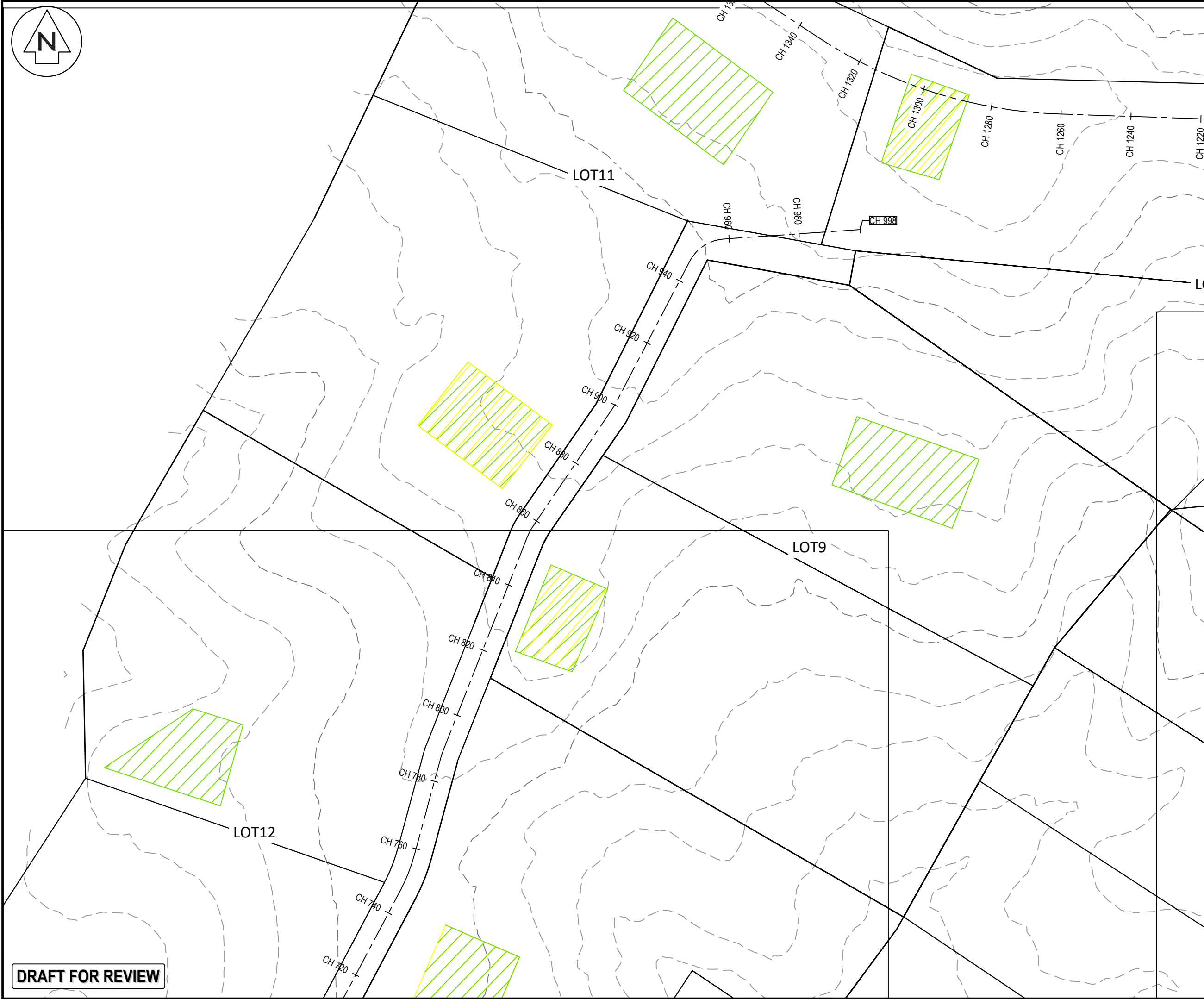
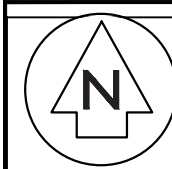
Project

**DEVELOPMENT OF
RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND
HOLDINGS LTD. PART.**

Title

**PROPOSED
ROADING
PLAN**

Project no.	147007		
Scale	1:1000 @ A3		
Cad file	C300-S1A.DWG		
Drawing no.	C313	Rev	A



Notes

1. All works to be in accordance with Auckland council standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
3. Levels in terms of the Auckland Vertical Datum 1946.
4. Origin of Levels = SM XXXX SO XXXX(XXXX) Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
5. It is the contractors responsibility to locate all services that may be affected by his operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

—	EX BDY
—	PROP BDY
- - -	EX MAJOR CONTOUR
- - -	EX MINOR CONTOUR
—	PR MAJOR CONTOUR
—	PR MINOR CONTOUR
- - -	PROP EXTENT WORK

A	DRAFT	JW	04/22
Rev	Description	By	Date
		By	Date
Survey	Ridar		03/22
Design	JW		04/22
Drawn	JW		04/22
Checked	AC		04/22



Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

Project

**DEVELOPMENT OF
RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND
HOLDINGS LTD. PART.**

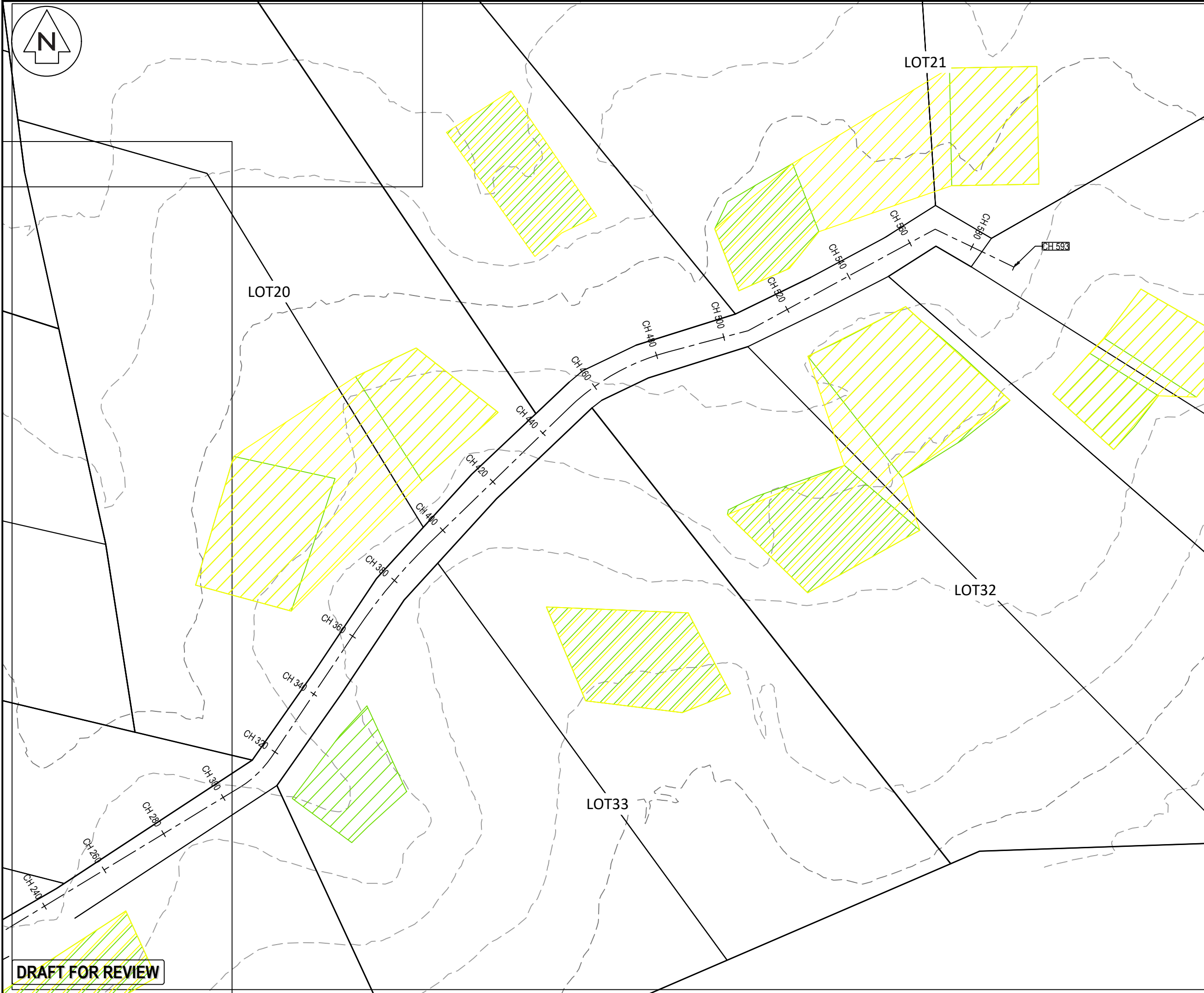
Title

**PROPOSED
ROADING
PLAN**

Project no.	147007		
Scale	1:1000 @ A3		
Cad file	C300-S1A.DWG		
Drawing no.	C314	Rev	A

DRAFT FOR REVIEW

DATE: 4/20/24



Notes

1. All works to be in accordance with Auckland council standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
3. Levels in terms of the Auckland Vertical Datum 1946.
4. Origin of Levels = SM XXXX SO XXXX(XXXX) Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
5. It is the contractors responsibility to locate all services that may be affected by his operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

	EX BDY
	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PROP EXTENT WORK

A	DRAFT	JW	04/22
Rev	Description	By	Date
		By	Date
Survey	Ridar		03/22
Design	JW		04/22
Drawn	JW		04/22
Checked	AC		04/22

Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

Project

**DEVELOPMENT OF
RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND
HOLDINGS LTD. PART.**

Title

**PROPOSED
ROADING
PLAN**

Project no.	147007		
Scale	1:1000 @ A3		
Cad file	C300-S1A.DWG		
Drawing no.	C315	Rev	A

DATE: 4/20/24

DRAFT FOR REVIEW



Notes

1. All works to be in accordance with Auckland council standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
3. Levels in terms of the Auckland Vertical Datum 1946.
4. Origin of Levels = SM XXXX SO XXXX(XXXX)
Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
5. It is the contractors responsibility to locate all services that may be affected by his operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

—	EX BDY
—	PROP BDY
- - - -	EX MAJOR CONTOUR
- - - -	EX MINOR CONTOUR
—	PR MAJOR CONTOUR
—	PR MINOR CONTOUR
- - - -	PROP EXTENT WORK

A	DRAFT	JW	04/22
Rev	Description	By	Date
	By	Date	
Survey	Ridar	03/22	
Design	JW	04/22	
Drawn	JW	04/22	
Checked	AC	04/22	

M

MAVEN

Maven Associates

09 571 0050

info@maven.co.nz

www.maven.co.nz

5 Owens Road, Epsom

Auckland 1023

Project

DEVELOPMENT OF RIVERHEAD FOREST STAGE 1A FOR RANGITOPUNI LAND HOLDINGS LTD. PART.

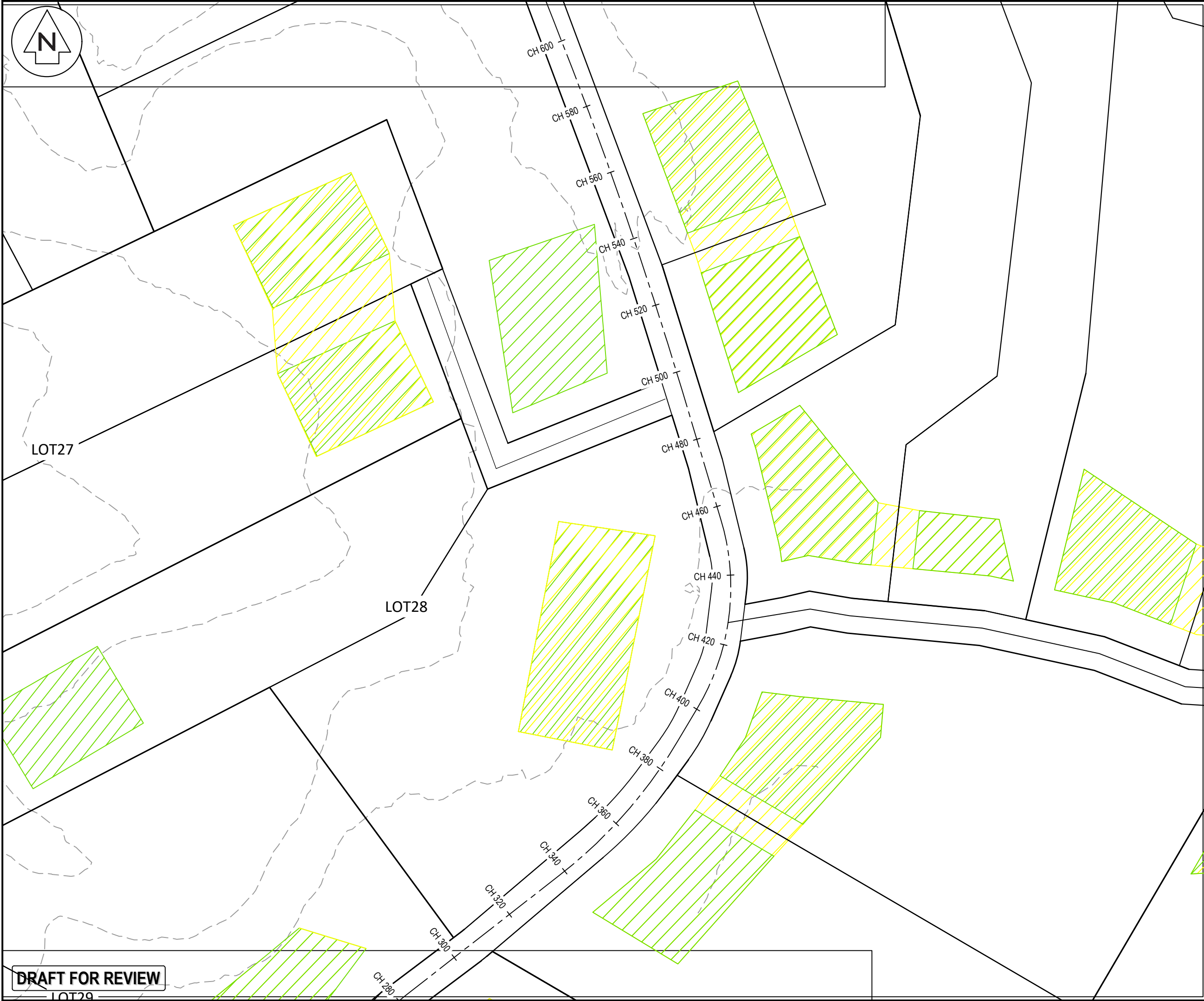
Title

PROPOSED ROADING PLAN

Project no.	147007		
Scale	1:1000 @ A3		
Cad file	C300-S1A.DWG		
Drawing no.	C316	Rev	A

DATE: 4/20/24

DRAFT FOR REVIEW



DRAFT FOR REVIEW

- Notes
1. All works to be in accordance with Auckland council standards.
 2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
 3. Levels in terms of the Auckland Vertical Datum 1946.
 4. Origin of Levels = SM XXXX SO XXXX(XXXX) Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
 5. It is the contractors responsibility to locate all services that may be affected by his operations.
 6. The contractor shall comply with all relevant Health and Safety requirements.
 7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
 8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
 9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

—	EX BDY
—	PROP BDY
- - - -	EX MAJOR CONTOUR
- - - -	EX MINOR CONTOUR
—	PR MAJOR CONTOUR
—	PR MINOR CONTOUR
- - - -	PROP EXTENT WORK

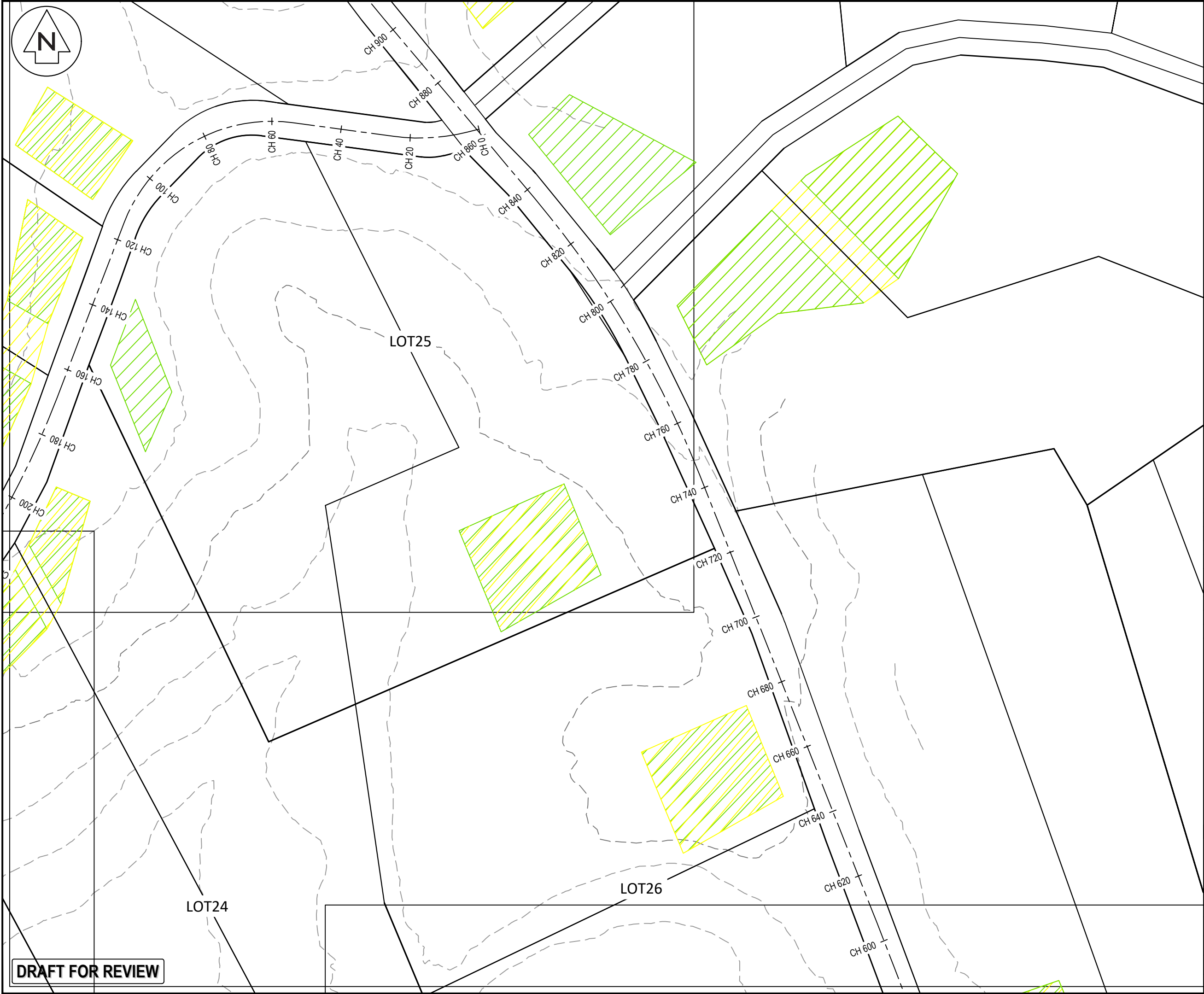
A	DRAFT	JW	04/22
Rev	Description	By	Date
	Survey	Ridar	03/22
	Design	JW	04/22
	Drawn	JW	04/22
	Checked	AC	04/22

M **Maven Associates**
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

Project
**DEVELOPMENT OF
RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND
HOLDINGS LTD. PART.**

Title
**PROPOSED
ROADING
PLAN**

Project no.	147007
Scale	1:1000 @ A3
Cad file	C300-S1A.DWG
Drawing no.	C317
Rev	A



Notes

1. All works to be in accordance with Auckland council standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
3. Levels in terms of the Auckland Vertical Datum 1946.
4. Origin of Levels = SM XXXX SO XXXX(XXXX)
Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
5. It is the contractors responsibility to locate all services that may be affected by his operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

—	EX BDY
—	PROP BDY
- - - -	EX MAJOR CONTOUR
- - - -	EX MINOR CONTOUR
—	PR MAJOR CONTOUR
—	PR MINOR CONTOUR
- - - -	PROP EXTENT WORK

A	DRAFT	JW	04/22
Rev	Description	By	Date
	By	Date	
Survey	Ridar	03/22	
Design	JW	04/22	
Drawn	JW	04/22	
Checked	AC	04/22	

M

MAVEN

Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

Project

**DEVELOPMENT OF
RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND
HOLDINGS LTD. PART.**

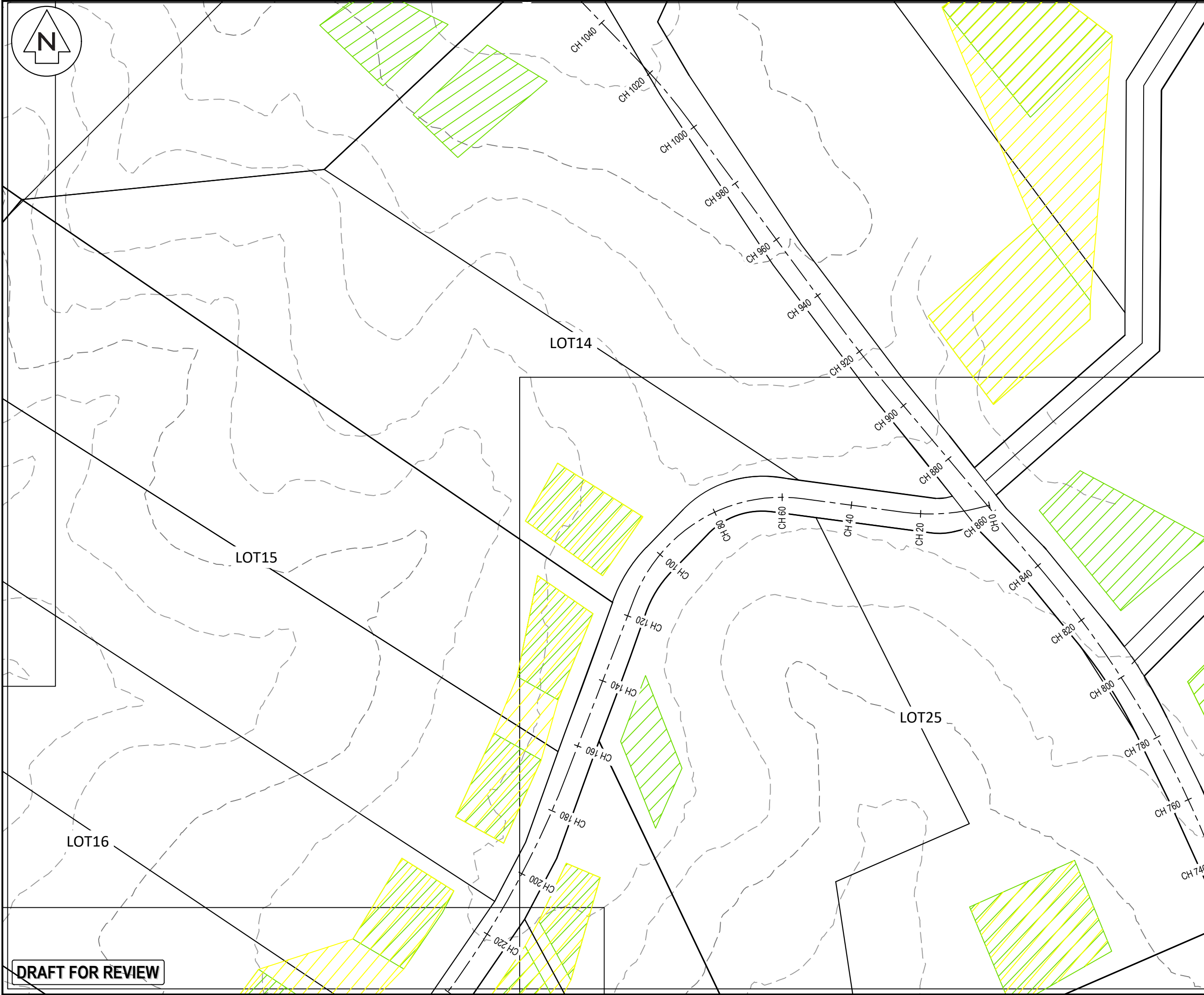
Title

**PROPOSED
ROADING
PLAN**

Project no.	147007		
Scale	1:1000 @ A3		
Cad file	C300-S1A.DWG		
Drawing no.	C318	Rev	A

DATE: 4/20/24

DRAFT FOR REVIEW



Notes

1. All works to be in accordance with Auckland council standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
3. Levels in terms of the Auckland Vertical Datum 1946.
4. Origin of Levels = SM XXXX SO XXXX(XXXX)
Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
5. It is the contractors responsibility to locate all services that may be affected by his operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

	EX BDY
	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PROP EXTENT WORK

A	DRAFT	JW	04/22
Rev	Description	By	Date
		By	Date
Survey	Ridar		03/22
Design	JW		04/22
Drawn	JW		04/22
Checked	AC		04/22

Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

Project

**DEVELOPMENT OF
RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND
HOLDINGS LTD. PART.**

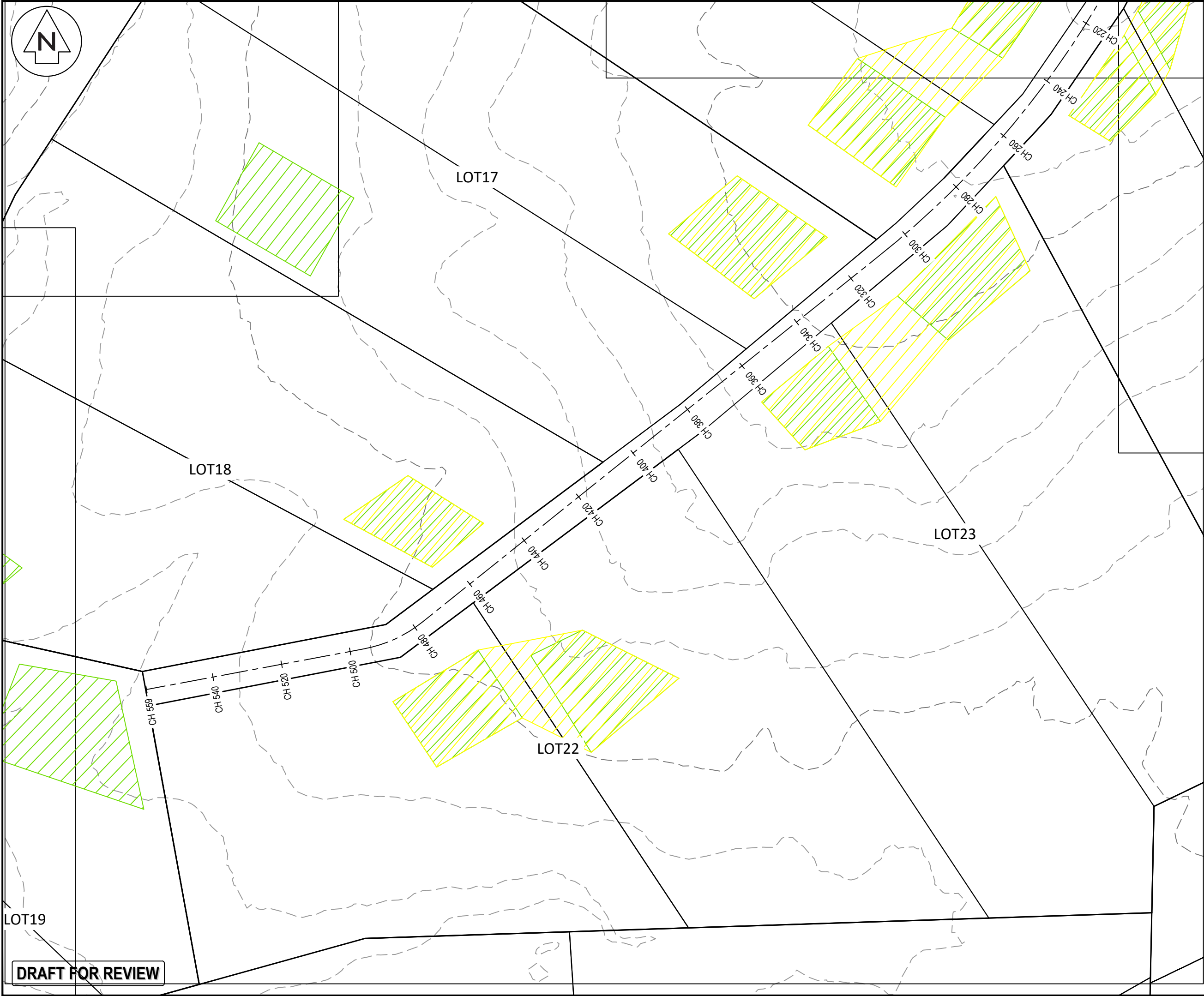
Title

**PROPOSED
ROADING
PLAN**

Project no.	147007		
Scale	1:1000 @ A3		
Cad file	C300-S1A.DWG		
Drawing no.	C319	Rev	A

DRAFT FOR REVIEW

DATE: 4/20/24



Notes

1. All works to be in accordance with Auckland council standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000
3. Levels in terms of the Auckland Vertical Datum 1946.
4. Origin of Levels = SM XXXX SO XXXX(XXXX) Published RL=XX.XX, sourced from The LINZ Digital Geodetic Database.
5. It is the contractors responsibility to locate all services that may be affected by his operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.

Legend

	EX BDY
	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PROP EXTENT WORK

A	DRAFT	JW	04/22
Rev	Description	By	Date
		By	Date
Survey	Ridar		03/22
Design	JW		04/22
Drawn	JW		04/22
Checked	AC		04/22

Maven Associates
09 571 0050
info@maven.co.nz
www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

Project

**DEVELOPMENT OF
RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND
HOLDINGS LTD. PART.**

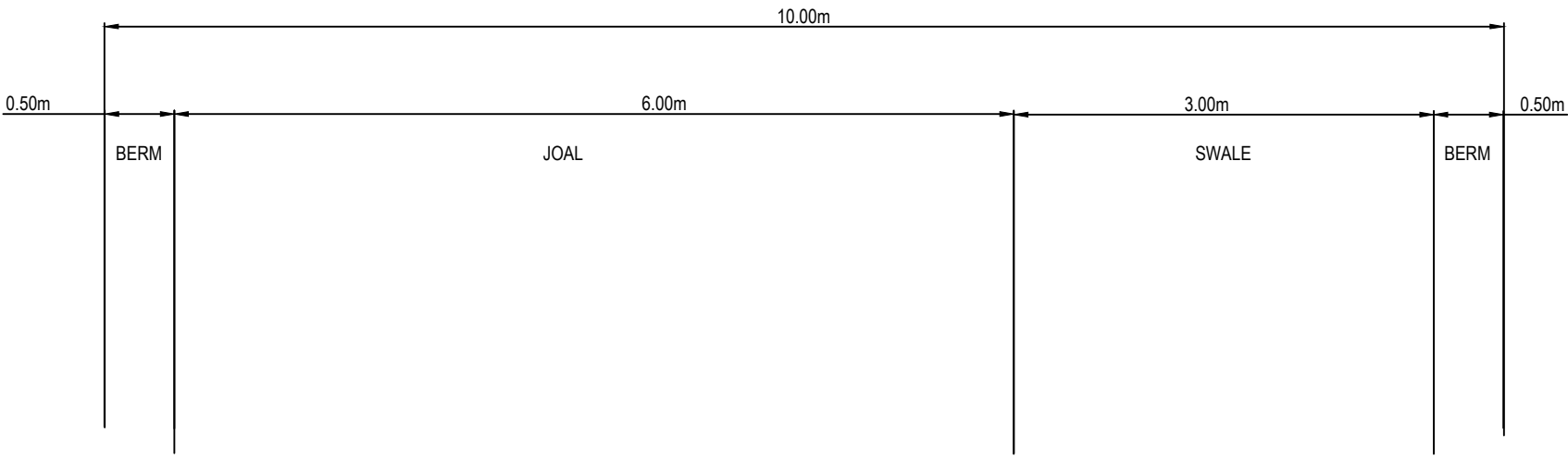
Title

**PROPOSED
ROADING
PLAN**

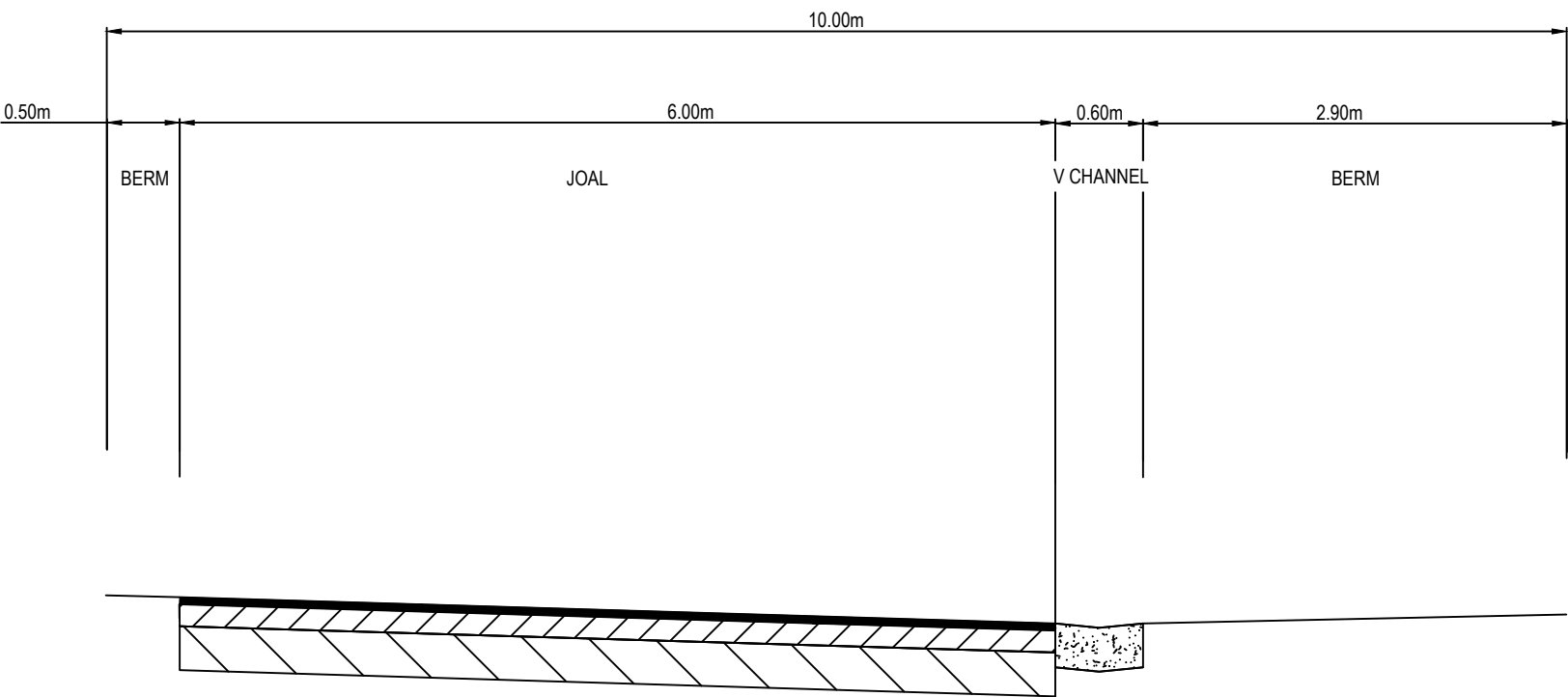
Project no.	147007		
Scale	1:1000 @ A3		
Cad file	C300-S1A.DWG		
Drawing no.	C320	Rev	A

DATE: 4/20/24

DRAFT FOR REVIEW



TYPICAL JOAL CROSS SECTION A-A
NTS



TYPICAL JOAL CROSS SECTION B-B
NTS

Legend

EX GROUND

PR. GROUND

A	DRAFT	JW	04/22
Rev	Description	By	Date
	By	Date	
Survey	Ridar	03/22	
Design	JW	04/22	
Drawn	JW	04/22	
Checked	AC	04/22	

M

M A E N

Maven Associates

09 571 0050

info@maven.co.nz

www.maven.co.nz

5 Owens Road, Epsom

Auckland 1023

Project

DEVELOPMENT OF RIVERHEAD FOREST
STAGE 1A
FOR RANGITOPUNI LAND HOLDINGS LTD. PART.

Title

PROPOSED
ROADING
CROSS SECTIONS

Project no.	147007		
Scale	NTS		
Cad file	C300-S1A.DWG		
Drawing no.	C330	Rev	A

DRAFT FOR REVIEW