

Memorandum

To: Bram Cleland - 1073 Tauwhare Rd
From: Nic Lake (Maven Waikato Limited)
Subject: The Rest - Infrastructure Technical Memorandum for Referral [B]
Date: March 2026

Introduction

1073 Tauwhare Road (the site) is an irregularly shaped parcel of land with an area of approximately 55 hectares, located within the Waikato District to the east of Hamilton as shown in Figure 1.



Figure 1: Site Locality Plan

The Site comprises three land parcels held under separate Records of Title, as identified in Table 1. The Site is bordered by farmland to the north and west, with Tauwhare Road forming a substantial portion of the southern and eastern boundaries. The southeastern corner of the Site adjoins part of the Tauwhare village. Proposed access to the Site will be provided via the southern and eastern boundaries, connecting to Tauwhare Road.

Address	Lot Description	Area (Ha)
1073 Tauwhare Road f	Lot 2 DP 548121	12.3386
1171-Tauwhare Road	Lot 2 DP 407508	22.5611
1185 Tauwhare Road	Lot 1 DP 407508	20.3556
Total Area (Ha)		55.2553

Table 1: Lot Description Table

Purpose of this Report

The Rest project proposal comprises a staged, comprehensively planned development incorporating subdivision, earthworks, and land use activities. The proposal includes the creation of a retirement village, residential lots, two small commercial areas, and an agricultural education institute with associated teaching facilities. Supporting infrastructure will include internal roading, walking and cycling facilities, three waters infrastructure, and all associated site and civil works.

Approvals are required under the Resource Management Act 1991 from Waikato District Council and Waikato Regional Council, as well as under the Wildlife Act 1953.

This report forms part of the fast-track application process. The purpose of this report is to provide the developer with an initial assessment of infrastructure servicing to support the intended redevelopment of the Site.

The design and layout plan (Figure 2: Concept Development Plan prepared by Barker & Associates) has been developed through ongoing consultation and collaboration with the developer.



Figure 2: Concept Development Plan

Stormwater

Stormwater runoff generated within The Rest project will be managed to ensure that runoff from all impermeable surfaces, including roading, berms, driveways, rights-of-way (ROWS), residential and commercial lots, does not result in flooding or ponding within the Site or downstream of the proposed development. The design will also maintain the conveyance of upstream catchment flows through the proposed development.

The primary stormwater management feature within the proposed development will comprise a series of wetland ponds designed to service each development area within the Site, excluding the northern portion, which will remain in livestock and farming facilities. Existing catchment areas will be retained and enhanced, with all runoff from the developed portions of the Site directed to a total of six stormwater ponds via a combination of roadside swales and piped infrastructure. Initial stormwater treatment will be provided through raingardens, bioretention swales, and grassed roadside swales.

The stormwater ponds will discharge at controlled rates that reflect existing discharge rates to adjacent stormwater drains and/or channels forming part of the Waikato Central Drainage Scheme within the Waitakaruru Subdivision drainage network. The objective of the proposed stormwater management approach is to ensure that post-development stormwater flows from the Site are improved relative to pre-development conditions. The wetland ponds will also provide secondary flood attenuation capacity for storm events up to and including the 100-year ARI across the Site.

Furthermore, the proposed stormwater ponds will also combine within each pond's stormwater treatment bio retention aspects, which protects the quality of the discharge from the proposed urbanised areas. This will be designed with planting established post construction allowing treatment of the stormwater but also allows habitats to be formed for ecology. A preliminary stormwater strategy for the site is to set out the best practice framework for stormwater management. The stormwater is currently managed by the existing farm drains and culverts to convey the surface runoff through the site (Refer to Appendix A for the stormwater layout drawing C130-1).

Stormwater Management

The site has been divided into six catchment areas ranging from approximately 3.2Ha to 11.2Ha, stormwater ponds are located next to the proposed Waterway's to allow for direct discharge and overflow to the Waterway's. Each of the proposed stormwater ponds will require a surrounding maintenance track and green space as designated reserve areas to comply with council standard pond requirements. Catchment and Reserve area sizes have been summarized in Table 2 below.

Pond	Catchment Area (Ha)	Reserve Area (m ²)
1	11.2	8000.
2	4.3	4000.
3	5.2	4500.
4	6.9	5400.
5	3.2	3500.
6	5.7	4800.

Table 2: Stormwater Catchment Areas (Reserve areas rounded to nearest 100m²)

Wetland stormwater ponds will be designed in accordance with the Waikato Regional Infrastructure Technical Specifications (RITS), other relevant standards including TR20-06 Waikato Stormwater Runoff Modelling Guideline (TR20-06), and TR20-07 Waikato Stormwater Management Guideline (TR20-07). As per the above guidelines, the proposed stormwater ponds will combine stormwater treatment bio retention (water quality treatment), which protects the quality of the discharge from the proposed urbanised areas. This will be designed with planting established post construction allowing treatment of the stormwater but also allows habitats to be formed for ecology.

Existing Drains and Future Waterways

The future Waterway's will follow the alignment of Existing Drains and Channels that are part of the Waikato Central Drainage Scheme. This corridor is designed to integrate infrastructure, ecological values, connectivity, and amenity, supporting a place-based identity for the development. A variety of uses are proposed along the future Waterway's to encourage interaction by future residents, including sheltered rest areas for relaxation and socialisation, active transport pathways, and play areas.

The proposed Waterway's are sized to accommodate the 100-year ARI stormwater event flows, less the 10-year ARI event flows. The Waterway's will provide the stormwater attenuation prior to discharging back into the primary land drain.

To facilitate future maintenance of the Waterway's, a 3.5 m wide maintenance track will be constructed alongside the corridor. This track will also serve as a shared access path for pedestrians and cyclists. Certain sections of the Waterway's will be widened to provide additional flood storage capacity and enhance the visual amenity of the corridor. Typical cross-sections of the Waterway's are illustrated below.

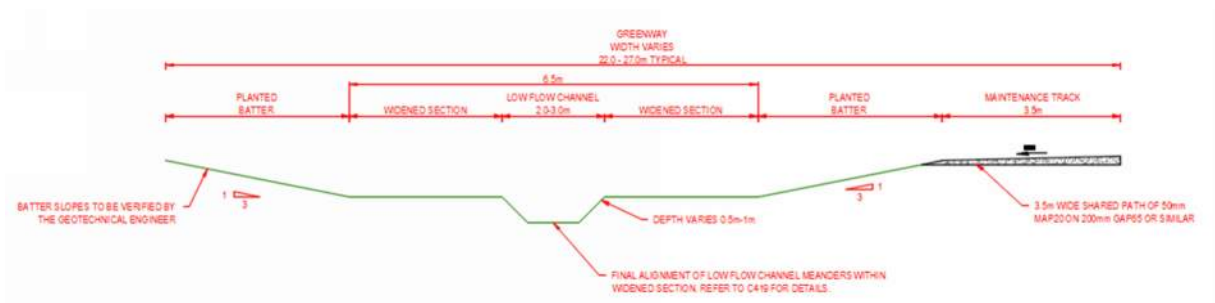


Figure 3: Typical Waterway Cross Section

Wastewater

The Rest project wastewater discharge options are still being explored however there is no Waikato District Council wastewater infrastructure in the general area of the proposed development, therefore it is not feasible to connect to any public services. The proposed development will likely be split into different land use areas, with each area having independent Wastewater discharge options.

Proposed Wastewater Infrastructure

The proposed development will likely be split into different land use areas, with each area having independent Wastewater treatment & disposal options.

- **Rural Residential Areas**
 - Rural Residential areas will utilise private On-lot treatment & disposal for their wastewater such as On-lot Biocycle Systems & disposal field or similar systems.
 - Septic tanks will require emptying every 3 to 5 years depending on usage and a service plan will be required.
 - Each dwelling will need a geotechnical inspection to confirm the loading rate of soil, the size of the dispersal field for each lot will depend on the soil load rates calculated.
 - Based on soil conditions allowing for loading of 5L/ m² and each lot constructing 2-to-4-bedroom dwellings we have assumed a 400 to 500m² area will be required for the dispersal field.

Population	Wastewater volume per day (Population x 65L)	Dispersal field area. (Volume Per Day/5)
38	2470L	494m ²
31	2015L	403m ²
13	845L	169 m ²

Table 3: Residential Wastewater Dispersal field sizing

- A more detailed wastewater design along with geotechnical investigation will be required at Building Consent for each individual Lot/Building

• Commercial Areas

- The proposed master plan indicates three Industrial areas which will utilise private On-lot treatment & disposal for their wastewater such as On-lot Biocycle Systems & disposal field or similar systems, this will limit the type of industrial activities suitable for the proposed development and consent notices would need to be applied to limit the type of industrial activity associated with those lots.
- Population estimation for each of the commercial lots can be shown below and have been calculated using RITS standards (Refer table 91 Population equivalent within the RITS Document)

Commercial Lots	Area (Ha)	Population Equivalent (45 persons per Ha)
1	0.8309	38
2	0.6738	31
3	0.2894	13

Table 4: Wastewater Population estimation for commercial lots

- Based on soil conditions allowing for loading of 5L/sqm and a 65L allowance of wastewater per person per day we have assumed dispersal fields of 494m², 403 m² and 169m² for each of the lots respectively.

Population	Wastewater volume per day (Population x 65L)	Dispersal field area. (Volume Per Day/5)
38	2470L	494m ²
31	2015L	403m ²
13	845L	169 m ²

Table 5: Commercial Wastewater Dispersal field sizing

- Confirmation of industry type at building consent stage will allow for correct calculation of waste flows and dispersal field size.
- **Retirement Village (RV) Area**
 - The RV will require a combination of a central wastewater treatment system and On-lot treatment and disposal, with the final options dependant on RV layout, serviceability of individual villas via internal wastewater networks (both gravity and low-pressure systems) and specific requirements of the RV Care facility. A central wastewater treatment system & disposal system, such as an MBR/Aeration plants in combination with Biocycle systems (or similar systems) would accommodate the above approach.
 - The current design for the retirement village has a mixture of 51 residential and communal buildings. We have assumed a population equivalent of 4 persons per building and a wastewater usage of 200 litres per day.
 - Based on soil conditions allowing for loading of 5L/ m² and wastewater usage as the design parameters above we have assumed a 2040m² area will be required for the dispersal field. A 2000m² area has been designated within the Retirement Village area (Refer Appendix A Drawing 130-2 A).
 - A more detailed wastewater design along with geotechnical investigation will be required at Building Consent
 - If additional space for the dispersal field is required, an additional pump and dispersal field I can be constructed.
- **Agri-education institute Area**
 - The Agri-education institute Area will require a combination of a central wastewater treatment system and On-lot treatment and disposal, with the final options dependant on the final layout of the institute. A central wastewater treatment system & disposal system, such as an MBR/Aeration plants in combination with Biocycle systems (or similar systems) would
 - The current design for the Agri-education institute has a mixture of 20 Residential, Workshops Sheds and classroom buildings over an 8 Ha area. We have assumed a population equivalent of 45 persons per Ha and a wastewater usage of 140 litres per day.
 - Based on soil conditions allowing for loading of 5L/ m² and wastewater usage as the design parameters above we have assumed a 10,080m² area will be required for the dispersal field. A 10,080m² area has been designated within the Agri-education institute Area (Refer Appendix A Drawing 130-2 A).
 - A more detailed wastewater design along with geotechnical investigation will be required at Building Consent
 - If additional space for the dispersal field is required, an additional pump and dispersal field I can be constructed.
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Water supply

Maven has undertaken a desktop assessment to identify the most suitable potable water supply options for The Rest project. Existing dwellings in the surrounding area typically rely on roof runoff collection to on-site storage tanks and abstraction from private bores. Further investigation of potential bore locations within the Site is therefore recommended to reduce reliance on rainwater collection systems.

Any water bores established within the Site are also proposed to be utilised during the construction phase of the project to support dust suppression during drier periods, particularly when bulk earthworks and civil works are being undertaken.

- **Rural Residential Areas**

- Water supply for the Rural Residential areas will be via On-lot rainwater harvesting and reuse tanks, sized for both potable water supply and firefighting supply as per both the district plan and SNZ PAS 4509:2008-New Zealand Fire Service Firefighting Water Supplies Code of Practice
- Each of the proposed lots will be required to maintain a minimum 45,000L of water to comply with the current Fire service code of practice
- An additional recommended minimum 20,000L of portable water for domestic household use.
 - Based on 3 persons per household, with 220l/p/day for 30days
 - Note actual demand to be determined at Building Consent stage.
- The combined Firefighting and Potable water supply volume of water can be stored in 3x 30,000L Promax (or similar product) water tanks.
- Each lot may harvest a greater volume of rain runoff for household use by increasing the number of tanks for onsite storage but at no time can any of the water stored for fire use be used for any other purpose. Tanks for containing the minimum required 65,000L of water will be confirmed in future consents.

- **Commercial Areas**

- Water supply for the Industrial areas will be via On-lot rainwater harvesting and reuse tanks, sized for both potable water supply and firefighting supply as per each industries specific needs, the district plan and SNZ PAS 4509:2008-New Zealand Fire Service Firefighting Water Supplies Code of Practice 444
 - Assumed to be FHC 2 – working/business/storage activities with low fire load such as hairdressers, banks, medical consulting rooms, offices etc.
- Each of the proposed lots will be required to maintain a minimum 45,000L of water to comply with the current Fire service code of practice
- Each of the proposed lots will require an additional portable water supply for commercial use.
 - Calculations for required commercial portable water supply will vary depending on each type of commercial industry, this will be confirmed at future consenting stages.
- The required volume of stored water can be stored in a combination of Promax (or similar product) water tanks.

- **Retirement Village (RV) Area**

- Potable water supply options for the Site are still under investigation and are expected to include rainwater harvesting with storage and reuse tanks. A centralised water treatment plant is also proposed for communal buildings within the retirement village, which may be supplied by a bore, subject to further investigation and water take consent allowances. The centralised

treatment plant will ensure that any water sourced from a bore and used as potable water is treated to meet the required drinking water standards.

- The Retirement Village communal/care facility building will be required to maintain 180m³ to 1080m³ of water supply to comply with the current SNZ PAS 4509:2008-New Zealand Fire Service Firefighting Water Supplies Code of Practice 444, which will be serviced by the main building as shown in the current master plan (Refer figure 2 for current master plan).
 - Assuming that the FHC for the is FHC 1 – sleeping activities including care facilities, hotels, hotels, hostels etc.
 - Assuming that the FW classification is between FW3 and FW5
 - Calculations for required commercial portable water calculations will vary depending on each type of commercial industry, this will be confirmed at future consenting stages.
- The main building will also be required to harvest additional portable water for commercial use. Calculations for required commercial portable water calculations will vary depending on staff requirements and building use, this will be confirmed at future consenting stages.
- The retirement Village individual villas may have separate firefighting & potable water supply and/or be connected to the communal/care facility water supply
 - If water supply is independent of the communal supply each of the proposed Villas will be required to maintain a minimum 45,000L of water to comply with the current Fire service code of practice
 - An additional recommended minimum 15,000L of portable water for domestic household use.
 - Based on 2 persons per household, with 220l/p/day for 30days
 - Note actual demand to be determined at Building Consent stage.
 - The combined Firefighting and Potable water supply volume of water can be stored in 2x 30,000L Promax (or similar product) water tanks.
 - Each Villa may capture a greater volume of rain runoff for household use by increasing the number of tanks for onsite storage but at no time can any of the water stored for fire use be used for any other purpose. Tanks for containing harvested water will be confirmed in future consents.
- **Agri-education institute Area**
 - The potable water supply options are still being explored which will likely include rainwater harvesting and reuse tanks. A centralised water treatment plant is also proposed for communal buildings within the Agri-education institute Area which could include a supply from a bore depending on investigation and water take allowances. The centralised treatment plant will ensure that any water sourced from the bore for use as potable water will be treated to the required drinking water standards.
 - The Agri-education institute Area will be required to maintain 180m³ to 540m³ of water supply to comply with the current SNZ PAS 4509:2008-New Zealand Fire Service Firefighting Water Supplies Code of Practice 444, which will be serviced by the main building as shown in the current master plan (Refer figure 2 for current master plan).
 - Assuming that the FHC for the is FHC 1 – crowd activities of < 100 people including community halls, lecture halls, churches, working business/storage activities processing non-combustible materials such as wineries, cattle yards etc.

- Assuming that the FW classification is between FW3 and FW4
- Calculations for required commercial portable water calculations will vary depending on each type of commercial industry, this will be confirmed at future consenting stages.
- The Agri-education institute Area should have the highest possibility for a bore to be located within the institute area. If a usable bore is located, consent for water draw for all non-potable use will be sort.
- Residential dwellings and classrooms within the Agri-education institute Area will be required to harvest portable water from each structure for potable use.
- Calculations for required portable water supply will vary depending on each type of building, this will be confirmed at future consenting stages.

Conclusion

Based on the findings of this engineering assessment, The Rest project can be accommodated at the Site without generating adverse effects on existing infrastructure or the receiving environment.

Stormwater drainage for the development can be effectively provided. Various options have been assessed, and the selected approach represents the best practicable option. The proposed treatment and disposal methods also deliver high amenity outcomes consistent with the urban design objectives.

A combination of individual and shared private wastewater systems can be implemented to service the development. Similarly, a mixture of individual and shared private potable water systems can provide both drinking water and firefighting supply requirements.

Relevant utility providers will be engaged to confirm that the existing networks in surrounding streets have sufficient capacity to service the development or can accommodate upgrades within a suitable timeframe.

Overall, the information gathered to date confirms that the Site is suitable for the proposed development.

APPENDIX A – Maven Overview Plans



ROOF RUNOFF FROM WEATHER EVENTS TO DISCHARGE TO COLLECTIVE STORAGE TANKS FOR FIRE FIGHTING THROUGHOUT THE RETIREMENT VILLAGE PRIVATE POTABLE WATER TANKS WILL BE MAINTAINED BY EACH DWELLING. OVER FLOW FROM ALL STORM WATER MITIGATION TANKS WILL DISCHARGE TO THE PROPOSED POND THROUGH A PRIVATE STORM WATER NETWORK.

ALL PRIVATE AND COMMERCIAL LOTS TO CAPTURE ROOF RUNOFF FROM WEATHER EVENTS AND STORE FOR FIRE FIGHTING AND PRIVATE POTABLE WATER WITH OVER FLOW DISCHARGING TO POND THROUGH PRIVATE STORM WATER NETWORK.

POND 6
CATCHMENT AREA: 5.7Ha

PROPOSED SWALE TO
POND TO BE SIZED AT RC

POND 5
CATCHMENT AREA: 1.2Ha

PROPOSED SWALE TO
POND TO BE SIZED AT RC

PROPOSED SWALE TO
POND TO BE SIZED AT RC

POND 4
CATCHMENT AREA: 6.9Ha

PROPOSED SW PIPE
NETWORK FOR
RETIREMENT VILLAGE

ALL PRIVATE AND COMMERCIAL LOTS TO CAPTURE ROOF RUNOFF FROM WEATHER EVENTS AND STORE FOR FIRE FIGHTING AND PRIVATE POTABLE WATER WITH OVER FLOW DISCHARGING TO POND THROUGH PRIVATE STORM WATER NETWORK.

ROOF RUNOFF FROM WEATHER EVENTS TO DISCHARGE TO COLLECTIVE STORAGE TANKS FOR FIRE FIGHTING THROUGHOUT THE AGRI-EDUCATION CENTER. POTABLE WATER TANKS WILL BE MAINTAINED BY EACH BUILDING WITHIN THE AGRI-EDUCATION CENTER. OVER FLOW FROM ALL STORM WATER MITIGATION TANKS WILL DISCHARGE TO THE PROPOSED POND THROUGH A PRIVATE STORM WATER NETWORK.

POND 1
CATCHMENT AREA: 11.2Ha

PROPOSED SWALE TO
POND TO BE SIZED AT RC

POND 2
CATCHMENT AREA: 4.3Ha

PROPOSED SWALE TO
POND TO BE SIZED AT RC

POND 3
CATCHMENT AREA: 5.2Ha

PROPOSED SWALE TO
POND TO BE SIZED AT RC

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATIONS.
2. CO-ORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000.
3. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016.
4. BOUNDARIES ARE SUBJECT TO FINAL SURVEY.

LEGEND

EX BDY	PR STORMWATER PIPE
PROP BDY	PR STORMWATER SWALE
STAGE BOUNDARY	PR STORMWATER POND
PR STORMWATER PIPE	PR GREENWAY
PR STORMWATER SWALE	EX SWALE FLOW DIRECTION
PR STORMWATER POND	PR RETIREMENT VILLAGE
PR GREENWAY	PR COMMERCIAL LOTS
EX SWALE FLOW DIRECTION	PR AGRI-EDUCATION AREA
PR RETIREMENT VILLAGE	PR LIVESTOCK / FARMING AREA
PR COMMERCIAL LOTS	RURAL RESIDENTIAL AREA
PR AGRI-EDUCATION AREA	PR WASTEWATER PUMP STATION
PR LIVESTOCK / FARMING AREA	
RURAL RESIDENTIAL AREA	
PR WASTEWATER PUMP STATION	

B	MASTER PLAN UPDATE	NDL	03/2026
A	DRAFT	NDL	01/2026
Rev	Description	By	Date
Survey	Blue Wallace		06/2025
Design	NDL		01/2026
Drawn	NDL		01/2026
Checked	DJM		01/2026

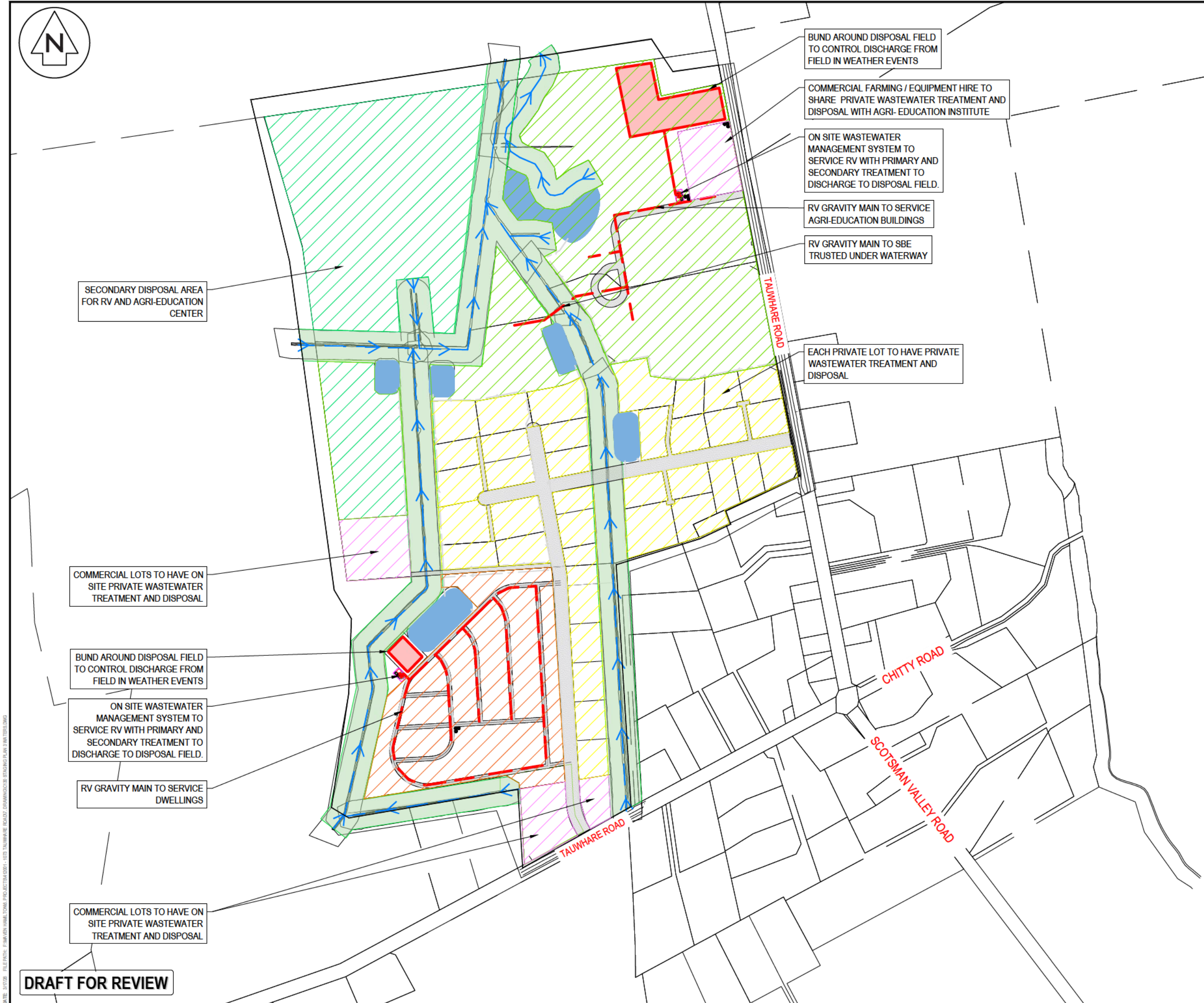


Project
THE REST
1073 TAUWHARE ROAD
FOR
BRAM
CLELAND

Title
PROPOSED STORMWATER
STAGING OVERVIEW
PLAN

Project no.	412001 TAUWHARE RD
Scale	1:5000 @ A3
Cad file	C130 STAGING PLAN 3 WATERS.DWG
Drawing no.	C130-1
Rev	B

DRAFT FOR REVIEW



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATIONS.
 2. CO-ORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000.
 3. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016.
 4. BOUNDARIES ARE SUBJECT TO FINAL SURVEY.

LEGEND	
	EX BDY
	PROP BDY
	PR WASTEWATER DISPOSAL FIELD
	PR STORMWATER POND
	PR GREENWAY
	EX SWALE FLOW DIRECTION
	PR RETIREMENT VILLAGE
	PR COMMERCIAL LOTS
	PR AGRI-EDUCATION AREA
	PR LIVESTOCK / FARMING AREA
	RURAL RESIDENTIAL AREA
	PR WASTEWATER PUMP STATION

Rev	Description	By	Date
B	MASTER PLAN UPDATE	NDL	03/2026
A	DRAFT	NDL	01/2026
Survey	Blue Wallace		06/2025
Design	NDL		01/2026
Drawn	NDL		01/2026
Checked	DJM		01/2026



Project
THE REST
1073 TAUWHARE ROAD
FOR
BRAM
CLELAND

Title
PROPOSED WASTEWATER STAGING OVERVIEW PLAN

Project no.	412001 TAUWHARE RD
Scale	1:5000 @ A3
Cad file	C130 STAGING PLAN 3 WATERS.DWG
Drawing no.	C130-2
Rev	B