MCKENZIE & CO.

Memo

Date 02/07/2025

DELMORE – TRANSMISSION WATER & WASTEWATER SUPPLY CAPACITY ASSESSMENT

1. BACKGROUND

The Delmore development is a proposed 1,250-lot residential subdivision located in Orewa, within the Upper Orewa water supply catchment. As part of the development planning process, it is necessary to assess the availability and adequacy of existing water and wastewater infrastructure to support the proposed dwellings.

This report has been prepared to evaluate the water and wastewater demand associated with the Delmore development and to assess the capacity of the existing transmission.

The assessment has been undertaken in accordance with Watercare's Infrastructure Code of Practice for transmission and network standards. This report is intended to support resource consent and engineering approval processes by confirming the feasibility of transmission water and wastewater servicing for the development.

2. DEVELOPMENT OVERVIEW

The development sits within Watercare's Silverdale-Dairy Flat, Wainui East, and Upper Orewa catchment area. This area is currently serviced by two Transmission water mains:

- Orewa 1 – 310 CLS, commissioned in the 1990s.
- Orewa 2 – 470 CLS, commissioned in the early 2000s.

A third trunk main, Orewa 3, is planned for construction in approximately 2038. This new main will run along the west side of State Highway 1, through Silverdale–Dairy Flat and Wainui East, and will tie into the Orewa 1 main near its northern extent. An overview of the existing transmission network is provided below in **Figure 1**.

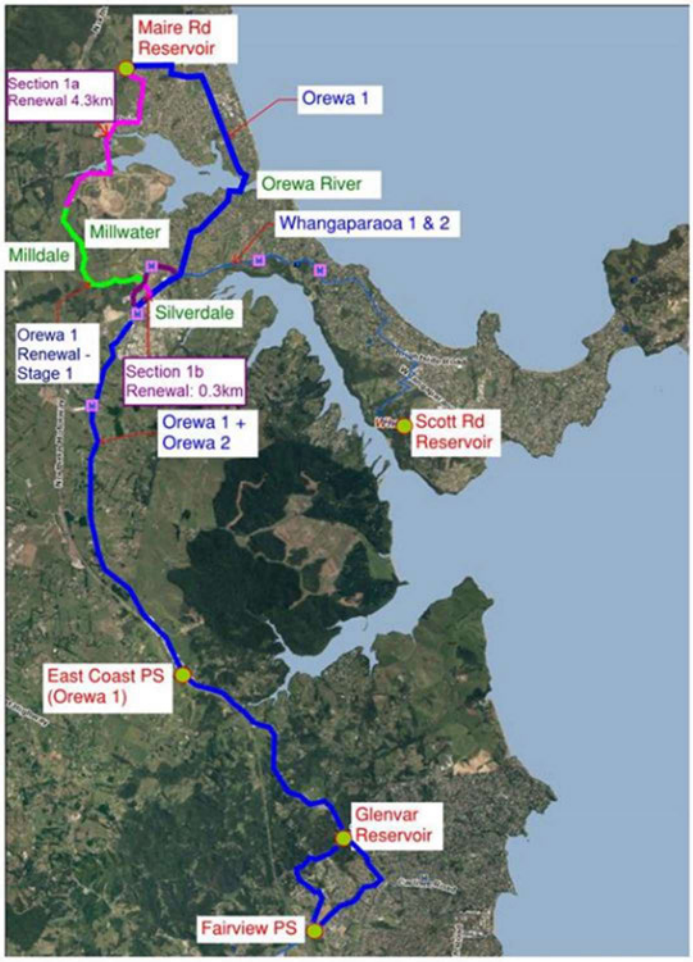


Figure 1 - Transmission Network - Northern Supply Area

3. INITIAL MEETING WITH WATERCARE – APRIL 2024

A meeting was held with Lars Fog (Watercare) to discuss the water and wastewater servicing requirements for the proposed Delmore development.

Regarding water supply, no concerns were raised during the meeting. It was confirmed that a distribution main extends to the site boundary, and that there are no capacity constraints within the existing water network that would impede development at this stage.

However, wastewater capacity was identified as a potential constraint due to known limitations within the Army Bay Wastewater Treatment Plant (WWTP) catchment. In follow-up to this discussion, Watercare provided mean daily flow data for the Army Bay WWTP to assist with further analysis.

This data covers the period from 1 January 2022 to 16 April 2024, and indicates that the average mean dry weather flow (DWF) had reached approximately 12,000 m^3/day by the end of 2023. Refer to **Figure 2**.

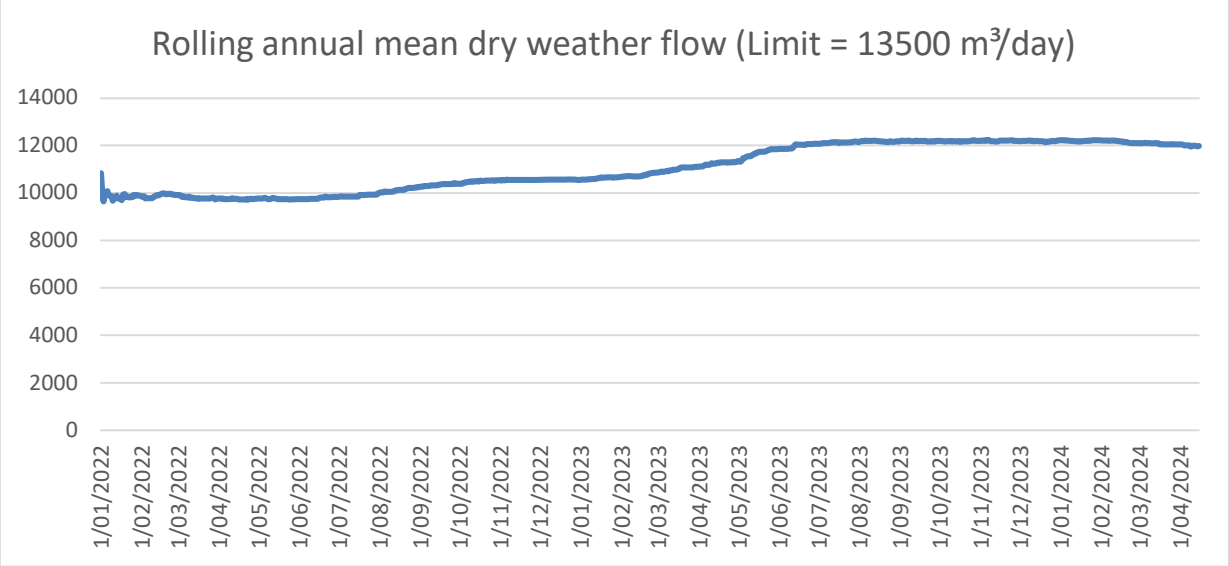


Figure 2 - Watercare flow data - Army Bay WWTP

4. NETWORK CAPACITY IN AUCKLAND

In November 2024, Watercare released an updated network capacity map to assist developers by identifying areas with existing water and wastewater infrastructure constraints across the Auckland region.

According to this map, while wastewater capacity constraints are identified in the Orewa–Hibiscus Coast area, no water supply constraints are indicated for this catchment. This aligns with feedback received from Watercare during initial consultation, confirming that the Delmore site is within an area currently supported by sufficient water infrastructure capacity. Refer to **Figure 3**.

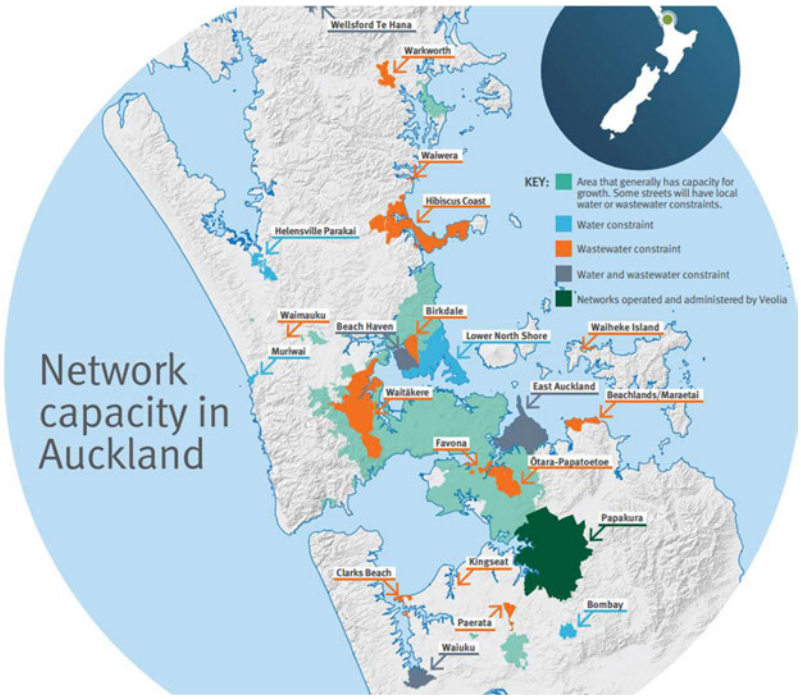


Figure 3 - Network capacity map, Watercare November 2024

5. AUCKLAND COUNCILS FUTURE DEVELOPMENT STRATEGY

The Delmore development sits in the Upper Orewa catchment. Unlike Silverdale West, Weiti, Dairy Flat, and Wainui East—catchments west of SH-1 that will rely on the future Orewa 3 trunk main—Upper Orewa is not flagged for significant water-supply upgrades.

The only infrastructure constraint noted for this catchment is the Army Bay WWTP capacity, which aligns with Watercare's feedback to date.

The Orewa 3 transmission pipeline runs west of SH1 and connects into the Orewa 1 Transmission line, whereas the Delmore connection connects to the Orewa 2 Transmission line. This may explain why the Orewa 3 pipeline is not a precursor to the Upper Orewa area.

The FDS is a non-statutory document under the Local Government (Auckland Council) Act 2009. While it guides sequencing, it is not binding.

The North Harbour No. 2 was noted at a further meeting with Watercare, however it is noted that this is a pre-requisite for Redhills & Whenuapai, but also not any of the catchments above. Refer to **Figures 4 and 5**.

Silverdale West (stage 3)	**Not before 2035+**	Dairy Flat Highway upgrade Dairy Flat to Redvale Interchange Arterial SH1 Interchange upgrades and new interchanges including active modes (Wilks Road, Redvale & Silverdale) North Shore Rapid Transit (extension to Milldale) Army Bay Wastewater Treatment Plant Upgrade Orewa 3 Watermain
Weiti	**Not before 2035+**	Dairy Flat Highway to Penlink upgrades East Coast Road upgrade Wilks Road interchange Army Bay Wastewater Treatment Plant Upgrade Orewa 3 Watermain
Dairy Flat	**Not before 2050+**	Dairy Flat Highway upgrade SH1 Interchange upgrades and new interchanges including active modes (Wilks Road, Redvale & Silverdale) Bawden Road upgrade East Coast Road Upgrade North Shore Rapid Transit (extension to Milldale) Army Bay Wastewater Treatment Plant Upgrade Orewa 3 Watermain
Upper Orewa	**Not before 2050+**	Wainui Road upgrade Milldale and Grand Drive connection North Shore Rapid Transit (extension to Milldale) Army Bay Wastewater Treatment Plant Upgrade

Figure 4 – Future Infrastructure Upgrade

Scott Point	Scott Point	**Live zoned**	
Red Hills	Red Hills	**Live zoned**	
	Red Hills North	**Not before 2035+**	Fred Taylor Drive Upgrade Northwest Rapid Transit Whenuapai and Redhills Wastewater Scheme Brigham Creek Pump Station + Northern Redhills to Brigham Creek Wastewater Project North Harbour No.2 Watermain Project
Whenuapai	Whenuapai	**Live zoned**	
	Whenuapai South	**Not before 2035+**	Trig Road upgrade SH16 to SH18 Connections Hobsonville Road Upgrade Northwest Rapid Transit Whenuapai Wastewater Package 2 Trig Road Water Reservoir, North Harbour No.2 Watermain Project

Figure 5– Future Infrastructure Upgrade

6. TRANSMISSION MAIN CAPACITY

Watercare's news release of 24 January 2023 states that upgrades to the Orewa 2 rising main pumps have increased the transmission main's capacity to **34 MLD** (see **Appendix A**).

In a meeting with Watercare, this figure was updated, and this was again confirmed in a follow-up email from Anna Jennings, who confirmed a capacity increase but advised a more modest **25 MLD** limit because of downstream constraints (email included in **Appendix A**).

The nature of those downstream constraints is unclear. However, the Delmore supply main connects directly to Orewa 2, so any downstream bottleneck is unlikely to restrict Delmore as this off take is at the downstream end of the transmission pipe.

The Army Bay Wastewater treatment plan is well documented as a pre-requisite to this site, although it is silent on the stage of upgrades that are the pre-requisite.

Planning and Consenting Pathway

A subdivision requires a resource consent to enable development to occur. Currently, two avenues exist that are covered in this memo:

1. Plan change – rezone the land from Future Urban to Residential, then obtain consent.
2. Fast-track consenting – bypass rezoning and proceed directly to consent.

Adjacent site Ara Hills demonstrates that a resource consent can precede zoning: development is possible with a resource consent alone, but it is not possible with zoning alone. The resource consent is therefore the critical enabling step to enable development.

It is the resource consent that serves as the primary enabling mechanism for development, rather than zoning status alone. Accordingly, we have assessed the capacity in the pipe based on the expected number of resource consents due, including Delmore.

Delmore Development

The Delmore development will add up to 1,250 residential lots to the Orewa water supply network. For transmission design purposes, the daily demand is calculated using the Network Code of practice factors, being:

- 220 L/day per person,
- 3 persons per dwelling,
- across 1,250 dwellings,

This results in a projected average daily demand (ADD) of: 1,250 × 3 × 220 L/day = **825 m^3/day**

The demand scenarios considered are as follows:

1. Inclusion of consented dwellings

2. Inclusion of the Delmore development

Detailed calculations for each scenario are provided in **Appendix B**, with the results summarised in the table over page.

Scenario	Demand (m^3/day) incl. peaking factor 1.45	% of 25 MLD capacity	% of 34 MLD capacity
Existing demand	17,671		
+ Consented dwellings	22,822		
+ Delmore Stage 1	21,287	85%	63%
+ Delmore Full Development	22,018	88%	65%

If the actual pipe capacity, as per the January 2023 news release of **34 MLD** is used, this spare capacity is **35% after the Delmore project is completed in full.**

1. ARMY BAY CAPACITY

A high level assessment has been undertaken to determine the likely capacity within the Army Bay Wastewater Treatment Plant (WWTP). Barker and Associates have undertaken a focused assessment of wastewater connections within the Army Bay Wastewater Treatment Plant (WWTP) catchment. This analysis sets out the approximate number of consented residential lots within the Delmore wastewater catchment within the development areas identified in Figure 1 of the B&A Capacity Memo. It also establishes how many of those consented residential lots already have connections to the public wastewater network and how many do not. McKenzie & Co used these numbers to calculate Average Dry Weather Flow (ADWF) contributions, applying standard generation rates in accordance with the Auckland Council Wastewater Code of Practice. These ADWF values were then compared against the consented discharge thresholds specified in the Army Bay WWTP discharge permit (DIS60331146).

Based on discussions with Watercare, it is acknowledged that the total existing connection volume is approaching the 13,500 m^3/day ADWF threshold—the point at which Condition 9(a) of the discharge consent requires commissioning of the Stage 1 WWTP upgrades. The addition of wastewater flows from Stage 1 of the Delmore development to the existing connected ADWF would still keep the total flow below this 13,500 m^3/day limit, indicating that initial development phases can be accommodated within the current operational envelope of the Army Bay WWTP.

When the analysis is extended to include all resource-consented but currently unconnected dwellings, and both Stage 1 and Stage 2 of the Delmore development (1,250 dwellings), the resulting cumulative ADWF is 14,765 m^3/day, which falls well within the consented Stage 1 capacity of 22,500 m^3/day—provided the Stage 1 upgrades have been commissioned. This confirms that, with appropriate coordination of staging and infrastructure delivery, the Army Bay

WWTP has sufficient capacity to absorb full build-out of both consented development and Delmore, without exceeding the limits established in the current discharge consent.

Calculations are included in Appendix C.

2.

2. SUMMARY

This report assesses the water supply capacity for the proposed Delmore residential development in Orewa, which will introduce up to 1,250 new dwellings. The development sits within Watercare's Silverdale–Dairy Flat, Wainui East, and Upper Orewa water catchment, currently serviced by two existing transmission mains: Orewa 1 and Orewa 2, with a third (Orewa 3) planned for future growth west of SH1.

When existing development and resource consented development is considered, there is sufficient capacity for Delmore within the Transmission network. A 355/315 diameter is extended close to the site boundary and can be readily extended to Wainui Rd as part of the development when required.

The Army Bay Wastewater Treatment Plant, while having limited capacity currently, will have capacity after the stage 1 upgrades. While not in accordance with the Future Development Strategy, would have capacity to accommodate the full Delmore development alongside the other developments with Resource Consent.

Key findings include:

- Average daily water demand from Delmore is estimated at 825 m^3/day.
- Hydraulic modelling and hydrant testing show sufficient pressure is available for both Stages 1.
- The upper reaches of stage 2 will require either a booster pump, or a reservoir at the top end of the site to provide the necessary pressure to the upper reaches of stage 2.
- Watercare have indicated that there is insufficient capacity to service zoned land and Delmore, however if only the resource consented land is considered, then there will be adequate capacity in the transmission main.
- Wastewater capacity at Army Bay WWTP is a constraint until the stage 1 upgrades occur in approximately 2031. Calculations show there will be sufficient capacity to service existing connections, resource consented connections, and Delmore stages 1 & 2.
- Planning implications confirm that resource consent, not zoning, is the enabling factor for development.

3. CONCLUSION

Based on current infrastructure capacity and development projections, the Delmore development is feasible from both bulk water supply and wastewater servicing perspectives.

The Orewa 2 transmission main, enhanced by recent pump upgrades, has sufficient capacity to meet the demands of the full 1,250-lot Delmore project, when aligned with resource consented sites within the catchment area.

Wastewater servicing is contingent on the commissioning of Stage 1 upgrades at the Army Bay WWTP. Under existing conditions, Stage 1 of Delmore can be accommodated without breaching consented flow limits. Full build-out, including other consented developments in the catchment, remains within the 22,500 m^3/day discharge consent limit post-upgrade.

Importantly, this assessment underscores that resource consent, rather than zoning status, is the definitive mechanism for enabling development in the Upper Orewa catchment under current regulatory conditions. With coordinated staging and proactive engagement with Watercare, Delmore can proceed within existing infrastructure and policy frameworks.

APPENDIX A

A boost for Hibiscus Coast

24 January 2023

The new booster pump station on East Coast Road can pump an extra 17 million litres of water to Hibiscus Coast daily, increasing the amount of water pumped into the region from 17 to 34 million litres daily.

Built by our team and construction partner Fulton Hogan, the $12 million booster pump station has been in operation since December.

The booster pump station will continue to transport water to the Maire Road and Scott Road reservoirs, which draws water from the Glenvar Reservoir.

Project manager Jason Salmon says the new booster pump station will push water from Auckland's water treatment plants to Hibiscus Coast faster and allow more water to be available in the community.

"This means we can keep the area's water storage reservoirs topped up throughout the day more quickly – especially in summer when the water demand is much higher.

"The new booster pump station can also pump through a lot more water, meaning that we're able to meet the needs of a growing population."

With the new booster pump station in operation, the project team is now turning its attention to dismantling the old pump station roughly 300 metres down the road, says Salmon.

"It will take the project team four weeks to safely dismantle and remove the remains of the old pump station.

"Demolition will begin with removing and decommissioning salvageable items such as pipework, pumps, and equipment.

"Once demolition is complete, the leftover material will be transported off-site, so the land can be in-filled and landscaped to tie into the surroundings to make it look like the old pump station never existed."

James Kitchen

From: Anna Jennings <[redacted]nz>
Sent: Tuesday, 20 May 2025 12:10 pm
To: Madeleine Wright; Helen Shaw; Matthew Hill
Cc: [redacted] James Kitchen
Subject: RE: Delmore - steps after Watercare meeting

Kia ora

Thank you, Madeleine, for sending through the summary points from the meeting. We do not consider these are an accurate summary of the discussion.

While we confirmed that access to water and wastewater from our networks is managed on a first-come, first-served basis, the connection is only made if Watercare confirm that capacity is available. Our clear statement at the meeting was that our priority is to our existing and live-zoned customers, and as such, there is no current capacity in either the wastewater or water network for the future urban zone. We do not expect to have capacity in the near future, due to network and facility upgrades required.

Wastewater

- Watercare do not support tankering as an interim option for Delmore, nor any other new development, and therefore the point around vesting is irrelevant.
- There are specific requirements around the management of the existing capacity at the Army Bay WWTP which are set out on our website – https://www.watercare.co.nz/builders-and-developers/consultation/growth-constraints-in-hibiscus-coast.
- For this land which is timed for 2050 in Auckland Council's Future Development Strategy, Delmore would need to bring forward part or all of Stage 2, not Stage 1 upgrade of the Army Bay Wastewater Treatment Plant.
- Thank you for your offer of a workshop, we have discussed this with our Head of Wastewater Planning, who has requested a report/proposal be submitted, with sufficient time to review ahead of agreeing to any workshop.

Water

- The statement was correct that the East Coast Road booster pump can pump up to 34MLD. However, the downstream pipe network can convey 25MLD currently. So, the maximum is 25MLD.

As you outlined, we will be providing our full comments to Auckland Council.

Ngā Mihi | Kind regards,

Anna Jennings | Manager - Major Developments

Waterc[redacted]s Limited
Mobile[redacted]
Postal a[redacted]vate Bag 92 521, Victoria Street West, Auckland 1142, New Zealand
Physical address: 73 Remuera Road, Remuera, Auckland 1050, New Zealand
Website: www.watercare.co.nz

From: Madeleine Wright <[redacted]
Sent: Thursday, 15 May 2025 3:00 pm
To: Anna Jennings <[redacted]>; Helen Shaw <[redacted]>; Matthew Hill <[redacted]>
Cc: [redacted]
Subject: Delmore - steps after Watercare meeting

Afternoon Anna, Helen, Matt

Thank you for the without prejudice meeting yesterday. Suggestions for next steps based on our notes of the meeting below.

Wastewater

Thank you first for clarifying that it is the stage 1 upgrade anticipated for 2031, and that connections (including in relation to remaining capacity at Army Bay) are provided on a first in first served basis.

It was also helpful to hear Watercare's positive view of trucking as an interim solution. Vineway Ltd will investigate this as part of the interim solution for Delmore and, if pursued, would expect to be able to vest its pipes in Watercare in the same way Warkworth Ridge has.

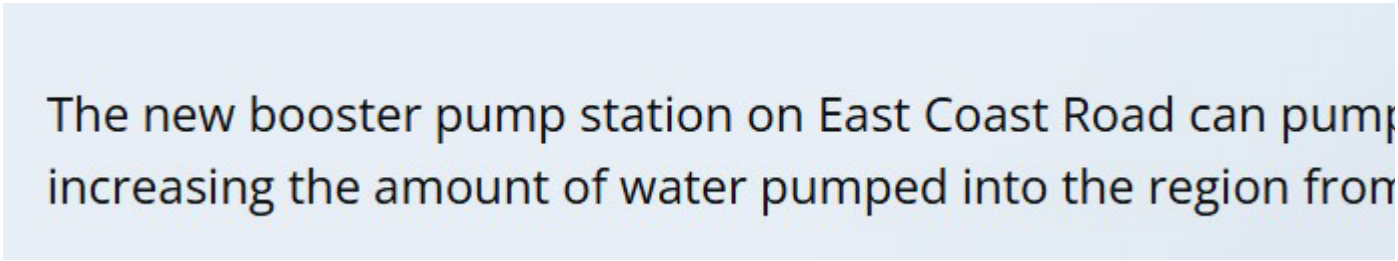
Yesterday we discussed the potential for a workshop with Mackenzie & Co and Watercare to identify opportunities for a 'mini upgrade option' and resource support for Watercare to be able to do this (or bring forward the stage 1 upgrade more generally). This is something Vineway Ltd would like to pursue. Is there are day during the week beginning 26 May that would work for this?

Water supply

Thank you for adding this to the agenda and bringing Watercare's concerns to our attention early. What we understood from the conversation was that ultimately, access to supply is also dealt with on a first in first served basis.

We understand from Carly's comments during the panel briefing today that Watercare will be providing its initial comments in writing next week, and we will look at those carefully and come back to you.

To assist with that, can you please confirm that the statement from Watercare's 24 Jan 2023 media release reproduced in the snip below is correct i.e. that there is capacity to pump 34 million litres daily.



Kind regards

Madeleine

Madeleine Wright | Barrister
MILLS LANE CHAMBERS
M [redacted]
Level 27, 125 Queen Street, Auckland, 1010
PO Box 537, Shortland Street, Auckland 1140

APPENDIX B

Water Capacity Calculation - June 2025.

			Source
People	**3.00**		WC W COP - Network
L/P/d - WC COP	**220**	l/p/d	WC W COP - Network
Existing development Flows			
Existing Army Bay catchment population	53,700		
			Urban Economics, 2024 population (note Watercares' AMP 21-24 estimates 49,300 in 2021, verification check)
Flow @ 220 L/p/d	**11,814**	m3/d	WC W COP - Network
Existing industrial @ 4.5 L/m2	23	Ha	Measured, Watercare COP rates
	373	m3/d	
Existing Flows	**12,187**	m3/d	
With PF of 1.45	17,671		Watercare Transmission standards ADD to MDD
Resource Consented Land			
Total Consented residential lots	6,649		Barkers review
Less already Existing Connections	3,577		Barkers review
Resource Consented Lots without connections	3,072		Calculated
Flows from Consented residential lots without existing connection	**2,028**	m3/d	
Industrial @ 4.5 L/m2 /d	9	Ha	
	146	m3/d	Light water use, 60% site Dev coverage, 60% site coverage.
Flow from Resource Consented Land	**2,173**	m3/d	
Total Existing Flow plus Resource Consented Flow	**14,360**		
With 1.45 Peak Factor	20,822		WC WW COP - Transmission
Delmore @ 220/l/p/d			
Stage1	321	m3/d	
Full Development (1250)	825		
Stage 1 With 1.45 Peak Factor	**465**		WC WW COP - Transmission
Full Development With 1.45 Peak Factor	**1,196**		WC WW COP - Transmission
Total, including Delmore Stage 1 only	**21,287**		
Total, including Delmore	**22,018**	m3/d	

Capacity, Watercare news release capacity, January 2023	34,000	MLD
Stage 1 only	**63%**	
Full development	**65%**	
Capacity, per subsequent advice from Watercare - Downstream infrastructure Constrained, 2025.	25,000	MLD
Stage 1 only	**85%**	
Full development	**88%**	

APPENDIX C

Wastewater Capacity Calculation - June 2025

Wastewater - ADWF			
People	3.00		
L/P/d - WC COP	180	l/p/d	WC WW COP - Network
Existing development Flows			
Existing Army Bay catchment population	53,700		Urban Economics
	9,666	m3/d	
Existing industrial @ 1 l/s/Ha	**1,987**	m3/d	Measured area, Watercare COP rates
Existing Flows - ADD	**11,653**	m3/d	
Resource Consented Land			
Total Consented residential lots	6,649		Barkers review, note this includes the Milldate Fast-track
Less already Existing Connections	3,577		Barkers review, note this includes the Milldate Fast-track
Resource Consented Lots without connections	3,072		Calculated
Flows from Consented residential lots without existing connection	**1,659**	m3/d	
Industrial @ 1L/s/Ha	9		
	778	m3/d	WC W COP - Network - 1 L/Ha/s
Flow from Resource Consented Land	**2,436**	m3/d	
Existing Flow + Resource Consented land	**14,090**	m3/d	
Delmore Stage 1 @ 180/l/p/d	**262**	m3/d	
Delmore Full Development (1250) @ 180/l/p/d	**675**	m3/d	
Existing Flows, and Delmore Stage 1 only	**11,916**	m3/d	This includes Delmore and the Existing Flows only.
Army Bay existing ADWF capacity - ADWF	**13,500**	m3/d	This is the current ADWF capactiy of the Army Bay WWTP.
Utilisation	**88%**		This is the percentage of Army Bay's current total capacity that would be used with all existing connections and Delmore stage 1 discharging to Army Bay
Total ADWF including Delmore	**14,765**	m3/d	This includes Delmore, the Existing Flows, and the Resource Consented lots without connections
Army Bay Stage 1 - WWTP Consent - ADWF	**22,500**	**m3/d**	This is the ADWF capacity after the Stage 1 upgrade to Army Bay. Condition 9,
Utilisation	**66%**		This is the percentage of Army Bay's capacity after its stage 1 upgrade that would be used with all existing connections, all residential sites with resource consents (including Milldale fast-track), and the Full Delmore development discharging to Army Bay.