

MEMO

To: MPDC Engineering Team
From: Lynette Bellingan
Date: 23 September 2022
CC: John Sternberg
Reviewed: Amir Montakhab
Re: Daniel Vernall
CKL Ref: A21142
Re: Technical Review – Plan Change 57

1 Introduction

This report provides comments on engineering matters relating to three waters and reserves aspects in regard to the Calcutta Industrial Zone Plan Change 57 (PC 57) request received by Matamata-Piako District Council. The purpose is to provide a view as to whether:

- 1) Sufficient and appropriate information has been included in the assessment.
- 2) The assumptions are sound and reasonable.
- 3) The proposed solutions are technically feasible and realistic.
- 4) The timeframes for upgrades or connections are realistic; and
- 5) There are any potential or actual issues that MPDC's engineering team needs to be aware of.

The Scope of CKL assessment includes Water, Wastewater and Stormwater. Transportation has been reviewed by others.

2 Documents Considered

Documents Reviewed:

- *Appendix D - Infrastructure Report prepared by (Bloxam Burnett & Olliver) BBO.*
- *Memo, analysis on the impacts on proposed Industrial Area stormwater Management plan to Mangawhero Stream – Updated*
- *Request for information (RFI) response, 27 June 2022*
- *Memo, Regarding Peer Review Items 2, 3, 4, & 10, BBO, 23 June 2022*
- *PDP Matamata WWTP Upgrade MBR Cost Estimate dated 4/8/2022*

2.1 Limitations

This review is a limited desktop review carried out by reading the above documents and providing general comments on the adequacy of the information to enable a preliminary assessment of the engineering aspects relating to the Calcutta Industrial Zone Plan Change. No site visit has been undertaken. The information referred to in the documents and calculations have not been verified. Detailed information on the site constraints was not available.

3 Overview of Technical Matters

3.1 Overview

The rezoning request relates to the addition of a further 41 hectares of land directly south of Tauranga Road / SH24 in Matamata.

The area is currently identified as rural land and is to be zoned to Industrial; of these 41 hectares, the development area is 32.5 hectares, with the balance being set aside for roads and landscape buffer and swale networks.

3.2 Scope of Evidence

The applicant has provided a general summary of evidence including the following key areas pertaining to the proposal:

- 1) Section 32 Evaluation
- 2) Amendments to the Matamata Piako District Plan
- 3) Assessment Statutory Framework and Documents
- 4) Assessment of Environmental Effects
- 5) Consultation

4 Assessment

The proposed zoning changes identified by the requestor are currently zoned rural, and it is proposed to change this zoning to Industrial.

The site is bounded by Tauranga Road (or State Highway 24) to the North, Council's transfer station to the east, and rural zoned land to the south and west that is owned by Calcutta, further east is the Mangawhero Stream.

4.1 Developable Area

Calcutta is a farming entity with a vision to extend Matamata to the east in a sustainable manner. The requestor has shown the area they propose to rezone on a preliminary high-level concept plan.

An initial assessment by MPDC for the provision of wastewater and water has indicated this development would trigger significant pipe upgrades.

4.2 Stormwater Management Plan

The site is located within the flat floodplain area, east of Matamata, within the Mangawhero Stream's catchment. In its current situation, the majority of the surface runoff discharges towards and into Tauranga Road; it has a flat grade, varying from 0.1 to 0.5%, towards the North. The eastern part of the area discharges into Mangawhero Stream as a flow path has been formed alongside the southern side of Tauranga Road. A small part of the area on the south-eastern boundary currently drains into a gully that is part of the Mangawhero Stream network.

The proposed stormwater strategy for this site is a combination of treatment, conveyance, and attenuation devices within site and ultimately discharge to Mangawhero Stream with the following details:

- **Stormwater quality treatment and quantity mitigation for downstream erosion, scour and ecological effects**

- **Stormwater Treatment**
Water quality treatment for high contaminant generating carparks and roads via onsite treatment device such raingarden or centralised wetland device
- **Extension detention volume (EDV)**
Water quantity volume mitigation by detention or retention to mitigate potential downstream erosion, scour and ecological effects.
- **Initial abstraction (Ia)**
Minimum retention (by infiltration or water reuse) from post development of all impervious areas.
- **Stormwater Disposal:**
 - **Primary stormwater** to accommodate the 10% AEP design storm event (adjusted for climate change)
 - New stormwater piped networks and swales are to be constructed to collect and convey stormwater runoff from the site and discharge it to a centralised wetland to provide the onsite attenuation up to the pre-development level. The stormwater runoff will discharge into Mangawhero stream as per the existing flow rate.
 - **Secondary system** to accommodate the 1% AEP design storm event (adjusted for climate change)
 - Diverting 100-year ARI storm event discharges as surface runoff (via the OLFP¹ and road reserves) to a centralised wetland within site.
 - The centralised wetland provides onsite attenuation and flood control for up to 80% of flows for the 100-year ARI event (based on the existing flow rate that discharges to the Mangawhero stream). The stormwater runoff will discharge into Mangawhero stream as per 80% of the existing flow rate.

Consultation is required with Matamata Piako District Council (MPDC) to determine an acceptable stormwater management option for the proposed development to avoid affecting Mangawhero Stream peak flow and zero impact on neighbouring properties.

4.3 Wastewater

Matamata catchment into the WWTP located on the eastern side of town, North of Tauranga Road, is serviced by a 400mmØ Trunk Main, as indicated by MPDC the currently zoned catchment is already at capacity, for both the network and the WWTP.

Various viable options listed below have been considered to provide treatment and disposal for the new development's wastewater

1. Upgrade existing network and WWTP
2. Centralised Treatment Plan
3. On-site Wastewater Disposal

A new dedicated reticulation will be required for the proposed development to connect to the existing WWTP and the WWTP will require upgrading (currently proposed – see below). This approach follows

¹ Overland flow paths (OLFP)

the traditional wastewater model with Council ownership and maintenance of all related infrastructure, this option presents the lowest risk.

As per the technical report by PDP, dated 4 August 2022, Council has accepted the required upgrades to the to the existing wastewater treatment plant. This will look to be provided capacity for the next 30 years. Council has committed funding for this, and work is underway already. This directly links with MPDC's consenting strategy for the treatment plant and WRC have accepted these future upgrades to the treatment plant. Council is working with the developer on a developer agreement to ensure that the staging and development of the structure plan area will not adversely affect the capacity, function or future upgrades of the WWTP.

4.4 Water

A public water supply connection will be required given the intensity of future growth proposed and preliminary water demand figures for the development have been provided to MPDC, an indicative water supply plan for the water supply network has been supplied.

Modelling has been provided, demonstrating the impact of the proposed development (and peak water demand) on the water network performance.

Preliminary investigation indicates that there is insufficient capacity in the existing Council network to service the plan change area, and this would trigger significant pipe upgrades requirements to the existing network, as the currently zoned catchment is already at capacity. MPDC also confirmed that the Raungaiti bore has been allocated to currently zoned land in Waharoa and Matamata and would have limited capacity to service the Calcutta site.

Various viable options listed below have been considered to provide a suitable and sufficient potable water supply.

1. Upgrading the existing water supply network
2. Use existing onsite boreholes/groundwater take.

Regarding the latter option, the proposed development has several existing bores, three have active groundwater take permits and it has been determined that onsite bores have sufficient volumes to provide water to the site. A detailed hydrogeological assessment has been provided to Council. Waikato Regional Council (WRC) are prepared to transfer required bore water allocation to MPDC to include in their total water allocation. Option 2 above is therefore an acceptable option. The infrastructure would require maintenance.

Council is working with the developer on a developer agreement to ensure that the staging and development of the structure plan area fits with the total MPDC water allocation.

5 Conclusions and Recommendations

5.1 General

There are no infrastructure or servicing issues that would prevent Council from accepting the plan change and matters raised in this memo can be addressed through future subdivision and regional council consenting processes and through the Developer Agreement. Specific conclusions and recommendations are as follows;

5.2 Stormwater management plan

Whilst the proposal for stormwater management is acceptable conceptually, a detailed stormwater management plan shall be provided to MPDC and consideration given to minimise impacts on the receiving environment and Mangawhero Stream peak flow and ensuring zero impact on neighbouring properties.

It is recommended that:

1. All designs and calculations shall comply with Waikato Regional Council technical guidance documents.
2. The Climate change estimates be based on the latest Waikato Regional Council guidance, i.e. refer to "RITS Update: Climate Change Rainfall Rev 3, Beca 10 December 2019."
3. A full geotechnical investigation shall be provided for the feasibility of the stormwater system.
4. A high seasonal groundwater table shall be used for the design.
5. The soakage system is suitable for stormwater disposal if the site's geology is appropriate (e.g. soakage rate, groundwater). However, the soakage system is NOT a treatment system. Pre-treatment is required to protect the soakage device from clogging and the aquifer from contaminants. There is a distinction between measures to avoid clogging to minimise maintenance requirements and stormwater treatment to target contaminants such as heavy metals, total suspended solids, and hydrocarbons. The appropriated pre-treatment device shall be designed and installed upstream of soakage systems.
6. 1D and 2D hydraulic models be used to analyse the impact of the post-development onsite and wider catchment.
7. A complete analysis of the impact of the discharge into the Mangawhero Stream be undertaken.
8. Safety risks be assessed for overland flow path (i.e. roads) under storm conditions (with blocked pipe scenario, 100-yr including climate change, 24hr duration.) according to section 3.3.14.10 of RITS.
9. The "pre-development flow rate" into the Mangawhero stream shall be estimated based on the current portion of the catchment size that discharge into the stream.
10. The post-development analysis for the wider catchment shall be investigated based on the maximum probable development (MPD) scenario.

5.3 Wastewater

- 1) The capacity of the WWTP is to be extended (refer PDP report dated 4/8/22) to provide for further developments. It can therefore be concluded that this should suffice for this proposed plan change. However, we recommend.
 - a) That the staging of wastewater volumes expected from the development be provided to enable assessment of additional wastewater storage at the existing WWTP.
 - b) That all wastewater generated from the development will be discharged to the existing WWTP via new, dedicated reticulation.

5.4 Water supply

- 1) The existing bores within the plan change area can provide the required water supply. WRC are prepared to transfer the required water allocation for existing bores to MPDC to include in MPDC's total water allocation. Use of these bores is therefore an acceptable source of supply for the servicing of the plan change area.

- 2) As the preferred option for, and timing of, provision of water supply to the plan change area is unknown, it is recommended that the staging and detailed assessment of peak water demand and resulting residual water pressure be undertaken to ensure adequate flow and pressure is provided for potable and firefighting requirements.
- 3) That details of the proposed treatment plant and process be provided. The following (minimum) information should be included:
 - i) Details on how the bores are to be maintained and protected against contamination.
 - ii) Proposed water treatment process and how this will comply with NZ drinking water standards.
 - iii) Clarify the provisions for water conservation and water harvesting and include the requirements in the Plan Change Rule Framework.