

Appendix 7

Expert Memo – Engineering Servicing



To:	Dean Moriarity, Cameron Drury (Strategy)		
Cc:			
Date:	6 April 2018	File Ref:	[File Number]
Subject:	PARK ISLAND PLAN CHANGE		

Background

The Napier City Council Asset Team has previously provided direct expert input to the Section 32 Evaluation Report on servicing matters. This involved:

1. Providing an overview of the water supply, wastewater and stormwater servicing solutions associated with the existing configuration,
2. An assessment of any implications of the proposed re-configuration on these planned and adopted outcomes.

Key aspects, which we adopted as a starting include are outlined below.

Water supply

Orotu Drive contains a 300mm diameter PVC trunk main laid in the berm on the western side of the road reserve. The existing configuration involves a series of connections into this infrastructure with reticulation for domestic and firefighting supply throughout the northern and southern pockets of the Main Residential Zone and Northern Sports Hub.

Wastewater

There are two pump stations located within the berm on the western side of the road reserve, one just north of Aoraki Road and the other just north of Akaroa Road. The existing catchments on the east of Orotu Drive drain in a western direction to the two pump stations from where the sewage is pumped in a southern direction.

Stormwater

A minimum floor level of 11.55m was set through the granting of subdivision consent RMS15019, which is the same minimum floor level applying to the Main Residential Zone east of Orotu Drive. It is expected that this will apply to other areas of the Main Residential Zone irrespective of the final configuration, and that these minimum floors levels will be imposed at the time of subdivision as currently occurs.

The existing stormwater infrastructure along Orotu Drive consists of a piped and open drainage system. Primary runoff from development east of Orotu Drive is drained to a piped system installed on the western side of Orotu Drive between the road and the open swale drain running alongside and is conveyed to an overflow channel on the north side of Prebensen Drive.

Secondary runoff from larger rainfall events drains to the open swale drain along Orotu Drive and is conveyed to the same overflow channel on the north side of Prebensen Drive. Stormwater from the overflow channel is pumped to the Ahuriri estuary via Purimu pump station under Hawkes Regional Council Resource Consent CD990516Wa, together with runoff from other areas of the City conveyed to this point via existing networks.

Runoff from the reserve to the northwest and along Prebensen Drive drains to a culvert passing under Prebensen Drive and into a drain running north alongside Long Road, which ultimately discharges into the Estuary via a pump station. This stormwater flow path is also planned to receive secondary runoff from the north-east corner of the Main Residential Zone (under the current configuration). If flows are greater than the pipe can pass, the stormwater is stored in the road side swale beside Prebensen Drive, and in extreme rainfall events this storage feature can 'tip' stormwater into the Orotu Drive system at the corner of Orotu and Prebensen Drives.

Ultimately, runoff from the proposed re-configuration will be managed in the same manner i.e. primary runoff piped to the overflow channel on the northern side of Prebensen Drive and secondary runoff conveyed to the same channel via the open swale drain along Orotu Drive with eventual discharge via the Pirimu Pump Station (with the exception of runoff from the reserve and the residential area to the northwest draining to Long Road as outlined above).

Owing to the expanded residential area however, additional detention is likely to be required as a mechanism to manage the effects of peak flows on the capacity of the Pirimu pump station. Detention was one of the options identified by HBRC as an appropriate response to mitigating the effects of peak discharges during the 2013 Master Plan process.

Compared to the level of detention already built into the wider stormwater solution to service the existing configuration, the additional detention that will be required to accommodate a slightly larger residential Zone under the proposed configuration is relatively minor, and options are available to accommodate this either within the development site, the new open swale drain running west-east, the lower area of the existing swale drain along Orotu Drive or the overflow channel on the northern side of Prebensen Drive. Detailed design of these solutions will occur at the time of subdivision with any necessary discharge consents/variations being obtained as required.

Finally, we agree with the following conclusions reached and reported on by the Planner in the Section 32 Report:

- There will be no major changes or impacts on the existing water supply solution or associated infrastructure as a result of the proposed reconfiguration
- There will be no major changes or impacts on the existing wastewater solution or associated infrastructure as a result of the proposed reconfiguration
- There will be no major changes or impacts on the existing stormwater solution or

associated infrastructure as a result of the proposed reconfiguration

- Implementation and specific design solutions will be refined and secured through the subdivision consent process.

The Proposed Plan Change has been notified with a number of submissions received. We have been asked to provide further expert input on the matters raised in these submissions in relation to servicing.

We have reviewed the submissions and identified the following areas where further input is required.

From: Powerco (Submission No.4)

Servicing Matters:

1. Recognition, protection and access to existing assets in the area.
2. That adequate and secure supply of gas can be supplied to new development where required.

Comments

These suggestions have been noted. The Code of Practice and Engineering Approval process allow for these matters to be considered at that time.

From: Hawkes Bay Regional Council (Submission No.6)

Servicing Matters:

1. The need for further details on the quantity of stormwater runoff to confirm that stormwater runoff from the development is likely to be able to be accommodated within the existing drainage network.
2. Maintaining the natural overflow from the Taipo Stream across the Southern Sport Hub to maintain levels on the Taipo Stream.
3. The capacity of infrastructure to cope with additional wastewater.

Comments

Stormwater (Matters 1 and 2)

- *As a very rough estimate there could be an additional 375 L/s (1 in 10 year) of stormwater from the additional 150 houses (assumes 400m² property size, change in C = +0.3, rainfall intensity of 75mm/hr). Which on its own is not large compared against the capacity of Purimu stormwater pump station downstream has a capacity of 18.4 m³/s or 0.2 % of the existing pump station capacity.*
- *Between existing infrastructure and the area of available land within the development site, there is the ability to accommodate secondary flow, and if necessary attenuation, stormwater can be suitably managed with specific design solutions being implemented at subdivision stage in terms of development within the Main Residential Zone, and at landuse /building consent stage in relation to the Sports Park Zone.*

- *The following points below were discussed with the Hawkes Bay Regional Council representative Craig Goodier 6th April 2018 and were generally accepted.*
- *The quantity of stormwater runoff from the proposed plan change will be determined from concept to detailed design.*
- *Tenders to build a stormwater computer model for all catchments in the City have been received and is expected to be awarded within a month (May 2018).*
- *Development of the computer model will inform any decisions around any overland flow path from the Taipo Stream.*

Sewer

- *A sewer pumping main referred to as the “Western Trunk” was constructed along Westminster Avenue in 2012, to replace an existing pumping main and provide for growth in the area including Parklands. Redundancy is provided in this part of the sewer network, which also has duplicate gravity pipeline draining to a different part of the system (Tamatea).*
- *A computer model of the sewer network is currently being built to understand the capacity of the network and the impacts of stormwater inflow and groundwater infiltration. Funding has been planned in the NCC Long Term Plan (LTP) to increase sewer capacity where the model identifies a need.*
- *Additional flow that maybe generated from PC11 will not be of scale to increase the frequency or impact of issues associated with stormwater inflow and groundwater infiltration, and as already outlined, there is sufficient capacity to accommodate wastewater from the additional yield of dwellings that may arise from the Plan Change.*