Appendix B

Infrastructure Report

27 September 2019

Job No: 62916

Novo Group
279 Montreal Street
Christchurch 8140

ROLLLESTON SITE PLANNING CHANGE

Dear Kim,

Executive Summary

A high-level review focused on identifying any fundamental constraints to the development of a dairy site in Rolleston was undertaken by Babbage.

Following the review of the Novo Group Development Plan, the Opus Water Supply Report and the MWH Waster Water Report the following was concluded;

- The proposed Rolleston site Development Plan will enable most types of operational facilities to be built.
- Boundary noise limits need to be considered to ensure they do not limit the selection of plant options or require costly mitigations.
- Based on the reports provided by Novo water supply and stormwater disposal do not appear to constrain a future dairy development.
- There is a 10 l/s trade waste disposal allocation for this area which would need to be taken up. However, if limited to this allocation 10 l/s would constrain the extent of the development. Potential mitigations to this constraint are listed in the body of this letter.
- Power is a risk. As has been done for Water and Wastewater it is recommended a power study is undertaken to ensure supply limits and any future network upgrades are understood.
- There is currently a consented dairy site within the Rolleston area which provides additional confidence to the above.

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Key assumptions made during this assessment were;

- The Opus and MWH Reports provided are current and haven't been superseded by any further evaluations.
- The recommendations outlined in the reports will be implemented as part of the industrial site development.

Background

Babbage was engaged by Novo Group to provide assistance to a planning change application for a potential future dairy site in Rolleston. The scope of the engagement was;

- Review the preliminary Development Plan developed by Novo Group
- Assessment of potential services constraints, in particular;
    - Water Supply
    - Wastewater Discharge
    - Stormwater
    - Power

Assumptions

The following assumptions were made as part of the evaluation;

- The Opus Water Supply Report (2014) provided by Novo Group is still current and hasn't been superseded by any further site evaluations.
- The recommendations outlined in the Opus Water Supply Report (2014) will be implemented as part of the industrial site development.
- The MWH Izone Industrial Site and future Hoskyns Industrial Site Development Wastewater Report (2014) is still current and hasn't been superseded by any further evaluations.

Development Plan Review

A high-level review of the Development Plan drawing was undertaken and assessed against comparable dairy developments Babbage has led.

- The Development Plan that has been mapped out to designate height limits is very broad both in terms of height limits and the areas allocated for each height.
- The locations of each of the height limit zones will not limit the types of expected dairy processing facilities that can be built on this site.
- The access points provide good flexibility to ensure a cohesive and efficient Site Master Plan can be developed.
- For the planning change submission the future operation of a coal fired boiler needs to be considered. Though the submission may not elude to a future boiler, it should not limit the ability for to consent for the operation of a future coal fired boiler.

In summary the development of the most types of operational facilities we would expect to be built can designed within the constraints outlined in the Novo Group Development Plan drawing.

Traffic

The traffic movements will increase over time as the stages of the site development are built. 200 vehicles per day (400 movements) of which 50 vehicles (100 movements) are trucks are reasonable numbers for the initial planning change submission.

Noise

Boundary noise limits is an important factor when developing a dairy site. Mitigations to achieve lower than normal noise limits would incur significant cost during the construction of the facility. As with the approach to the building heights and locations, it is recommended that boundary noise limits are broadly considered to ensure they do not require mitigations over and above what are normally implemented on a dairy processing site.

High Level Services Assessment

Water Supply

The Opus report recommends 3 new wells are bored to deliver 1 l/s/ha of the 178ha industrial site (which the proposed dairy site sits within). Assuming that the development of the land for industrial use follows this recommendation it can be confirmed that;

- The total daily water available to the 27ha dairy site would be 2.33ML per day (assuming allocation is in line with the design basis)
- This volume of water will enable range of options to develop dairy facilities on this site
- Adequately sized water storage tanks will enable peak flows to be managed and a Fire Water reservoir to maintained on site

Wastewater Disposal

The MWH report confirms the following;

- Peak flow capacity of the downstream infrastructure is 75 l/s
- The Izone Industrial Zone allocation of the 75 l/s is 53 l/s
- There is a 10 l/s allocation for the future Hoskyns Road Industrial development
- An additional 10 l/s capacity is available for a future trade waste allocation

On the basis that the trade waste allocation of 10 l/s is taken up the initial development of the site would not be significantly constrained. However, the execution of future stages would be. There are a range of options to work within this constraint to further develop the site. These include;

- Onsite trade waste treatment and re-use (also reduces water take)
- Trade waste treated on site and disposed to neighbouring rural land
- Treated trade waste storage on site to enable discharge during off peak times
- Treatment of trade waste on site to reduce additional load on Pines WWTP
- Upgrade network to enable higher peak flows
- Negotiate to use a portion of the Izone allocation of the peak flow

Each of the above have been implemented on Babbage led developments. The specific solution is depended on a range of factors and would be recommended as part of a full project engineering study in preparation for a Resource Consent.

Power

A dairy development is likely to require a power supply in the order of 4.5MW. This level of power supply is often required to be worked through with local authorities to enable upgrades to the distribution network. In the absence of a power study this is a high-risk item. It is recommended that a power study is undertaken to establish power availability and potential upgrades required to the newtwork.

Stormwater

The MWH report states that it is common in the Rolleston area to discharge SW to ground. It is anticipated that the development will have adequate area to manage SW on site.

Conclusions

Following the review of the Novo Group Development Plan, the Opus Water Supply Report and the MWH Waster Water Report the following can by concluded;

- The proposed Rolleston site and Development Plan will enable most types of operational facilities to be built.
- Boundary noise limits need to be considered to ensure that these do not result in costly mitigations during the design of the site.
- On the basis that the industrial land is developed in accordance with the Opus recommendations, water supply to site is not a constraint.
- 10 l/s trade waste disposal allocation would need to be taken up. The allocation currently available would constrain future expansion of the site however these constraints can be mitigated as outlined.
- Power is often a constraint. It is recommended that a power study is undertaken to ascertain the power available and likely future network upgrades required.
- Stormwater will be able to be managed within the site.
- Dairy sites have previously been consented within the Rolleston area which provides additional confidence to the above.

Dan Parker

Project Manager