BEFORE THE SELWYN DISTRICT COUNCIL

IN THE MATTER	of the Local Government Act 2002
AND	
IN THE MATTER	of a submission by Dryden Trust on the draft Rural Residential Strategy 2013

STATEMENT OF EVIDENCE OF RUSSELL THOMAS BENGE

10 APRIL 2014

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1. INTRODUCTION

Qualifications and Experience

1.1 My name is Russell Thomas Benge. I have a Bachelor of Surveying from the University of Otago. I am a Licensed Cadastral Surveyor, hold the title of Registered Professional Surveyor with the New Zealand Institute of Surveyors, and am an Associate Member of the New Zealand Planning Institute.

1.2 I was employed by Davis Ogilvie and Partners Ltd as a graduate surveyor in 1994. I became a Registered Surveyor (now Licensed Surveyor) in 1997. In 2001, I was appointed an Associate; in 2005 a Principal and in 2007 a Director of the company.

1.3 My role as project surveyor with Davis Ogilvie and Partners has meant I have had overall responsibility for the management of a wide range of development projects overseeing the urban design, resource management, engineering, legal survey and financial control components. This includes supervising technical assessments of servicing options for such projects as a key aspect of land development management, ranging from rezoning proposals through to subdivision and detailed design.

1.4 Although this is a proceeding under the Local Government Act 2002, I nonetheless confirm that I have prepared this evidence in accordance with the Code of Conduct for Expert Witnesses (Environment Court Consolidated Practice Note, November 2011). The evidence I will present is within my area of expertise, except where I state that I am relying on information provided by another party. I have not knowingly omitted facts of information that might alter or detract from the opinions I express.

2. SCOPE OF EVIDENCE

2.1 My evidence addresses the servicing options for rural residential development, as well as identifying the options for future proofing for medium density urban development in the longer term should that ever occur. I also comment where appropriate on the Officer Report recommendations.

3. BACKGROUND AND LOCALITY

3.1 Davis Ogilvie was engaged by the Dryden Trust to investigate the servicing options for its 36ha site south of Rolleston that provide a strategy for the owner to develop the Site into rural residential properties that can be integrated into a denser medium density residential environment, as anticipated by the Rolleston Structure Plan, in the Future

3.2 Under my overall supervision, Davis Ogilvie provided technical advice on servicing and potential natural hazards aspects of the proposal relating to the high ground water table and liquefaction and lateral spread[1].

4. SERVICING OPTIONS

High pressure water

4.1 A high pressure water reticulation network can be readily designed to accommodate a higher intensity of development without creating an uneconomic solution. The overriding consideration for a high pressure water network is firefighting flows which do not change between a rural residential development and medium density. Only a nominal increase in pipe diameter may be required to ensure "future proofing" of water mains. This means the water mains installed in a rural residential development can accommodate a higher demand in the future.

4.2 If medium density development proceeds additional water connections may be required off the water mains. To ensure the minimum disturbance to existing infrastructure the water mains can be installed within the road berms adjacent to property boundaries.

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[1] Appendices A and G of Dryden Trust's submission

Stormwater

4.3 Stormwater runoff is generally discharged to ground in Rolleston. As part of the rural residential development onsite soakpits are likely to be an economic solution. Road sumps can also discharge to individual soakpits.

4.4 During intensification to medium density development (if this occurs) onsite soakpits may also be able to be employed, however, there is potential that 2% AEP events could not be contained onsite. Therefore an allowance for an infiltration basin collecting secondary flow from the medium density development has been provided, as shown in the concept design. This has been positioned to receive secondary flows from the roading network and will also receive overflows from onsite soakpits that may not be able to accommodate a 2% AEP event.

4.5 The area allocated for the infiltration basin can be vested in council as a utility reserve ensuring the ability to construct the infiltration basin is protected. The planned infiltration basin is not likely to be constructed during the rural residential development phase and therefore should not result in increased construction costs.

Roading

4.6 The roading network as shown on the concept design can be designed around roading hierarchy requirements (including those which are most onerous), in particular the road reserve width. It may not be necessary to construct the entire roading network in the rural residential development and any undeveloped road corridor will be vested to council as road reserve. This will ensure the development costs are in keeping with typical rural residential developments while still providing for the medium density development in the future should this occur.

4.7 Where right of ways are envisaged for medium density development these can be created during the intensification process. We understand that legal and planning mechanisms can ensure their protection for any future medium density development.

Wastewater

4.8 The reticulated wastewater network can be designed to accommodate both the rural residential concept and the medium density concept. Gravity mains can be sized on the most onerous requirement.

4.9 Laterals from the rural residential lots can be constructed to accommodate the maximum development envisaged within each rural residential lot, or combination of lots. This will result in a minor increase in construction costs during the rural residential development, but will ensure the minimum disruption of underground infrastructure if later intensification occurs.

4.10 Other options include providing each rural residential lot with two separate 100 mm laterals, of which only one is connected to the dwelling. During intensification each lateral could accommodate up to five dwellings allowing for a total of 10 dwellings on each rural residential lot. An alternative is to provide a short length of sewer main to a manhole located within the berm that will allow a submain to be constructed at a later stage without digging up the carriageway.

4.11 During any subsequent intensification easements are likely to be needed over the private sewer reticulation; however, this is not considered unusual for shared private infrastructure. Or if using additional submains, then the use of easements will be limited.

5. OFFICER'S REPORT

5.1 In my opinion, the issues raised in the Officer's Report are not an impediment to development as there is a solution that can be reached.

5.2 I have included the Planning Officer's comments direct from his report and my comments follow:

"ODP's are methods used to ensure residential zoned land achieves integrated developments and to ensure they are serviced in the most cost effective and efficient ways that align with SDC's infrastructure works programme. However, ODP's do not provide sufficient surety in respect to how and when residential development will occur. This is because the SDP requires subdivisions that are not in general accordance with the operative ODP to be assessed as a discretionary activity."

5.3 In my view ODPs do provide sufficient surety in how and when residential development occurs. When an ODP is set during the plan

change process it is the output of a large amount in design information such as servicing, urban design, landscape character amenities, and transport etc. All of this information is simplified down to form the ODP. In most residential developments the final outcome often is different from the ODP, however the District Plan plays an important role in determining if any departure from the ODP can be seen as providing the same outcome, and if not the process ensures the end outcome is the desired one, as all the background information is reassessed.

"As a consequence, roading layouts, housing densities and other aspects of the residential land adjoining "future proofed" areas may be amended in the future, which could undermine the integration, connections between residential and rural residential development areas, and the provision of transportation networks, water and wastewater utilities and open space reserves. This is evidenced in the Farringdon subdivision in Rolleston, where significant amendments have been made to the operative ODP due to a change in land ownership. This has resulted in relatively significant changes to housing densities and layouts, and amended infrastructure services."

5.4 I do not see this as a problem, the ODP provides a platform and desired outcome. The market will always change and when this happens any amendments to the ODP can be reassessed against the desired outcomes at the time of the plan change. I would say the Farringdon subdivision is a good example of how significant changes to the ODP can still achieve the desired outcomes of the initial plan change.

*"In my opinion, rural residential development should not be dictating residential outcomes. This is particularly important in the context of the Dryden Trust (**S36**) submission because the land directly adjoins a primary road to service the wider community of Rolleston. Any rural residential development within the alignment of such a significant road at the time the land is rezoned and subdivided to residential densities could present significant issues to the Council in its capacity as an infrastructure service provider, developers, land owners and the wider community. A consequence of interim rural residential areas is the likely risk that they may become isolated from services and amenities, with small neighbourhood centres not being viable until a critical population mass becomes established and that a potentially significant time may lapse before residential land reaches the boundaries of the rural residential node."*

5.5 I believe it is prudent to allow for rural residential development located on the boundaries of residential areas to accommodate future densification if required. In particular allowing for provision in infrastructure is important as the most cost effective time to allow for growth is when the pipes are first placed in the ground. In the long term this can save the Council and community from expensive

upgrades and disruption to roading and servicing networks should they be required in the future.

"I also remain concerned that the upfront costs to install the services necessary to accommodate future residential densities, including pumping stations, pipe work and road networks, would be cost prohibitive and development may be untenable as these costs may not be fully recovered by developers until the future residential densities are realised. Rural residential densities in advance of full residential development may also result in Council as a utility service provider (roads, water, wastewater and stormwater) having to deal with more land owners, which can extend timeframes and costs and give rise to additional issues. Interim development also presents inefficiencies and increased costs to the Council and in turn ratepayers where roads, pumping stations and piped networks are required to be installed to cater for residential densities, but are not required for some time. This can result in Council having to depreciate the value of pipes and infrastructure before it is fully utilised. Low flows resulting from a high capacity network servicing relatively few households may reduce the efficiency of networks and the plant could be several years old before it is required, increasing the risk of failure and ongoing maintenance costs."

5.6 The cost of increasing pipe sizes for sewer reticulation to service the difference from rural residential lots to residential lots should it occur is really only the cost of the pipe size which is a small proportion of installing the pipe, the bulk of the cost is within the excavating, laying and backfilling the trench. The increase in lot numbers would not require large pipe increases and the network would be designed to minimise the areas that require the upgraded size. This same approach can be used for potable water, and the stormwater systems can be designed to minimise the areas where increased infrastructure sizing is required.

5.7 If future medium density development is planned in advance the issues of multiple ownership can be minimised and in any case most ODPs have a certain extent of multiple ownership issues that are generally worked through from a servicing perspective under market conditions.

5.8 There are technical solutions to issues of low flows such as flush tanks installed at the ends of the lines. These are not uncommon in Canterbury and can be incorporated in to the detailed design as appropriate.

6. CONCLUSION

6.1 Based on the above information I consider that the Submitter's site can be economically serviced for a "future proofed" rural residential development. There are currently some constraints around high

pressure water and wastewater reticulation; however, we believe economical solutions can be achieved once surrounding developments are progressed.

6.2 The key factor in providing the upgrades to the infrastructure for high pressure water, waste water and stormwater is in the engineering design. The appropriate locations of the sewer pump station and main servicing lines will reduce the areas where upgrades are required.

6.3 The appropriate value added engineering design will limit these additional costs making the rural residential development economic while future proofing for medium density should this occur.

Russell Benge

10 April 2014