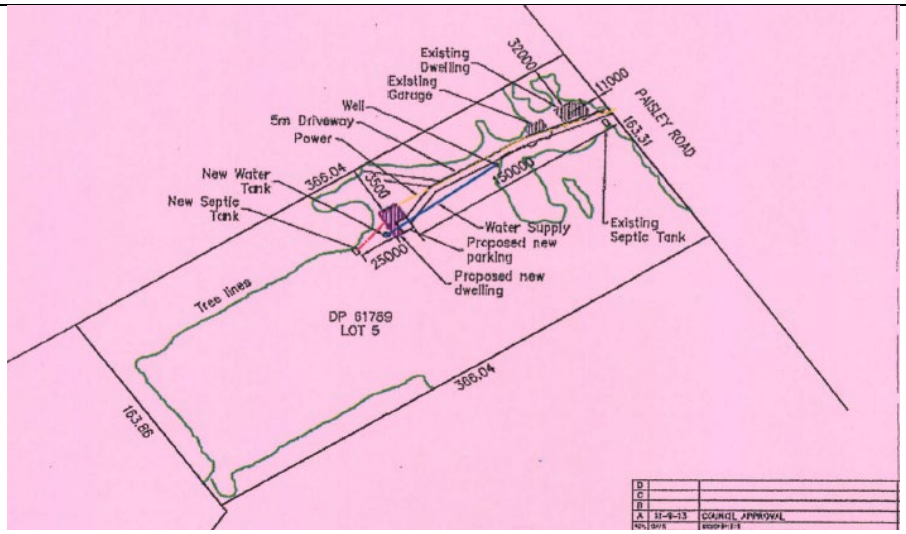
WAIMAKARIRI DISTRICT COUNCIL

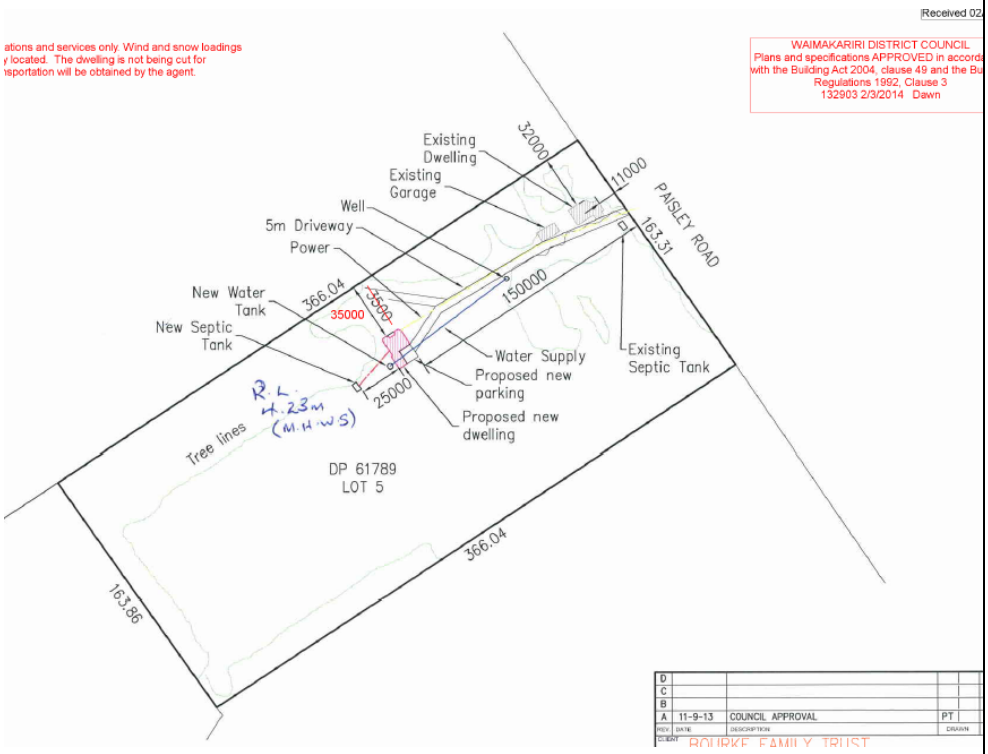
MEMO

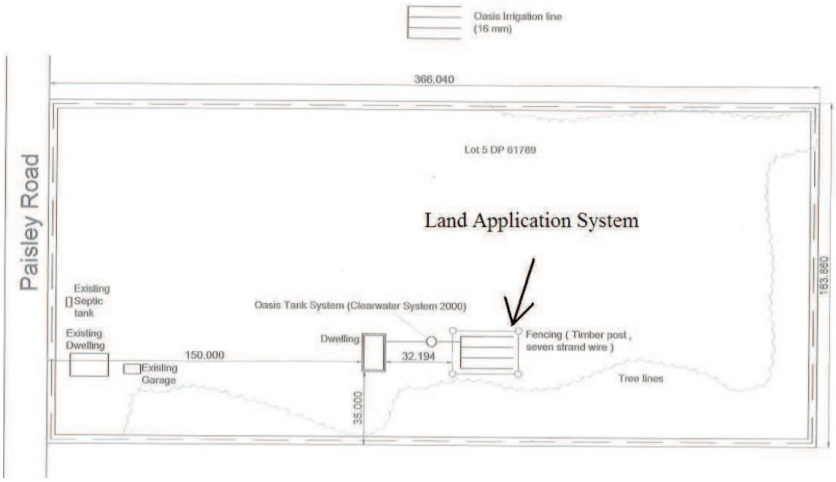
FILE NO:	**RC215625.01 / 220530091010**
DATE:	**30 MAY 2022**
MEMO TO:	**EMMA FRAZER – PLANNER**
FROM:	**TASHA TAN – GRADUATE ENGINEER**
SUBJECT:	**ENGINEERING REPORT**

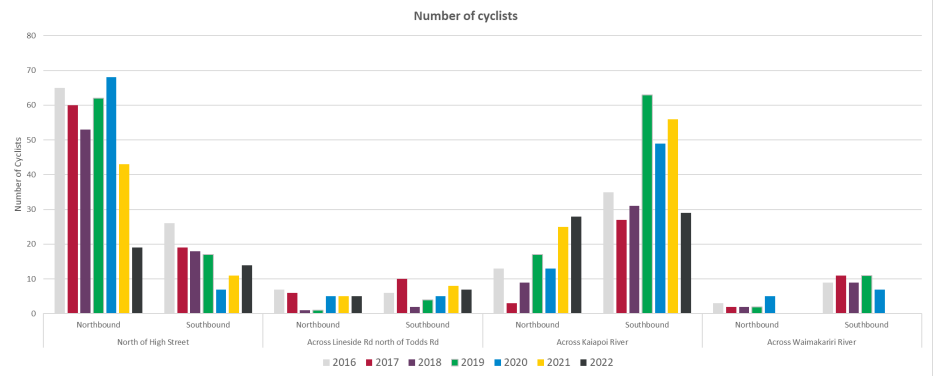
1. EXISTING SERVICING & ASSESSMENT

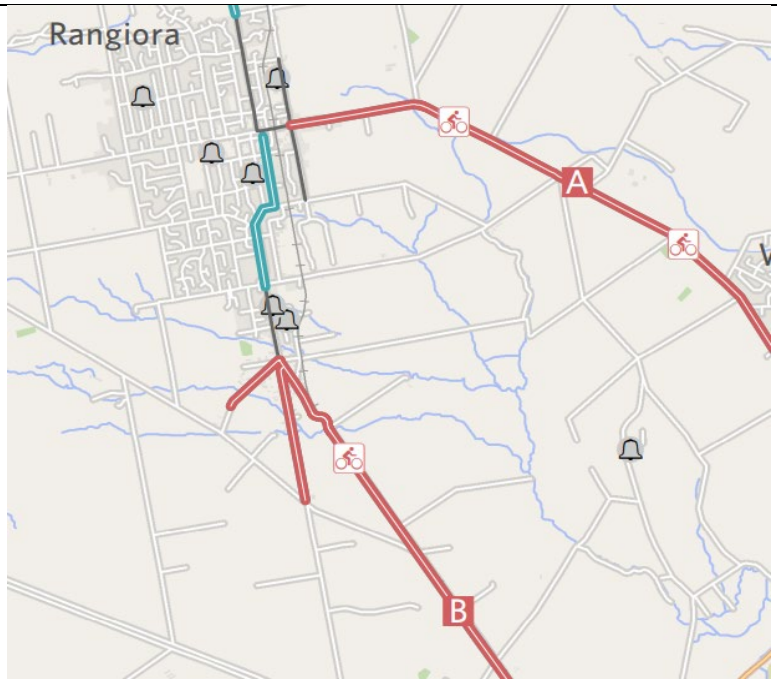
General	This application seeks land use consent to authorise an existing minor residential dwelling at 17 Paisley Road, Flaxton. The application site is legally described as Lot 1 DP 61798 and in contained in Record of Title CB36D/491 saved to TRIM 211122186035. The site is zoned Rural. As per the application (TRIM 211122186033), a pre-application meeting was held to authorise a second dwelling as a "minor residential dwelling". This was originally granted under RC135396. However, this second dwelling has a much larger footprint and floor area to the first dwelling. Thus, consent is sought to authorise the existing dwelling as a minor residential dwelling and the new dwelling as the principal dwelling. These two dwellings will be referred to as such now. Due to the separation distance exceeding 30m from the principal dwelling, and the size of the minor residential dwelling, both buildings cannot be considered as a single dwellinghouse in the Operative DP.
Application	 **Figure 1. Site location.**

	 **Figure 2. Site plan from RC135396 (TRIM 190610081668). The dwelling locations will be retained.** The proposed new dwelling in Figure 2 will be referred to as the principal dwelling in this report whereas the existing dwelling shall be the minor residential dwelling.
Engineering Advice Required	Engineering advice is required regarding water supply, Paisley Road standard, access and any financial contributions that may be applicable.
AEE provided detailing non-compliances with District Plan (e.g. non-complying vehicle crossing, existing consent variation details, and earthworks)	An AEE was provided for the following matters: • Rural character, visual amenity, landscape effects • Intensity of use
Additional triggers	N/A
Servicing	
Water	**<u>Minor residential dwelling</u>** The application notes that this building is an established building with connections to services. There is an existing bore M35/6775 on site close to the principal dwelling used for domestic supply and is supplied from this well. **<u>Principal dwelling</u>** The applicant notes that a water supply tank was installed and therefore, the dwelling is appropriately serviced. It can be noted that there is an existing bore M35/6775 on site close to the principal dwelling used for domestic supply and is supplied from this well.

	 The location of the well as indicated in BC131903 (TRIM 140205011139) and on WAIMAP is different.  The well has consistently shown an absence in E. Coli and Total Coliforms testing (TRIM 130918078414, 140204010664, 141219141955). The testing of the well in 2014 returned iron contaminants above the guideline value of 0.2 g/m3 (0.274 g/m3) which indicates that the water may cause brown staining of laundry and basins but is not a health risk as it is not above the MAV. However, as these are old testing results, updated quality and flow testing is required. Since there are two dwellings connected to the same supply, the below advice note will need to be added to the consent: *Where two or more households are connected to the same water supply, the property owner(s) will need to register the water supply with Taumata Arawai (the new water regulator), develop a water safety plan and undertake water testing in accordance with the recently enacted Water Services Act 2021.*
Sewer	We have not been asked to assess sewer servicing for this application due to the Operative District Plan rules which apply, however, we can note the below:

	The applicant has installed a new wastewater discharge system approved under CRC144252 for the principal dwelling and allows for discharge from a single dwelling with a maximum of four bedrooms.  The minor residential dwelling is serviced through an existing Oasis Clearwater Series 2000 septic tank.
Electricity and Communication	N/a
Vehicle access	The minor residential dwelling and principal dwelling share a formed access off Paisley Road. Based on the relative size of both dwellings, it is anticipated that the number of vehicle movements associated with the minor residential dwelling will be similar or less than those of the principal dwelling. The formed access is noted to comply with the minimum formed width of 4m and legal width of 10m in Table 30.3 of the District Plan. The plan submitted in BC131903 shows a 5m wide driveway (TRIM 140205011139). The compliance monitoring report (TRIM 210610093306) shows the accessway is sealed. 

	It is noted that Paisley Road is a no exit shared use road, as vehicle access is blocked at the Fernside Road intersection, north of the application site. As such, on-site manoeuvring is required and appears to be achievable.
Roading and traffic safety	Paisley Road is an existing 4 meter wide sealed, no exit road connecting Fernside Road and Mulcocks Road. The road used to be unsealed however, was upgraded in 2016 as a sealed road closed north at Fernside Road with access permitted from Mulcocks Road for the Rangiora to Kaiapoi cycleway (Passchendaele Memorial Path) as part of the Urban Cycleways Programme (UCP). Refer to TRIM 161108115268. There is a no exit on the Fernside Road end of this road. 8 extra vehicle movements per day was generated as a result of the erection of the additional dwelling. This impact is not significant on a normal local road, however, as Paisley Road is built to a lesser standard, this may introduce some traffic risks especially given its status as a shared use path as part of the cycleway. The usage of the cycleway was given consideration based on the traffic risks the additional vehicle movements would pose on the number of cyclists using the cycleway. The survey results are as below, saved in TRIM 220718121770. The relevant results are in relation to cyclist numbers across Lineside Road north of Todds Road as these cyclists would have utilised Paisley Road. These results show a generally increasing trend in the number of cycle users from 2018 onwards and we can expect that cyclist usage may increase.  These results also show that for a weekday measured over a 2 hour period, 5 cyclists utilised the UCP path (below) and 83 utilised it over a 4 hour window on Sunday. However, do note that it is hard to see any consistent trends with the short period counts especially for the weekday result.



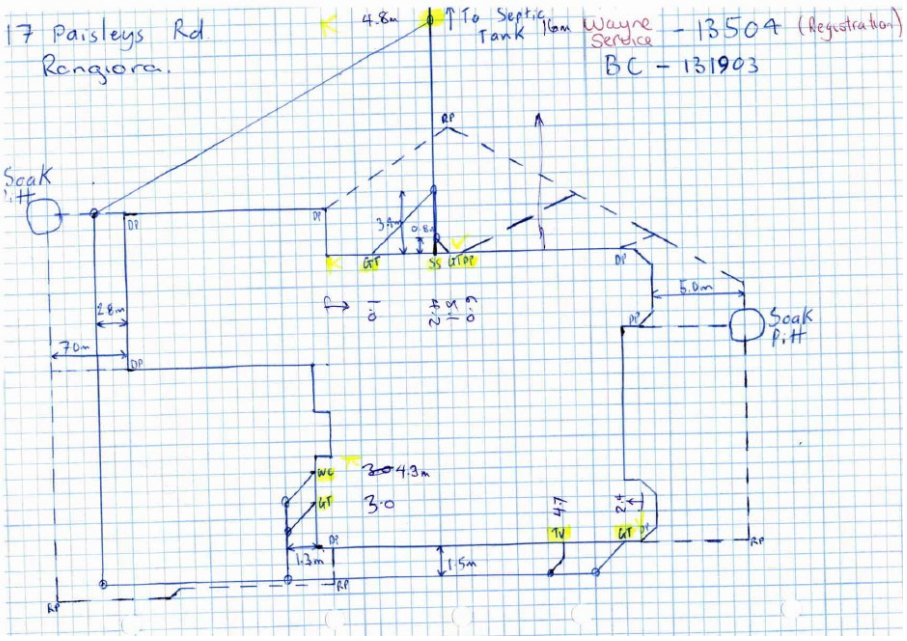
Engineering advice was also sought regarding financial contributions (FCs) which would apply if an upgrade is required to the Paisley Road's formation.

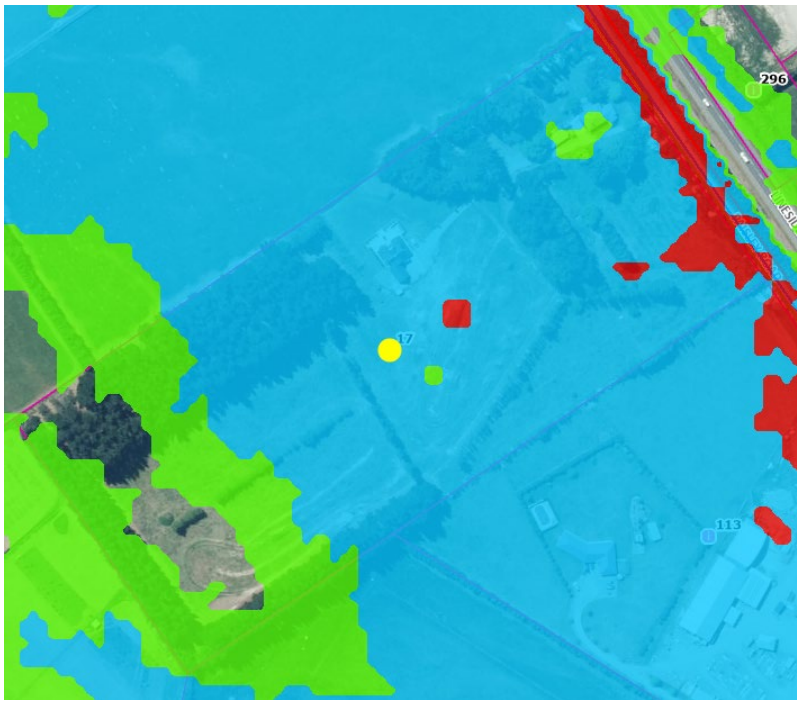
Based on discussion with Don Young, the FCs are only triggered when a development is significant enough to require an upgrade of infrastructure. This has to have a specific capital works programme and upgrade works will need to be undertaken within a specific time period.

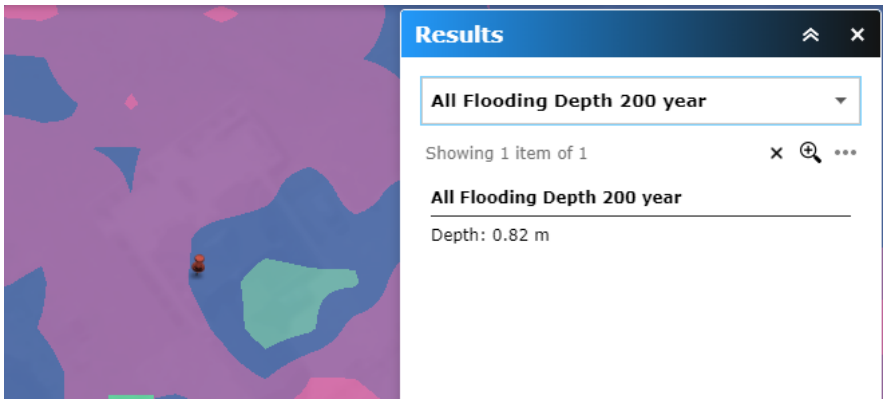
Paisley Road was upgraded (sealed) as part of the shared use cycle/vehicle path upgrade. It was not upgraded to local road standard as there is not sufficient demand to require such an upgrade. The presence of an additional dwelling on the application site alone does not itself create enough demand to upgrade the road to local standard. However, it is noted due to the shared use of the road by vehicles and cycles it is **preferred to keep vehicle use to a minimum from a traffic safety perspective.**

As the road upgrade was introduced as a part of the shared use cycle/vehicle path upgrade for the Urban Cycleways Programme (UCP), no FCs are required towards an upgrade of the road. Hence, it is unlikely that FCs apply in this case for the sealing of Paisley Road.

Emma Frazer, the planner of this resource consent application, has undertaken a site visit and reported damage to the vehicle crossing as a result of the recent flood events (TRIM 220803132128). All weather access should be provided to 17 Paisley Road, therefore, conditions for vehicle crossing upgrade should be included. Damage in the public road reserve has been raised as a service request in the Council system.

	
Stormwater	There is the railway line on the eastern side of Paisley Road, and an open drain on the western side of Paisley Road. 3. *Attached please find a Drainage & Stormwater Plan for the dwelling.* *Stormwater discharges from individual downpipes to ground, in accordance with the soakpit design shown on the Drainage & Stormwater Plan. The discharge of roof stormwater to ground complies with the "permitted activity" rules contained in the Natural Resources Regional Plan (ECan; NRRP; WQL6). The discharge of sewer will be by way of a pressure irrigation line, with treatment provided through an approved Oasis Clearwater 2000 System (ECan resource consent approval pending).* As above the applicant proposed soakpits for stormwater disposal. Waimap shows soil permeability is low and groundwater is high. Soakage testing will be required for ground disposal or a detention tank or pond should be considered.  As part of this Resource Consent, we would recommend that the soakpits be maintained and soakage tests be carried out to confirm funcitionality of

	the soakpits. This is due to the amount of surface flooding present as well as the site's location within the overland flow path.
Hazards	
Flooding	The application site is located within an overland flow path.  The maximum 1 in 200 year flood depth intersecting the footprint of the principal dwelling is 0.82m. Under RC135396, the newer principal dwelling was constructed and it was proposed that the existing dwelling be removed when the consent lapses. As such, the principal dwelling would have been constructed with flooding risks taken into consideration at that time. It was recommended, based on Council flood modelling, that any building on proposed Lot 1 DP 61798 has a minimum finished floor level of 600 mm above the adjacent natural ground level. It is noted flood modelling has significantly improved since that time and Council has increased its freeboard requirements, as set out below. If the a new resource consent application was submitted today, the minimum finished floor level would have been set as 500mm freeboard + 820 mm flood depth = 1.32m above existing ground level. However, based on discussion with Don Young and Kelly LaValley (TRIM 220607095502), Council has **no ability** to reconsider finished floor levels, despite having newer information that indicates deeper flooding is likely. The flood depth intersecting the footprint of the minor residential dwelling is 0.29m. It is unknown what the finished floor level of the minor residential dwelling is set at. This current consent application is to retain this dwelling as a 'secondary dwelling' rather than remove it. As this dwelling was already in place when the 2014 consent was approved, the Council would not have considered the finished floor level issue. Likewise, because the dwelling is already in place, the Council **cannot require the floor height be re-considered.** If this consent was to be approved, a consent notice would be

	required if a significant extension, or a replacement building consent was applied for as this may trigger a review of the floor heights.  The maximum 1 in 200 year flood depth intersecting the accessway is 0.82m.
Geotechnical	See below. Site specific foundation investigation has been undertaken at BC stage. No geotechnical information can be requested as part of this consent application; Council's discretion is restricted.
Liquefaction	The below is an excerpt of the geotechnical investigation for RC135396 (TRIM 190610081668). However, this has been included for completeness but no geotechnical information can be requested or assessed due to restrictions in the Operative District Plan. The assessment is based on consideration of the three key physical factors required to facilitate liquefaction as a mechanism, specifically: • soil grading and density • degree of saturation • earthquake intensity From the investigations, the only soil horizon that could potentially qualify as being prone to liquefaction effects is the sand/silt layer at 0.9m to 1.2m bgl. However, there are several mitigating factors that prevent this layer from presenting an acute risk: • the horizon is above ground water level, therefore lacking the degree of saturation necessary for the liquefaction mechanism • the horizon is relatively shallow at not more than 300mm thick, suggesting only a very small degree of volume change possible (settlement) through densification • the horizon overlays a deep gravel base, allowing alterative flow paths for the dissipation of pore water pressures
Contaminated soils - LLUR, PSI, RAP	On the LLUR but no HAIL activities noted. Review of historical imagery does not show evidence of HAIL activities.
EQ/Fault Lines	N/A

Environmental social cultural	
Environmental Impact Assessment EMP & ESCP	No items relating to the engineering items.