

4415
14 July 2021

Selwyn District Council
PO Box 90
Rolleston

Attention: R Flynn



Dear Ms Flynn,

**RE: Subdivision – RC 215485
Hughes Developments Ltd
Farringdon West & South East
Geotechnical Summary Peer Review**

Geotech Consulting has been asked to carry out a peer review of the geotechnical reports submitted as part of the subdivision consent application for the extensions to the Farringdon subdivision in south Rolleston. In particular the review is to confirm that the report contains sufficient information to understand the effects relating to geotechnical risk and hazard, and is consistent with MBIE guidance for geotechnical assessment of subdivisions.

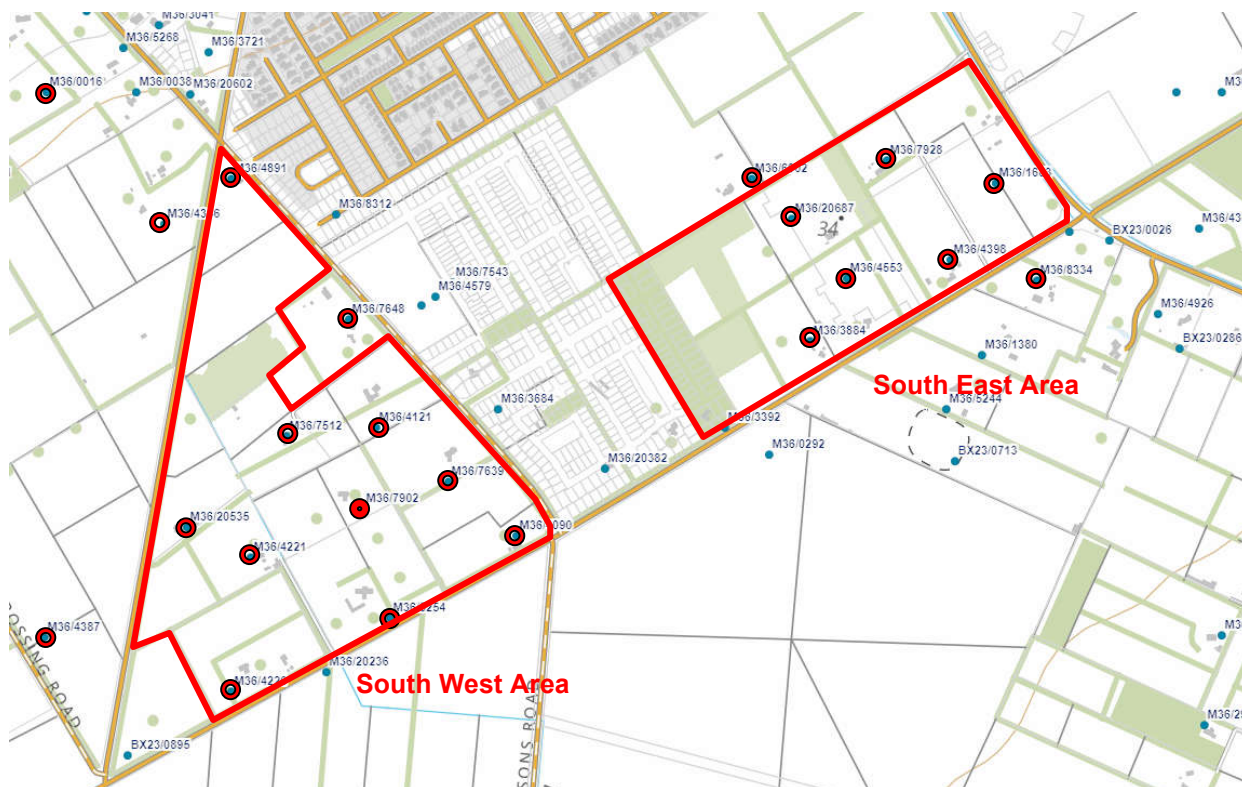


Figure 1 Plan showing the proposed subdivision areas
Red circles show the deep Ecan well logs referred to in the geotechnical reports

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The southwest area takes up most of the triangular block of land bounded by East Maddisons Road, Gould Road and Selwyn Road (refer to Figure 1, above). The proposal is to subdivide the area of 54.4 hectare into 681 residential sections with 2 commercial lots and 7 reserve lots, together with associated roading. The south east area is a rectangular block of land about 840m long and 400m wide with existing residential subdivision to the north and west, Springston-Rolleston Road to the east and Selwyn Road to the south. The proposal here is for 283 residential lots, 2 commercial lots, 3 reserve lots on 25 hectare and the balance of 10.3 hectare in the south east quadrant for future development. The distance between the two areas is about 480m along Selwyn Road.

GCL has previously seen most of the documentation when it was submitted for plan change PC 64 (GCL letter 19 January 2020). Two summary letters were also viewed at that time, and these provide a useful overview. The letters, both by ENGE0 Ltd dated 27 November 2019 and addressed to Hughes Developments Ltd, were:

- *Geotechnical Summary Letter – Farringdon West, Rolleston, Christchurch*, which relates to the properties at [REDACTED]. This letter refers to seven geotechnical reports dated between December 2017 and July 2019.
- *Geotechnical Summary Letter – Farringdon South East, Rolleston, Christchurch*, which relates to the properties at [REDACTED]. This letter refers to four geotechnical reports dated between December 2016 and October 2019.

The current application documentation includes two additional reports for the southwest area, which cover the properties at [REDACTED]. The properties, reports and site testing data are summarized in Table 1 for both the southwest and southeast areas. The properties are shown on Figure 2 for the southwest area.

Table 1 Summary of Geotechnical Reporting

Property address & Report title	Legal description	Date of geotech report	Area (hectare)	Test Pits (no.)	Hand auger bores (no.)
South West Area					
[REDACTED]	Lot 1 DP 69688	6 Dec 2017	10	14	14
[REDACTED]	Lot 3 DP 326339 & Lot 4 DP 355996	21 Sep 2018	8	11	10
[REDACTED] d	Lot 2 DP 326339	18 May 2018	4.27	7	5
[REDACTED]	Lot 4 DP 326339	26 Nov 2018	4	6	5
[REDACTED]	Lot 1 DP 74660	16 May 2019	5.49	9	7
[REDACTED]	Lot 1 DP 343803	18 July 2019	6.2	10	8
[REDACTED]	Lot 2 DP 343803	12 Dec 2018	4.2	6	5
[REDACTED]	Lot 3 DP 355996	19 Aug 2020	6	9	11
[REDACTED]	Lot 2 DP 75821 & Lot 2 DP 355996	21 Jan 2021	6.1	9	10
<i>Totals</i>			54.44	81	75
South East Area					
[REDACTED]	Lot 1 DP 60892 Lot 2 DP 341771	12 Dec 2016	10	14	14
[REDACTED]	Lot 1 DP 341771	5 May 2018	4	6	5
[REDACTED]	Lot 2 DP 479375 Lot 1 DP 441634 Lot 1 DP 479375	3 Oct 2019	4.8	15	15
[REDACTED]	Lot 2 DP 63632 Lot 3 DP 441634	23 May 2017	10.3	14	14
<i>Totals</i>		13 reports	29.1*	49	48

* total is from property areas as in the geotechnical reports. This does not match the area given in the application of 35.3 ha



Figure 2 Existing Property boundaries and areas for the geotechnical reports.
 (from Appendix ENGE0 report Detailed Environmental Site Investigation Farrington South West Stage 1 East Maddisons Road, Rolleston 20 April 2021)

The geotechnical testing was carried out with machine excavated test pits, hand auger boreholes and scala penetrometer tests. The tests confirmed that both areas are underlain with shallow gravel. In some places the topsoil directly overlies the gravel, in others there is a relatively thin layer of silt and sand between the two. Reference to Ecan well logs indicates the groundwater depth is at least 5m deep and that the gravel extends many tens of metres depth.

All the site tests either stopped on the top of the underlying gravel (hand auger bores) or penetrated a short distance into the gravel (test pits which were generally up to 2m deep). The deeper soil profile has been confirmed by reference to well logs held on the Ecan database. There are 16 well logs referenced for the southwest area and eight for the southeast area. The locations of these are shown on Figure 1, above. The distribution is adequate for the two areas, particularly given the consistency of the soil profile throughout the area.

The overall density of the testing on the sites is 2.87 per hectare or 4.4 lots per test for the southwest block and 2.75 per hectare (taking 35.3ha as the area) or 2.9 lots per test for the south east area. The recommended density of testing in the MBIE Guidance is one deep test for every 4 lots. However, this recommendation was written around testing of liquefiable areas. Thus, the amount of testing and its depth is considered sufficient for this site.

Unsurprisingly, given the nature of the geology, all the reports are very similar in content and conclusions. RMA section 106 hazards were specifically considered. There are no areas of specific geotechnical concern, and the potential for liquefaction and lateral spreading is very low. All the sites, and hence the combined overall area, are concluded to be suitable for residential subdivision, equivalent MBIE Foundation technical category TC1 with respect to liquefaction hazard, and suitable for shallow foundations in accordance with NZS3604 Code of Practice for Light timber Framed Buildings.

Review Conclusion

The information presented demonstrates that there are no geotechnical risks of any magnitude that would prevent the land in question being suitable for residential subdivision and development. The extent of work site testing is consistent with the intent of the MBIE Guidance requirements, in our professional opinion, and is sufficient for the assessment of risk for the subdivision consent application.

Yours faithfully

Geotech Consulting Limited



Ian McCahon