SET ENGINEERING

Civil & Structural Engineers
PO Box 1059
New Plymouth
M: 021 495540

Ref: 181842

30 November 2018

Bland and Jackson Surveyors Limited
19 Dawson Street
NEW PLYMOUTH

ATTENTION Geoff Bland

1306 CARRINGTON ROAD, NEW PLYMOUTH SUBDIVISION
2 LOT RURAL SUBDIVISION SUB18/47038
PRELIMINARY ENGINEERING SITE INVESTIGATION REPORT

Thank you for the site plan and resource consent that we received setting out the requirements for the proposed rural subdivision at 1306 Carrington Road, New Plymouth.

Our engineering investigation concentrated on determining whether proposed lot 2 provides a stable flood free building platform and is adequate for onsite stormwater and wastewater disposal as per the New Plymouth District council consent condition 3.

We completed Scala Penetrometer, hand bore hole and soil classification tests in accordance with NZS 3604 and NZS 1547 on lot 2 during our site visit on the 26th November 2018. The aim of the preliminary investigation was to determine if there exists a suitable building platform for building foundations constructed in accordance with the requirements of the New Zealand Building Code NZBC Acceptable Solution B1/AS4 and to confirm the suitability of the soil for on-site stormwater and wastewater disposal.

NZS3604 standard for timber framed buildings offers an acceptable solution for dwelling foundations built to this standard and it requires an allowable ground bearing capacity of 100kPa to be present under dwelling footings.

The preliminary investigation is not a detailed assessment of the specific requirements for building foundations on the proposed lot as at this stage it is unknown what building type is proposed and where they will be located on the lot.

1.0 Building Platform

Proposed lot 2, 5805m^2, forms part of the existing Pouakai Zoo and it has been used for animal grazing. The lot contains a mixture of flat and sloping ground surface covered with grass and trees. A small stream flows north along the eastern boundary of lot 2 and there exists a flood free potential building platform to the northern part of the lot which is elevated above the low lying ground.

We completed two hand bore hole soil tests down to 1.2 and 2.0 meters deep over the potential building platform area which determined that the ground consists of varying soil types. The south east bore hole indicated 200mm of topsoil overlaying volcanic ash soil with fines of pumice and gravel down to 2.0 meters deep no water table was encountered but the soil became moist with increased depth. The north western bore hole indicated 200mm of topsoil overlaying moist soft light brown coloured silty clay that was sticky.

Scala Penetrometer soil tests indicated variable allowable bearing capacity of the soil with tests indicating an allowable bearing capacity of 70kPa recorded at depths between 550 – 850mm deep that increased to 100kPa at between 850 - 1000mm below existing ground level.

In our opinion from our soil test results and site inspection proposed lot 2 provides a stable flood free building platform over the northern side of the lot which is suitable for foundations designed in accordance with the requirements of the New Zealand Building Code NZBC Acceptable Solution B1/VM4. Due to the soil allowable bearing capacity not meeting the requirements of NZS3604 standard any dwelling on lot 2 shall have their foundations designed by a suitably qualified engineer. Foundations may involve a combination of excavating down to firm ground, using a wider concrete footing or using piles to support the foundation.

The following photos show the condition of lot 2 at the time of our site visit.

Photo 1. Looking north over the potential building platform area.

Photo 2. Looking south over lot 2 from the potential building platform area.

2.0 Stormwater

Stormwater from roofs is likely to be collected and stored on site for use by the occupants of the dwelling on lot 2. We are satisfied that stormwater overflow from storage tanks may be piped to the adjacent stream along lot 2 eastern boundary line.

3.0 Wastewater

Soil conditions over lot 2 vary with location and our soil tests indicated a silty clay with a poor indicative permeability value and a clay silt with fines of pumice and gravels which has a moderately well drained permeable characteristic. An on site wastewater disposal system will need to be located at least 25 meters from the stream flowing along the eastern boundary line in accordance with NZS 1547 standard.

Due to the varying soil permeability and proximity to the eastern boundary stream we recommend that the on site wastewater disposal system shall be designed by a suitably qualified person. The wastewater system design will require a soil permeability test in the specific location of the on site wastewater disposal bed/field to determine the type of effluent system to be used. A secondary treatment effluent disposal system may be required for this site depending on site location and soil permeability.

4.0 Consent Notice Recommendations

Over the potential building platform area on lot 2:

- All buildings shall have their foundations designed by a suitably qualified engineer.
- On site wastewater disposal system shall be designed by a suitably qualified person to suit the site location and soil permeability.
- Stormwater overflow from storage tanks can be disposed of into the stream flowing along the eastern boundary line.

5.0 Limitation

The geotechnical opinions and recommendations contained in this report are based on the site conditions as they existed during our site visit and we have assumed that the exploratory holes and soil tests are representative of subsurface conditions throughout the potential building platform area. We should be notified of any subsurface conditions which appear to be different from those identified by this investigation so that these conditions may be reviewed and our recommendation reconsidered where necessary.

The above site investigation did not include site inspection for chemical contamination of subsoil as we are not aware of the lot being used for intensive agricultural farming or industrial activities.

LOT 2 ENGINEERING SITE PLAN

Note: → Existing Secondary Flow Path approximate direction. Flow paths shall be maintained as they currently exist after the development of the lot.

Building Platforms are subject to council boundary separation distances.

★ Soil tests and investigation approximate locations

Refer to Bland & Jackson Surveyors plan for most current subdivision details.

If you require any further information or wish to discuss this report you are welcome to contact us.

Yours faithfully

Matt Peacock
BE, Civil Engineer, CMEngNZ, CPEng