

When assessing applications for building consent or subdivision; Council needs to be satisfied on reasonable grounds that all building work will comply with the provisions of the New Zealand Building Code (NZBC).

Geotechnical reports determines whether the ground can support the proposed structure. As well as possible settlement, slope instability, liquefaction or other geotechnical hazards. It will also provide recommendations on any foundation design, if necessary.

Geotechnical completion reports (GCR) and /or geotechnical assessment reports (GAR) are typically required when building on land subject to a recent subdivision. If there are any geotechnical requirements for new buildings, and if additional geotechnical testing or design input needed, these reports should specify this information. **Additionally**, a site-specific geotechnical report may be required. Depending on the projects, these reports may contain recommendations for earthworks, retaining walls and stormwater and wastewater disposal.

A site-specific Geotechnical report assessment report is required if there are no existing reports or if the report is older version (no more than 2 years).

The building foundation can be designed according to [NZS3604:2011 – Timber Framed Buildings](#) if there are no significant geotechnical hazard and the soils are considered to be **‘good ground’**.

Note: Evidence must be supplied to confirm good ground.

If a site does not meet the definition of ‘good ground’, the foundations should be subject to specific engineering design (SED) and further investigation or improvements.

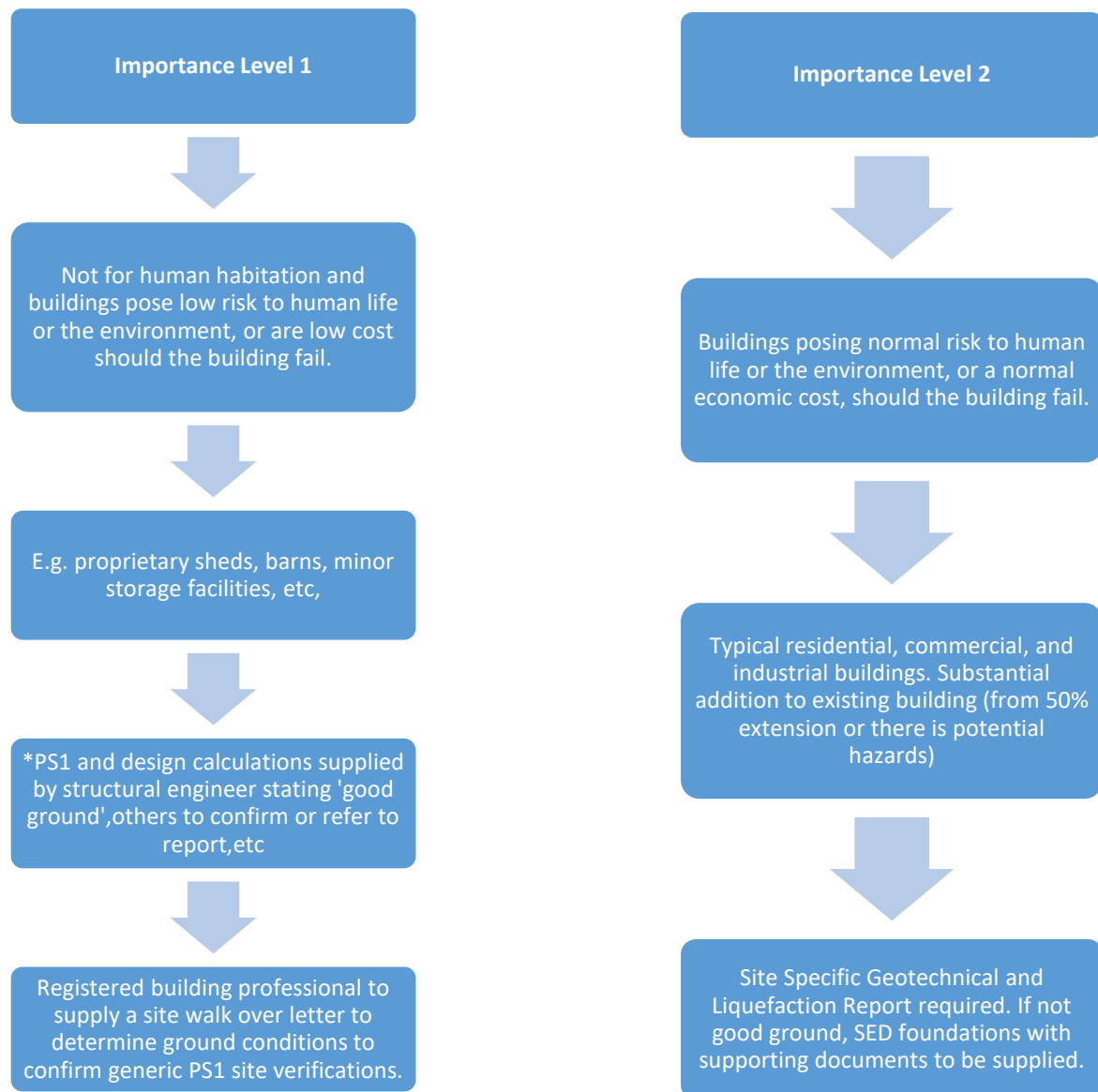
Liquefaction is a natural process that occurs when earthquake shaking causes the water pressure in the ground to increase, resulting in temporary loss of soil strength. It can damage land, building, infrastructure, and the environment, as well as disrupt economy and society.

In November 2019 a change was made to Acceptable Solution B1/AS1 preventing it from being used on liquefaction-prone ground. The change brings the rules that are currently in place in Canterbury to the rest of New Zealand, meaning robust foundations will be required for liquefaction-prone ground. The new rules are mandatory across the country from 29 November 2021, ensuring new buildings are being built safely and strongly enough to withstand [liquefaction risks](#).

Liquefaction assessment report will determine if specific engineering design foundations are required.

Whakatane District Council (WDC) requirements for a geotechnical/liquefaction report at **Processing phase** are dependent of the Importance level of building (IL) and structure.

Ground condition information is always required at processing stage to confirm compliance with B1 – Structure of NZBC.



**The Proprietary building PS1 may state site verification as good ground or by others, etc. It is the responsibility of Owner/Agent/First of contact is to ensure that such confirmation is supplied to council for verifications.*

Importance Level 3, 4, and 5 – Site Specific Geotechnical and Liquefaction Report required. Specific engineering design for foundation and other relevant aspects to be supplied. This can be further discussed at Pre- application meeting.

Click to [link](#) for Building Importance level.

If during review of Building application, it is identified that a geotechnical assessment report is required, this will be added to request for further information (RFI) or communicated with reasons; regardless of Importance level of building.

Building Inspection Stage

Every building consent is issued with Form 5 as per [section 51 of Building Act 2004](#).

- If good ground is determined and foundation are designed to NZS3604:2011, it can be inspected by WDC's Building inspector.
- Where it is identified as not good ground and geotechnical report is supplied together with specific engineering designed foundation the following Construction monitoring will be added to Form 5.
 - Producer statement (PS4) from Geotechnical engineer for the observation and construction of the building platform, including site excavations, the installation of any sub-soil drainage and placement of compacted fill as necessary to form the building platform.
 - Producer statement (PS4) from approved structural engineer for the observation of foundations and/or slab design confirming that the work complies with the approved by Building consent.

Producer statements are required to issue a Code Compliance Certificate to confirm that the work is safe, complies with NZ building code and approved Building Consent.

NZS3604:2011 defines 'good ground' as: Any soil or rock capable of permanently withstanding an ultimate bearing capacity of 300kPa (i.e. an allowable bearing pressure of 100kPa using a factor of safety of 3.0.), but excludes:

- a. Potentially compressible ground such as topsoil, soft soils such as clay which can be moulded easily in the fingers, and uncompacted loose gravel which contains obvious voids;
- b. Expansive soils being those that have a liquid limit of more than 50 % when tested in accordance with NZS 4402 Test 2.2, and a linear shrinkage of more than 15 % when tested from the liquid limit in accordance with NZS 4402 Test 2.6: and
- c. Any ground which could foreseeably experience movement of 25 mm or greater for any reason including one or a combination of land instability, ground creep, subsidence, seasonal swelling and shrinking, frost heave, changing groundwater level, erosion, dissolution of soil in water, and effects of tree roots.

NZS3604:2011 – Timber framed Building is an Acceptable solution to B1- Structure of New Zealand Building Code.

References

- [NZS3604:2011](#)
- <https://www.building.govt.nz/building-code-compliance/geotechnical-education/>

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