GUIDELINES FOR GEOTECHNICAL SITE INVESTIGATION

INTRODUCTION:

These guidelines have been prepared for Central Hawke's Bay District Council to provide guidance to applicant's regarding the **minimum** geotechnical site investigation requirements at time of Building or Subdivision/Land Use consent.

These guidelines will allow Council Officers to assess compliance with the Building Act 2004, the Resource Management Act 1991 and guidelines provided by the Ministry for the Environment and the Ministry of Business, Innovation and Employment.

Geotechnical reports provided at the time of application for consent may be peer reviewed by an external engineer at the applicant's cost to ensure compliance with the above standards. Not following the requirements of this guidance may result in the application being returned with a request for further information.

MINIMUM REQUIREMENTS:

Information has been provided in this document for the minimum geotechnical requirement for an application at building consent stage or subdivision/land use consent stage. It is recommended that you obtain professional advice from a Chartered Professional Geotechnical Engineer or other suitably qualified and experienced Chartered Professional Engineer registered by Engineering New Zealand.

The requirement for these geotechnical reports is to ensure that applications provided to Council provide sufficient information for Council to be able to be satisfied on 'reasonable grounds' that sites are suitable for subdivision and future building, or that structural requirements at building consent stage adequately address site specific geotechnical conditions.

CENTRAL HAWKE'S BAY SOIL TYPES AND HAZARDS:

Central Hawke's Bay District is susceptible to a number of different hazards as identified on the HBRC Hazard Portal Map including, but not limited to:

- Liquefaction
- Unstable soils/possible subsidence
- Fault avoidance zones and fault lines
- Coastal Hazard zones
- Flood risk
- Land Slide risk

Minimum requirements for geotechnical reports will be more rigid if a site is located within any area with an identified hazard.

GUIDANCE AND LEGISLATION:

Resource Management Act 1991:

Amendments to the RMA 1991 in 2017 placed greater weight and emphasis on section 106 with regards to natural hazards and ensuring that subdivisions are appropriately assessed and hazards and risks are addressed.

Building Act 2004 and Building Code:

Section 71/72 of the Building Act 2004 covers natural hazards and the ability of Building Control Authorities to consider the risks of natural hazards when processing consents.

Section 3 of NZS 3604:2011 Timber Framed Buildings sets out the criteria for ground conditions for buildings constructed to this standard (i.e. timber framed buildings not requiring specific design).

Where the ground does not meet the ultimate bearing capacity of 300kPa for NZS 3604:2011 OR the site is located in an area with a known hazard OR the ground consists of expansive soils (shrink-swell), soft soils (clay) or loose gravels, the foundations must be specifically engineer designed.

Ministry for the Environment and the Ministry of Business, Innovation and Employment: Planning and Engineering Guidance for Potentially Liquefaction-prone Land (September 2017)

https://www.building.govt.nz/building-code-compliance/b-stability/b1-structure/planning-engineering-liquefaction-land

Hawke's Bay Regional Council Hazard Portal: Assessment of liquefaction risk in the Hawke's Bay (October 2017).

https://www.hbemergency.govt.nz/assets/Hazard-Information-Portal/CR-2015-186.pdf

https://www.hbemergency.govt.nz/assets/Hazard-Information-Portal/CR-2015-186-Appendices.pdf

REQUIREMENTS FOR BUILDING CONSENT:

The following building consent applications will require a geotechnical review:

- New habitable buildings, including sleepouts
- All relocated dwellings
- Substantial additions and alterations to a dwelling comprising 50% of original gross floor area
- Small to medium additions (up to 50% GFA) on buildings that show previous signs of movement

- All buildings in areas of known natural hazards (including retaining walls with surcharge, garages, sheds and swimming pools).

All commercial buildings and any buildings with a tilt slab foundation will require a geotechnical assessment at time of building consent.

Exclusions:

- Accessory buildings no greater than 150m² eg pole sheds
- Stand alone garages and car ports
- Re-piling of residential buildings

Type of investigation:

Soil type	Minimum testing	Further testing required
No known hazard	Hand held investigation using a dynamic cone penetrometer (scala penetrometer) and hand auger to confirm the bearing pressure and in-situ strength to confirm 'good ground'. Not less than 4 scala penetrometer tests and 2 hand augers. Not less than 2m in depth (refer NZS3604:2011 or comparable standard). If 'good ground' can be proven then a foundation design to NZS3604:2011 is suitable and no further testing required.	If 'good ground' cannot be proven a geotechnical investigation is required, see line below.
Hazard within the vicinity of the building platform or not 'good ground'	A geotechnical investigation undertaken by a suitably qualified engineer and accompanied by a professional guarantee at building consent application.	
Location: - On or at base of sloping land - In close vicinity to watercourse or drains - On fill material	A geotechnical investigation undertaken by a suitably qualified engineer and accompanied by a professional guarantee at building consent application.	
Cut and/or fill for building platforms	All sites where the building foundations are located on a building platform that has been altered by cut or fill prior to construction of platform commencing will require a geotechnical report to be provided by a suitably	If it cannot be determined by Council staff the extent of modification to the platform, a certificate from a suitably qualified person is required to progress the building consent.

	qualified engineer at building consent application.	

All building consent applications require the following to be submitted as part of the application pack:

- Report including description of geotechnical testing undertaken and acknowledgement of any hazards or location issues on site;
- Description of the proposed building;
- Site subsurface conditions, soil type and groundwater;
- Confirmation of 'good ground' and foundation design; or
- A detailed geotechnical report from a suitably qualified expert providing a thorough investigation of the site, foundation design recommendations and producer statement for the foundation, if specific design is required.

REQUIREMENTS FOR SUBDIVISION AND LAND USE:

Minimum geotechnical requirements at subdivision stage

All subdivision consent applications require a minimum level of geotechnical report to be provided at application stage.

Type of investigation

Soil type	Minimum testing	Further testing required
No known hazard for subdivisions of 4 sites or less.	Hand held investigation using a dynamic cone penetrometer (scala penetrometer) and hand auger to confirm the bearing pressure and in-situ strength to confirm 'good ground', carried out by a suitably qualified person. 4 scala penetrometer tests and 2 hand augers per house site.	If 'good ground' cannot be proven a geotechnical investigation is required, see line below.
Hazard on site (identified by either CHBDC GIS, HHBRC Hazard Portal, GNS or observed at a site visit); or Location issues such as slope or adjacent to a watercourse; or Not 'good ground' Or Subdivision of 5 new sites or more.	A geotechnical investigation undertaken by a suitably qualified engineer and accompanied by a professional guarantee at building consent application. Minimum 4 scala penetrometer tests and 2 hand augers per house site.	

When submitted the Subdivision consent must be accompanied by a geotechnical report undertaken to the necessary detail as required above and the including the following information:

- The proposed development;
- Description of geotechnical testing undertaken;
- Site subsurface conditions and groundwater assessment;
- Assessment of hazards;

For subdivisions that require a geotechnical investigation undertaken by a suitably qualified engineer, the following further information is required;

- Identified building platforms;
- If the site is constrained by topography or a watercourse, the identification of proposed effluent field sites (if required);
- Proposed conditions for vehicle access, earthworks, stormwater and effluent field requirements.

END