



Whangarei District Council

Land Development Stabilisation - Policy

Policy #0129

April 2018

Land Development Stabilisation - Policy			
Audience (Primary)	External	Business Owner (Dept)	Waste & Drainage
Policy Author	Thane Richardt	Next Review date	December 2021

1. Purpose

Whangarei District Council (Council) has been receiving requests from developers to accept, and in some cases vest in Council's ownership, engineered systems designed to improve the stability and suitability of land. The development of such unstable or marginally stable land requires careful consideration to avoid future liabilities for Council and the community.

The intent of this document is to formalise Council's Policy on the use of stabilisation systems for land development.

The technical content of this Policy has been reviewed for WDC by Tonkin & Taylor Ltd.

This Policy supersedes Council's *Subsoil Drains Policy* dated October 2011.

2. Glossary of Terms

TERM	DEFINITION
Building	As defined by the New Zealand Building Code.
Consent notice	<p>A consent notice is a form of covenant between the Council and a land owner and can only be imposed through a development consent (i.e. when some kind of subdivision or boundary adjustment is done).</p> <p>A consent notice will be registered on the title of a property alerting current and future property owners of certain obligations that must be complied with on a continuing basis by the owner, and subsequent owners, of a title.</p> <p>Consent notices can be varied or cancelled by agreement between the land owner and the Council at any time after the deposit of the survey plan.</p>
Council	Whangarei District Council
Counterfort drain	A comparatively deep type of subsoil drain constructed by trenching and installing a perforated pipe at the base of the trench surrounded by a filter material to collect groundwater, and sealed at the surface to prevent capture of surface runoff. Counterfort drains are usually constructed parallel to the slope direction. The primary purpose is to reduce the groundwater level and decrease the pore water pressure, which increases the effective shear strength of the soil. Counterfort drains are typically between 2-5 m deep.
EES	Environmental Engineering Standards
Factor of Safety (FOS)	The FOS for geotechnical design of slope stabilisation measures is the ratio determined by dividing the resisting (stabilising) forces by the driving (destabilising) forces. A FOS < 1.0 indicates that a slope is unstable and will likely displace until equilibrium is reached (i.e. FOS = 1.0).
Hard engineering solution	Means of stabilising sloping ground or landslips by use of cut and fill earthworks, slope buttresses and in-ground structures such as shear keys or palisade walls .

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TERM	DEFINITION
Land stabilisation system	An engineered system designed to improve land stabilisation to provide an acceptable FOS . It may include hard engineering and/or subsurface drainage elements.
Palisade wall	A line of piles constructed below the ground level and extending into stable ground to improve stability often designed to intercept a shear zone .
Proponent	The owner of the subject land proposed to be developed.
Shear key	Trench excavated into stable ground often below a shear zone and backfilled with material with high friction angle (generally granular material) to improve the stability of a slope or landslide.
Shear Zone / Shear Surface	A zone of ground (or surface) below ground level which is weaker than the surrounding ground and has either already developed a surface of movement or has the potential to develop a surface/zone of movement.
Slope buttress	A gravity structure or earth fill built at the toe of a slope to improve slope stability.
Subsoil drain	A drain comprising a perforated pipe constructed in a trench and backfilled with granular material, installed to collect subsurface or seepage water and convey it to a point of disposal. Subsoil drains have a variety of uses, including but not limited to; subgrade drainage below road pavements, drainage behind retaining walls, drainage at the base of gullies, drainage of saturated soils for agriculture and horticulture as well as drainage of slopes to improve slope stability.
Subsurface drainage	A drainage system constructed below ground to collect subsurface or seepage water and convey it to a point of disposal.
Underfill drains	Drainage measures typically constructed at the base of bulk earthworks fill and are typically located at depth below the final ground surface e.g. drains that follow cleaned out gullies or areas of seepage prior to starting bulk earthworks for subdivision developments.
Vested asset	An asset whose ownership is transferred to Council upon development completion.

3. Policy

Council's Policy is stated below:

- 1) Council will not accept private subsurface drainage systems for land stabilisation purposes as a vested asset.

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- 2) Council will allow the use of private land stabilisation systems, subject to the following conditions:
- a) Engineering design and construction shall be in accordance with:
 - i) Council's *Environmental Engineering Standards* (EES); and
 - ii) Council's *Technical Standard: Stabilisation Systems for Land Development*; and shall be submitted for Council review and approval; and
 - b) Subsurface drainage systems for land stabilisation purposes shall be placed clear of building platforms and structures, unless such drainage systems are part of the structure or serve a separate engineering function e.g. subsoil drains behind a retaining wall or road pavement subsoil drains.
 - c) Underfill drains and hard engineering solutions may be located under building platforms and structures, as long as they do not interfere with or affect foundations or services; and
 - d) Where subsurface drainage systems are placed in common trenches, other services shall be placed closest to the surface in order to be maintained without disturbing the subsurface drainage system. Where any such disturbance is required for maintenance then the trench shall be reinstated in a manner such that the subsurface drainage function of the trench is maintained; and
 - e) The proponent shall provide construction records in accordance with Council's EES, clearly defining the location of all subsurface drains; and
 - f) A consent notice shall be placed on each title benefiting from the private land stabilisation system, at the proponent's cost, with the following conditions:
 - i) The land owner or private entity (as defined in clause 3.2)f)ii)(1) below) shall be responsible for maintenance of the private land stabilisation system where required; and
 - ii) At Council's discretion:
 - (1) A private entity shall be established to monitor and manage the private land stabilisation system, including:
 - (a) A management plan including financing for maintenance and renewal of the private land stabilisation system; and
 - (b) An instrument requiring mandatory membership to the private entity outlined above.
 - (2) Conditions requiring ongoing reporting on the status and condition of the private land stabilisation system.
- 3) Maintenance structures and outlets for private land stabilisation systems that are proposed to be located in public reserves or Council property will require specific approval. For all such structures:
- a) Council will evaluate the impact on the intended purpose of the reserve, and may refuse such occupation, or require additional consents and approvals; and
 - b) For structures approved by Council, the proponent at its own cost shall obtain from Council a licence to occupy in favour of the property, or private entity if one has been established in accordance with 3.2)f)ii)(1) above.

4. Deviations

Any deviations to this Policy will require the formal authorisation of the General Manager Infrastructure.

5. References

- Tonkin & Taylor Ltd. (2018). Land Development Stabilisation – Technical Design Requirements
- Whangarei District Council. (2010). Environmental Engineering Standards.
- Whangarei District Council. (2011). Subsoil Drains Policy (superceded).

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6. Adoption

This Policy has been approved for adoption by the Waste and Drainage Manager and the General Manager Infrastructure.

 Andrew Carvell
Waste and Drainage Manager

 Date

 Simon Weston
General Manager Infrastructure

 Date

Policy adopted by Infrastructure Committee on 10-05-2018.