

Section 5.9 Significant Geological Sites and Landforms

Notes:

1. Geological sites and landforms listed in this schedule are mainly in private ownership. There are a number of geological sites and landforms of significance within the District that are located on land administered by the Department of Conservation. The Department of Conservation and the New Zealand Geological Society's 'New Zealand Geopreservation Inventory' are useful sources of information for detail on significant geological sites and landforms located on conservation land. Activities on conservation land administered by the Department of Conservation are subject to the decision-making and concession processes of the Department and as such have not been listed in the District Plan.
2. Information listed in this schedule has been sourced from the Geoscience Society of New Zealand, 'New Zealand Geopreservation Inventory'.
3. Any resource consent application for subdivision, land use or development activities on land with significant geological sites and landform as listed in Schedule 5.12 - Significant Geological Sites and Landforms should consider whether or not it is likely to have an effect on that feature or landform.

Table 20 Significant Geological Sites and Landforms

Feature Number/ Map No.	Name of Geological Feature or Landform	Significance	Type	Classification (importance/ vulnerability)
G1 Map 20	Productus Creek Permian fossils, Mangarewa locality	Rich, well-preserved brachiopod and molluscan fauna. Only New Zealand occurrence of Glossopteris leaf fossils.	Fossils - Paleozoic	A2
G2 Map 20	Productus Creek Permian Wairaki Breccia localities (Letham Trig)	Youngest Permian fauna from New Zealand. Holostratotype of Makarewan Stage, Wairaki Breccia.	Biostratigraphic section; Fossils - Paleozoic	A3
G3 Maps 8 and 13	Potters Graben	One of the best examples of quartzose 'cover' sediments preserved on the uplifted peneplain of Central Otago.	Graben	C2
G4 Map 25	Waiau Cave, Clifden	Isolated lowland cave.	Solution caves	C1
G5 Map 68	Howells Point pillow lavas	Pillow lavas and pumpellyite mineral location.	Pillow lava	B3

Feature Number/ Map No.	Name of Geological Feature or Landform	Significance	Type	Classification (importance/ vulnerability)
G6 Map 16	Mossburn serpentinite quarry	Excellent exposure of serpentinite melange.	Pluton	C2
G7 Map 19	Waiau River Oligocene sandstone dikes	One of the best examples of sand injection structures developed during large scale folding in New Zealand Tertiary rocks.	Clastic dikes, Diapirism	B2
G8 Map 28	Bare Hill zeolitised tuff zone, Hokonui Hills	Section through heulandite and analcime-bearing Late Triassic tuffs in the Southland Syncline, a world class example of zeolite facies burial metamorphism.	Burial metamorphism - zeolite facies	A3
G9 Map 28	Croydon clinker	Representative example of thermally metamorphosed sediments associated with naturally burnt coal in Southland.	Thermal metamorphism - pyrometamorphism	C2
G10 Map 21	Wether Hill zeolite metamorphism	Internationally classic example of zeolite facies metamorphism.	Burial metamorphism - zeolite facies	A3
G11 Maps 16 and 21	White Hill zeolite metamorphism	Internationally classic example of zeolite facies metamorphism.	Burial metamorphism - zeolite facies	A3
G12 Map 16	Mossburn Permo-Triassic fossiliferous volcanoclastic sequence	Only example of Maitai Group rocks in the region. Diverse late Permian fauna. Allochthonous material in the exposure.	Strata - fossiliferous, Strata - volcanoclastic, Fossils - Paleozoic, Fossils	B2
G13 Map 21	Castle Rock karst, Dipton	Best karstic limestone bluff in Southland. Spectacular limestone ridgeline with one of the most impressive development of castle-like ramparts in tertiary limestone in New Zealand. Easily viewed from main road. One of the most significant avifaunal sites.	Folds - syncline, Karst features, Landforms, Solution caves	B2
G14 Map 25	Clifden limestone bluffs	Best, easily accessible karst features in Southland and one of the most diverse karstic landscapes in southern half of the South Island.	Karst features	C2

Feature Number/ Map No.	Name of Geological Feature or Landform	Significance	Type	Classification (importance/ vulnerability)
G15 Map 33	Forest Hill karst, Winton	Isolated limestone outcrops with spectacular solution weathering. Small pitfalls contain common avifaunal fossils.	Karst features	C2
G16 Map 24	Helmet Hill to Goldie Hill karst	Pristine active and fossil karstic landscape in virgin forest, with potential for future discovery of major cave systems and significant fossil avifauna.	Karst features, Solution caves	B2
G17 Map 25	Braida Crag limestone bluffs, Feldwick	Best example of limestone bluff (occasionally fluted) in western Southland, easily visible from Ohai-Clifden Highway (SH 96).	Karst features	C2
G18 Map 14	Freestone Hill limestone bluff, Manapouri	Only karstic limestone in the Manapouri area. One of the most impressive limestone bluffs in Southland.	Karst features	C2
G19 Map 27	Winton Hills tomos	Best examples in an extensive area along a ridgeline of small dolines and pitfalls, otherwise rare in Southland. Contain common avifaunal fossils.	Karst features	C2