



## DUCKBILL ANCHORS WORKING LOAD LIMIT CHART IN KILONEWTONS

COMMON SOIL - TYPE DESCRIPTION	GEOLOGICAL SOIL CLASSIFICATION	TYPICAL BLOW COUNT "N" PER ASTM-D 1586	40-DB 0.5m DEPTH	68-DB 0.8m DEPTH	88-DB 1.1m DEPTH	138-DB 1.5m DEPTH
SOUND HARD ROCK UNWEATHERED	GRANITE, BASALT, MASSIVE, LIMESTONE	N.A. ROD=50 1/2	1.37 (1,3)	4.9 (1,3)	13.4 (1,3)	1,3
VERY DENSE AND/OR CEMENTED SANDS; COARSE GRAVEL AND COBBLES	CALICHE, (NITRATE - BEARING GRAVEL/ROCK	60-100+	1.37 (2,3)	4.9 (2,3)	13.4 (2,3)	2,3
DENSE FINE SAND; VERY HARD SILTS AND CLAYS (MAY BE PRELOADED)	BASAL TILL; BOULDER CLAY; CALICHE; WEATHERED LAMINATED ROCK	45-60	1.37 (2,3)	4.9 (2,3)	13.4 (2,3)	2,3
DENSE CLAYS, SANDS AND GRAVEL; HARD SILTS AND CLAYS	GLACIAL TILL; WEATHERED SHALES, SCHIST, GNEISS AND SILTSTONE	35-50	1.37 (3)	4.9 (3)	13.4 (3)	22.3 (3)
MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS	GLACIAL TILL, HARDPAN; MARLS	24-40	1.37 (3)	4.9 (3)	13.4 (3)	22.3 (3)
MEDIUM DENSE COARSE SAND AND SANDY GRAVEL; STIFF TO VERY STIFF SILTS AND CLAYS	SAPROUTES, RESIDUAL SOILS	14-25	0.98-1.37 (4)	3.58-4.9 (4)	8.8-13.4 (4)	17.8-22.3 (4)
LOOSE TO MEDIUM DENSE FINE TO COARSE SAND; FIRM TO STIFF CLAYS AND SILTS	DENSE HYDRAULIC FILL; COMPACTED FILL, RESIDUAL SOILS	7-14	0.49-0.98 (4)	1.77-3.58 (4)	4.4-8.8 (4)	7.6-17.8 (4)
LOOSE FINE SAND; ALLUVIUM LOESS; SOFT - FIRM CLAYS; VARIED CLAYS; FILL	FLOOD PLAIN SOILS; LAKE CLAYS; ADOBE; GUMBO, FILL	4-8	0.24-0.49 (4)	0.98-1.77 (4)	2.2-4.4 (4)	4.4-7.6 (4)
PEAT, ORGANIC SILTS, INUNDATED SILTS, FLY ASH	MISCELLANEOUS FILL, SWAMP MARSH	0-5	0.12-0.34 (4)	0.49-1.23 (4)	0.49-0.12 (4)	2.2-5.4(4)

1. DRILLED HOLE REQUIRED TO INSTALL, FULL DEPTH TYPICALLY NOT REQUIRED TO EXCEED RATED CAPACITY.
2. INSTALLATION MAY BE DIFFICULT, PILOT HOLE MAY BE REQUIRED.
3. HOLDING CAPACITY LIMITED BY RATED STRUCTURAL RATING OF ANCHOR.
4. HOLDING CAPACITY LIMITED BY SOIL FAILURE.