

Common Abbreviations and Symbols

Drilling Method / Sample Type:

HA	Hand Auger
HQ3	HQ Triple Tube
PQ3	PQ Triple Tube
OB	Open Barrel
SNC	Sonic Drilling
VE	Vacuum Excavation
W	Wash Drilling

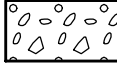
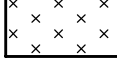
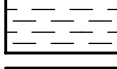
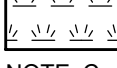
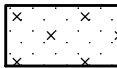
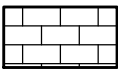
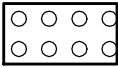
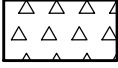
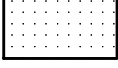
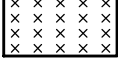
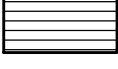
Field Tests/Samples:

SV	Shear Vane
BHSV	Down Borehole Shear Vane
CBSV	Core Barrel Shear Vane
SPT	Split Spoon SPT
SC	Solid Cone SPT
U54	Thin-wall Push Tube

Project Units

TS	Topsoil
F	Fill (Undifferentiated)
QC	Colluvium (Undifferentiated)
LSD	Landslide Debris
TA	Recent (Holocene) Alluvium
TP	Older (Pleistocene) Alluvium
TE	Estuarine Deposits
PR	Residually to Completely Weathered Pakiri Fm
PH	Highly Weathered Pakiri Fm
PM	Moderately Weathered Pakiri Fm
PU	Slightly to Unweathered Pakiri Fm
PFZ	Pakiri Fm Fault
RR	Residually to Completely Weathered Ruarangi Fm
RW	Highly to Moderately Weathered Ruarangi Fm
RU	Slightly to Unweathered Ruarangi Fm
RFZ	Ruarangi Fm Fault
NAS	Northland Allocthon Soils (Residual/CW)
NAD	Northland Allocthon Degraded Zone (HW/MW)
NAL	Northland Allocthon Calcareous Sequence (SW/UW)
NAN	Northland Allocthon Non-Calcareous Sequence (SW/UW)
NAM	Northland Allocthon Melange Matrix (SW/UW)
NAF	Northland Allocthon Fault
DAR	Residually to Completely Weathered Dacite
DAH	Highly Weathered Dacite
DAM	Moderately Weathered Dacite
DAU	Slightly to Unweathered Dacite
DAFZ	Dacite Fault Zone
DAHA	Dacite Hydrothermally Altered
WPR	Residually to Completely Weathered Greywacke
WPH	Highly Weathered Greywacke
WPM	Moderately Weathered Greywacke
WPU	Slightly to Unweathered Greywacke
WPFZ	Greywacke Fault Zone

Graphic Log Symbols for Soils and Rocks (after BS 5930:1981)

Soils	Rocks	General
 Fill  Boulders and cobbles  Gravel  Sand  Silt  Clay  Peat NOTE: Composite soil types are depicted by combined symbols, e.g.:  Silty sand	 Limestone  Conglomerate  Breccia  Sandstone  Siltstone  Mudstone  Greywacke	—— Boundary - - - - Approximate or inferred boundary  Core or sample loss  Water Level

Lithological Colours

	GRAVEL		LIMESTONE
	SAND		CONGLOMERATE
	SILT		BRECCIA
	CLAY-SILT		SANDSTONE
	CLAY		SILTSTONE
	ORGANIC/PEAT		MUDSTONE
	FILL		INTERBEDDED SILTSTONE AND SANDSTONE
			GREYWACKE

Soil Descriptions

Grain Size Terms

TYPE	COARSE								FINE		ORGANIC
	Boulders	Cobbles	Gravel			Sand			Silt	Clay	Organic Soil
			coarse	medium	fine	coarse	medium	fine			
Size Range (mm)	200	60	20	6	2	0.6	0.2	0.06	0.002		

Proportional Terms (Coarse Soils)

Fraction	Term	% of Soil Mass	Example
Major	(...) [UPPER CASE]	≥ 50 [major constituent]	GRAVEL
Subordinate	(...) [lower case]	20 – 50	Sandy
Minor	with some ... with minor ...	12 – 20 5 – 12	with some sand with minor sand
	with trace of (or slightly)...	< 5	with trace of sand (slightly sandy)

Particle Shape Terms:

Rounded	Subrounded	Subangular	Angular
			

Consistency / Density Terms

Descriptive Term	Density Index (R _D)	SPT "N" value (blows / 300 mm)	Dynamic Cone (blows / 100 mm)
Very dense	> 85	> 50	> 17
Dense	65 – 85	30 – 50	7 – 17
Medium dense	35 – 65	10 – 30	3 – 7
Loose	15 – 35	4 – 10	1 – 3
Very loose	< 15	< 4	0 – 2

Note: • No correlation is implied between Standard Penetration Test (SPT) and Dynamic Cone Test values.
• SPT "N" values are uncorrected. • Dynamic Cone Penetrometer (Scala)

Descriptive Term	Undrained Shear Strength (kPa)	Diagnostic Features
Very soft	< 12	Easily exudes between fingers when squeezed
Soft	12 – 25	Easily indented by fingers
Firm	25 – 50	Indented by strong finger pressure and can be indented by thumb pressure
Stiff	50 – 100	Cannot be indented by thumb pressure
Very stiff	100 – 200	Can be indented by thumb nail
Hard	200 – 500	Difficult to indent by thumb nail

Rock and Discontinuity Descriptions

Strength:

- ES** Extremely Strong
VS Very Strong
S Strong
MS Moderately Strong
W Weak
VW Very Weak
EW Extremely Weak

Weathering:

- UW** Unweathered
SW Slightly Weathered
MW Moderately Weathered
HW Highly Weathered
CW Completely Weathered
RS Residual Soil

Spacing:

- VW** Very Wide (>2m)
W Wide (600mm - 2m)
MW Moderately Wide (200mm - 600mm)
C Close (60mm - 200mm)
VC Very Close (20mm - 60mm)
EC Extremely Close (<20mm)

Discontinuity Type:

- BP** Bedding 
JT Joint 
CL Cleavage 
FN Foliation 
DB Drilling Break 
GZ Gouge Zone 
FZ Fractured Zone 
SZ Shear Zone 
CZ Crush Zone 
DZ Decomposed Zone 
IS Infilled Zone/Seam 
VN Vein 

Discontinuity Roughness:

- RO** Rough
SM Smooth
SL Slickensided

Discontinuity Shape:

- ST** Stepped
UN Undulating
PL Planar

Discontinuity Aperture:

- T** Tight
VN Very Narrow (0mm - 2mm)
N Narrow (2mm - 6mm)
MN Moderately Narrow (6mm - 20mm)
MW Moderately Wide (20mm - 60mm)
W Wide (60mm - 200mm)
VW Very Wide (>200mm)

Bedding Descriptions

Bedding Thickness Terms:

Term	Thickness
Thinly laminated	< 2 mm
Laminated	2 mm - 6 mm
Very thin	6 mm - 20 mm
Thin	20 mm - 60 mm
Moderately thin	60 mm - 200 mm
Moderately thick	0.2 m - 0.6 m
Thick	0.6 m - 2 m
Very thick	> 2 m

Bedding Inclination Terms:

Term	Inclination
Sub-horizontal	0° - 5°
Gently inclined	6° - 15°
Moderately inclined	16° - 30°
Steeply inclined	31° - 60°
Very steeply inclined	61° - 80°
Sub-vertical	81° - 90°
From horizontal	

Backfill Design



Arisings/Collapse



Bentonite



Cement/Grout



Gravel



Sand



Filter Sand

Well - Pipe Graphic



Plain



Slotted

DRILLING METHOD

VE	Hydro Vacuum Excavator
HA	Hand Auger Excavation
HQ3	HQ Triple Tube Rotary Core
PQ3	PQ Triple Tube Rotary Core
SPT	Standard Penetration Test (sample)
SPTC	Solid Cone SPT (no sample)
U54	Thin Wall inner diameter 54mm

CONSISTENCY OF COHESIVE SOILS

FIELD ASSESSMENT		Cu (kPa)
Very soft	Easily exudes between fingers when squeezed.	< 12
Soft	Easily indented by fingers.	12 to 25
Firm	Indented by strong finger pressure and can be indented by thumb pressure.	25 to 50
Stiff	Cannot be indented by thumb pressure.	50 to 100
Very Stiff	Can be indented by thumb nail.	100 to 200
Hard	Difficult to indent by thumb nail.	200 to 500

CONSISTENCY OF NON-COHESIVE SOILS

Descriptive Term	Density Index (R _D)	SPT "N" value (blows / 300 mm)	Dynamic Cone (blows / 300 mm)
Very dense	> 85	> 50	> 17
Dense	65 - 85	30 - 50	7 - 17
Medium dense	35 - 65	10 - 30	3 - 7
Loose	15 - 35	4 - 10	1 - 3
Very loose	< 15	< 4	0 - 2

LITHOLOGY BOUNDARY TYPES

SOLID LINE	Abrupt boundary.
DASHED LINE	Gradational boundary.
DASH-DOT LINE	Inferred boundary.

DISCONTINUITY PLANARITY

Un	Undulating
St	Stepped
Pl	Planar

ROCK MATERIAL WEATHERING

UW	Unweathered
SW	Slightly Weathered
MW	Moderately Weathered
HW	Highly Weathered
CW	Completely Weathered
RS	Residual Soil

SPACING OF DISCONTINUITIES

VWS	Very widely spaced
WS	Widely spaced
MWS	Moderately widely spaced
CS	Closely spaced
VCS	Very closely spaced
ECS	Extremely closely spaced

IN SITU STANDARD PENETRATION TESTS

25 for 85mm //	Seating blows and seating penetration, do not contribute to test result)
18,18,14 for 55mm	Blows per 75mm and the last blow increment length
N = 50+	SPT 'N' value. Sum of blows per 300mm (NZS 4402 Test 6.5.1:1988)
	'N' values in excess of 50 blows are shown as 50+

DISCONTINUITY TYPE

BP	Bedding plane or seam
BPJT	Fracture along bedding plane (suspect not drilling induced)
JT	Joint / Fracture
JI	Incipient joint / microfracture
CZ	Crush zone. No evidence of shear.
SZ	Shear zone
FT	Fault
VE	Mineralised vein
DB	Drilling break (Undifferentiated drilling or handling induced break.)
DI	Drilling induced
HI	Handling induced
FZ	Fracture Zone

DISCONTINUITY ROUGHNESS

Cn	Clean
Sn	Stained
Vn	Veneer (<1mm)
Cg	Coating (>1mm), thickness qualified in mm

DISCONTINUITY COATING

Ro	Rough
Sm	Smooth
Po	Polished (no evidence of shear / striations)
Slk	Slicksided (evidence of shear / striations)

JOINT ROUGHNESS COEFFICIENT (JRC) Joint roughness coefficient as per Barton (1973)

ESTIMATED ROCK STRENGTH

SYMBOL	TERM	FIELD TEST	APPROXIMATE Qu (MPa)
ES	Extremely Strong	Can only be chipped by geological hammer.	>250
VS	Very Strong	Requires many blows of geological hammer to break it.	100 to 250
S	Strong	Requires more than one blow of geological hammer to fracture it.	50 to 100
MS	Moderately Strong	Cannot be scraped or peeled with a pocket knife. Can be fractured with single firm blow of geological hammer.	20 to 50
W	Weak	Can be peeled by a pocket knife with difficulty. Shallow indentations made by firm blow with point of geological hammer.	5 to 20
VW	Very Weak	Crumbles under firm blows with point of geological hammer. Can be peeled by a pocket knife.	1 to 5
EW	Extremely Weak	Indented by thumb nail or lesser strength terms used for soils.	<1

VANE TESTS

IBHSV	Ex situ in-barrel field hand shear vane
ISHSV	Insitu field hand vane advanced at bottom of hole or surface(no rod friction)

SAMPLE TYPE

B	Bulk Disturbed Sample
C	Core Sample
LB	Large Bulk Undisturbed Sample
D	Small Disturbed Sample
SPTLS	Standard Penard Penetration Test Liner
UT	Thin Wall Open Drive Tube Sampler
U	Undisturbed Push In Sample

ROCK CLASSIFICATION

TCR (%)	Ratio of core recovered (solid and non-intact) to length of core run, measured along core axis.
SCR (%)	Ratio of solid core recovered to length of core run, measured along core axis, using Norbury, 1986.
RQD (%)	Ratio of solid core pieces longer than 100 mm to length of core run, measured along core axis.
FI (%)	Fracture Index - a count of fractures over an arbitrary length of core of similar intensity of fracturing.

UNIT CODE

TS	Topsoil	NAN Northland Allochthon Non-Calcareous Sequence (SW/UW)
F	Fill (Undifferentiated)	NAM Northland Allochthon Melange Matrix (SW/UW)
QC	Colluvium (Unififferentiated)	NAF Northland Allochthon Fault
LSD	Landslide Debris	DAR Residually to Completely Weathered Dacite
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Soil and rock descriptions are generally as described in the "Field Description of Soil and Rock: Guideline for the field classification and description of soil and rock for engineering purposes" New Zealand Geotechnical Society Inc, December 2005.

LITHOLOGIC SYMBOLS (Soil and Rock)

	BRECCIA		CLAY		Clayey PEAT
	Clayey SAND		Clayey SILT		CLAYSTONE
	CONGLOMERATE		FILL		GRAVEL
	Gravelly CLAY		Gravelly SAND		Gravelly SILT
	INTERBEDDED MUDSTONE & SANDSTONE		INTERBEDDED SILTSTONE & SANDSTONE		LIMESTONE
	MADE GROUND		MUDSTONE		CORE LOSS
	No Recovery		Organic CLAY		Organic SILT
	PEAT		SAND		SANDSTONE
	Sandy CLAY		Sandy gravelly SILT		Sandy SILT
	SILT		SILT/CLAY		SILTSTONE
	SILTSTONE & SANDSTONE		Silty CLAY		Silty GRAVEL
	Silty SAND		TOPSOIL		Undefined
	Undetermined		Void		Greywacke

BACKFILL GRAPHIC

	Arising
	Bentonite
	Concrete
	Gravel backfill
	Grout
	K2 Filter Gravel/Sand
	Paving slab
	Sand backfill

WELL - PIPE GRAPHIC

	Plain		Slotted
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LITHOLOGICAL COLOURS (Soil and Rock)

	BRECCIA		CLAY		CLAY-SILT
	CONGLOMERATE		FILL		GRAVEL
	INTERBEDDED SILTSTONE AND SANDSTONE		LIMESTONE		MUDSTONE
	ORGANIC/ PEAT		SAND		SANDSTONE
	SILT		SILTSTONE		GREYWACKE

WELL - INSTRUMENTS

EPIE	Electronic Piezometer	SP	Standpipe
SPIE	Standpipe piezometer		