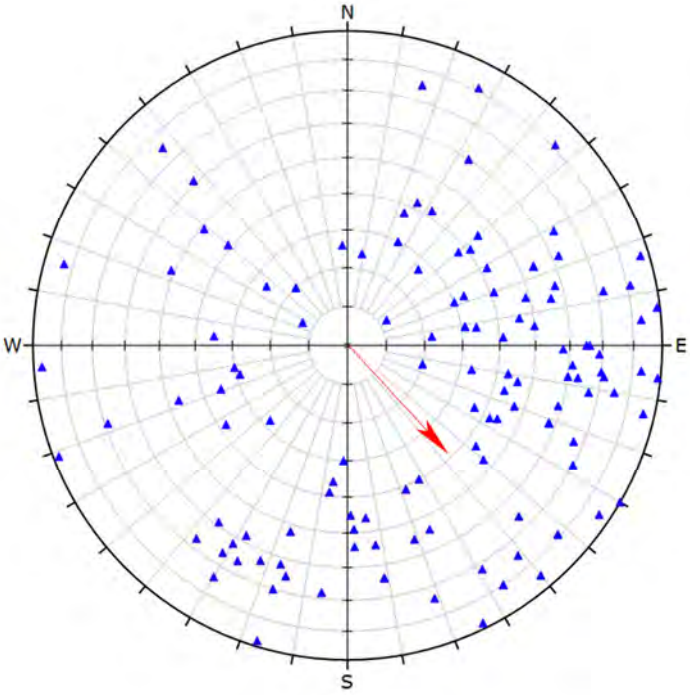
Pells Sullivan Meynink

Stereo Plot

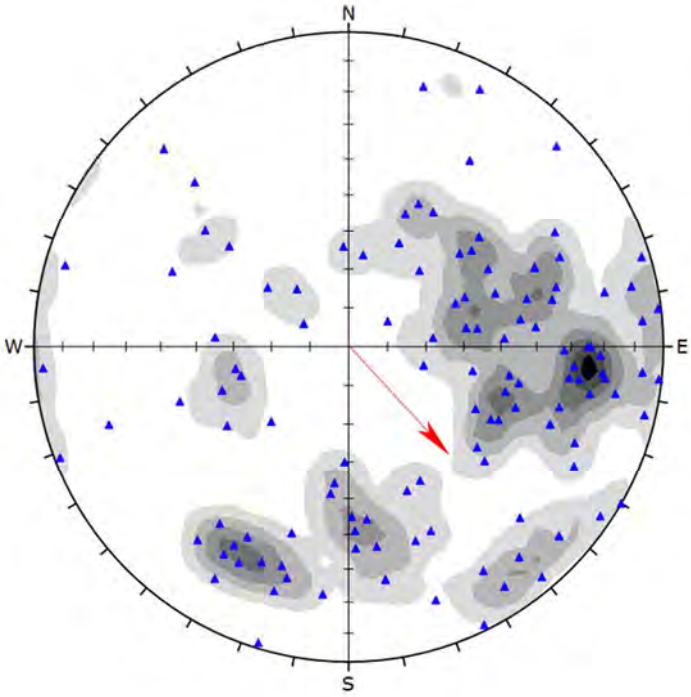
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-51/137	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Joints
Lithology:	All	**Borehole:**	UW66	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
▲	JT	128

Plot Mode	Pole Vectors
Vector Count	128 (128 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
▲	JT	128

Color	Density Concentrations
	0.00 - 1.00
	1.00 - 2.00
	2.00 - 3.00
	3.00 - 4.00
	4.00 - 5.00
	5.00 - 6.00
	6.00 - 7.00

Maximum Density	6.60%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

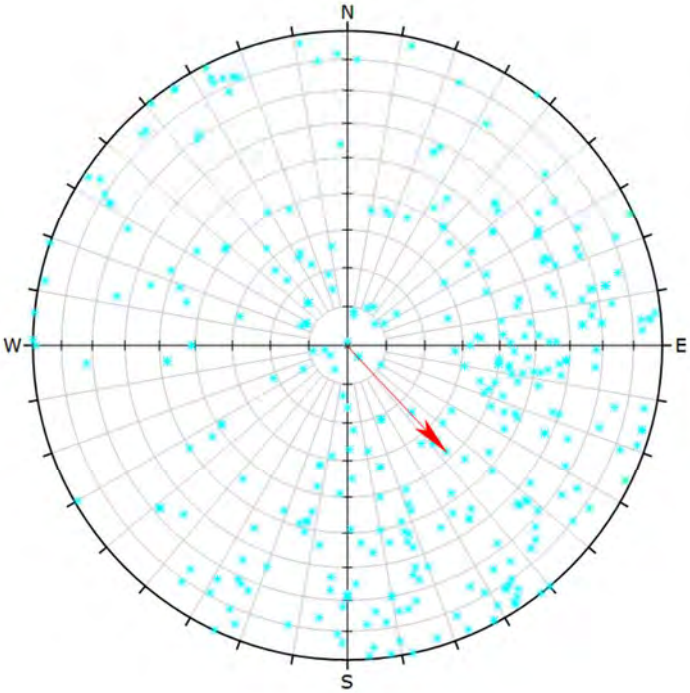
Plot Mode	Pole Vectors
Vector Count	128 (128 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

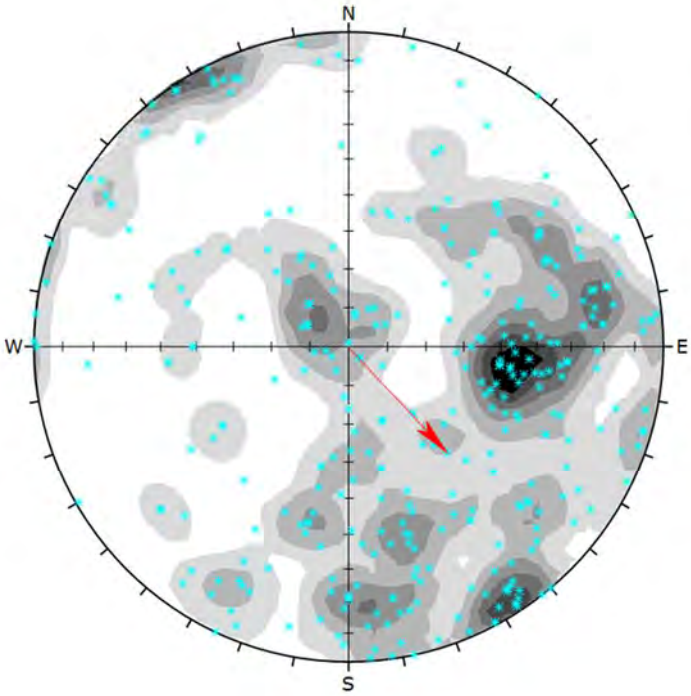
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-51/137	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Veins
Lithology:	All	**Borehole:**	UW66	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
•	VN	354

Plot Mode	Pole Vectors
Vector Count	354 (354 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
•	VN	354

Color	Density Concentrations
	0.00 - 0.70
	0.70 - 1.40
	1.40 - 2.10
	2.10 - 2.80
	2.80 - 3.50
	3.50 - 4.20
	4.20 - 4.90

Maximum Density	4.83%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

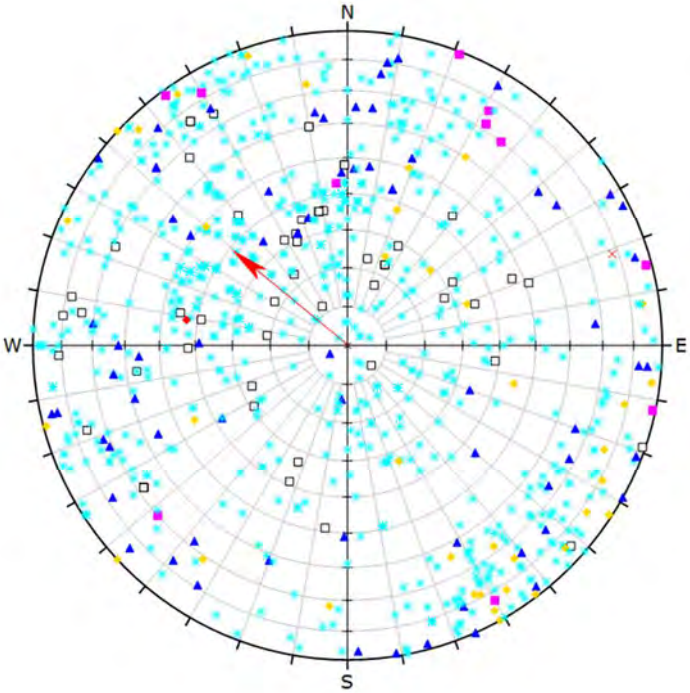
Plot Mode	Pole Vectors
Vector Count	354 (354 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

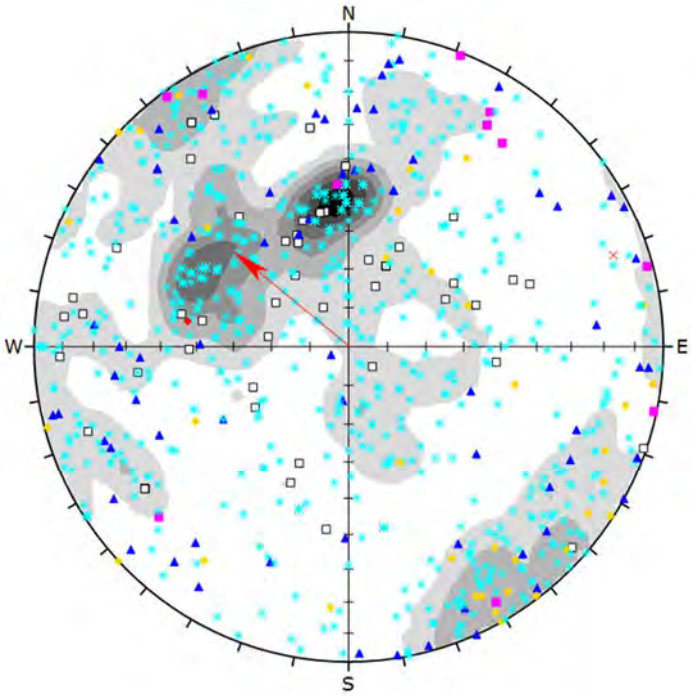
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-50/309	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	All defects
Lithology:	All	**Borehole:**	UW68	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
□	BG	62
×	Breccia	1
●	CN	38
◆	FT	1
▲	JT	78
■	SH	13
●	VN	779

Plot Mode	Pole Vectors
Vector Count	972 (972 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
□	BG	62
×	Breccia	1
●	CN	38
◆	FT	1
▲	JT	78
■	SH	13
●	VN	779

Color	Density Concentrations
	0.00 - 0.90
	0.90 - 1.80
	1.80 - 2.70
	2.70 - 3.60
	3.60 - 4.50
	4.50 - 5.40
	5.40 - 6.30

Maximum Density	6.15%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

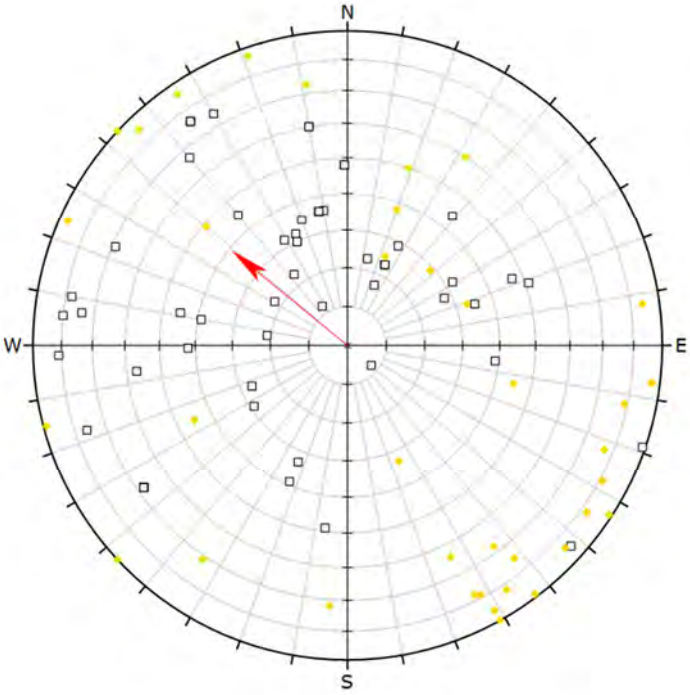
Plot Mode	Pole Vectors
Vector Count	972 (972 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

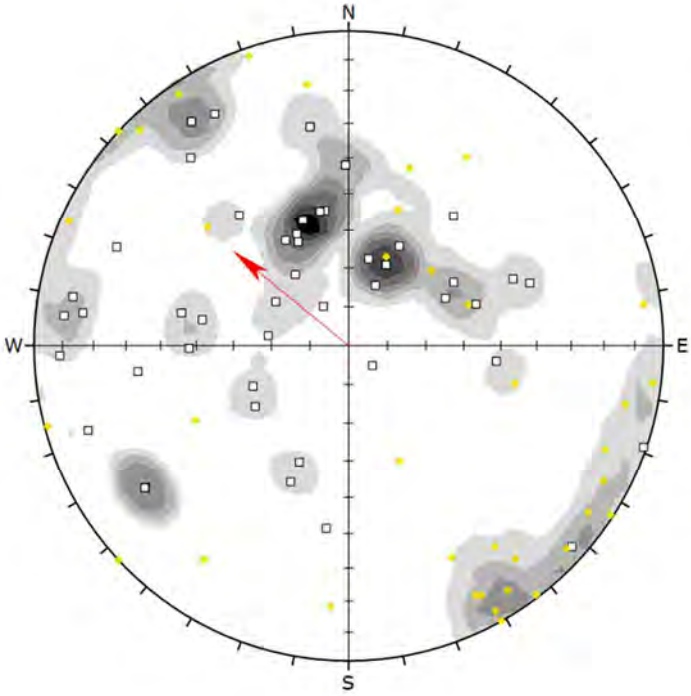
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-50/309	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Bedding/Contact
Lithology:	All	**Borehole:**	UW68	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
□	BG	62
▪	CN	38

Plot Mode	Pole Vectors
Vector Count	100 (100 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
□	BG	62
▪	CN	38

Color	Density Concentrations
	0.00 - 1.30
	1.30 - 2.60
	2.60 - 3.90
	3.90 - 5.20
	5.20 - 6.50
	6.50 - 7.80
	7.80 - 9.10

Maximum Density	8.57%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

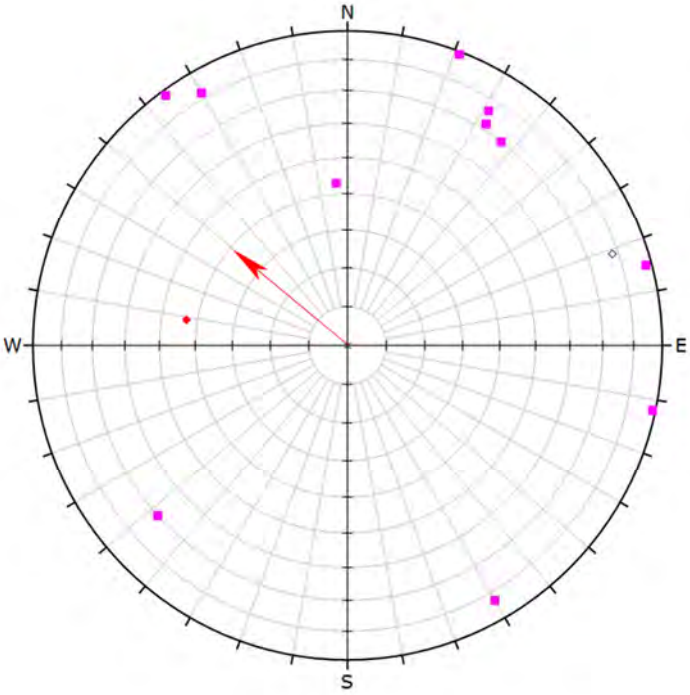
Plot Mode	Pole Vectors
Vector Count	100 (100 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

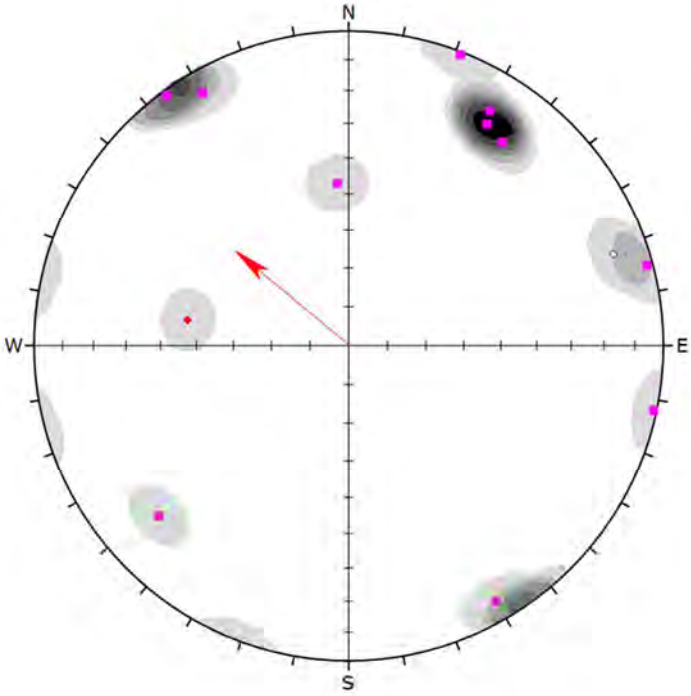
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-50/309	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Faults/Shears
Lithology:	All	**Borehole:**	UW68	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
◇	Breccia	1
●	FT	1
■	SH	13

Plot Mode	Pole Vectors
Vector Count	15 (15 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
◇	Breccia	1
●	FT	1
■	SH	13

Color	Density Concentrations
	0.00 - 3.60
	3.60 - 7.20
	7.20 - 10.80
	10.80 - 14.40
	14.40 - 18.00
	18.00 - 21.60
	21.60 - 25.20

Maximum Density	24.96%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

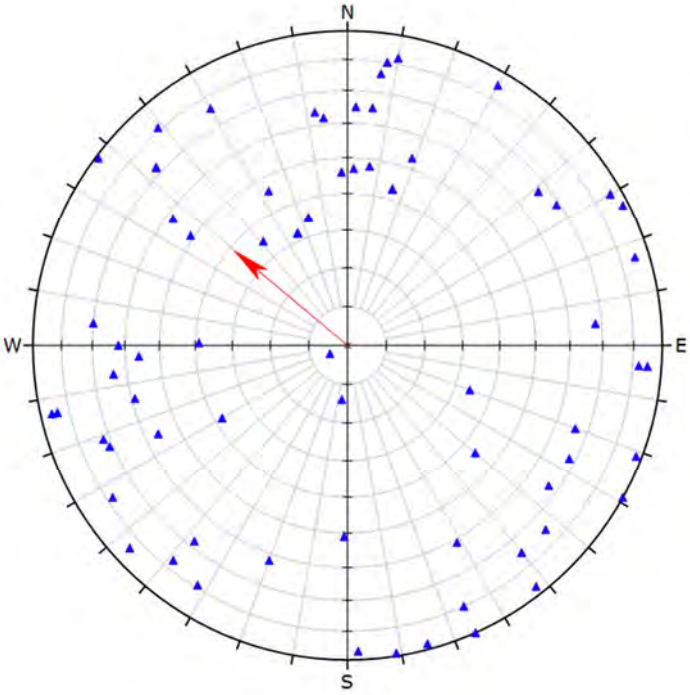
Plot Mode	Pole Vectors
Vector Count	15 (15 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

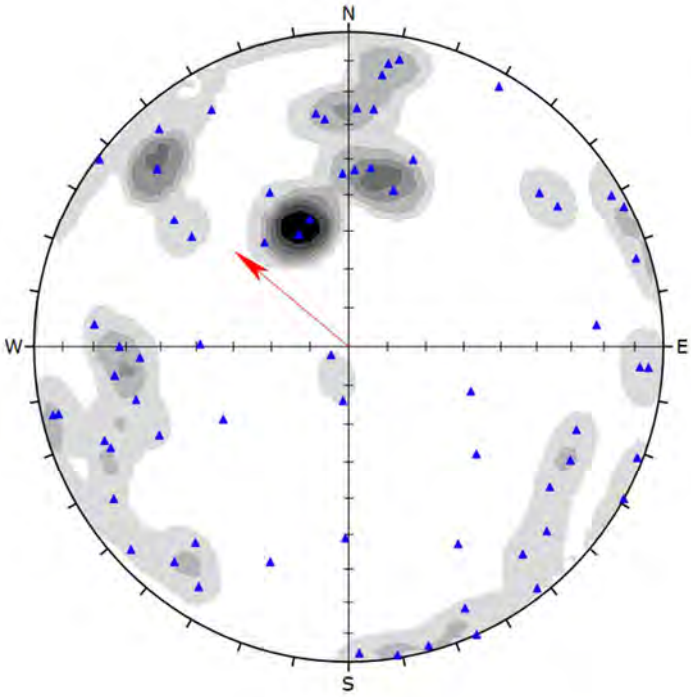
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-50/309	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Joints
Lithology:	All	**Borehole:**	UW68	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
▲	JT	78

Plot Mode	Pole Vectors
Vector Count	78 (78 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
▲	JT	78

Color	Density Concentrations
	0.00 - 1.30
	1.30 - 2.60
	2.60 - 3.90
	3.90 - 5.20
	5.20 - 6.50
	6.50 - 7.80
	7.80 - 9.10

Maximum Density	8.98%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

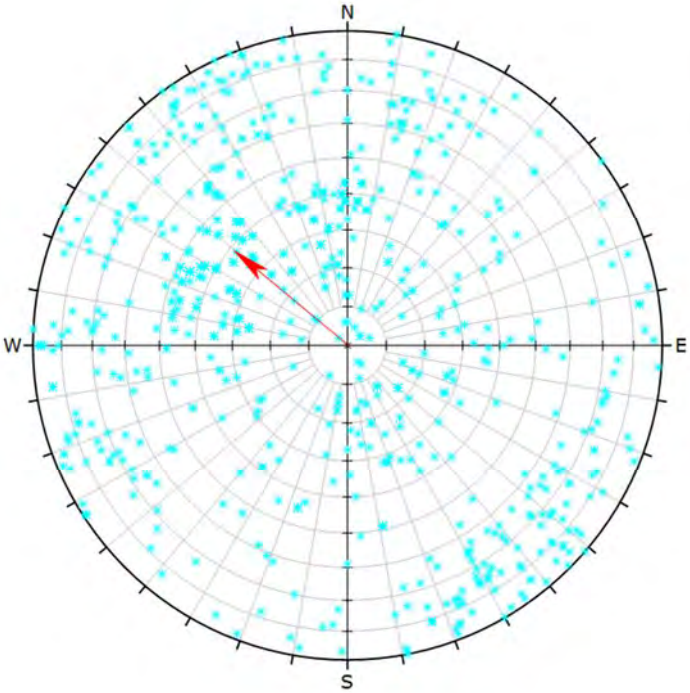
Plot Mode	Pole Vectors
Vector Count	78 (78 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

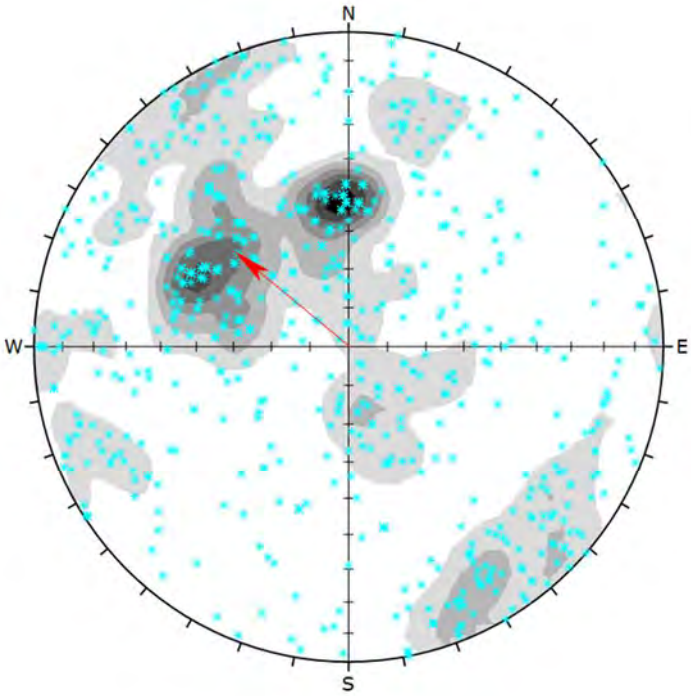
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-50/309	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Veins
Lithology:	All	**Borehole:**	UW68	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
	VN	779

Plot Mode	Pole Vectors
Vector Count	779 (779 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
	VN	779

Color	Density Concentrations
	0.00 - 1.00
	1.00 - 2.00
	2.00 - 3.00
	3.00 - 4.00
	4.00 - 5.00
	5.00 - 6.00
	6.00 - 7.00

Maximum Density	6.59%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

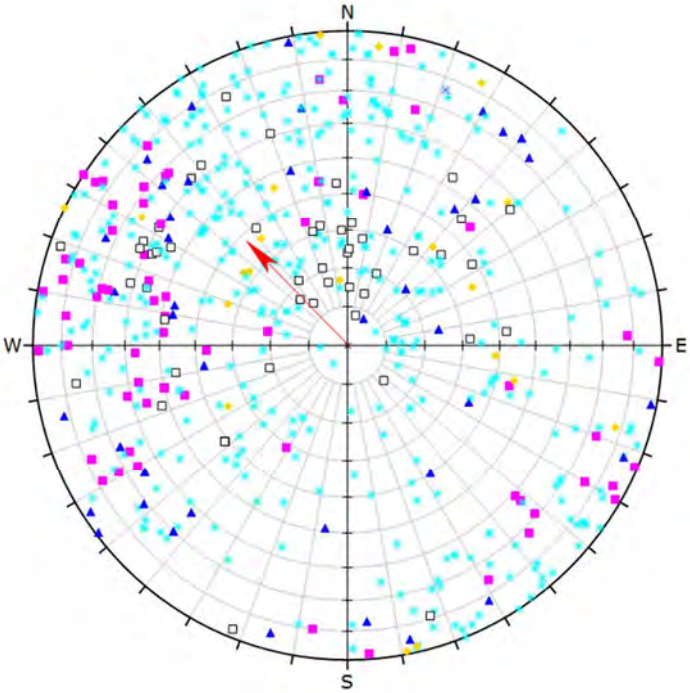
Plot Mode	Pole Vectors
Vector Count	779 (779 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

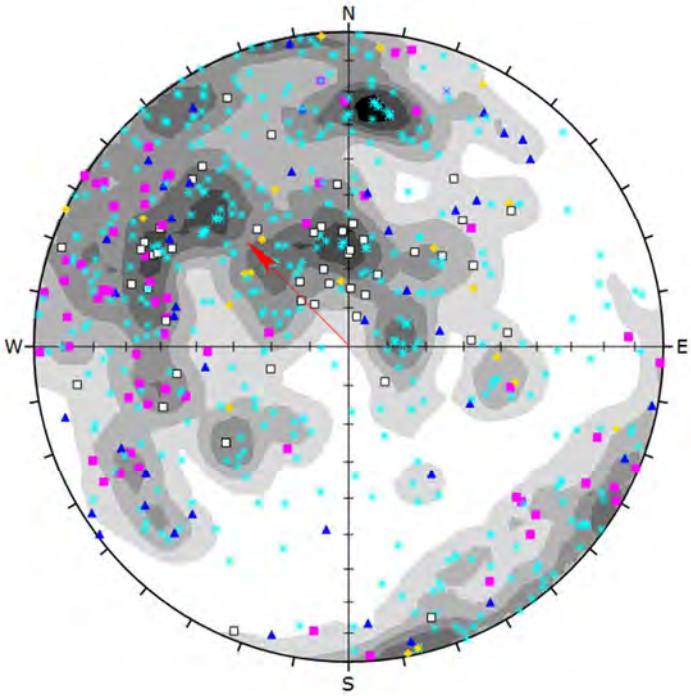
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-51/315	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	All defects
Lithology:	All	**Borehole:**	UW70	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
□	BG	52
●	CN	20
×	CZ	1
▲	JT	46
■	SH	70
●	VN	427

Plot Mode	Pole Vectors
Vector Count	616 (616 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
□	BG	52
●	CN	20
×	CZ	1
▲	JT	46
■	SH	70
●	VN	427

Color	Density Concentrations
	0.00 - 0.50
	0.50 - 1.00
	1.00 - 1.50
	1.50 - 2.00
	2.00 - 2.50
	2.50 - 3.00
	3.00 - 3.50

Maximum Density	3.32%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

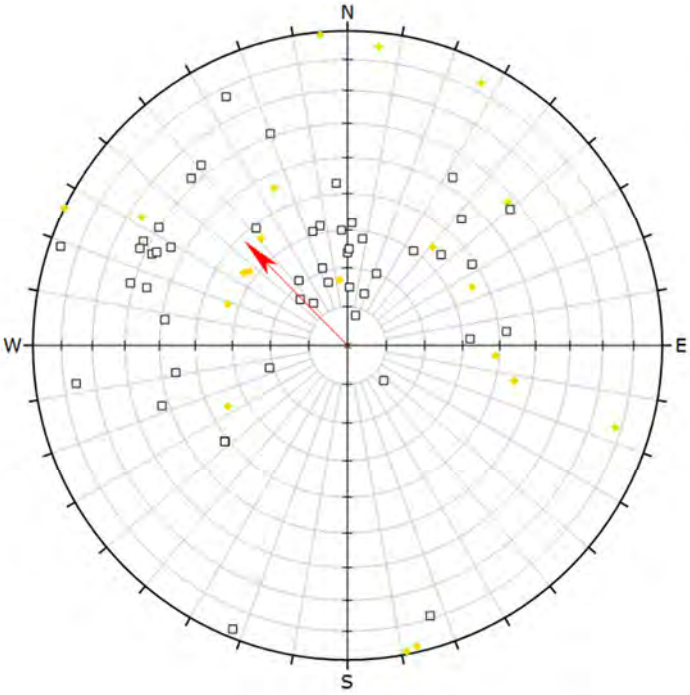
Plot Mode	Pole Vectors
Vector Count	616 (616 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

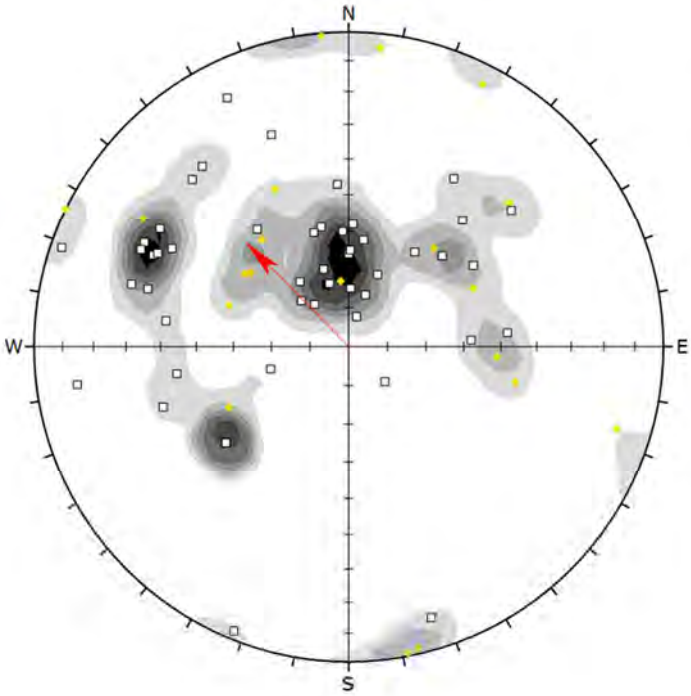
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-51/315	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Bedding/Contact
Lithology:	All	**Borehole:**	UW70	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
□	BG	52
◆	CN	20

Plot Mode	Pole Vectors
Vector Count	72 (72 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
□	BG	52
◆	CN	20

Color	Density Concentrations
	0.00 - 1.40
	1.40 - 2.80
	2.80 - 4.20
	4.20 - 5.60
	5.60 - 7.00
	7.00 - 8.40
	8.40 - 9.80

Maximum Density	9.65%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

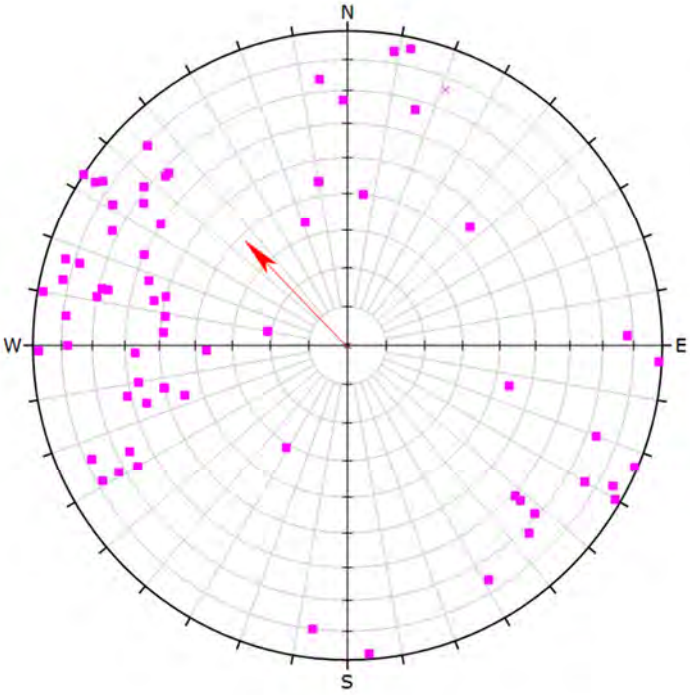
Plot Mode	Pole Vectors
Vector Count	72 (72 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

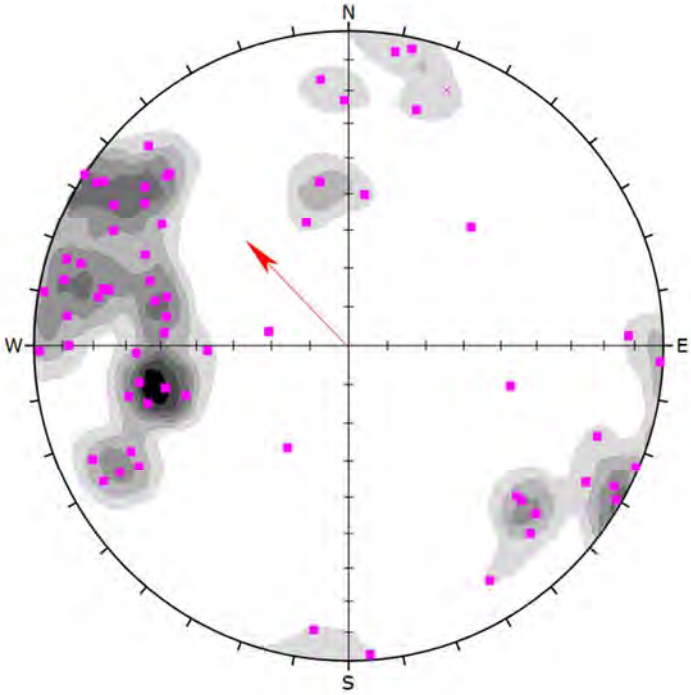
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-51/315	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Faults/Shears
Lithology:	All	**Borehole:**	UW70	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
×	CZ	1
■	SH	70

Plot Mode	Pole Vectors
Vector Count	71 (71 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
×	CZ	1
■	SH	70

Color	Density Concentrations
	0.00 - 1.40
	1.40 - 2.80
	2.80 - 4.20
	4.20 - 5.60
	5.60 - 7.00
	7.00 - 8.40
	8.40 - 9.80

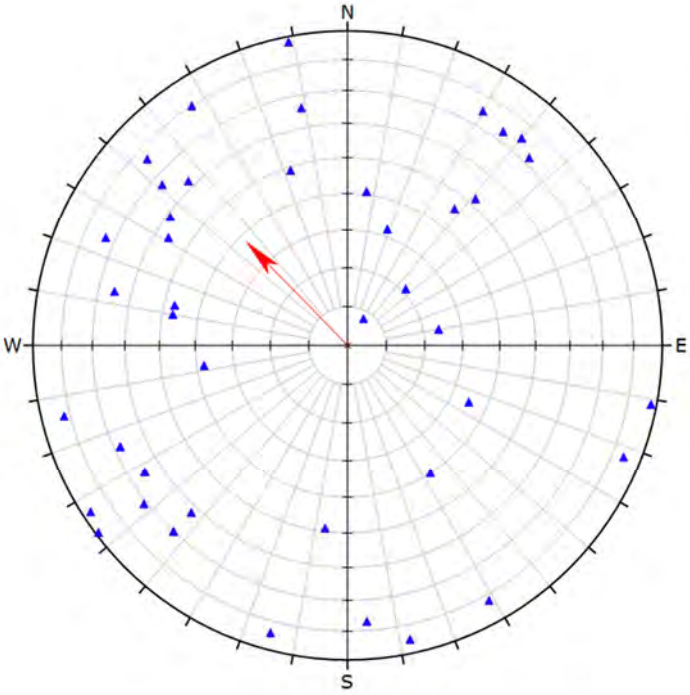
Maximum Density	9.67%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%
Plot Mode	Pole Vectors
Vector Count	71 (71 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

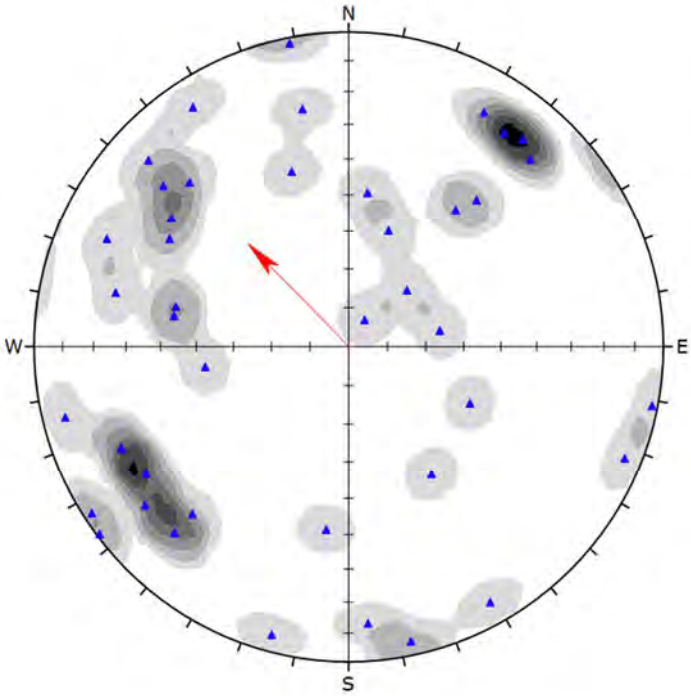
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-51/315	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Joints
Lithology:	All	**Borehole:**	UW70	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
▲	JT	46

Plot Mode	Pole Vectors
Vector Count	46 (46 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
▲	JT	46

Color	Density Concentrations
	0.00 - 1.40
	1.40 - 2.80
	2.80 - 4.20
	4.20 - 5.60
	5.60 - 7.00
	7.00 - 8.40
	8.40 - 9.80

Maximum Density	9.40%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

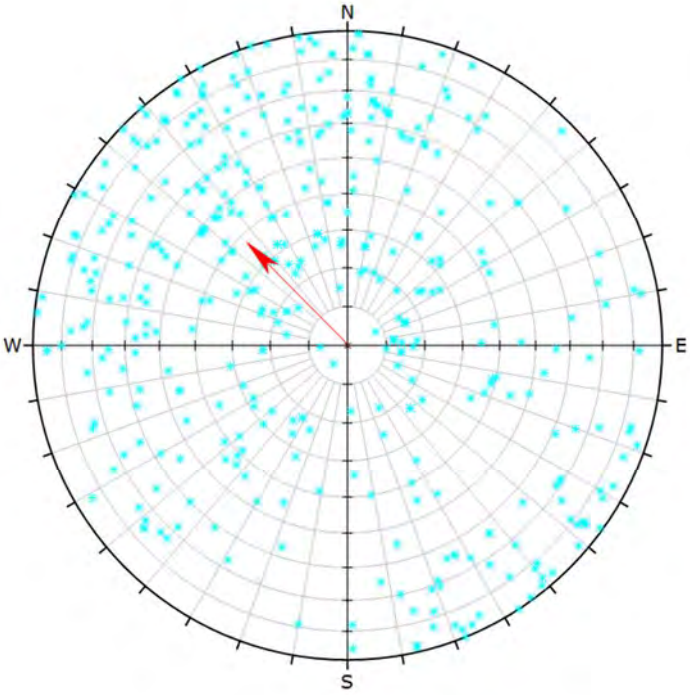
Plot Mode	Pole Vectors
Vector Count	46 (46 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

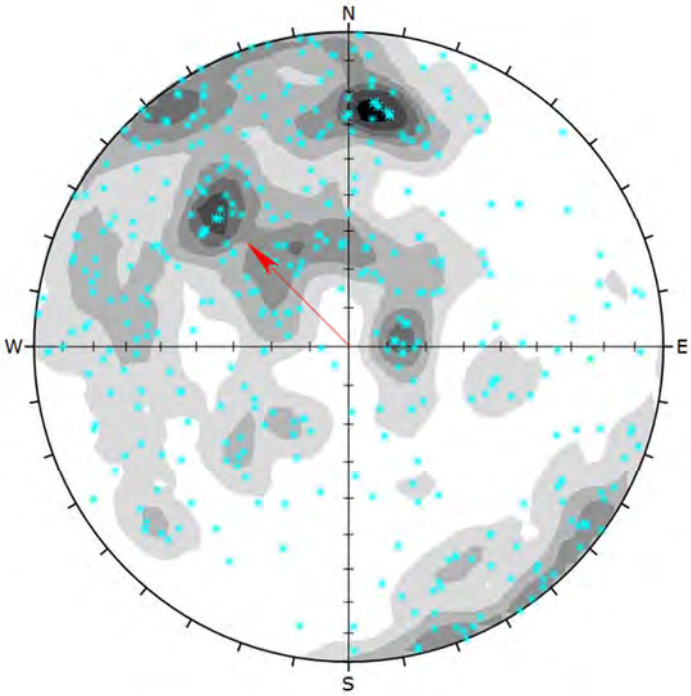
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-51/315	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Veins
Lithology:	All	**Borehole:**	UW70	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
	VN	427

Plot Mode	Pole Vectors
Vector Count	427 (427 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
	VN	427

Color	Density Concentrations
	0.00 - 0.70
	0.70 - 1.40
	1.40 - 2.10
	2.10 - 2.80
	2.80 - 3.50
	3.50 - 4.20
	4.20 - 4.90

Maximum Density	4.57%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

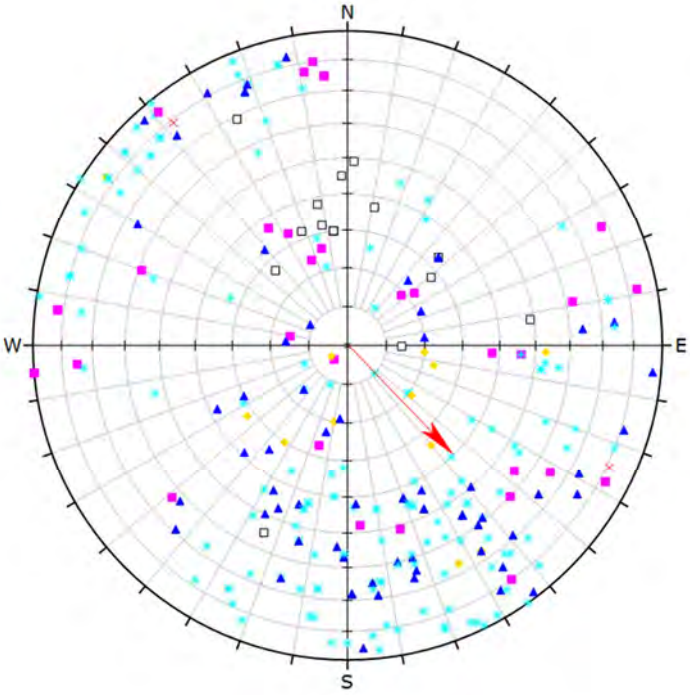
Plot Mode	Pole Vectors
Vector Count	427 (427 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

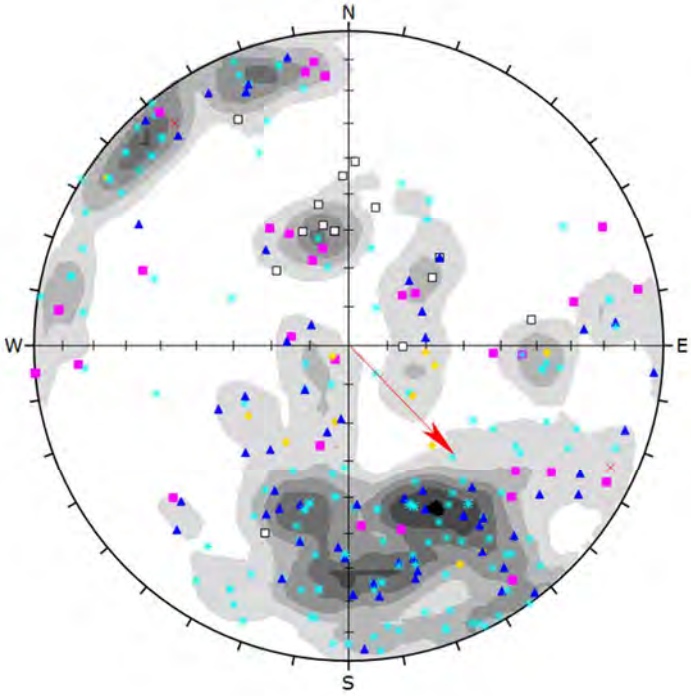
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-49/315	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	All defects
Lithology:	All	**Borehole:**	UW72	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
□	BG	17
×	Breccia	2
●	CN	12
▲	JT	66
■	SH	35
●	VN	156

Plot Mode	Pole Vectors
Vector Count	288 (288 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
□	BG	17
×	Breccia	2
●	CN	12
▲	JT	66
■	SH	35
●	VN	156

Color	Density Concentrations
	0.00 - 0.80
	0.80 - 1.60
	1.60 - 2.40
	2.40 - 3.20
	3.20 - 4.00
	4.00 - 4.80
	4.80 - 5.60

Maximum Density	5.06%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

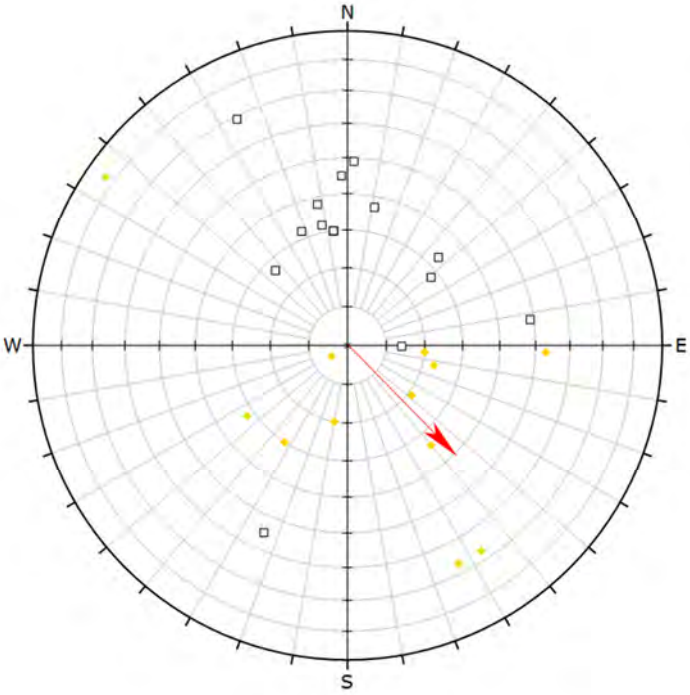
Plot Mode	Pole Vectors
Vector Count	288 (288 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

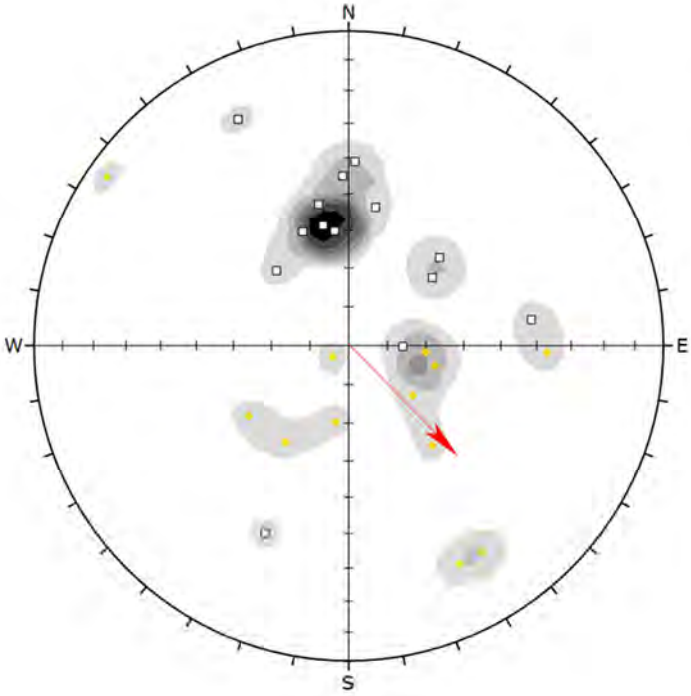
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-49/315	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Bedding/Contact
Lithology:	All	**Borehole:**	UW72	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
□	BG	17
▪	CN	12

Plot Mode	Pole Vectors
Vector Count	29 (29 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
□	BG	17
▪	CN	12

Color	Density Concentrations
	0.00 - 3.20
	3.20 - 6.40
	6.40 - 9.60
	9.60 - 12.80
	12.80 - 16.00
	16.00 - 19.20
	19.20 - 22.40

Maximum Density	22.27%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

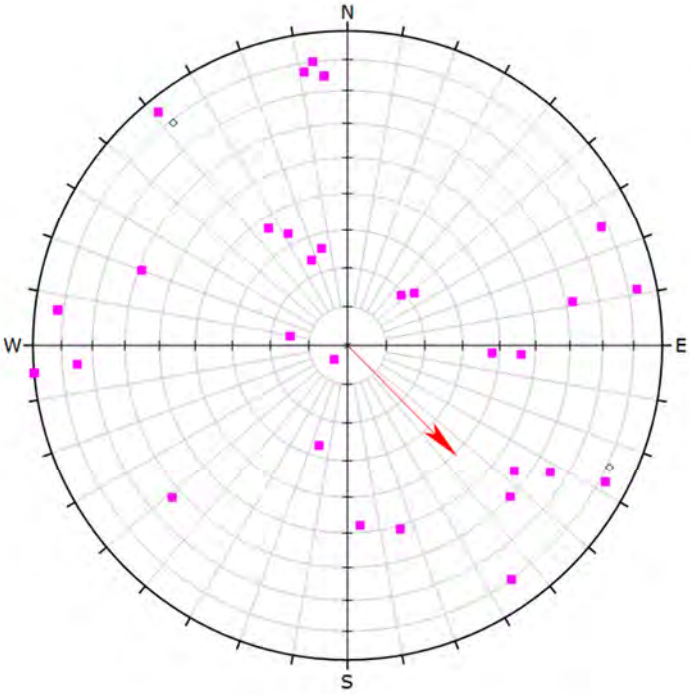
Plot Mode	Pole Vectors
Vector Count	29 (29 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

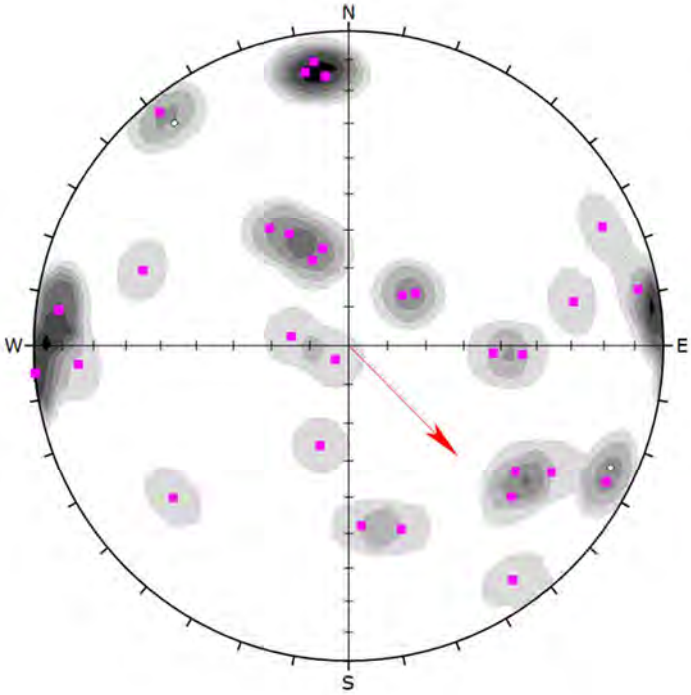
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-49/315	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Faults/Shears
Lithology:	All	**Borehole:**	UW72	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
◇	Breccia	2
■	SH	35

Plot Mode	Pole Vectors
Vector Count	37 (37 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
◇	Breccia	2
■	SH	35

Color	Density Concentrations
	0.00 - 1.60
	1.60 - 3.20
	3.20 - 4.80
	4.80 - 6.40
	6.40 - 8.00
	8.00 - 9.60
	9.60 - 11.20

Maximum Density	10.55%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

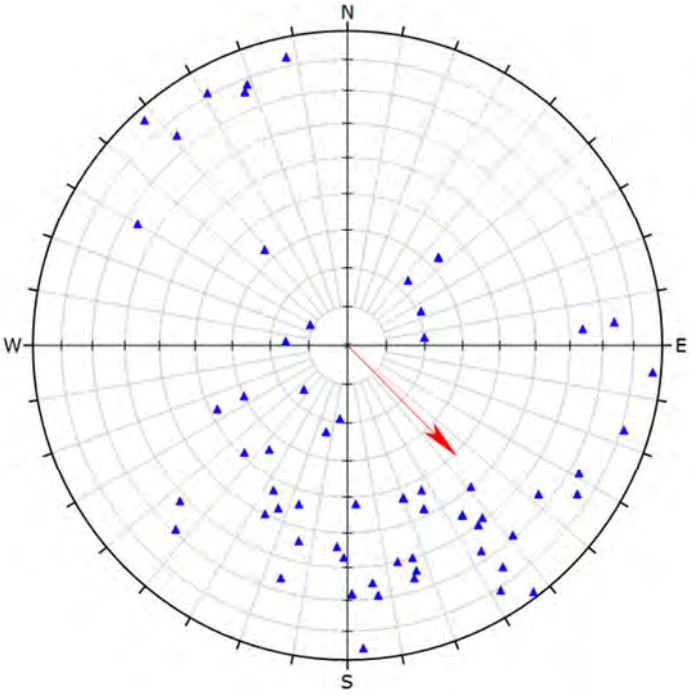
Plot Mode	Pole Vectors
Vector Count	37 (37 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

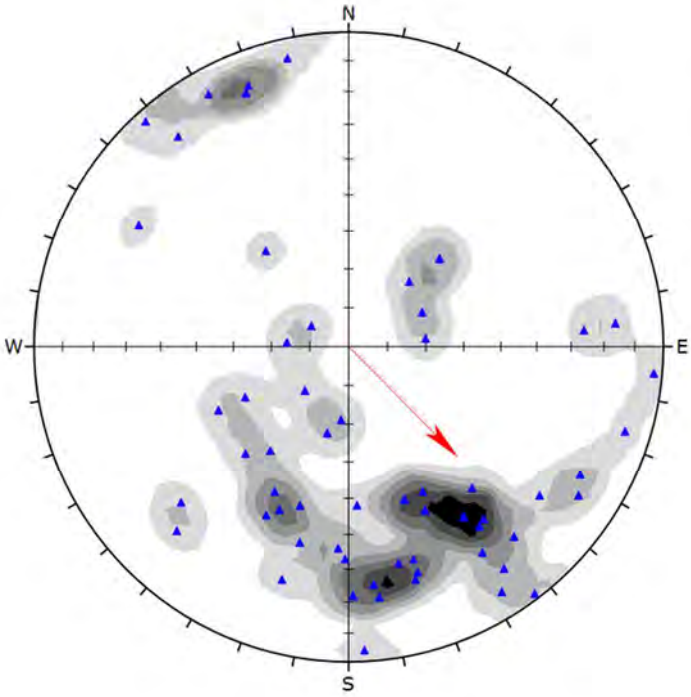
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-49/315	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Joints
Lithology:	All	**Borehole:**	UW72	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
▲	JT	66

Plot Mode	Pole Vectors
Vector Count	66 (66 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
▲	JT	66

Color	Density Concentrations
	0.00 - 1.30
	1.30 - 2.60
	2.60 - 3.90
	3.90 - 5.20
	5.20 - 6.50
	6.50 - 7.80
	7.80 - 9.10

Maximum Density	8.76%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

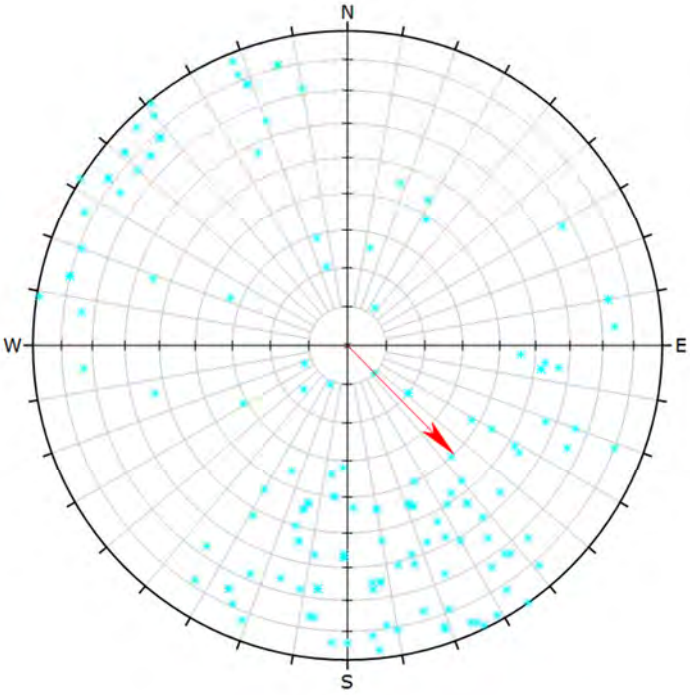
Plot Mode	Pole Vectors
Vector Count	66 (66 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

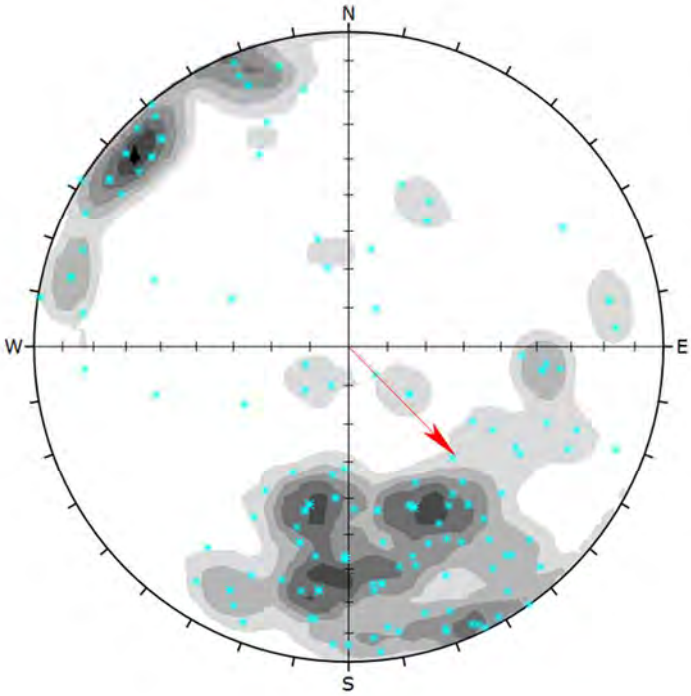
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-49/315	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Veins
Lithology:	All	**Borehole:**	UW72	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
•	VN	156

Plot Mode	Pole Vectors
Vector Count	156 (156 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
•	VN	156

Color	Density Concentrations
	0.00 - 1.00
	1.00 - 2.00
	2.00 - 3.00
	3.00 - 4.00
	4.00 - 5.00
	5.00 - 6.00
	6.00 - 7.00

Maximum Density	6.56%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

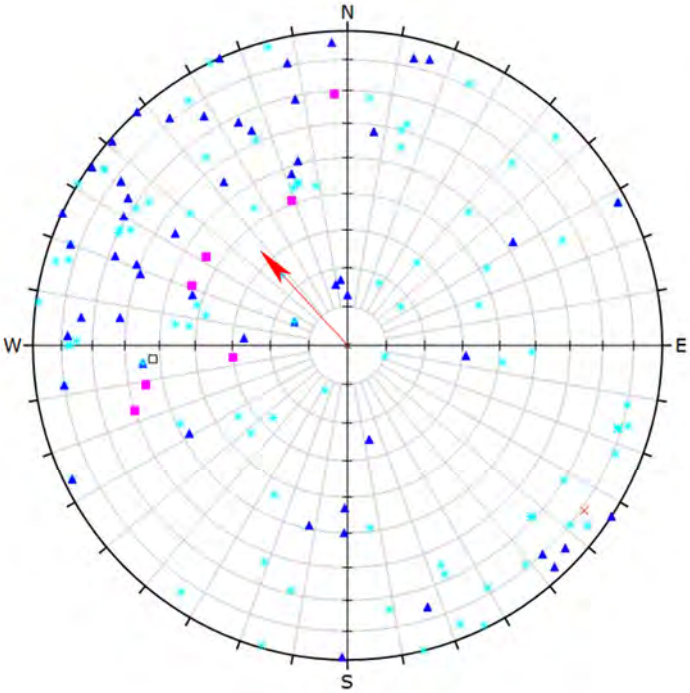
Plot Mode	Pole Vectors
Vector Count	156 (156 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

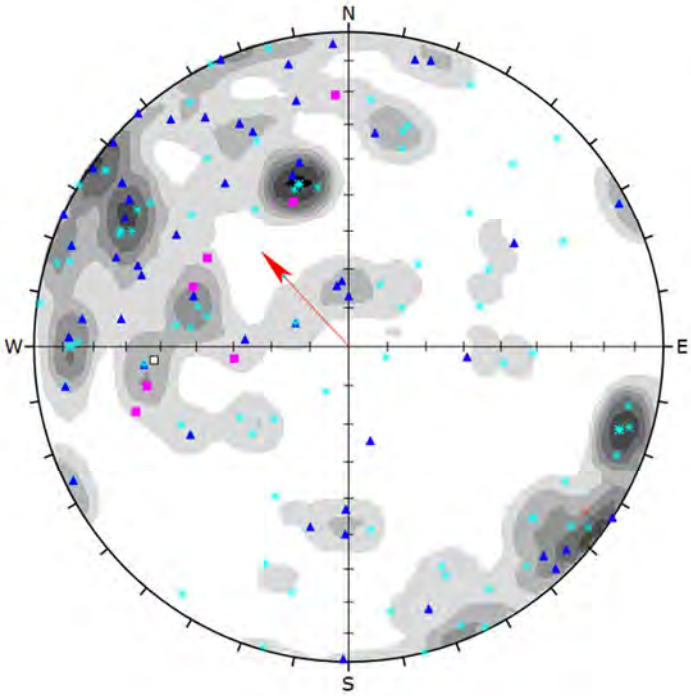
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-55/317	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	All defects
Lithology:	All	**Borehole:**	UW74	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
□	BG	1
×	Breccia	1
▲	JT	53
■	SH	7
•	VN	88

Plot Mode	Pole Vectors
Vector Count	150 (150 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
□	BG	1
×	Breccia	1
▲	JT	53
■	SH	7
•	VN	88

Color	Density Concentrations
	0.00 - 0.90
	0.90 - 1.80
	1.80 - 2.70
	2.70 - 3.60
	3.60 - 4.50
	4.50 - 5.40
	5.40 - 6.30

Maximum Density	5.73%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

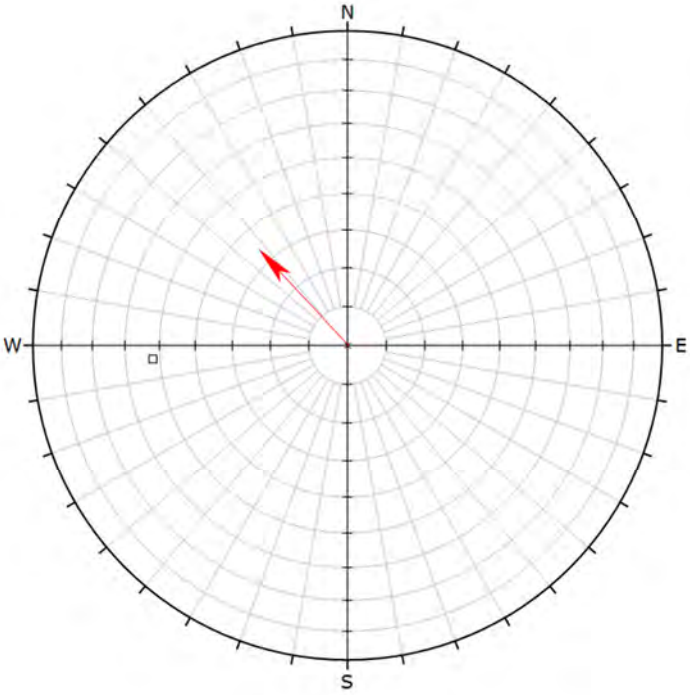
Plot Mode	Pole Vectors
Vector Count	150 (150 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

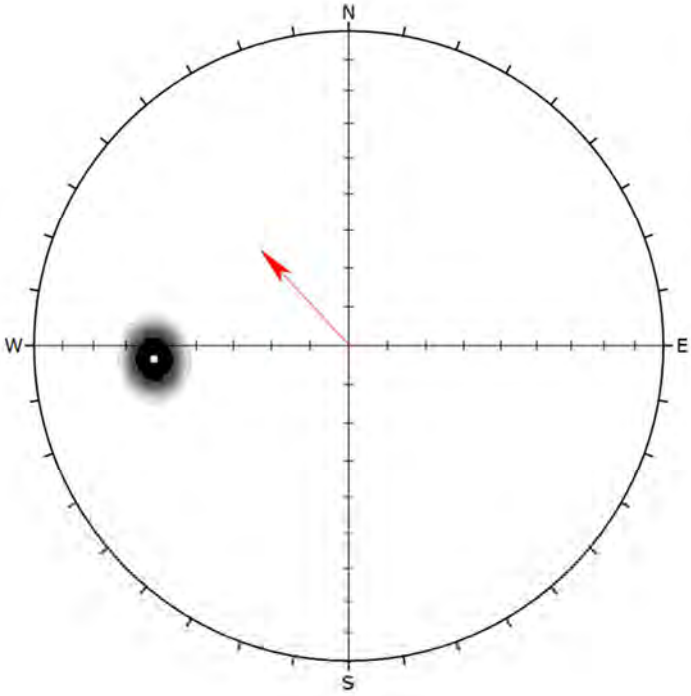
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-55/317	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Bedding/Contact
Lithology:	All	**Borehole:**	UW74	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
□	BG	1

Plot Mode	Pole Vectors
Vector Count	1 (1 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
□	BG	1

Color	Density Concentrations
	0.00 - 14.20
	14.20 - 28.40
	28.40 - 42.60
	42.60 - 56.80
	56.80 - 71.00
	71.00 - 85.20
	85.20 - 99.40

Maximum Density	98.81%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

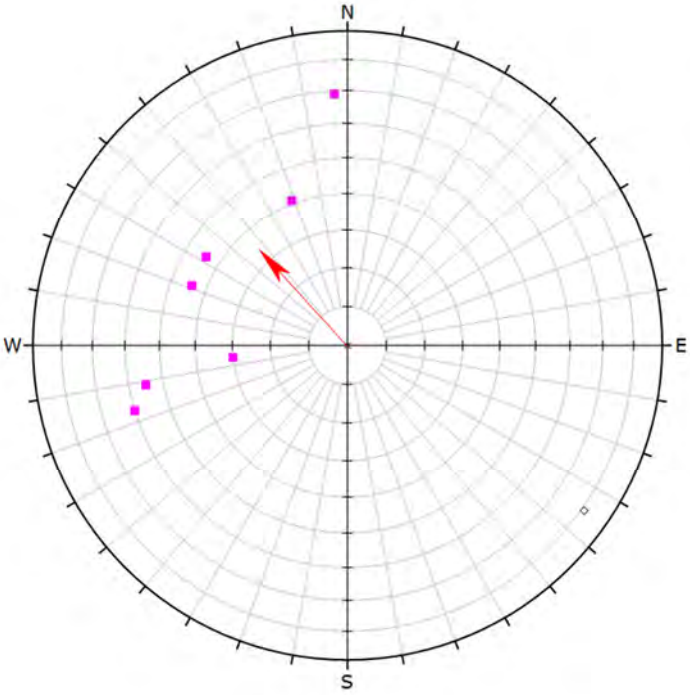
Plot Mode	Pole Vectors
Vector Count	1 (1 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

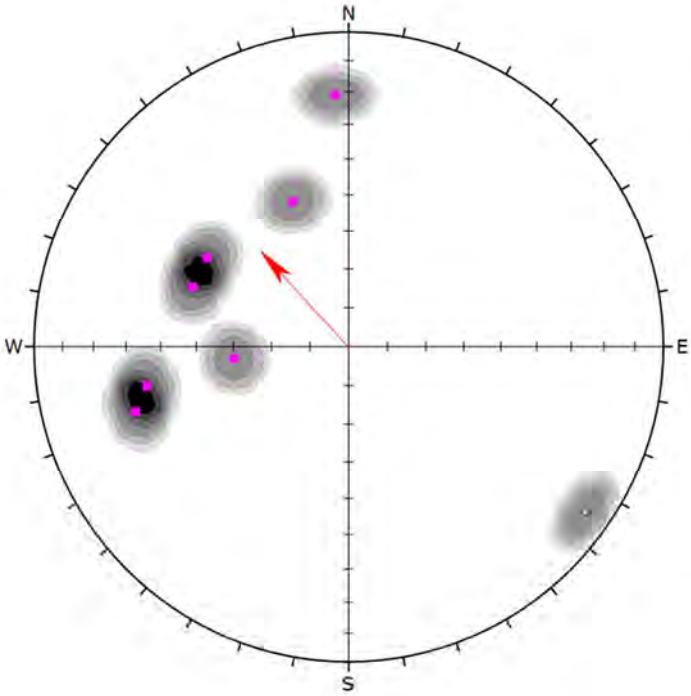
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-55/317	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Faults/Shears
Lithology:	All	**Borehole:**	UW74	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
◇	Breccia	1
■	SH	7

Plot Mode	Pole Vectors
Vector Count	8 (8 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
◇	Breccia	1
■	SH	7

Color	Density Concentrations
	0.00 - 3.40
	3.40 - 6.80
	6.80 - 10.20
	10.20 - 13.60
	13.60 - 17.00
	17.00 - 20.40
	20.40 - 23.80

Maximum Density	23.49%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

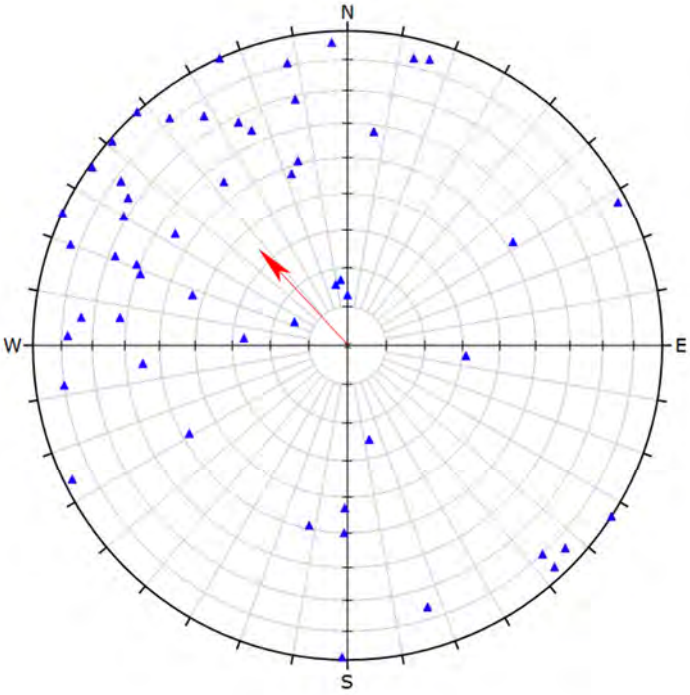
Plot Mode	Pole Vectors
Vector Count	8 (8 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

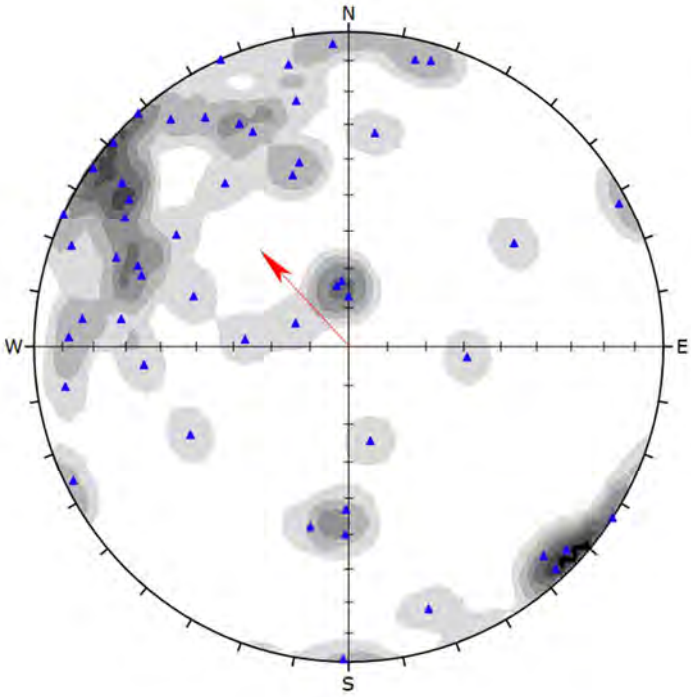
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-55/317	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Joints
Lithology:	All	**Borehole:**	UW74	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
▲	JT	53

Plot Mode	Pole Vectors
Vector Count	53 (53 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
▲	JT	53

Color	Density Concentrations
	0.00 - 1.30
	1.30 - 2.60
	2.60 - 3.90
	3.90 - 5.20
	5.20 - 6.50
	6.50 - 7.80
	7.80 - 9.10

Maximum Density	8.48%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

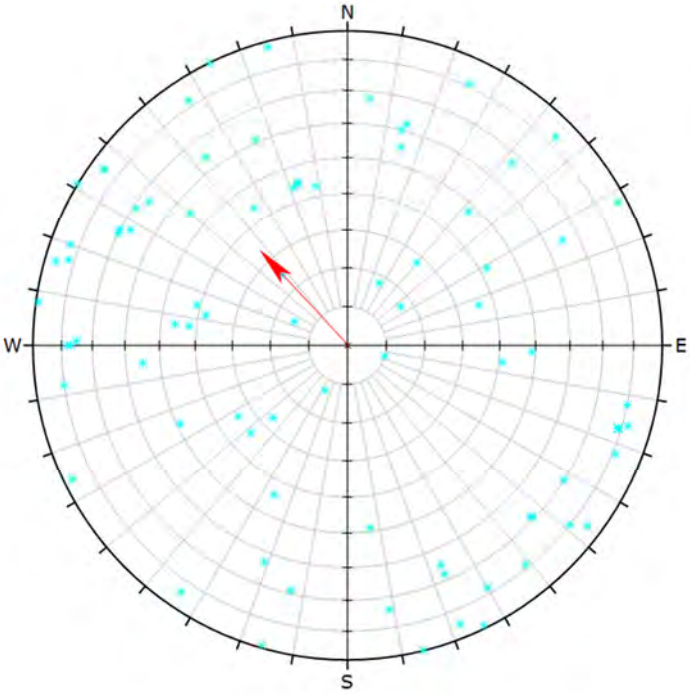
Plot Mode	Pole Vectors
Vector Count	53 (53 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

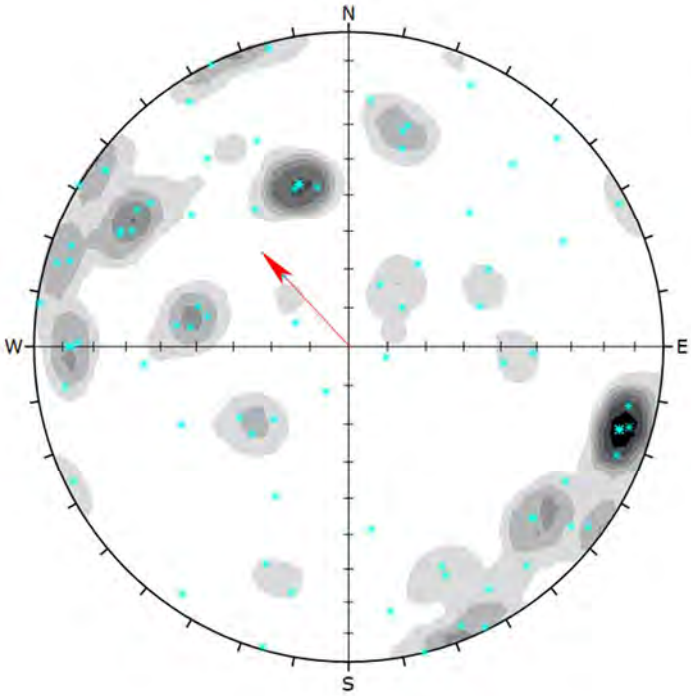
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-55/317	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Veins
Lithology:	All	**Borehole:**	UW74	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
•	VN	88

Plot Mode	Pole Vectors
Vector Count	88 (88 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
•	VN	88

Color	Density Concentrations
	0.00 - 1.30
	1.30 - 2.60
	2.60 - 3.90
	3.90 - 5.20
	5.20 - 6.50
	6.50 - 7.80
	7.80 - 9.10

Maximum Density	8.69%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

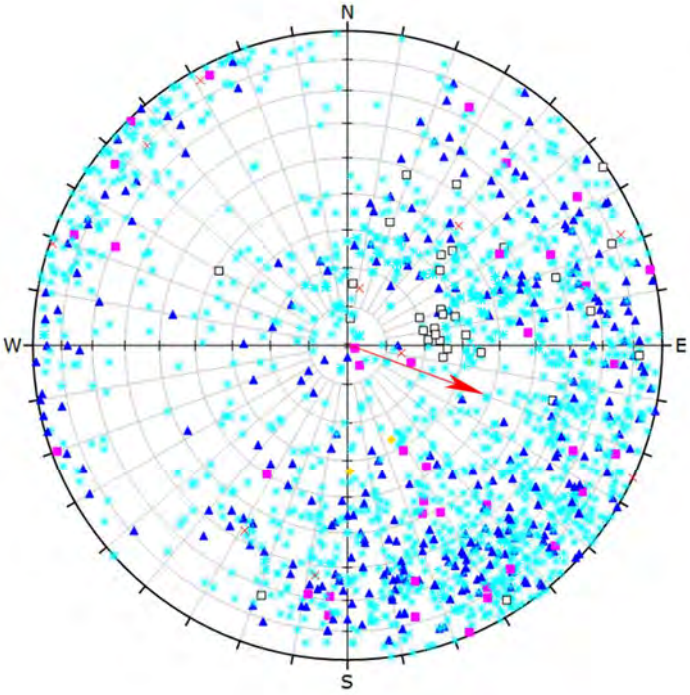
Plot Mode	Pole Vectors
Vector Count	88 (88 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

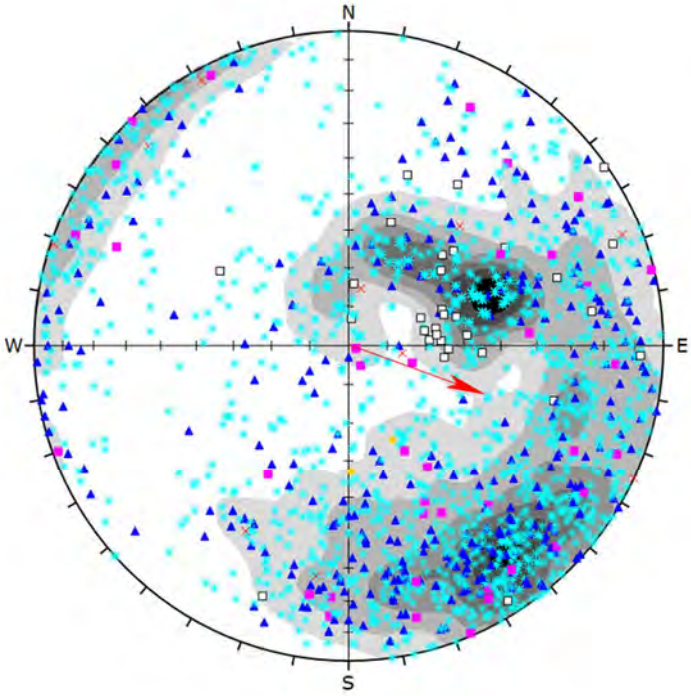
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-51/109	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	All defects
Lithology:	All	**Borehole:**	UW82	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
□	BG	31
×	Breccia	10
●	CN	4
▲	JT	316
■	SH	39
●	VN	1586

Plot Mode	Pole Vectors
Vector Count	1986 (1986 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
□	BG	31
×	Breccia	10
●	CN	4
▲	JT	316
■	SH	39
●	VN	1586

Color	Density Concentrations
	0.00 - 0.70
	0.70 - 1.40
	1.40 - 2.10
	2.10 - 2.80
	2.80 - 3.50
	3.50 - 4.20
	4.20 - 4.90

Maximum Density	4.73%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

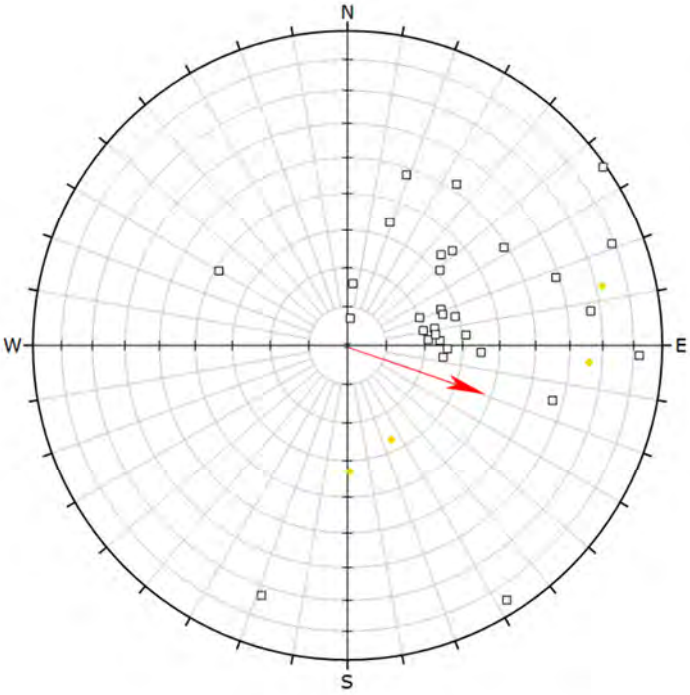
Plot Mode	Pole Vectors
Vector Count	1986 (1986 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

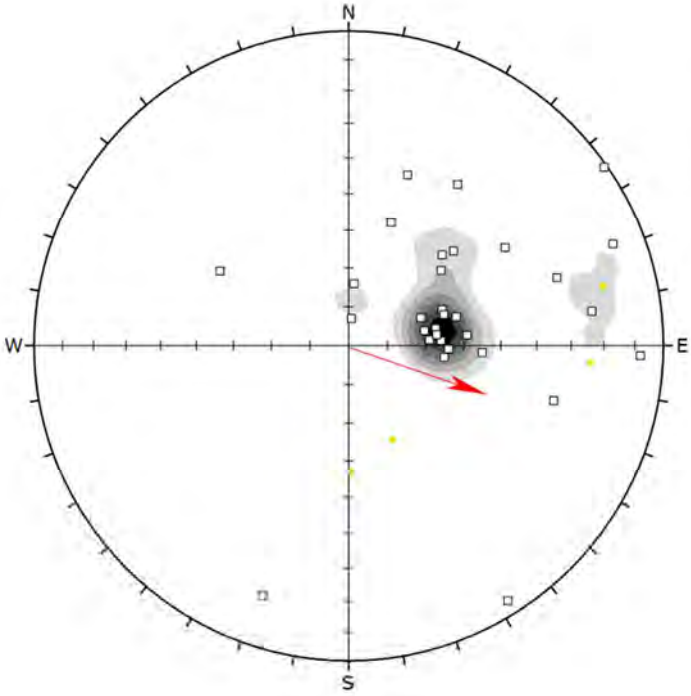
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-51/109	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Bedding/Contact
Lithology:	All	**Borehole:**	UW82	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
□	BG	31
▪	CN	4

Plot Mode	Pole Vectors
Vector Count	35 (35 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
□	BG	31
▪	CN	4

Color	Density Concentrations
	0.00 - 4.30
	4.30 - 8.60
	8.60 - 12.90
	12.90 - 17.20
	17.20 - 21.50
	21.50 - 25.80
	25.80 - 30.10

Maximum Density	29.44%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

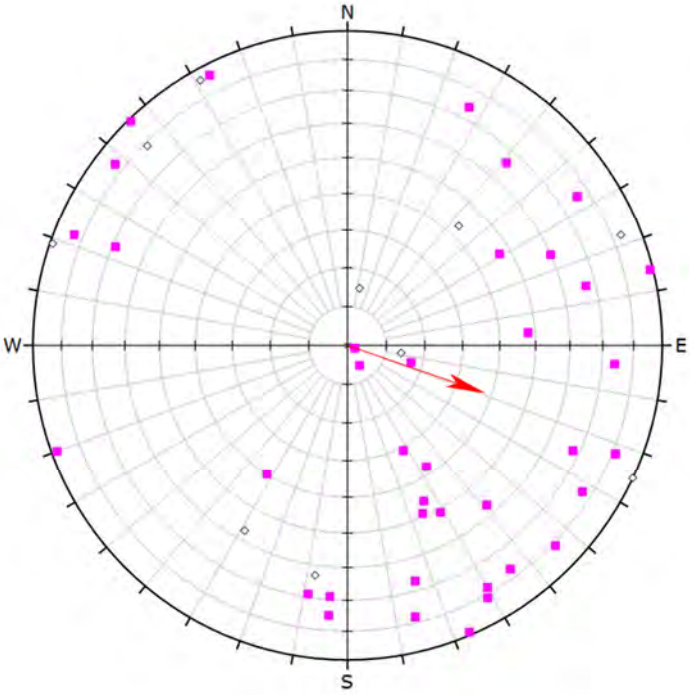
Plot Mode	Pole Vectors
Vector Count	35 (35 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

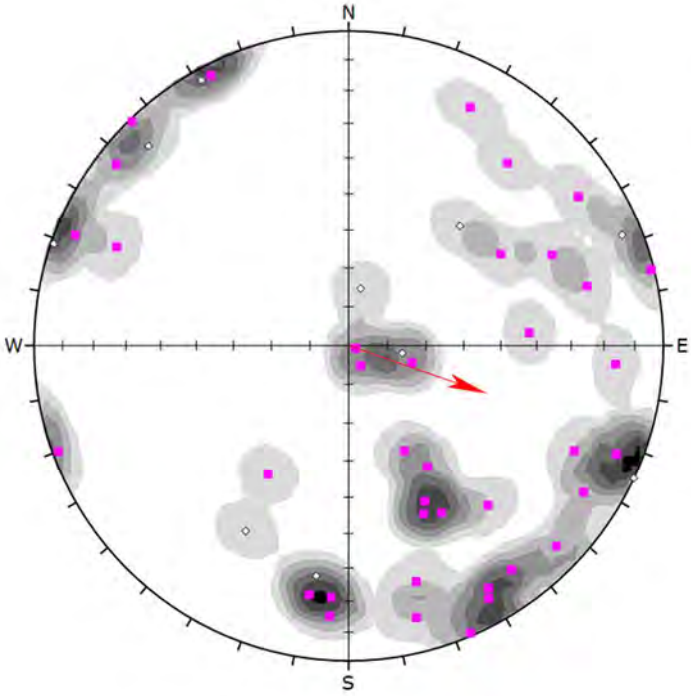
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-51/109	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Faults/Shears
Lithology:	All	**Borehole:**	UW82	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
◇	Breccia	10
■	SH	39

Plot Mode	Pole Vectors
Vector Count	49 (49 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
◇	Breccia	10
■	SH	39

Color	Density Concentrations
	0.00 - 1.10
	1.10 - 2.20
	2.20 - 3.30
	3.30 - 4.40
	4.40 - 5.50
	5.50 - 6.60
	6.60 - 7.70

Maximum Density	7.17%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

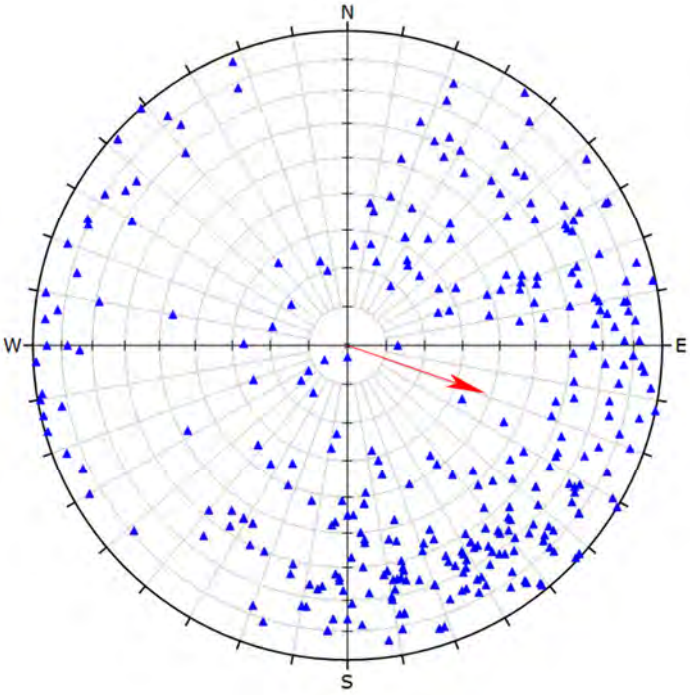
Plot Mode	Pole Vectors
Vector Count	49 (49 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

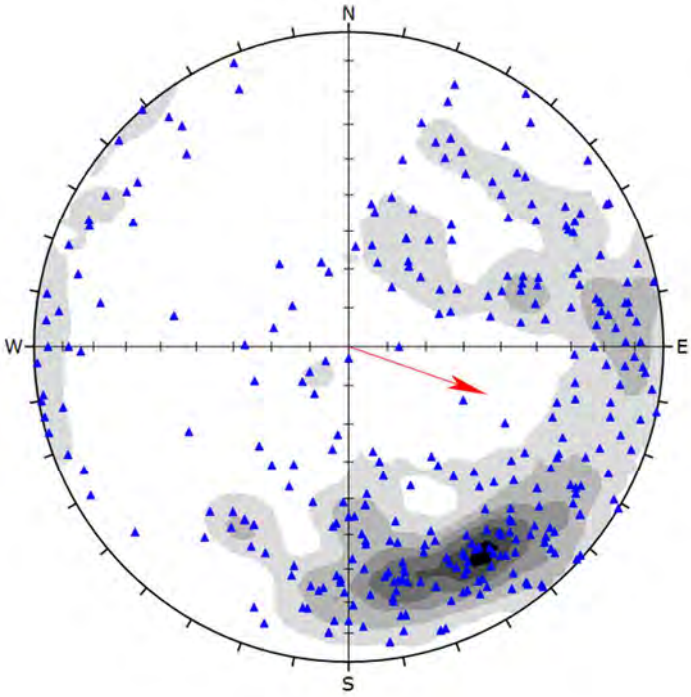
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-51/109	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Joints
Lithology:	All	**Borehole:**	UW82	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
▲	JT	316

Plot Mode	Pole Vectors
Vector Count	316 (316 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
▲	JT	316

Color	Density Concentrations
	0.00 - 1.10
	1.10 - 2.20
	2.20 - 3.30
	3.30 - 4.40
	4.40 - 5.50
	5.50 - 6.60
	6.60 - 7.70

Maximum Density	7.21%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

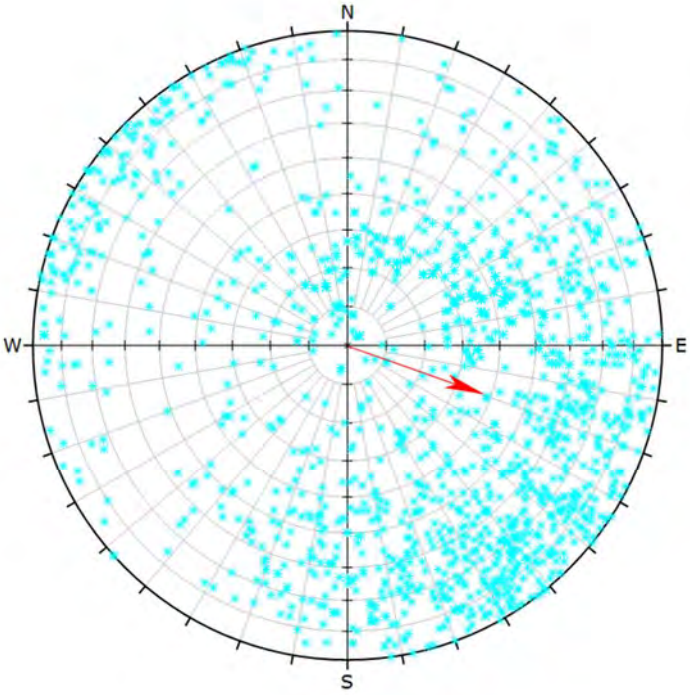
Plot Mode	Pole Vectors
Vector Count	316 (316 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

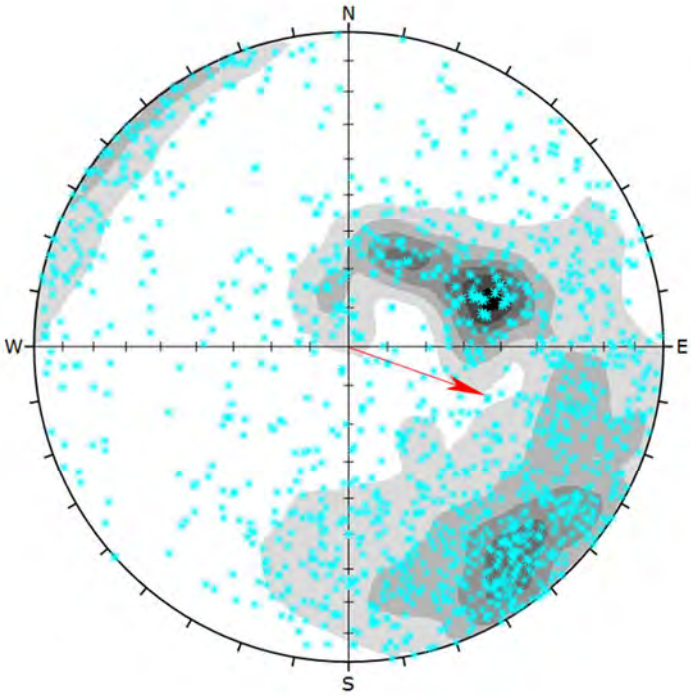
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-51/109	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Veins
Lithology:	All	**Borehole:**	UW82	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
	VN	1586

Plot Mode	Pole Vectors
Vector Count	1586 (1586 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
	VN	1586

Color	Density Concentrations
	0.00 - 0.90
	0.90 - 1.80
	1.80 - 2.70
	2.70 - 3.60
	3.60 - 4.50
	4.50 - 5.40
	5.40 - 6.30

Maximum Density	5.62%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

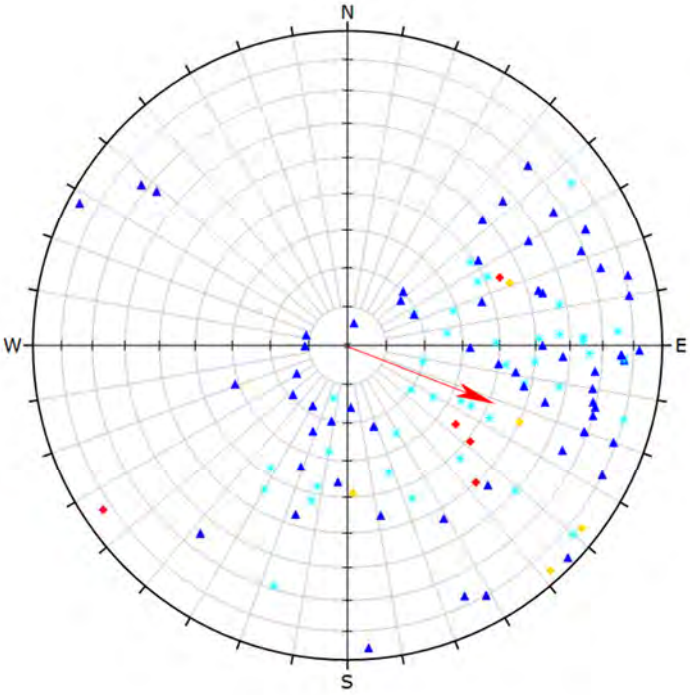
Plot Mode	Pole Vectors
Vector Count	1586 (1586 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

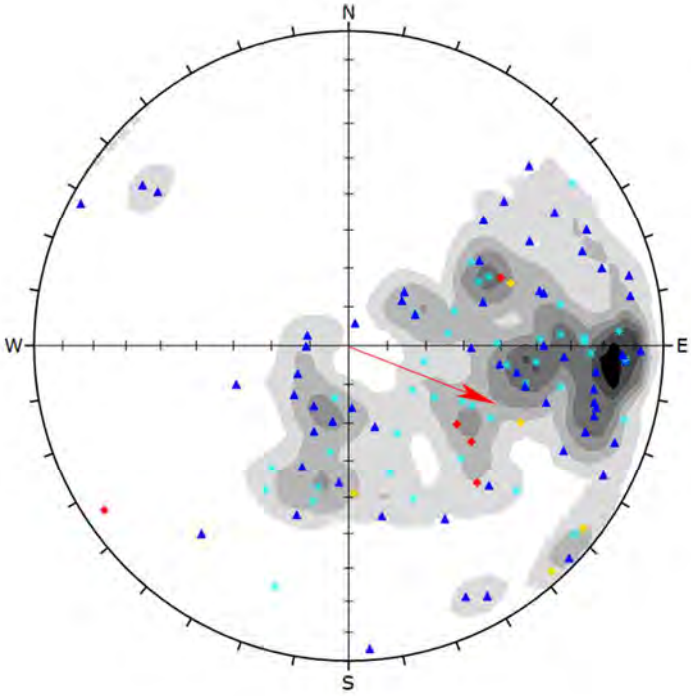
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-48/111	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	All defects
Lithology:	All	**Borehole:**	UW148	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
	CN	5
	FT	5
	JT	64
	VN	41

Plot Mode	Pole Vectors
Vector Count	115 (115 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
	CN	5
	FT	5
	JT	64
	VN	41

Color	Density Concentrations
	0.00 - 1.20
	1.20 - 2.40
	2.40 - 3.60
	3.60 - 4.80
	4.80 - 6.00
	6.00 - 7.20
	7.20 - 8.40

Maximum Density	7.92%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

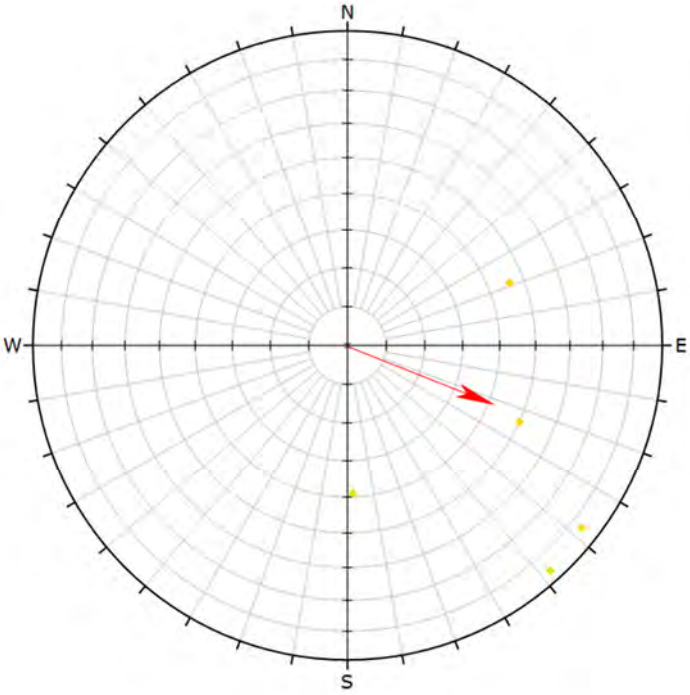
Plot Mode	Pole Vectors
Vector Count	115 (115 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

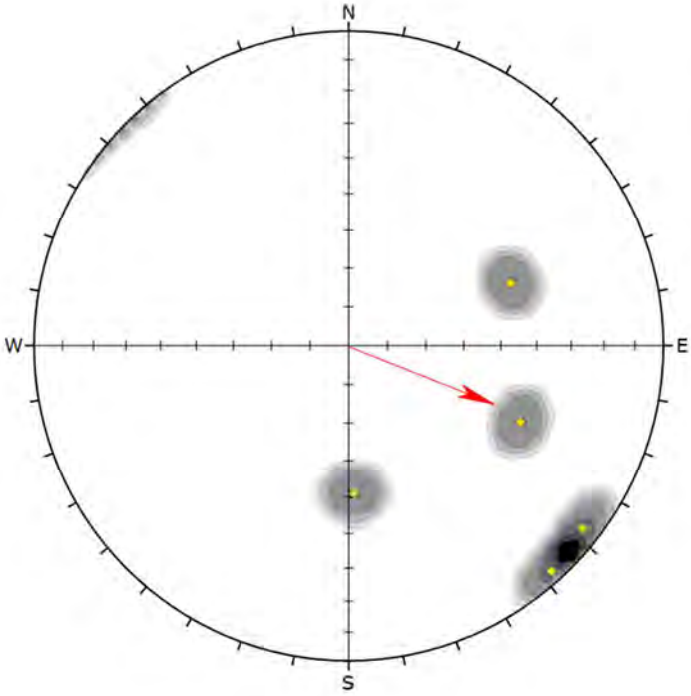
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-48/111	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Bedding/Contact
Lithology:	All	**Borehole:**	UW148	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
	CN	5

Plot Mode	Pole Vectors
Vector Count	5 (5 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
	CN	5

Color	Density Concentrations
	0.00 - 4.90
	4.90 - 9.80
	9.80 - 14.70
	14.70 - 19.60
	19.60 - 24.50
	24.50 - 29.40
	29.40 - 34.30

Maximum Density	34.13%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

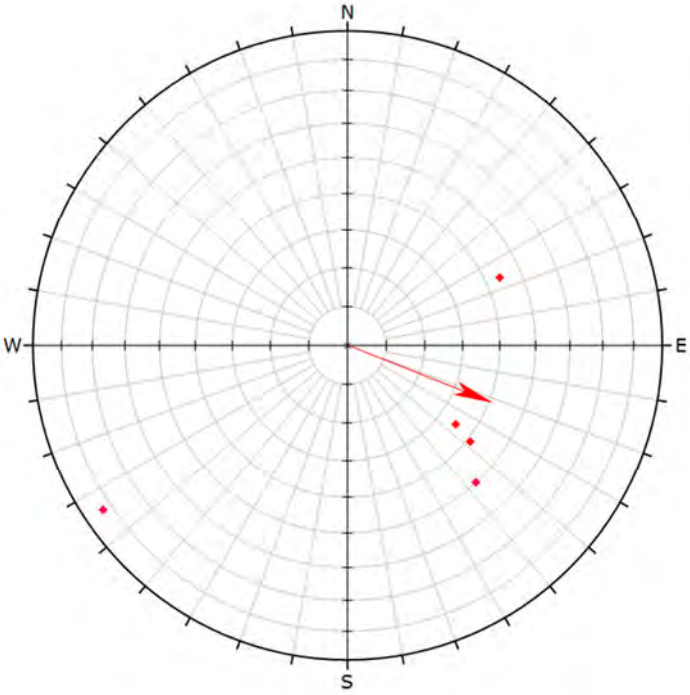
Plot Mode	Pole Vectors
Vector Count	5 (5 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

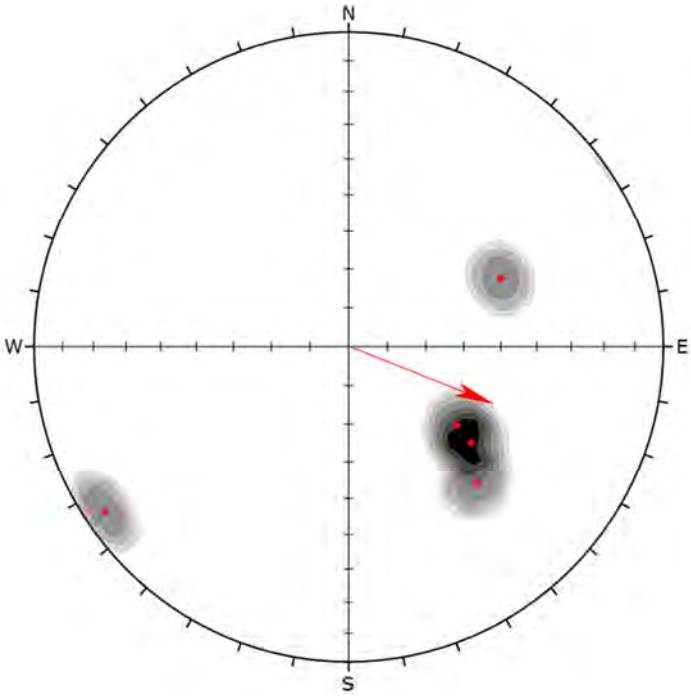
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-48/111	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Faults/Shears
Lithology:	All	**Borehole:**	UW148	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
◆	FT	5

Plot Mode	Pole Vectors
Vector Count	5 (5 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
◆	FT	5

Color	Density Concentrations
	0.00 - 5.60
	5.60 - 11.20
	11.20 - 16.80
	16.80 - 22.40
	22.40 - 28.00
	28.00 - 33.60
	33.60 - 39.20

Maximum Density	38.67%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

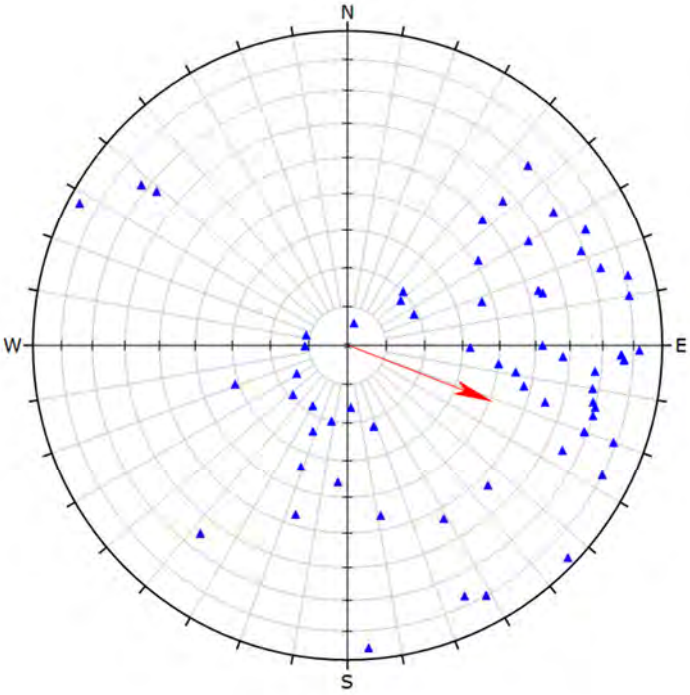
Plot Mode	Pole Vectors
Vector Count	5 (5 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

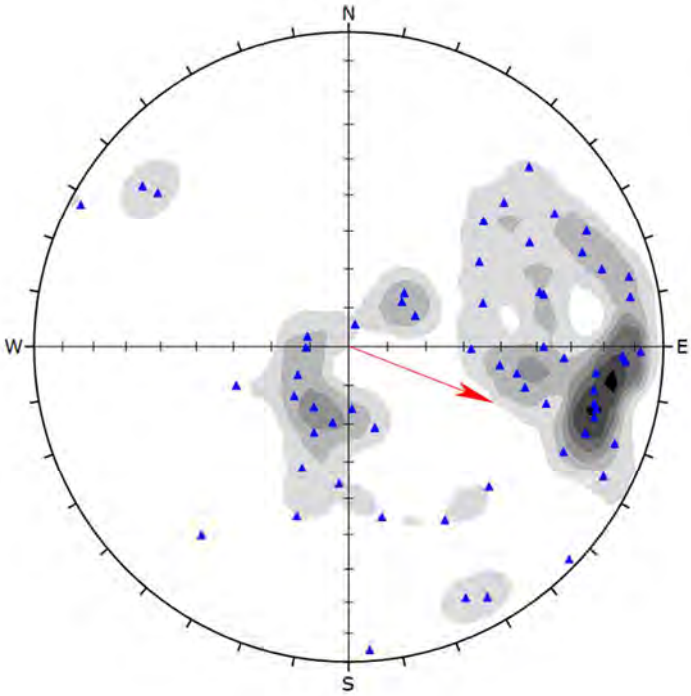
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-48/111	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Joints
Lithology:	All	**Borehole:**	UW148	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
▲	JT	64

Plot Mode	Pole Vectors
Vector Count	64 (64 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
▲	JT	64

Color	Density Concentrations
	0.00 - 1.60
	1.60 - 3.20
	3.20 - 4.80
	4.80 - 6.40
	6.40 - 8.00
	8.00 - 9.60
	9.60 - 11.20

Maximum Density	10.65%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

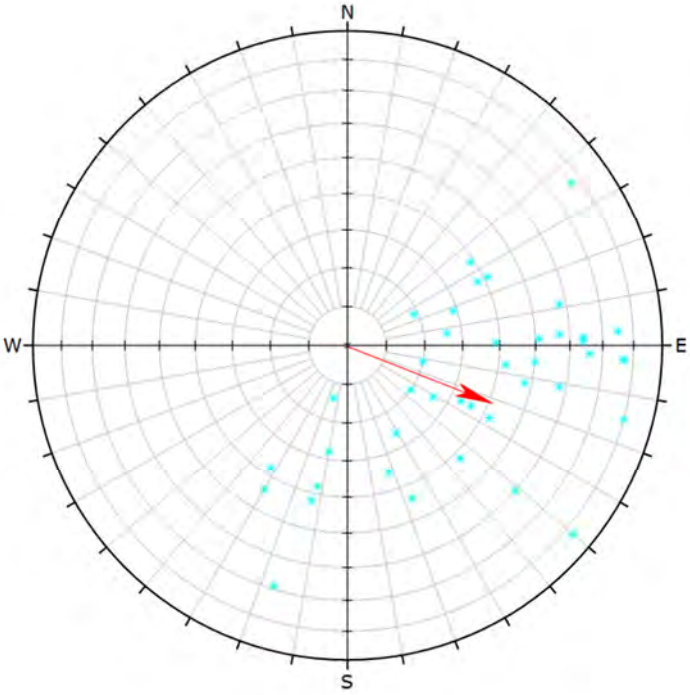
Plot Mode	Pole Vectors
Vector Count	64 (64 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

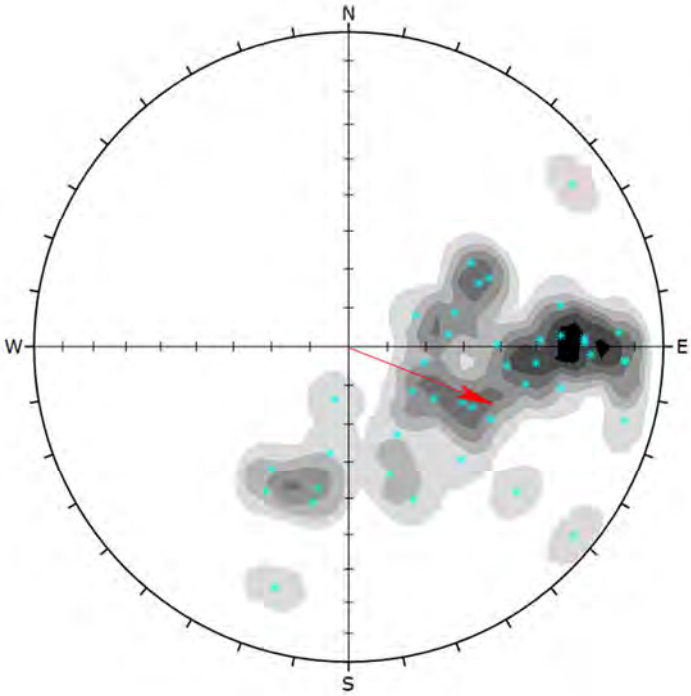
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-48/111	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Veins
Lithology:	All	**Borehole:**	UW148	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
•	VN	41

Plot Mode	Pole Vectors
Vector Count	41 (41 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
•	VN	41

Color	Density Concentrations
	0.00 - 1.60
	1.60 - 3.20
	3.20 - 4.80
	4.80 - 6.40
	6.40 - 8.00
	8.00 - 9.60
	9.60 - 11.20

Maximum Density	10.63%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

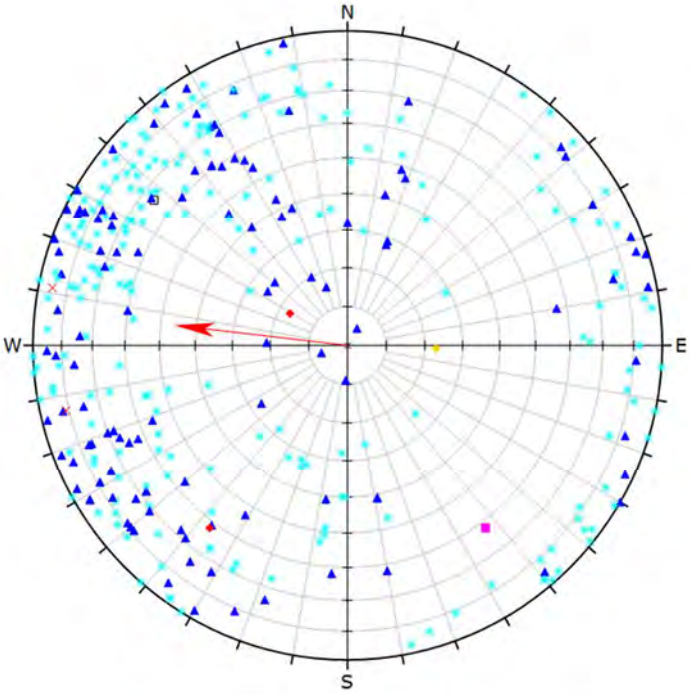
Plot Mode	Pole Vectors
Vector Count	41 (41 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

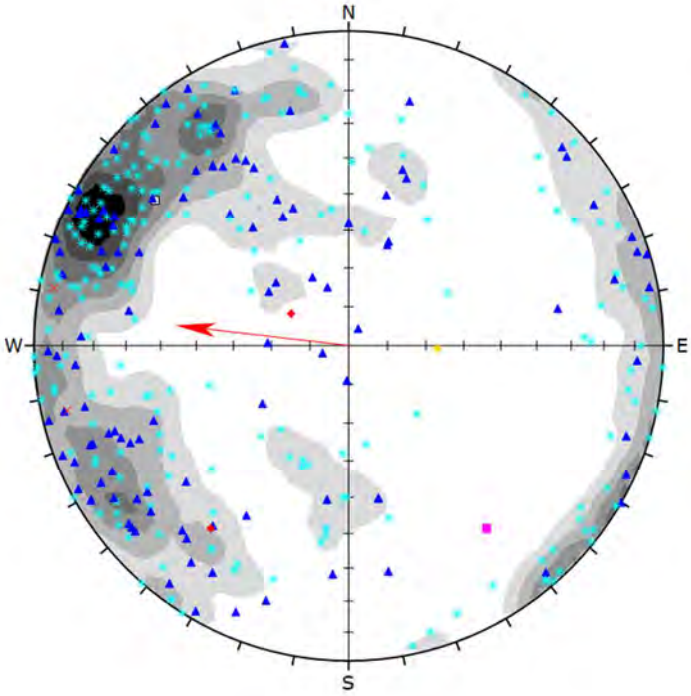
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-43/276	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	All defects
Lithology:	All	**Borehole:**	UW175	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
□	BG	1
×	Breccia	2
●	CN	1
◆	FT	2
▲	JT	120
■	SH	1
●	VN	218

Plot Mode	Pole Vectors
Vector Count	345 (345 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
□	BG	1
×	Breccia	2
●	CN	1
◆	FT	2
▲	JT	120
■	SH	1
●	VN	218

Color	Density Concentrations
	0.00 - 0.90
	0.90 - 1.80
	1.80 - 2.70
	2.70 - 3.60
	3.60 - 4.50
	4.50 - 5.40
	5.40 - 6.30

Maximum Density	6.09%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

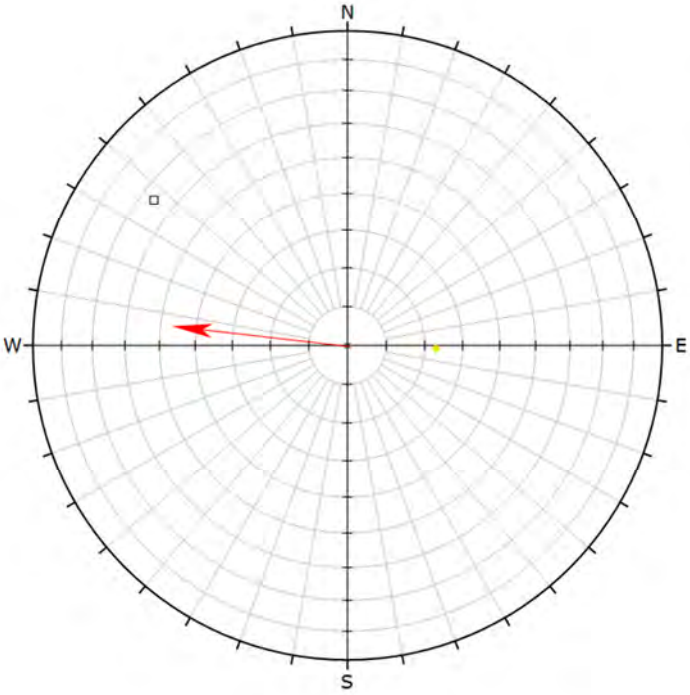
Plot Mode	Pole Vectors
Vector Count	345 (345 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

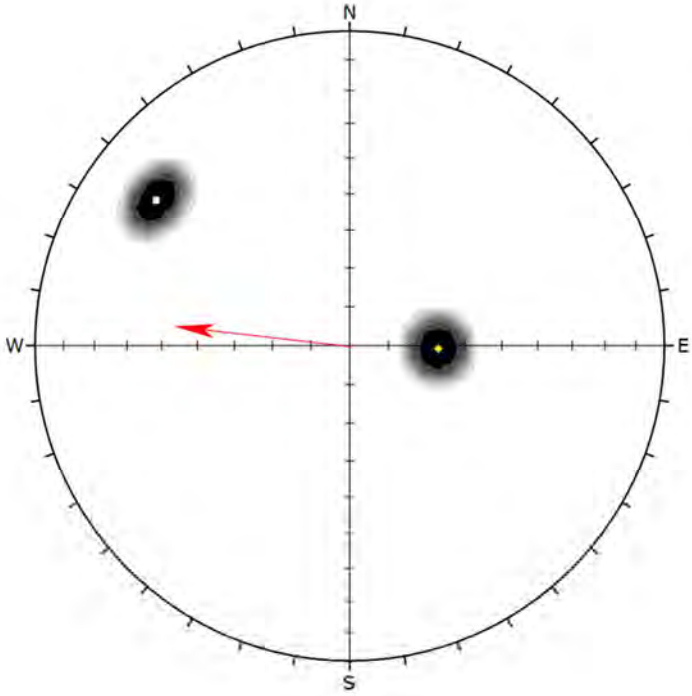
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-43/276	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Bedding/Contact
Lithology:	All	**Borehole:**	UW175	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
□	BG	1
◆	CN	1

Plot Mode	Pole Vectors
Vector Count	2 (2 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
□	BG	1
◆	CN	1

Color	Density Concentrations
	0.00 - 7.20
	7.20 - 14.40
	14.40 - 21.60
	21.60 - 28.80
	28.80 - 36.00
	36.00 - 43.20
	43.20 - 50.40

Maximum Density	49.79%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

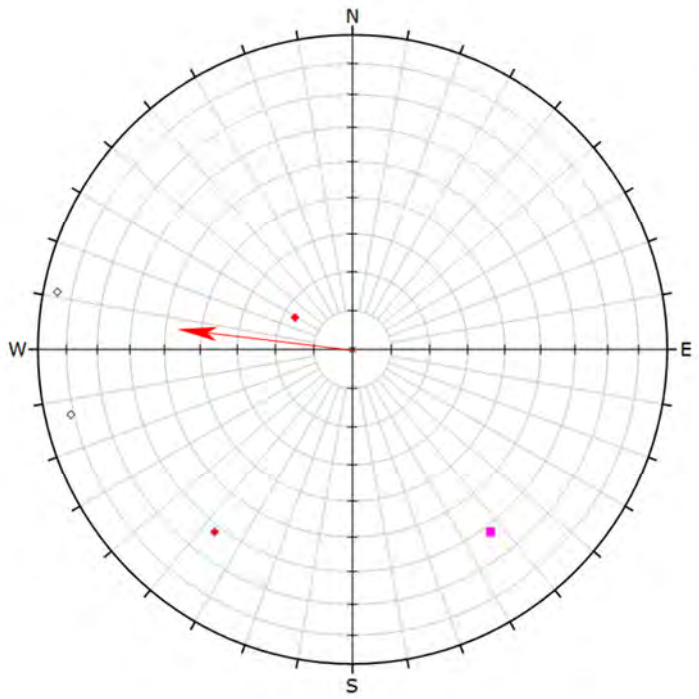
Plot Mode	Pole Vectors
Vector Count	2 (2 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

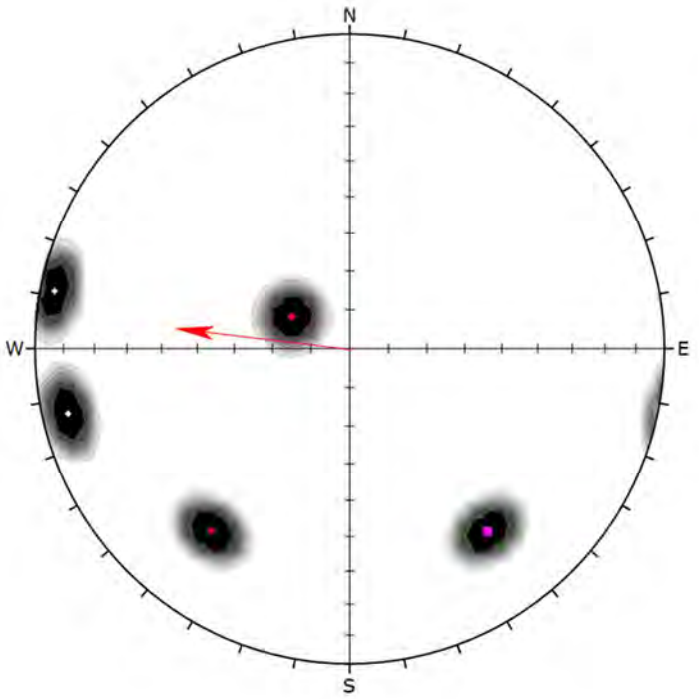
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-43/276	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Faults/Shears
Lithology:	All	**Borehole:**	UW175	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
◇	Breccia	2
●	FT	2
■	SH	1

Plot Mode	Pole Vectors
Vector Count	5 (5 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
◇	Breccia	2
●	FT	2
■	SH	1

Color	Density Concentrations
	0.00 - 2.90
	2.90 - 5.80
	5.80 - 8.70
	8.70 - 11.60
	11.60 - 14.50
	14.50 - 17.40
	17.40 - 20.30

Maximum Density	19.77%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

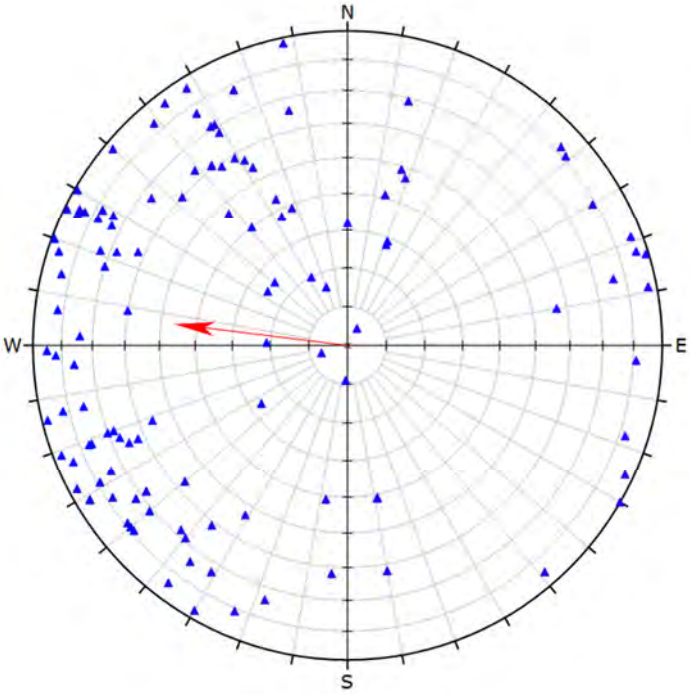
Plot Mode	Pole Vectors
Vector Count	5 (5 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

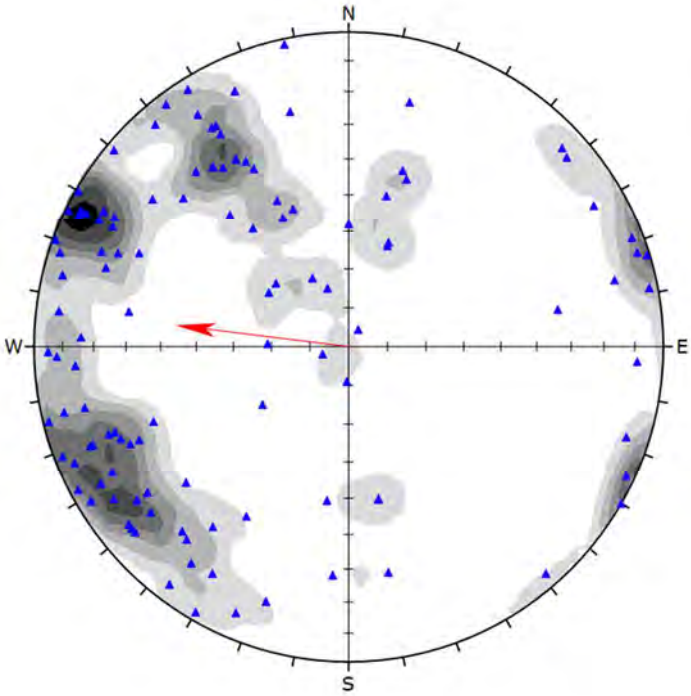
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-43/276	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Joints
Lithology:	All	**Borehole:**	UW175	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
▲	JT	120

Plot Mode	Pole Vectors
Vector Count	120 (120 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
▲	JT	120

Color	Density Concentrations
	0.00 - 1.10
	1.10 - 2.20
	2.20 - 3.30
	3.30 - 4.40
	4.40 - 5.50
	5.50 - 6.60
	6.60 - 7.70

Maximum Density	7.25%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

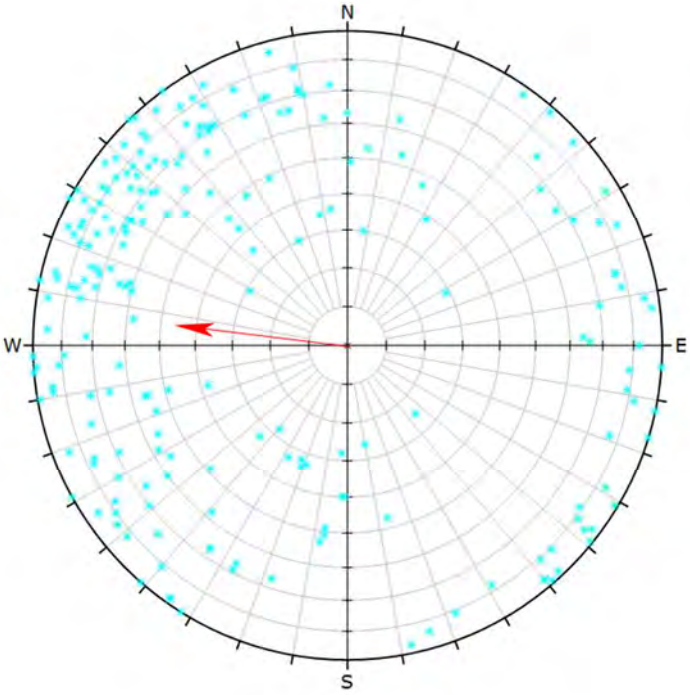
Plot Mode	Pole Vectors
Vector Count	120 (120 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

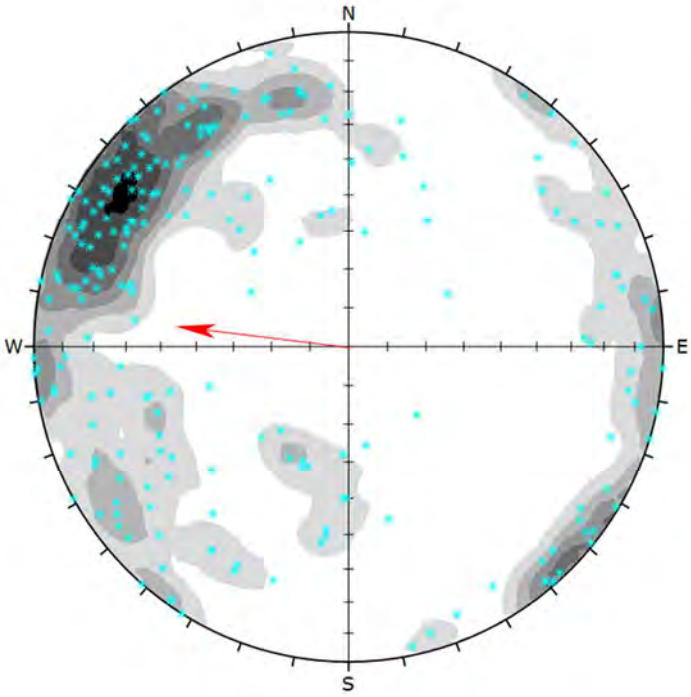
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-43/276	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Veins
Lithology:	All	**Borehole:**	UW175	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
•	VN	218

Plot Mode	Pole Vectors
Vector Count	218 (218 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
•	VN	218

Color	Density Concentrations
	0.00 - 1.00
	1.00 - 2.00
	2.00 - 3.00
	3.00 - 4.00
	4.00 - 5.00
	5.00 - 6.00
	6.00 - 7.00

Maximum Density	6.38%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

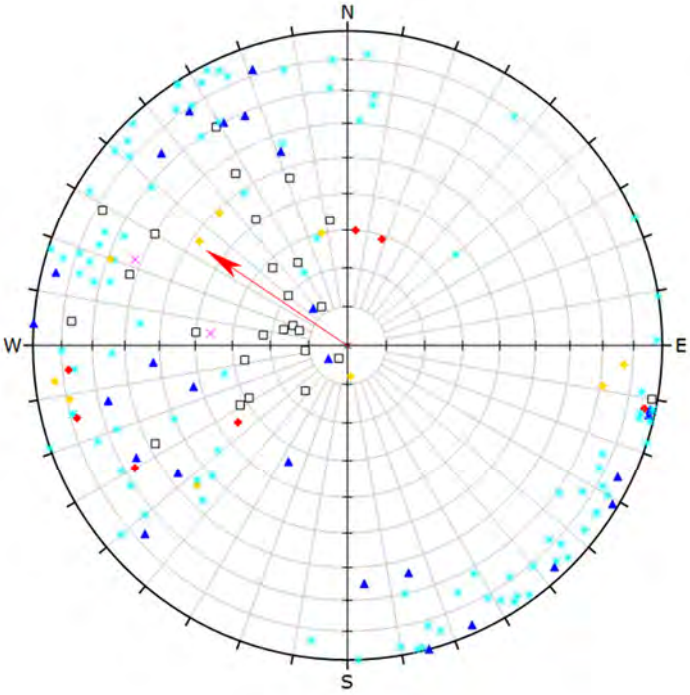
Plot Mode	Pole Vectors
Vector Count	218 (218 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

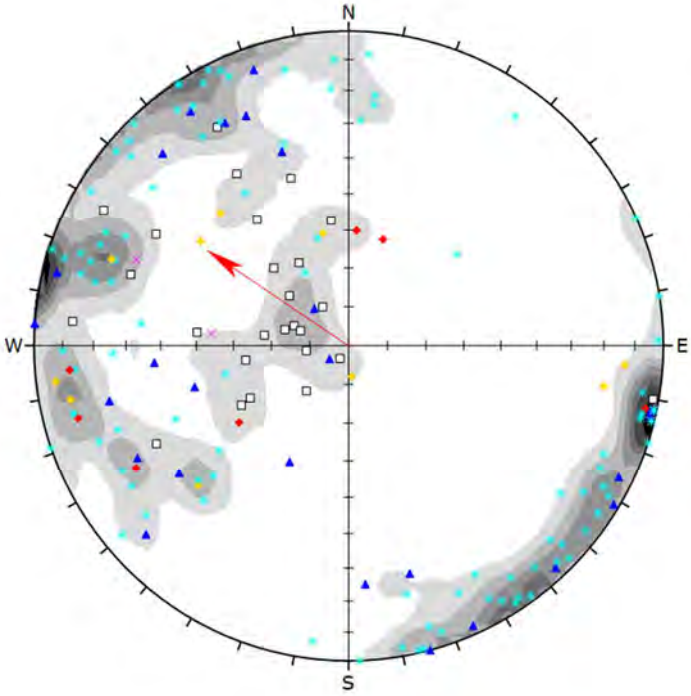
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-44/303	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	All defects
Lithology:	All	**Borehole:**	UW180	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
□	BG	26
◆	CN	10
×	CZ	2
◆	FT	7
▲	JT	26
◆	VN	101

Plot Mode	Pole Vectors
Vector Count	172 (172 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
□	BG	26
◆	CN	10
×	CZ	2
◆	FT	7
▲	JT	26
◆	VN	101

Color	Density Concentrations
	0.00 - 1.20
	1.20 - 2.40
	2.40 - 3.60
	3.60 - 4.80
	4.80 - 6.00
	6.00 - 7.20
	7.20 - 8.40

Maximum Density	8.00%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

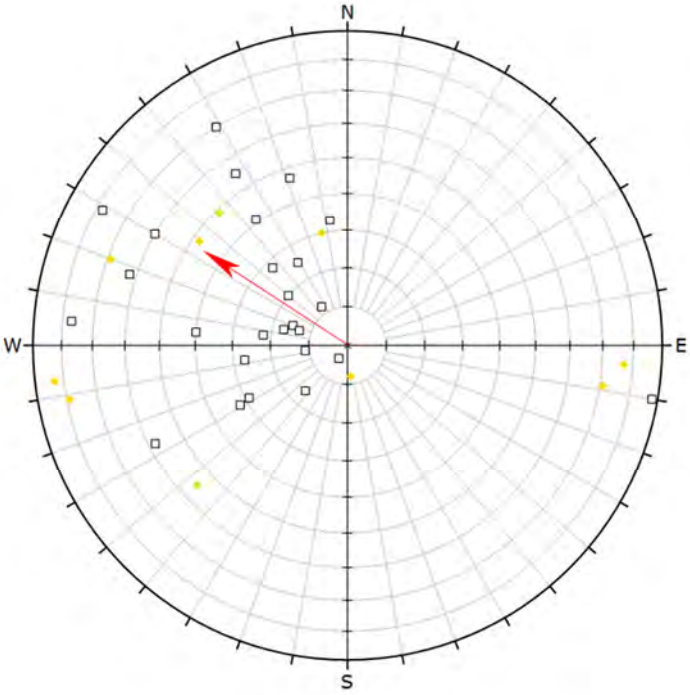
Plot Mode	Pole Vectors
Vector Count	172 (172 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

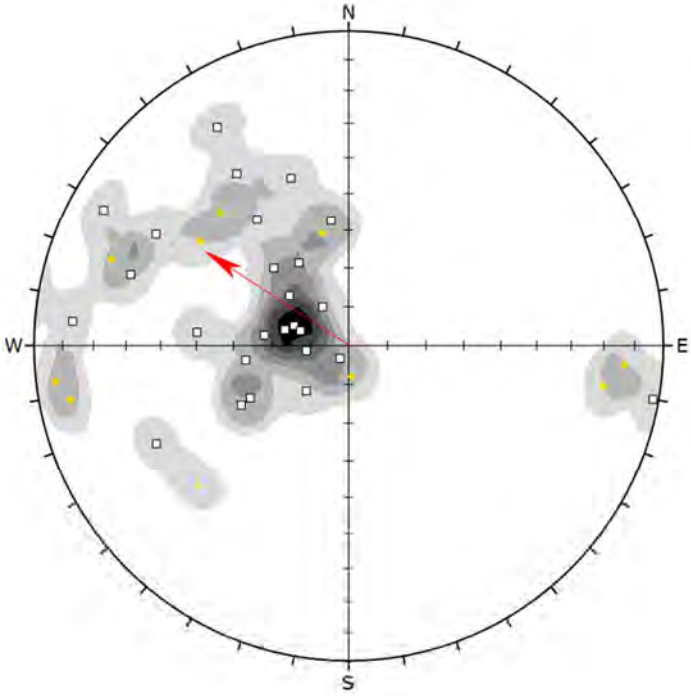
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-44/303	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Bedding/Contact
Lithology:	All	**Borehole:**	UW180	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
□	BG	26
▪	CN	10

Plot Mode	Pole Vectors
Vector Count	36 (36 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
□	BG	26
▪	CN	10

Color	Density Concentrations
	0.00 - 2.00
	2.00 - 4.00
	4.00 - 6.00
	6.00 - 8.00
	8.00 - 10.00
	10.00 - 12.00
	12.00 - 14.00

Maximum Density	13.72%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

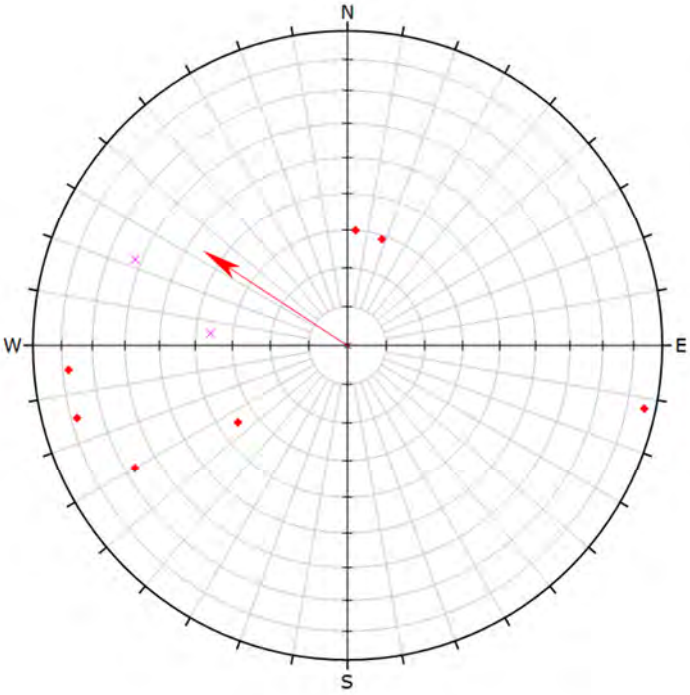
Plot Mode	Pole Vectors
Vector Count	36 (36 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

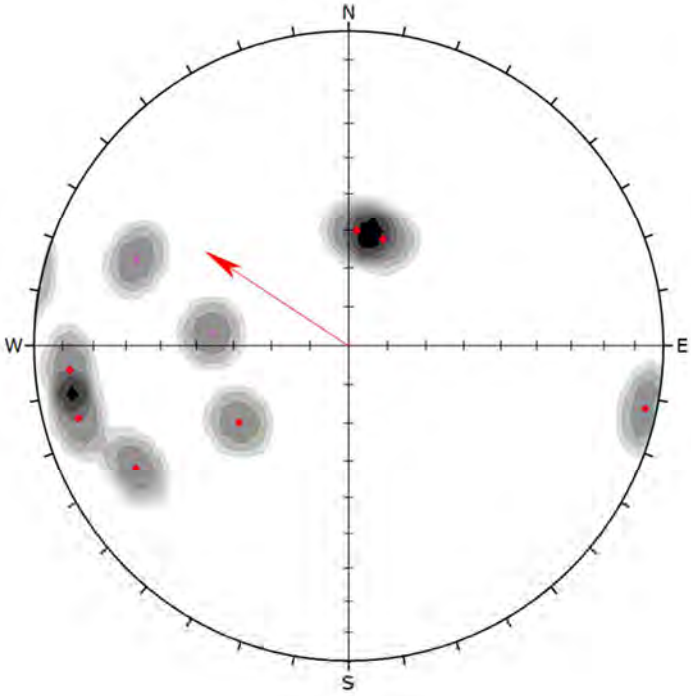
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-44/303	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Faults/Shears
Lithology:	All	**Borehole:**	UW180	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
×	CZ	2
◆	FT	7

Plot Mode	Pole Vectors
Vector Count	9 (9 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
×	CZ	2
◆	FT	7

Color	Density Concentrations
	0.00 - 3.10
	3.10 - 6.20
	6.20 - 9.30
	9.30 - 12.40
	12.40 - 15.50
	15.50 - 18.60
	18.60 - 21.70

Maximum Density	21.00%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

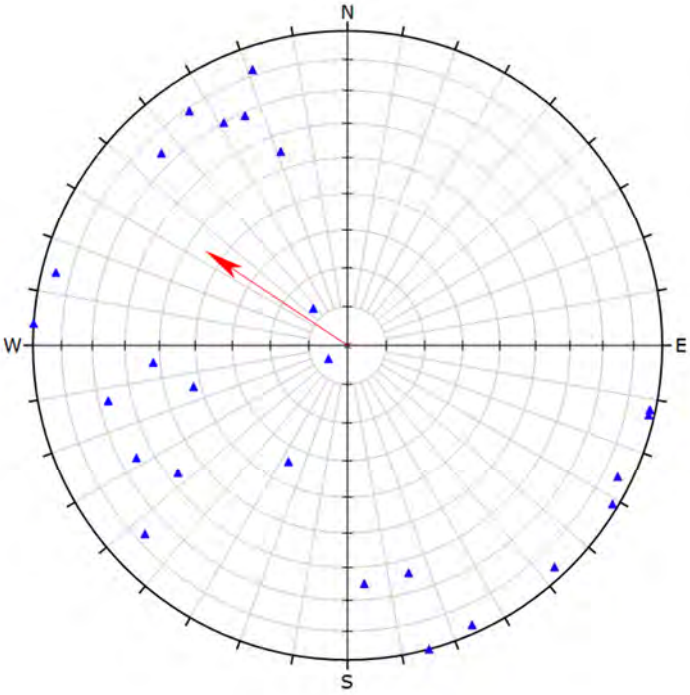
Plot Mode	Pole Vectors
Vector Count	9 (9 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

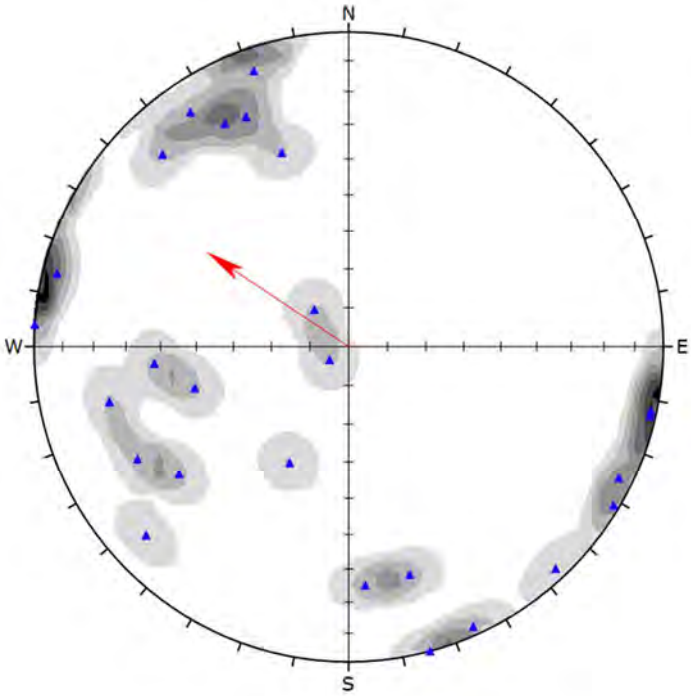
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-44/303	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Joints
Lithology:	All	**Borehole:**	UW180	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
▲	JT	26

Plot Mode	Pole Vectors
Vector Count	26 (26 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
▲	JT	26

Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30

Maximum Density	13.30%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

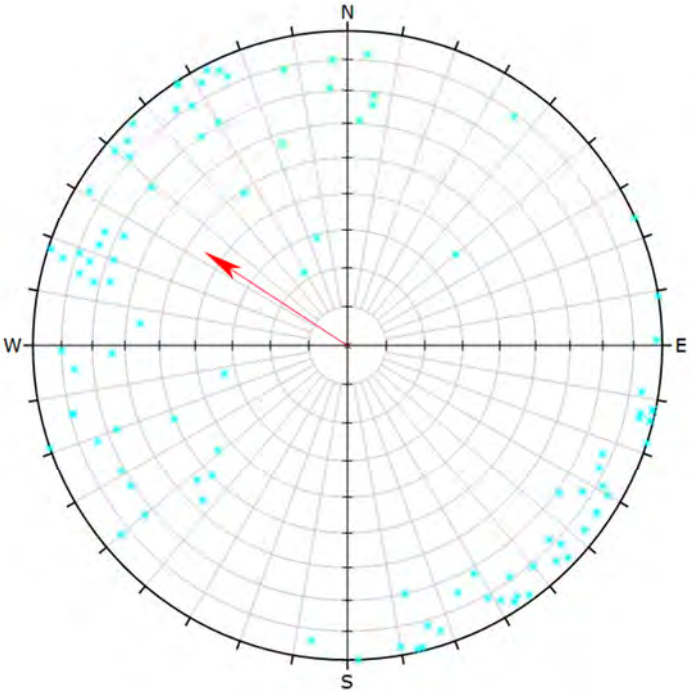
Plot Mode	Pole Vectors
Vector Count	26 (26 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

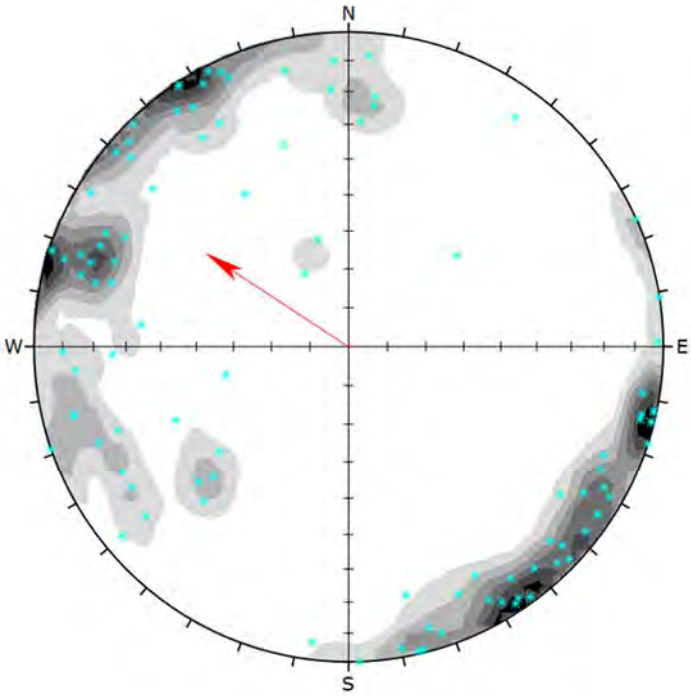
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-44/303	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Veins
Lithology:	All	**Borehole:**	UW180	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
•	VN	101

Plot Mode	Pole Vectors
Vector Count	101 (101 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
•	VN	101

Color	Density Concentrations
	0.00 - 1.30
	1.30 - 2.60
	2.60 - 3.90
	3.90 - 5.20
	5.20 - 6.50
	6.50 - 7.80
	7.80 - 9.10

Maximum Density	8.87%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

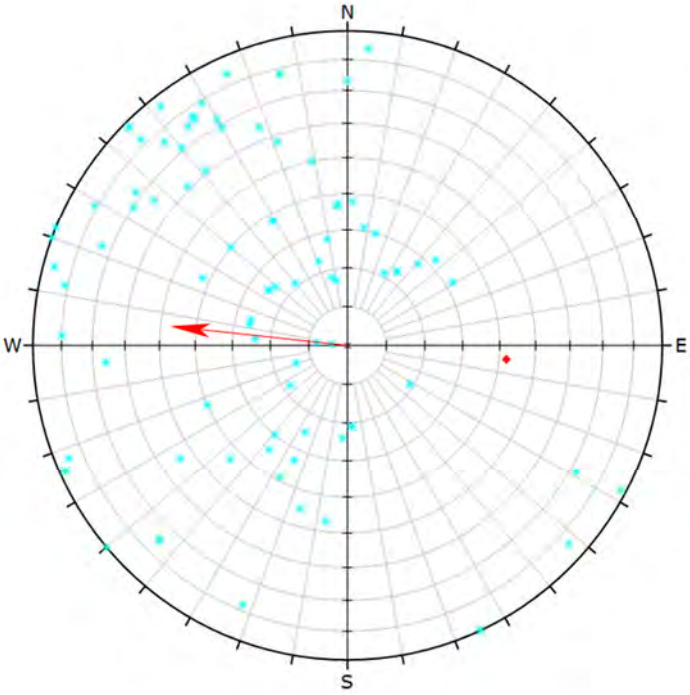
Plot Mode	Pole Vectors
Vector Count	101 (101 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

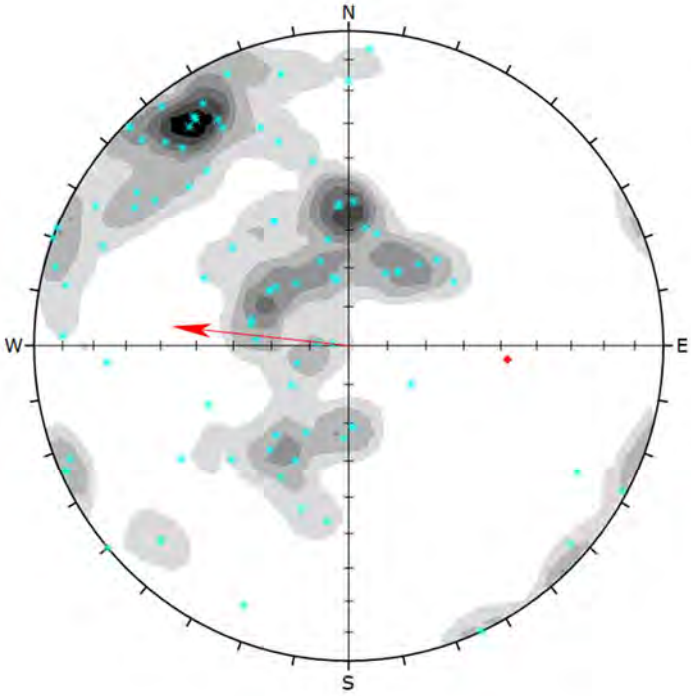
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-42/276	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	All defects
Lithology:	All	**Borehole:**	UW184	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
◆	FT	1
●	VN	92

Plot Mode	Pole Vectors
Vector Count	93 (93 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
◆	FT	1
●	VN	92

Color	Density Concentrations
	0.00 - 1.20
	1.20 - 2.40
	2.40 - 3.60
	3.60 - 4.80
	4.80 - 6.00
	6.00 - 7.20
	7.20 - 8.40

Maximum Density	8.15%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

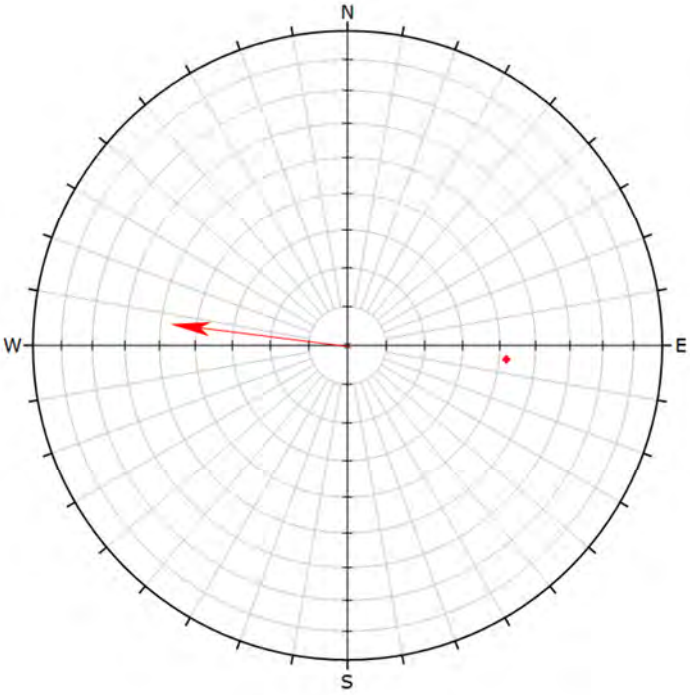
Plot Mode	Pole Vectors
Vector Count	93 (93 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

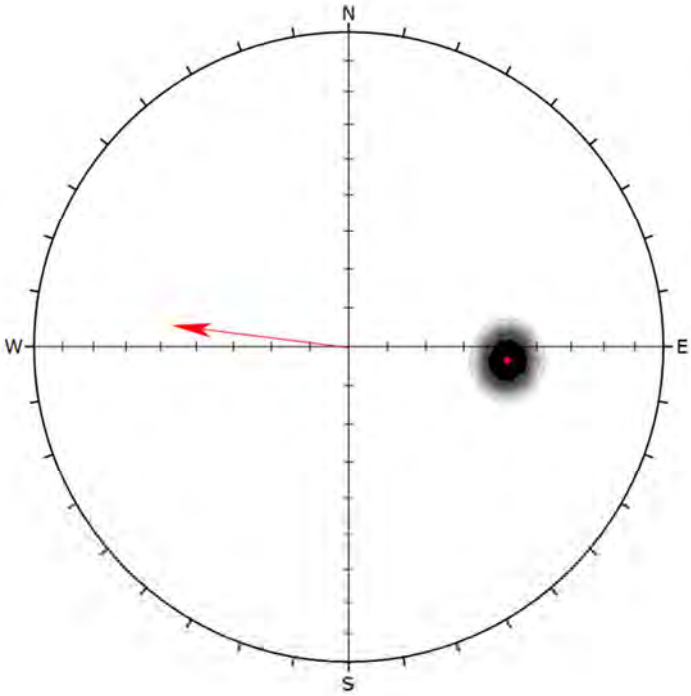
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-42/276	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Faults/Shears
Lithology:	All	**Borehole:**	UW184	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
◆	FT	1

Plot Mode	Pole Vectors
Vector Count	1 (1 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
◆	FT	1

Color	Density Concentrations
	0.00 - 14.20
	14.20 - 28.40
	28.40 - 42.60
	42.60 - 56.80
	56.80 - 71.00
	71.00 - 85.20
	85.20 - 99.40

Maximum Density	99.16%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

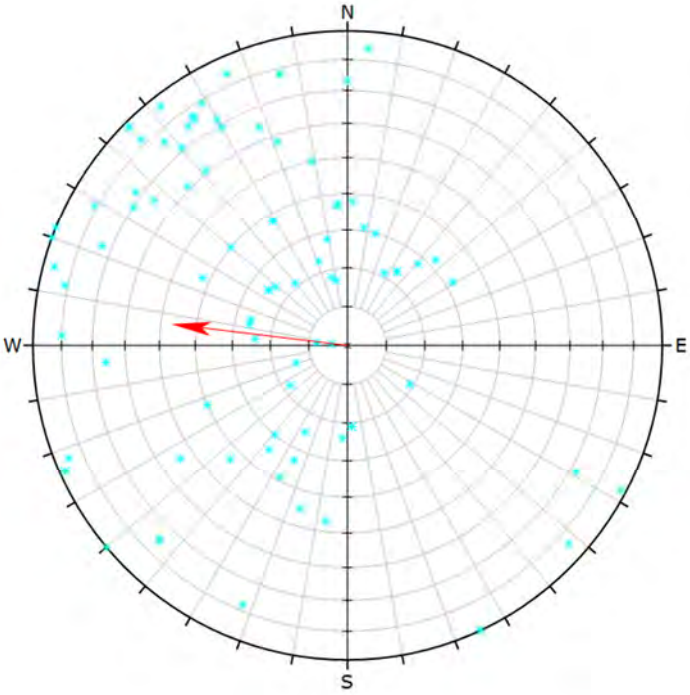
Plot Mode	Pole Vectors
Vector Count	1 (1 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

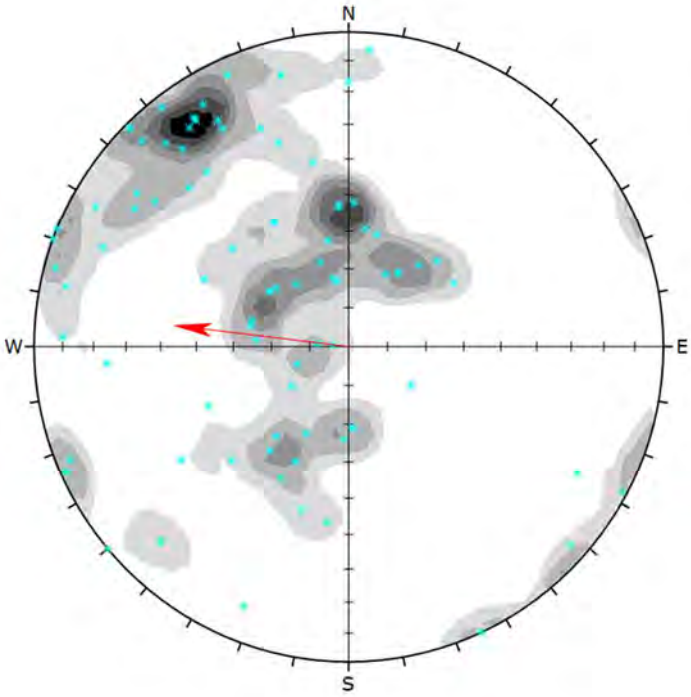
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-42/276	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Veins
Lithology:	All	**Borehole:**	UW184	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
•	VN	92

Plot Mode	Pole Vectors
Vector Count	92 (92 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
•	VN	92

Color	Density Concentrations
	0.00 - 1.20
	1.20 - 2.40
	2.40 - 3.60
	3.60 - 4.80
	4.80 - 6.00
	6.00 - 7.20
	7.20 - 8.40

Maximum Density	8.24%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

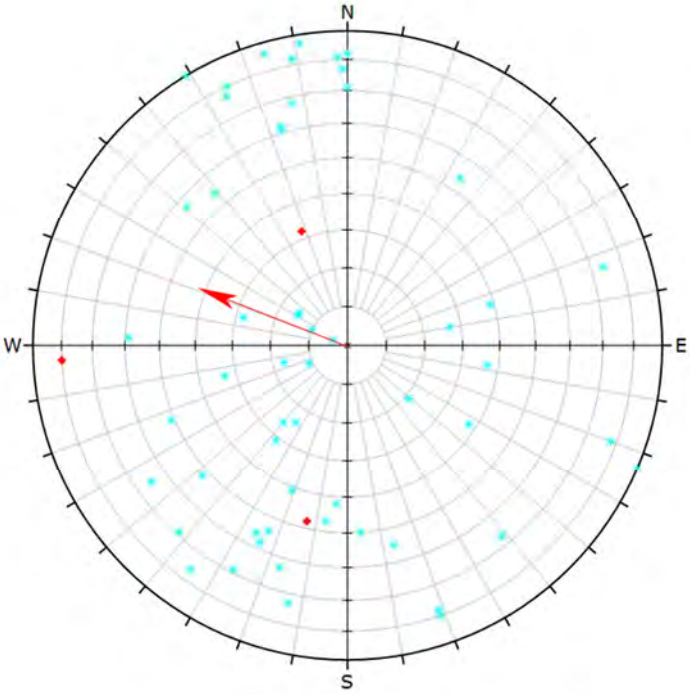
Plot Mode	Pole Vectors
Vector Count	92 (92 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

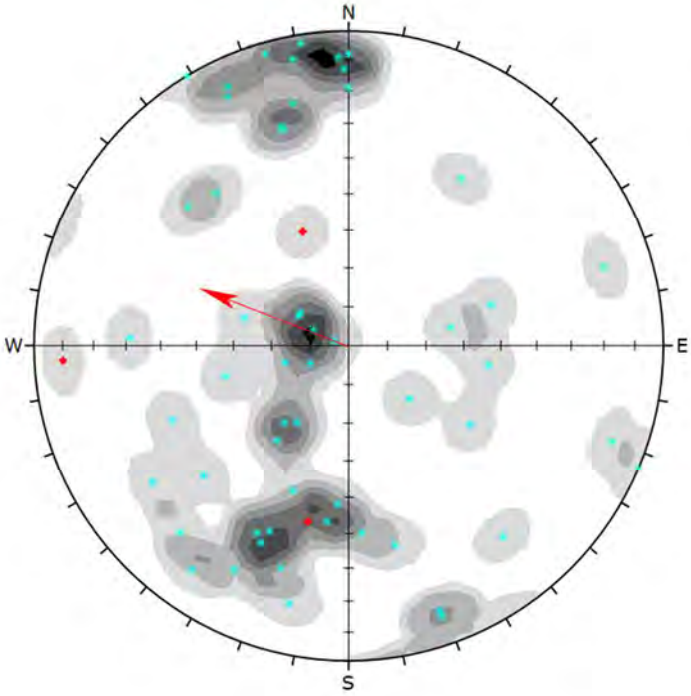
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-47/290	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	All defects
Lithology:	All	**Borehole:**	UW540	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
◆	FT	3
◆	VN	55

Plot Mode	Pole Vectors
Vector Count	58 (58 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
◆	FT	3
◆	VN	55

Color	Density Concentrations
	0.00 - 1.10
	1.10 - 2.20
	2.20 - 3.30
	3.30 - 4.40
	4.40 - 5.50
	5.50 - 6.60
	6.60 - 7.70

Maximum Density	7.41%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

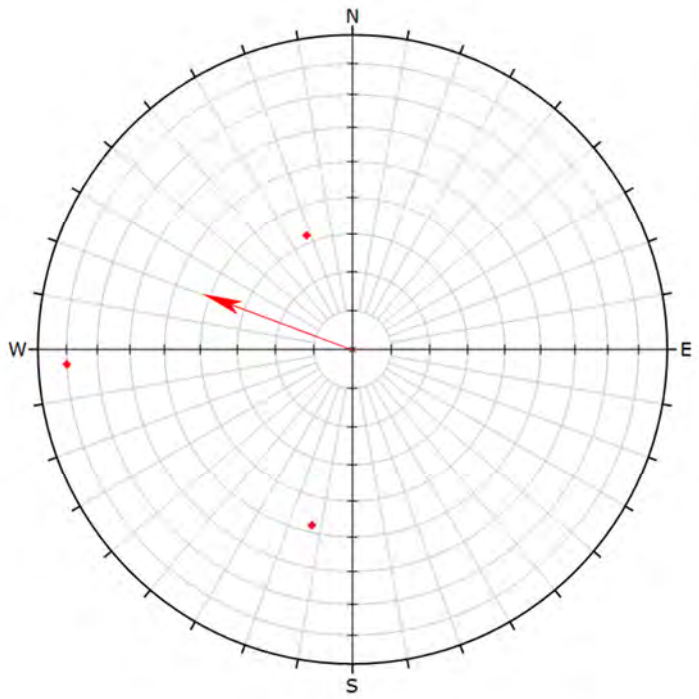
Plot Mode	Pole Vectors
Vector Count	58 (58 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

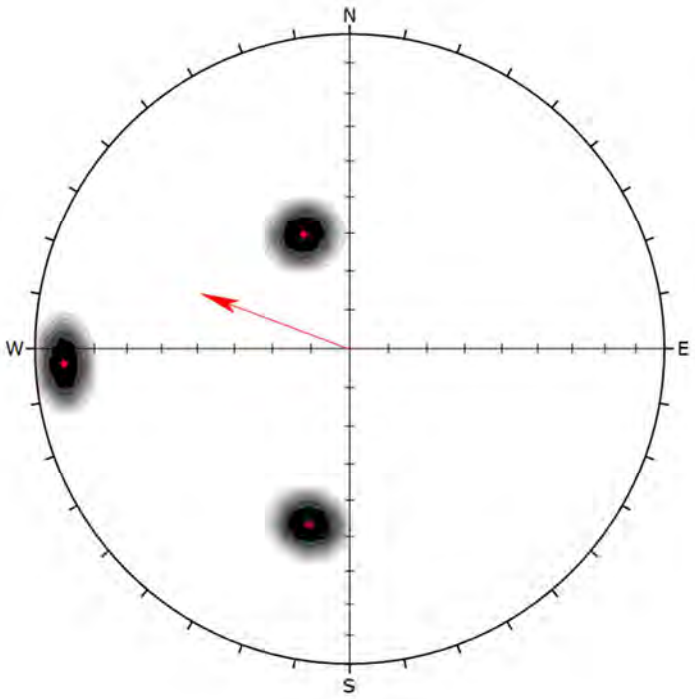
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-47/290	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Faults/Shears
Lithology:	All	**Borehole:**	UW540	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
◆	FT	3

Plot Mode	Pole Vectors
Vector Count	3 (3 Entries)
Hemisphere	Lower
Projection	Equal Area



Symbol	TYPE	Quantity
◆	FT	3

Color	Density Concentrations
	0.00 - 4.80
	4.80 - 9.60
	9.60 - 14.40
	14.40 - 19.20
	19.20 - 24.00
	24.00 - 28.80
	28.80 - 33.60

Maximum Density	33.21%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

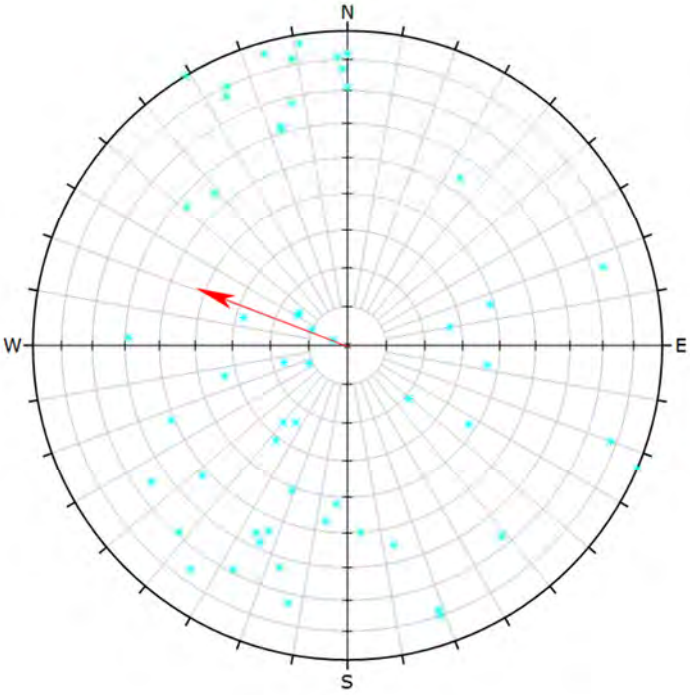
Plot Mode	Pole Vectors
Vector Count	3 (3 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink

Stereo Plot

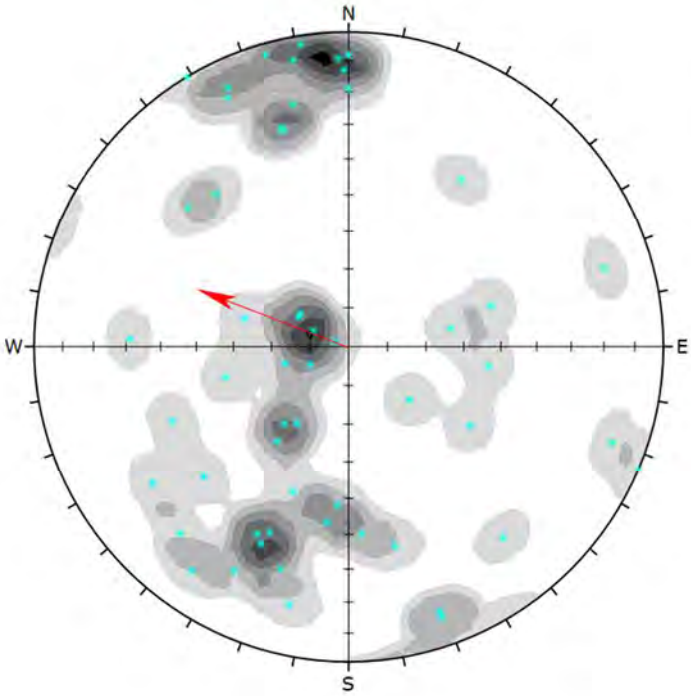
PSM125 ORI CORE BOREHOLE

Project:	Project Pye	**North datum:**	Grid North	**Processed by:**	VR
Job no:	PSM125	**Dip/Azi:**	-47/290	**Date:**	22/05/2017
Location:	Gladstone	**Traverse:**	N/A	**Defect type:**	Veins
Lithology:	All	**Borehole:**	UW540	**Stratigraphy:**	N/A



Symbol	TYPE	Quantity
•	VN	55

Plot Mode	Pole Vectors
Vector Count	55 (55 Entries)
Hemisphere	Lower
Projection	Equal Area



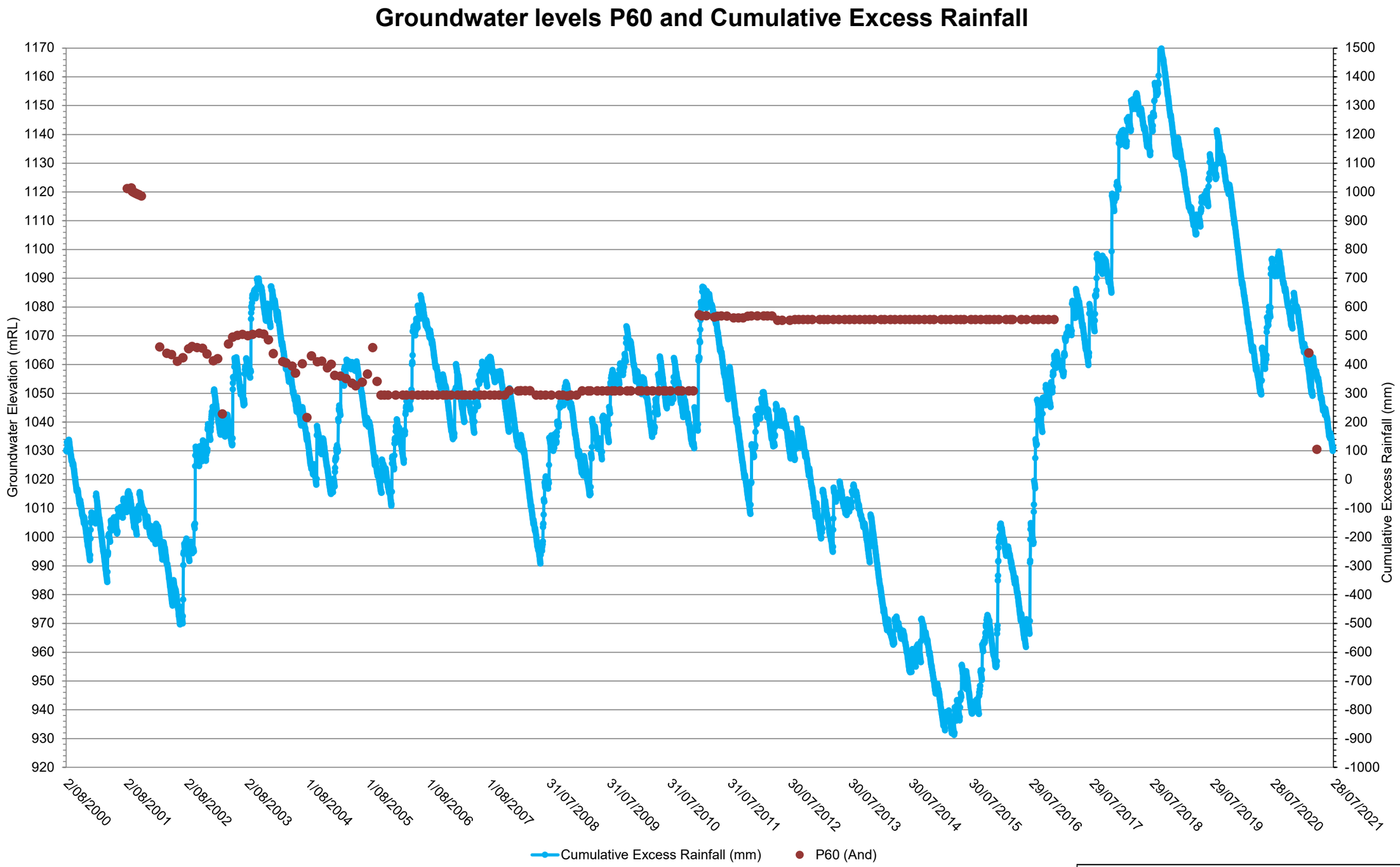
Symbol	TYPE	Quantity
•	VN	55

Color	Density Concentrations
	0.00 - 1.20
	1.20 - 2.40
	2.40 - 3.60
	3.60 - 4.80
	4.80 - 6.00
	6.00 - 7.20
	7.20 - 8.40

Maximum Density	7.81%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	55 (55 Entries)
Hemisphere	Lower
Projection	Equal Area

Appendix D
Hydrographs



Notes: 1) Daily rainfall data from Mill Station

Pells Sullivan Meynink Pty Ltd

Anderson Lloyd

OceanaGold Project Pye

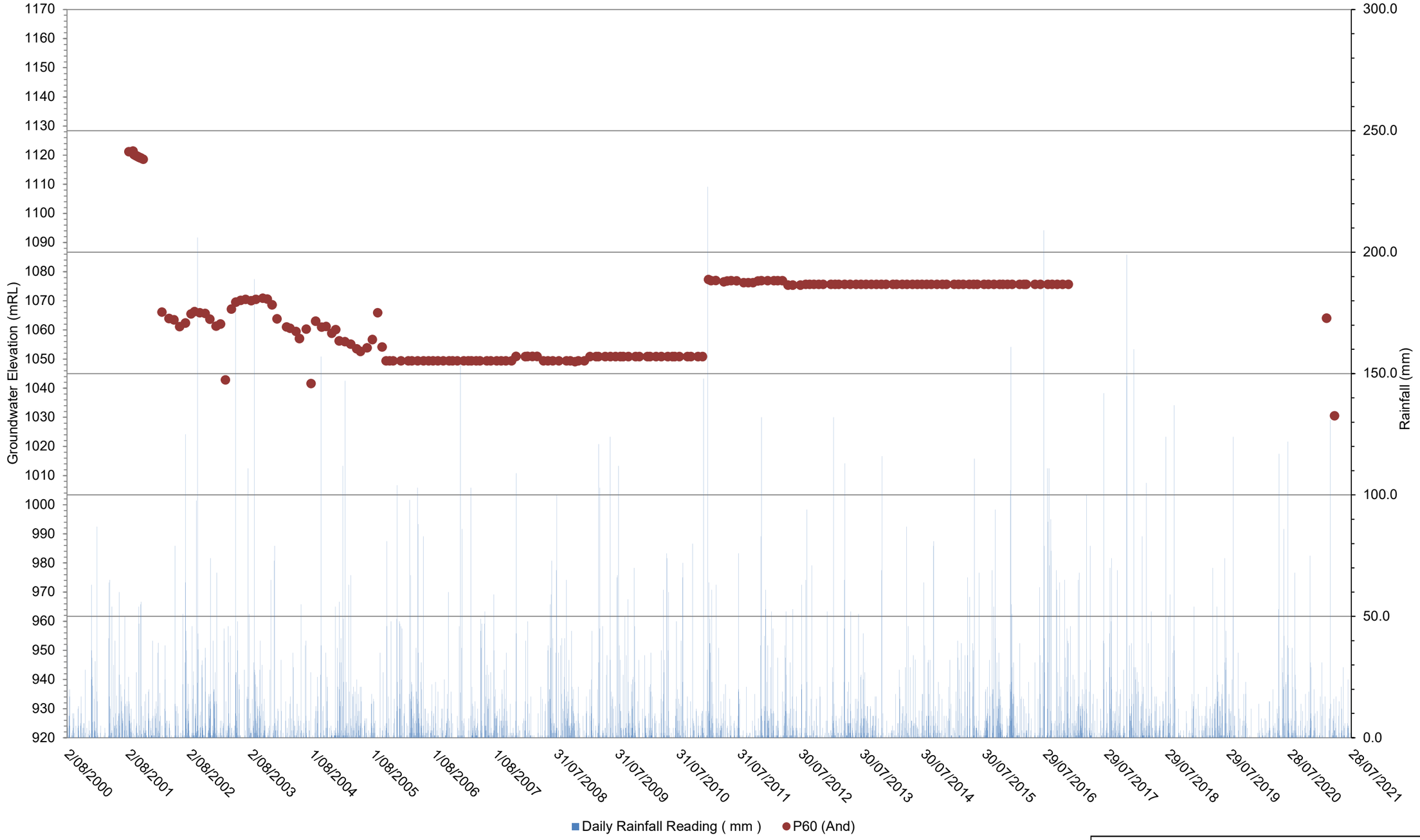
Waihi, New Zealand

DIPPED PIEZOMETER WATER LEVELS

P60

PSM125-260R	**Appendix D**

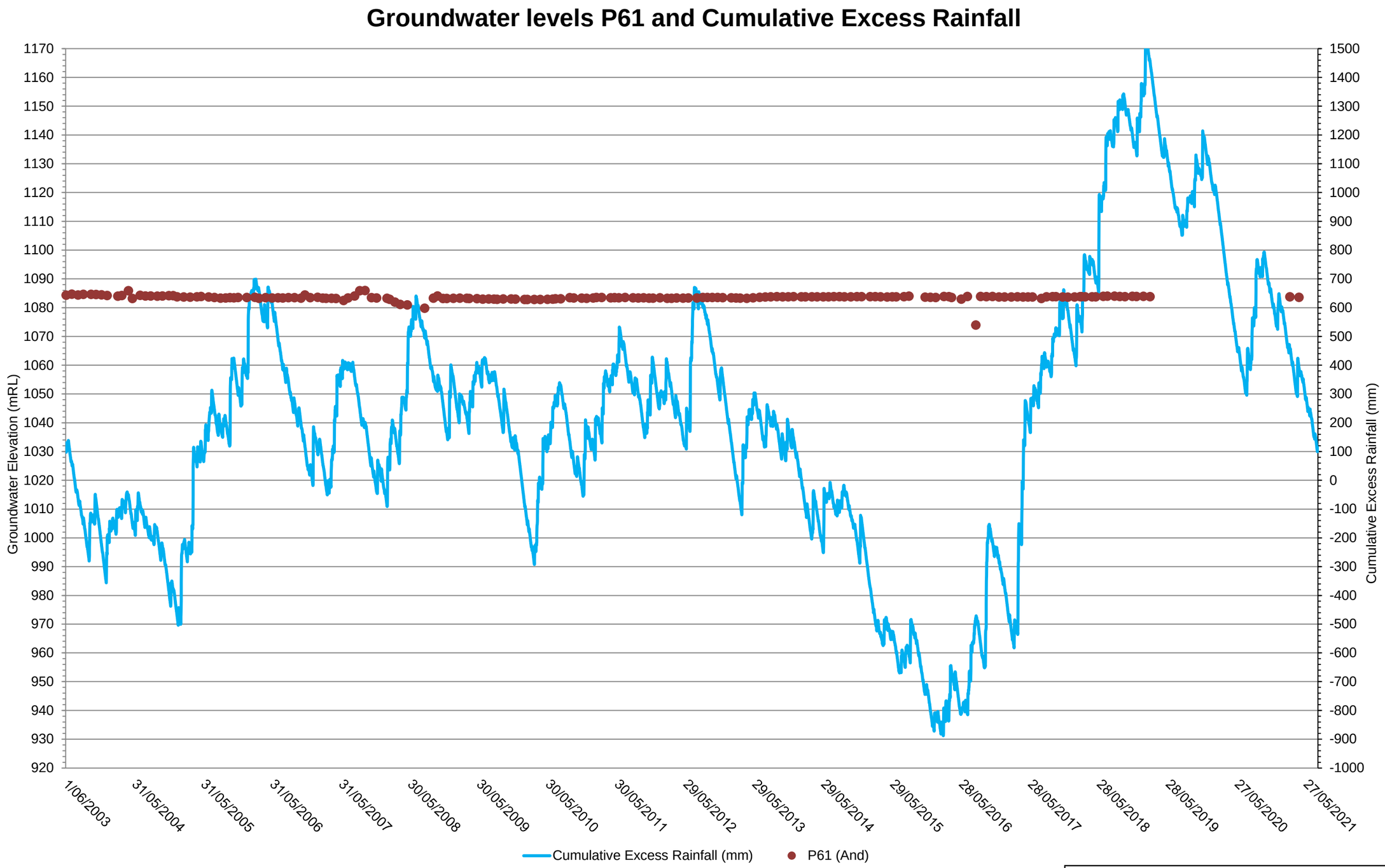
Groundwater levels P60 and Daily Rainfall



Notes: 1) Daily rainfall data from Mill Station

Pells Sullivan Meynink Pty Ltd

Anderson Lloyd **OceanaGold Project Pye** **Waihi, New Zealand** DIPPED PIEZOMETER WATER LEVELS P60	
PSM125-260R	**Appendix D**



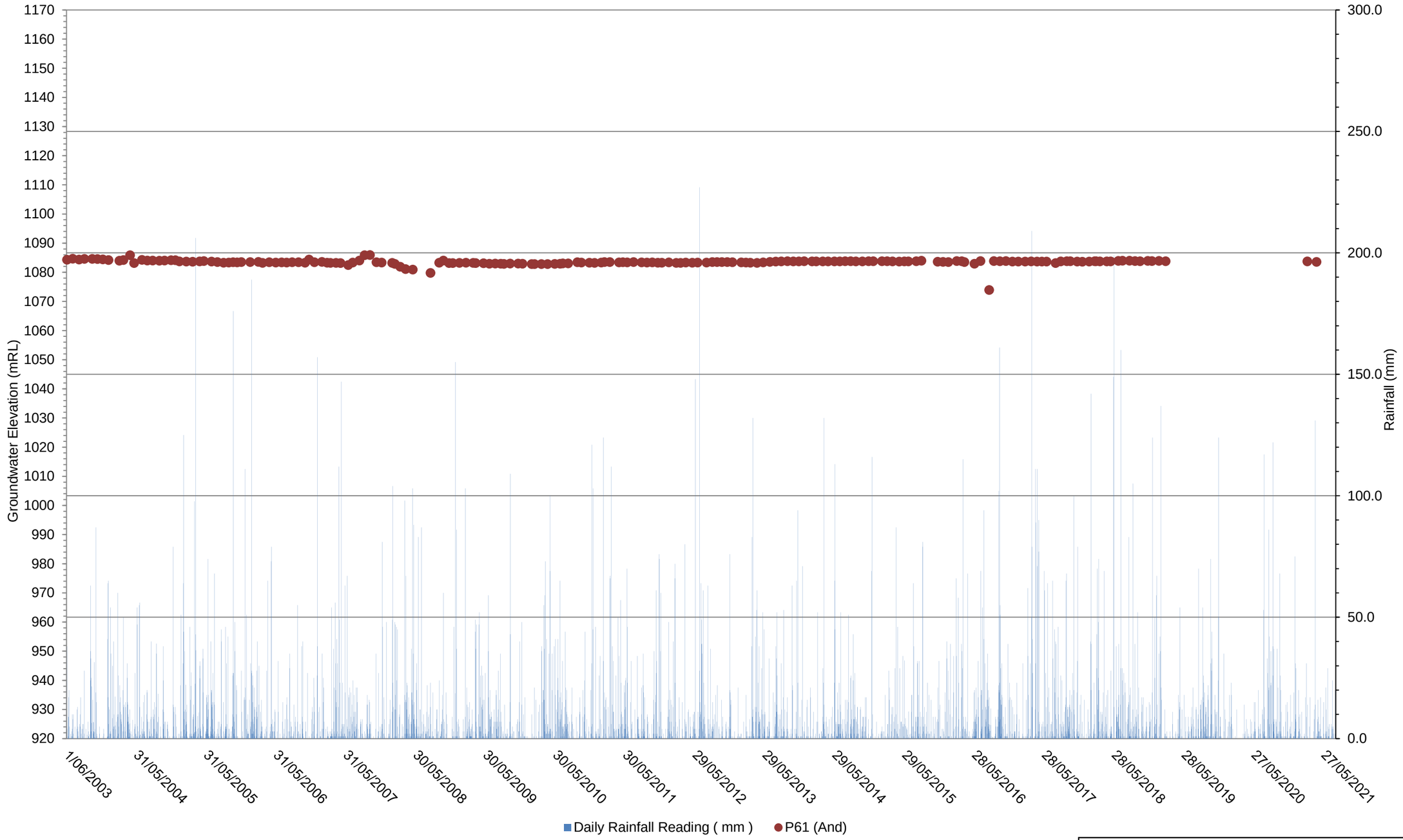
Notes: 1) Daily rainfall data from Mill Station

Anderson Lloyd
OceanaGold Project Pye
Waihi, New Zealand
DIPPED PIEZOMETER WATER LEVELS
P61

Pells Sullivan Meynink Pty Ltd

PSM125-260R	**Appendix D**

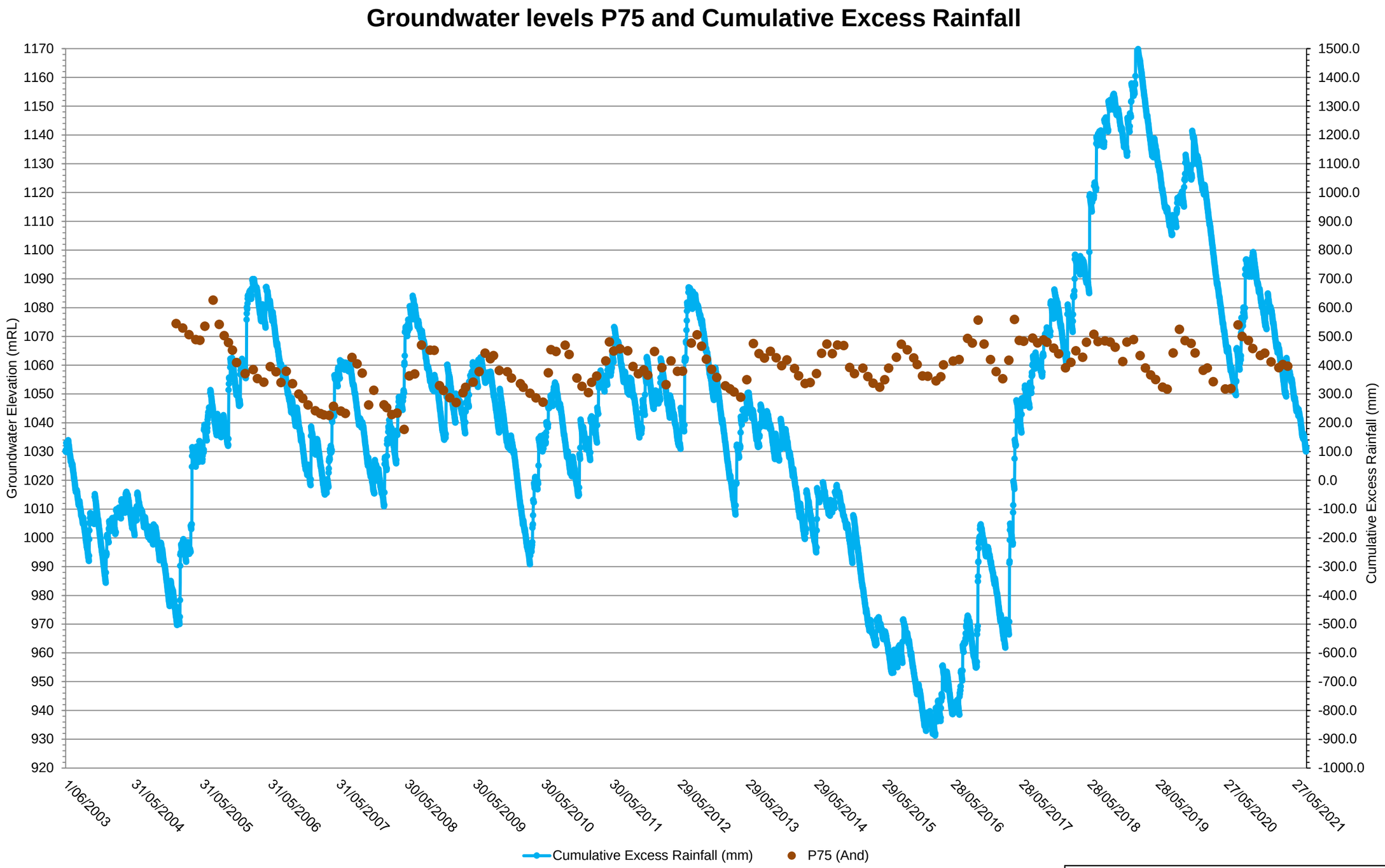
Groundwater levels P61 and Daily Rainfall



Notes: 1) Daily rainfall data from Mill Station

Pells Sullivan Meynink Pty Ltd

Anderson Lloyd **OceanaGold Project Pye** **Waihi, New Zealand** DIPPED PIEZOMETER WATER LEVELS P61	
PSM125-260R	**Appendix D**



Notes: 1) Daily rainfall data from Mill Station

Pells Sullivan Meynink Pty Ltd

Anderson Lloyd

OceanaGold Project Pye

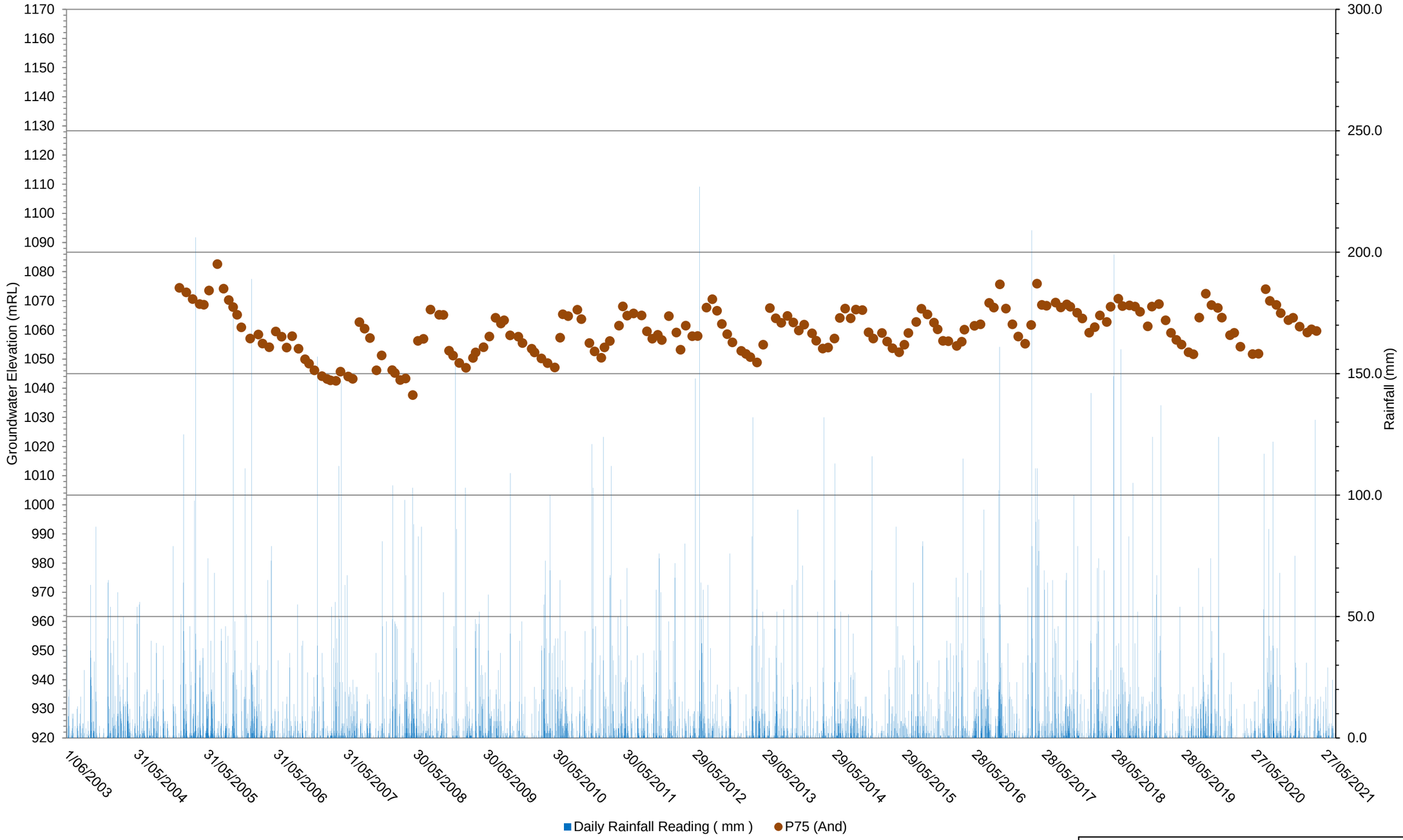
Waihi, New Zealand

DIPPED PIEZOMETER WATER LEVELS

P75

PSM125-260R	**Appendix D**

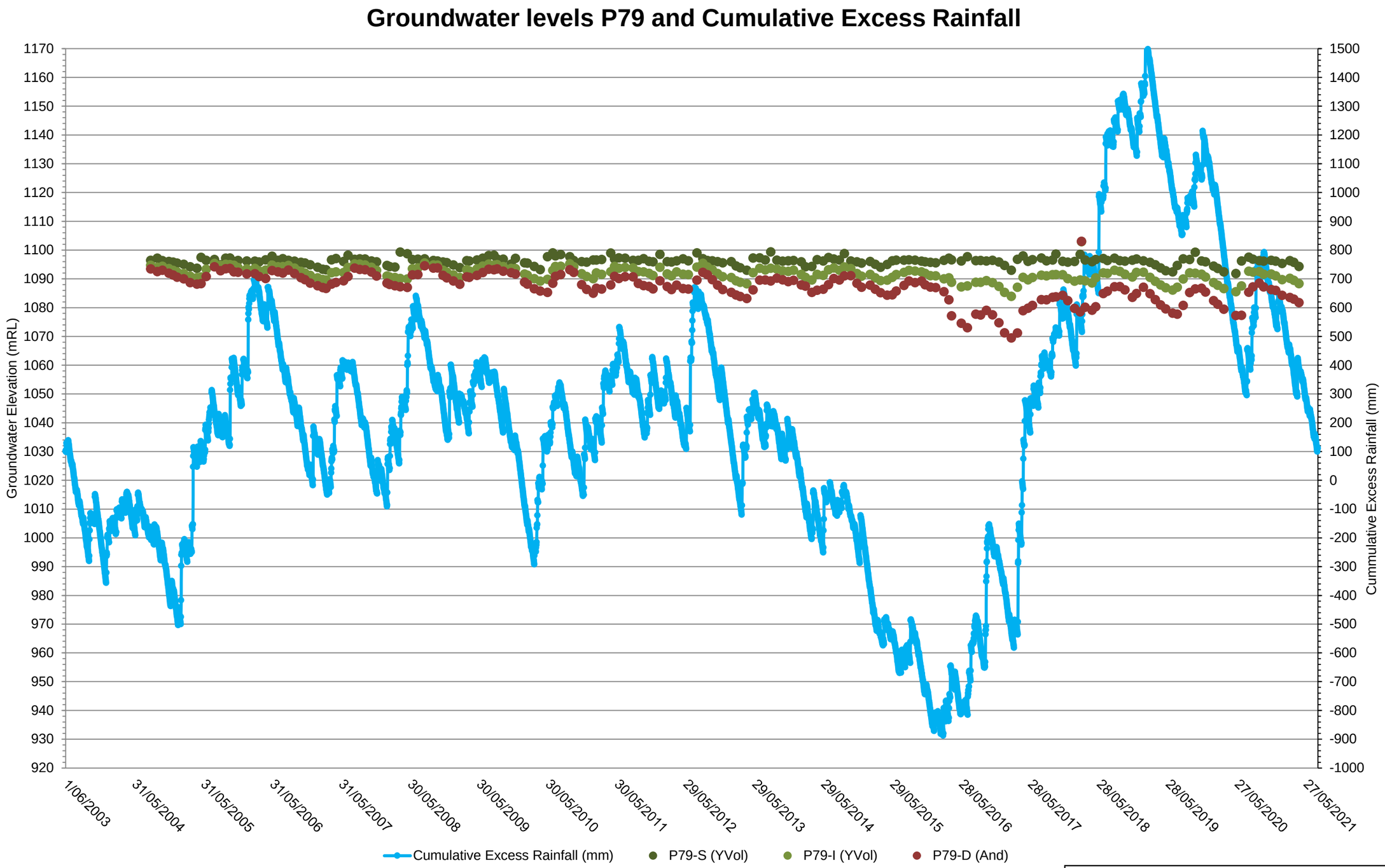
Groundwater levels P75 and Daily Rainfall



Notes: 1) Daily rainfall data from Mill Station

Pells Sullivan Meynink Pty Ltd

Anderson Lloyd **OceanaGold Project Pye** **Waihi, New Zealand** DIPPED PIEZOMETER WATER LEVELS P75	
PSM125-260R	**Appendix D**

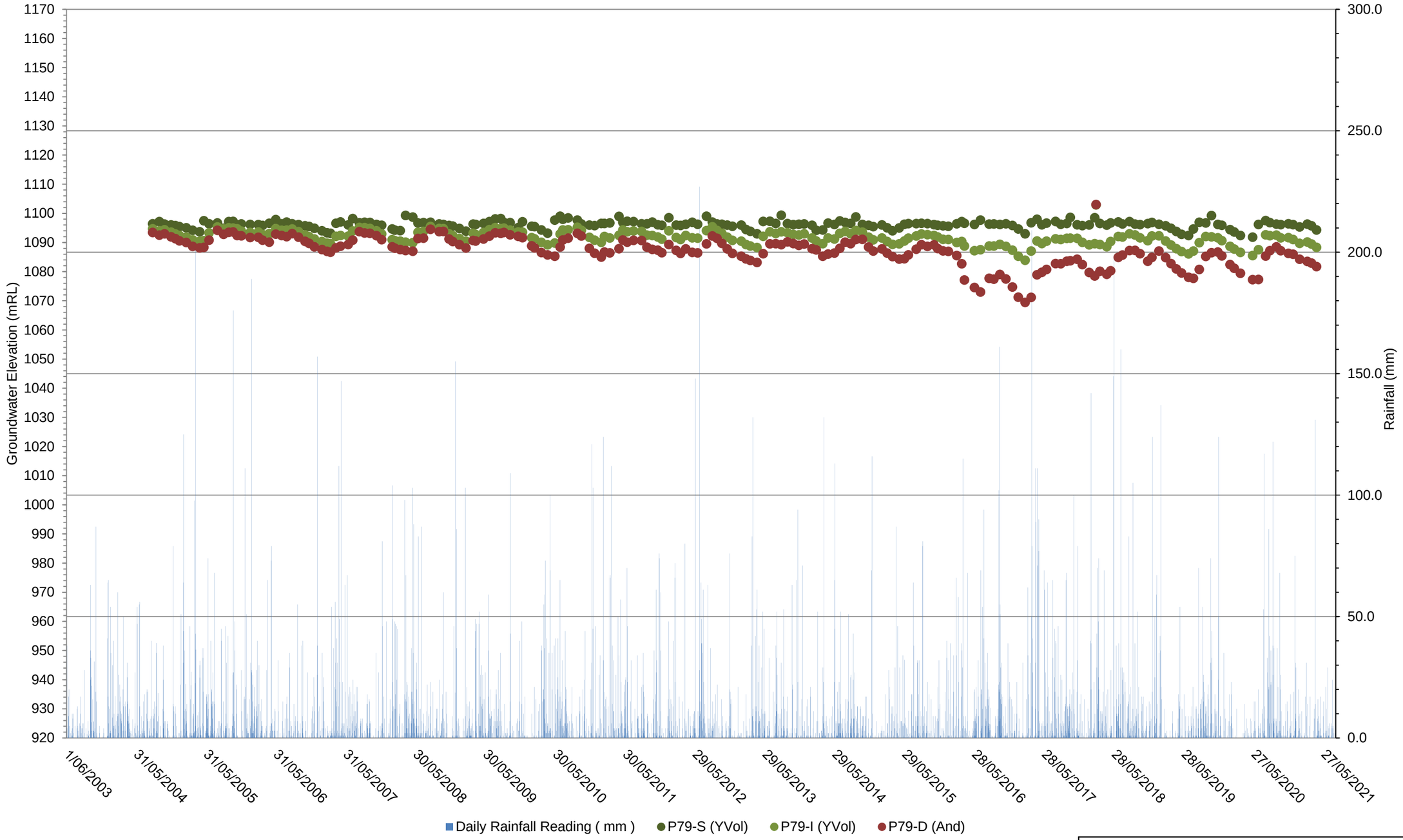


Notes: 1) Daily rainfall data from Mill Station

Pells Sullivan Meynink Pty Ltd

Anderson Lloyd **OceanaGold Project Pye** **Waihi, New Zealand** DIPPED PIEZOMETER WATER LEVELS P79	
PSM125-260R	**Appendix D**

Groundwater levels P79 and Daily Rainfall



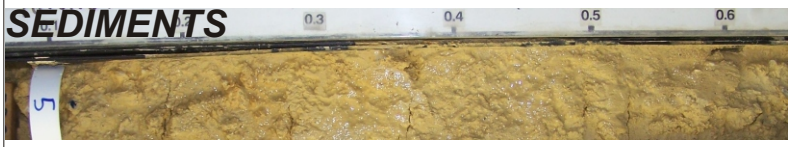
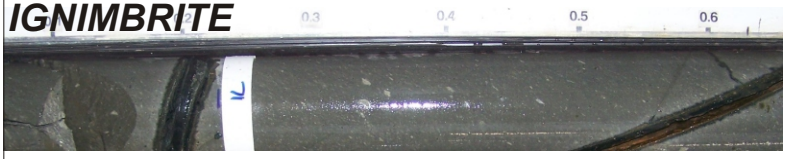
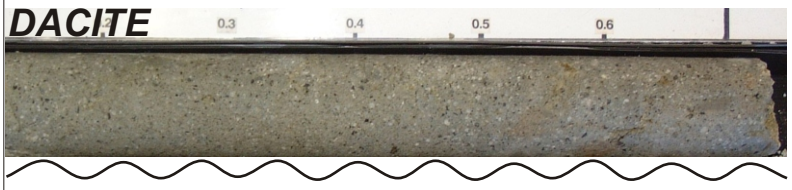
Notes: 1) Daily rainfall data from Mill Station

Pells Sullivan Meynink Pty Ltd

Anderson Lloyd **OceanaGold Project Pye** **Waihi, New Zealand** DIPPED PIEZOMETER WATER LEVELS P79	
PSM125-260R	**Appendix D**

Appendix E
OCG Aquifer

Waihi Stratigraphy:
Upper & Lower Aquifer Sequence

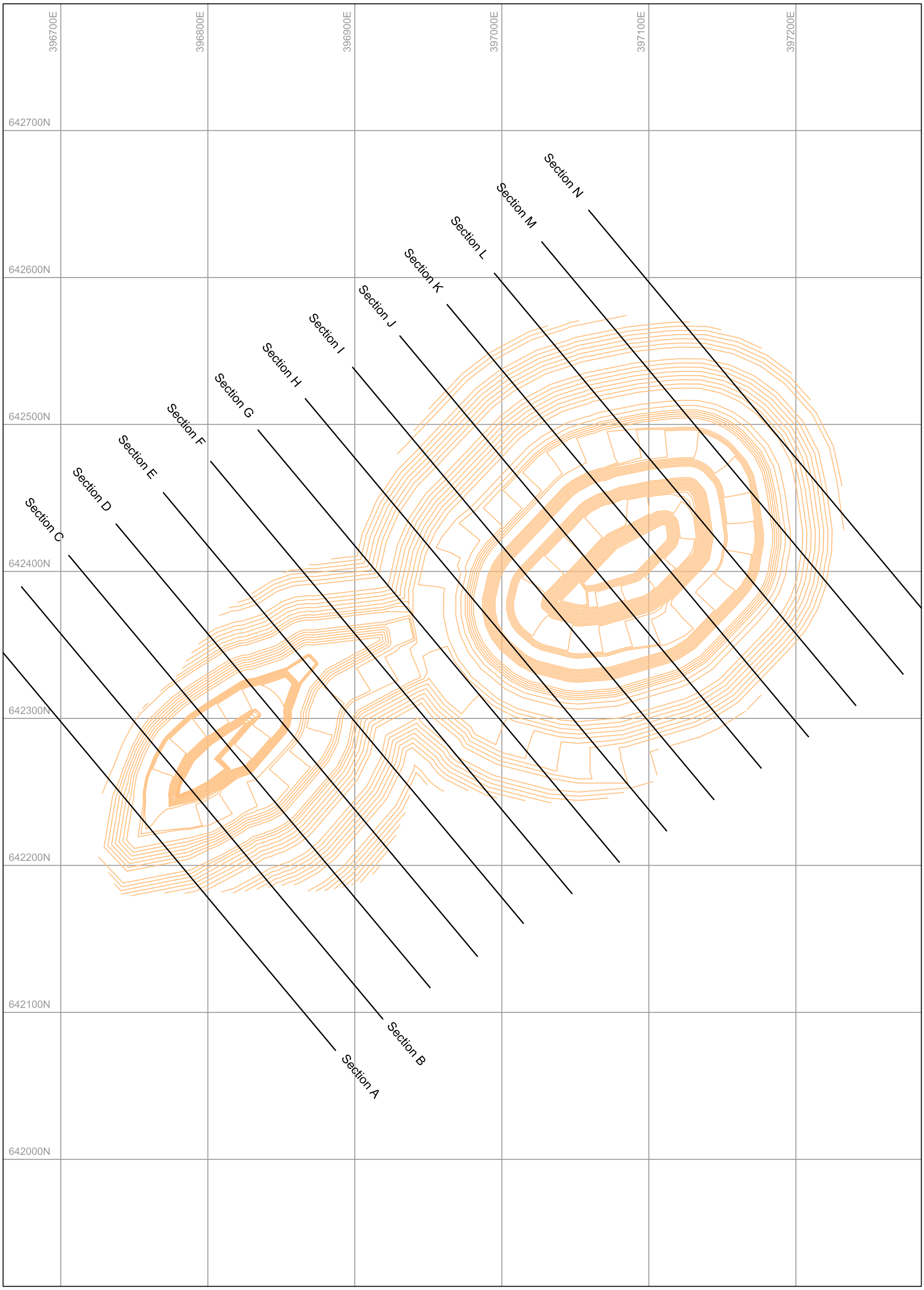
		DESCRIPTION	THICKNESS (approx)
ASH		Yellow-brown, crumbly, unconsolidated or weakly consolidated soil. The volcanic ash component of the soil gives it a gritty texture. The ash soil grades downwards to a heavier clay-rich soil.	0-10m
CLAYS & LAKE SEDIMENTS		Soft pale coloured clays OR grey to brown silt, sand & clay, black or grey mud and peat, grading downwards into a pebble-cobble-boulder gravel.	0-20m
WELDED IGNIMBRITE		Light to mid grey extremely hard ignimbrite. Contains small white flattened pumice fragments. Grades downwards into sandy ignimbrite. Planar fractures.	0-30m
SANDY IGNIMBRITE		Pale brown, grey or dark brown, sandy ignimbrite, moderately soft to very soft, crumbly or may occur as loose running sand.	0-30m
PUMICEOUS IGNIMBRITE		Pale orange to grey ignimbrite, varies from soft to moderately hard, contains pumice fragments up to 30 mm diameter and small dark-coloured rock fragments generally less than 10mm diameter. Very small, highly reflective glass fragments can sometimes be observed in the matrix of the rock and are a good indicator of the upper aquifer sequence.	0-100m
ALLUVIUM		Gravel horizons - there are several boulder beds within and at the base of the upper aquifer, containing rounded pebbles of dark greenish-grey andesite and occasional quartz in a pale coloured silty matrix . Orange-brown iron-oxide staining is common.	0-10m
DACITE		Dacite lava (in the Black Hill area). Light grey-green, often with black (manganese oxide) or orange-brown (iron-oxide) coatings on fractures. Weathered and moderately soft to a depth of approx 50m below surface, otherwise hard. The dacite can be distinguished from andesite lavas in the lower aquifer by the complete absence of fine brassy-coloured pyrite.	0-250m

UPPER AQUIFER

CONTACT ZONE		The contact between upper and lower aquifers is commonly marked by the transition from gravel boulder beds or dacite (above) to several metres of iron-stained, clay-rich weathered andesite rock. The iron staining is caused by the oxidation of pyrite, which is an iron sulphide mineral that occurs throughout the lower aquifer. Thickness varies from 0.5m to 30m.
ANDESITE		The lower aquifer occurs within andesite lavas and breccias.The andesites can vary in hardness from very soft to very hard. Colour and appearance vary depending on the extent of hydrothermal clay alteration, but they are generally grey or greenish-grey. They can be distinguished from volcanic rocks of the upper aquifer by the presence of fine-grained pyrite throughout the rock mass. Pyrite has a silvery or brassy metallic appearance and gives an overall grey colour to the rock. The presence of quartz and calcite veins is also characteristic of the lower aquifer sequence.

LOWER AQUIFER

Appendix F
Old Sections



0 50 100

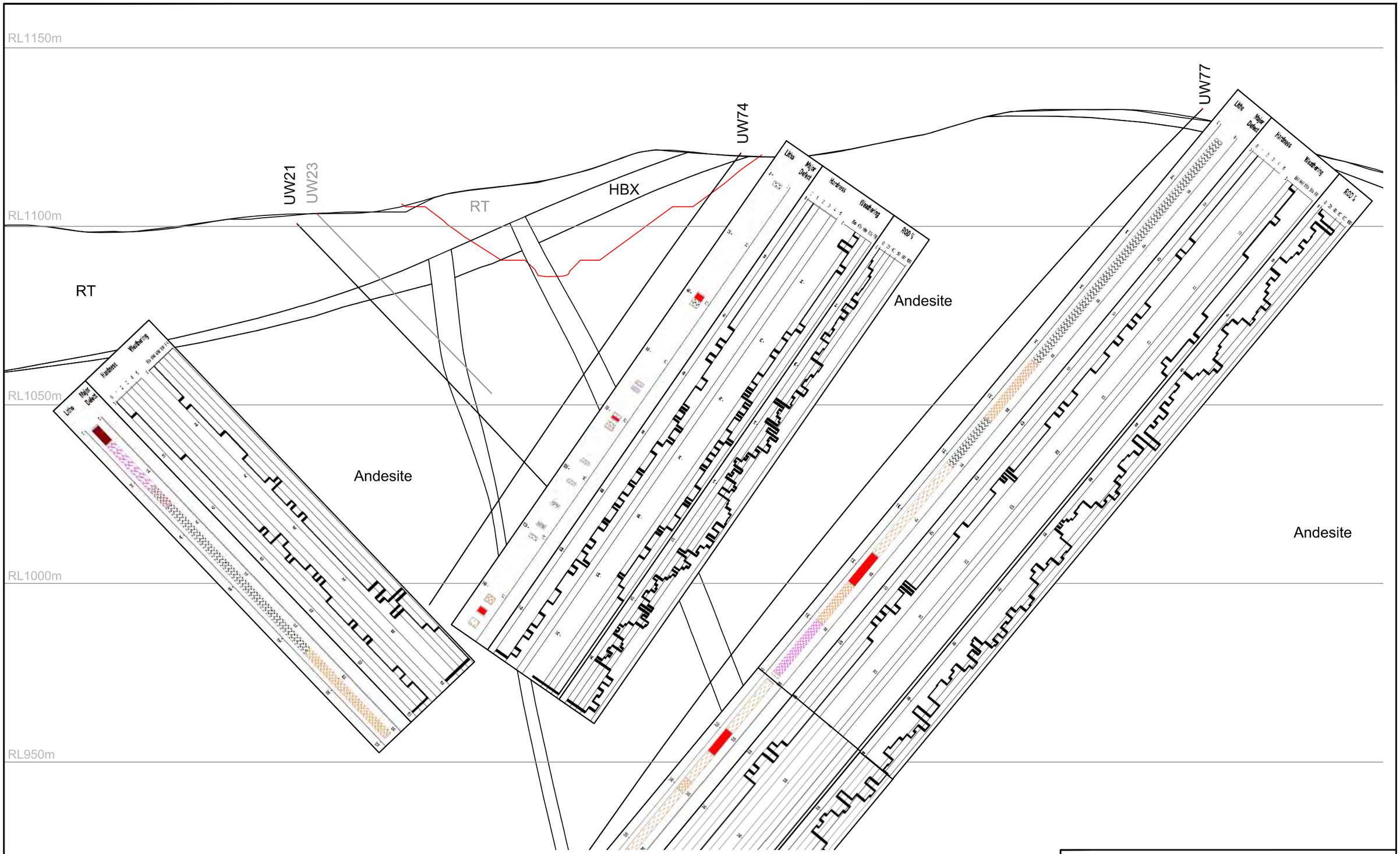
Scale (m)

Pells Sullivan Meynink

Anderson Lloyd
OceanaGold Project Pye
Favona & Gladstone Pits

GLADSTONE PIT
SECTION LOCATIONS

PSM 125-260R | Figure D



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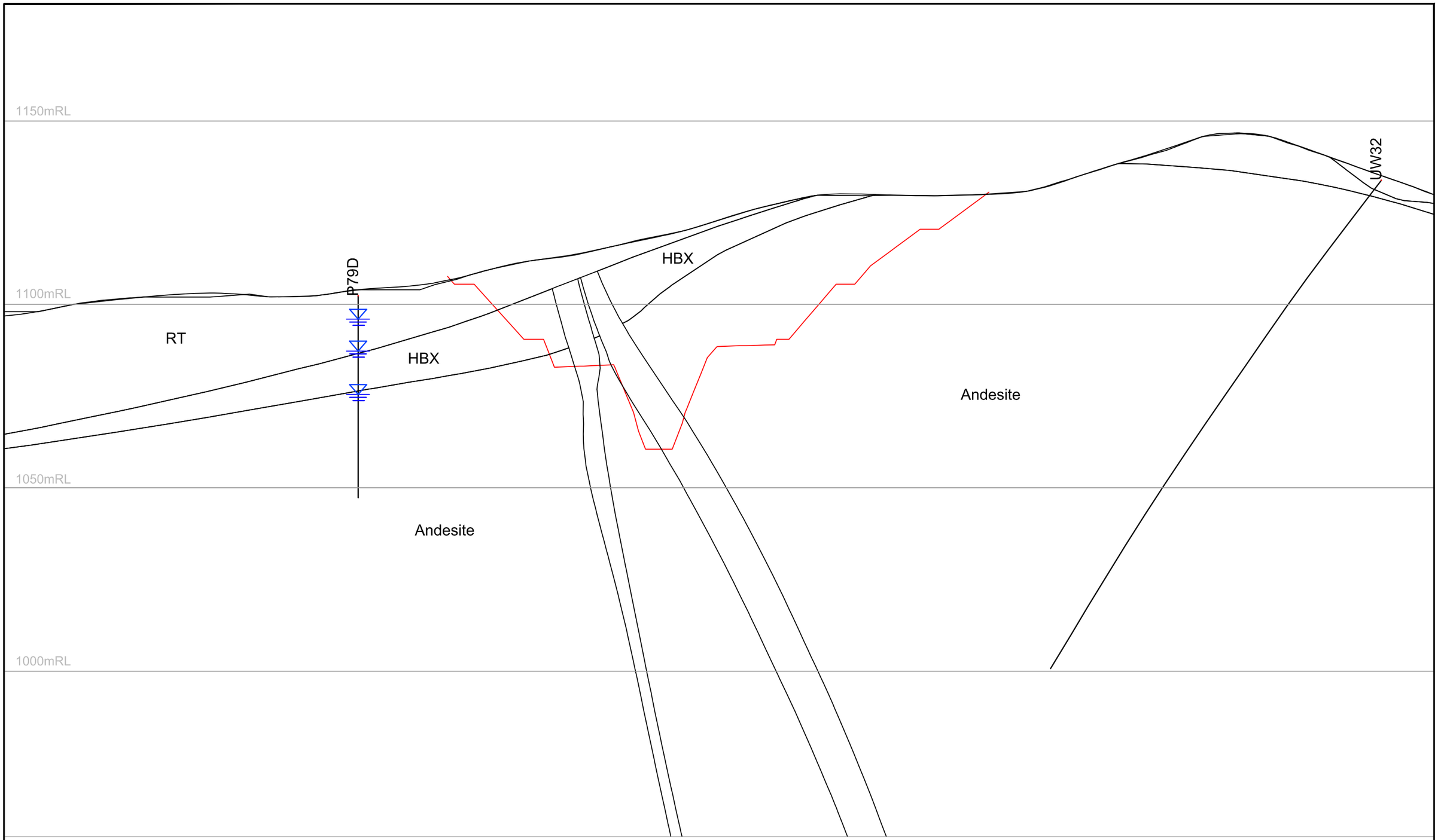
GLADSTONE PIT
SECTION A

PSM 125-260R	Figure D1



0 10 20 30 40 50

Scale(m)

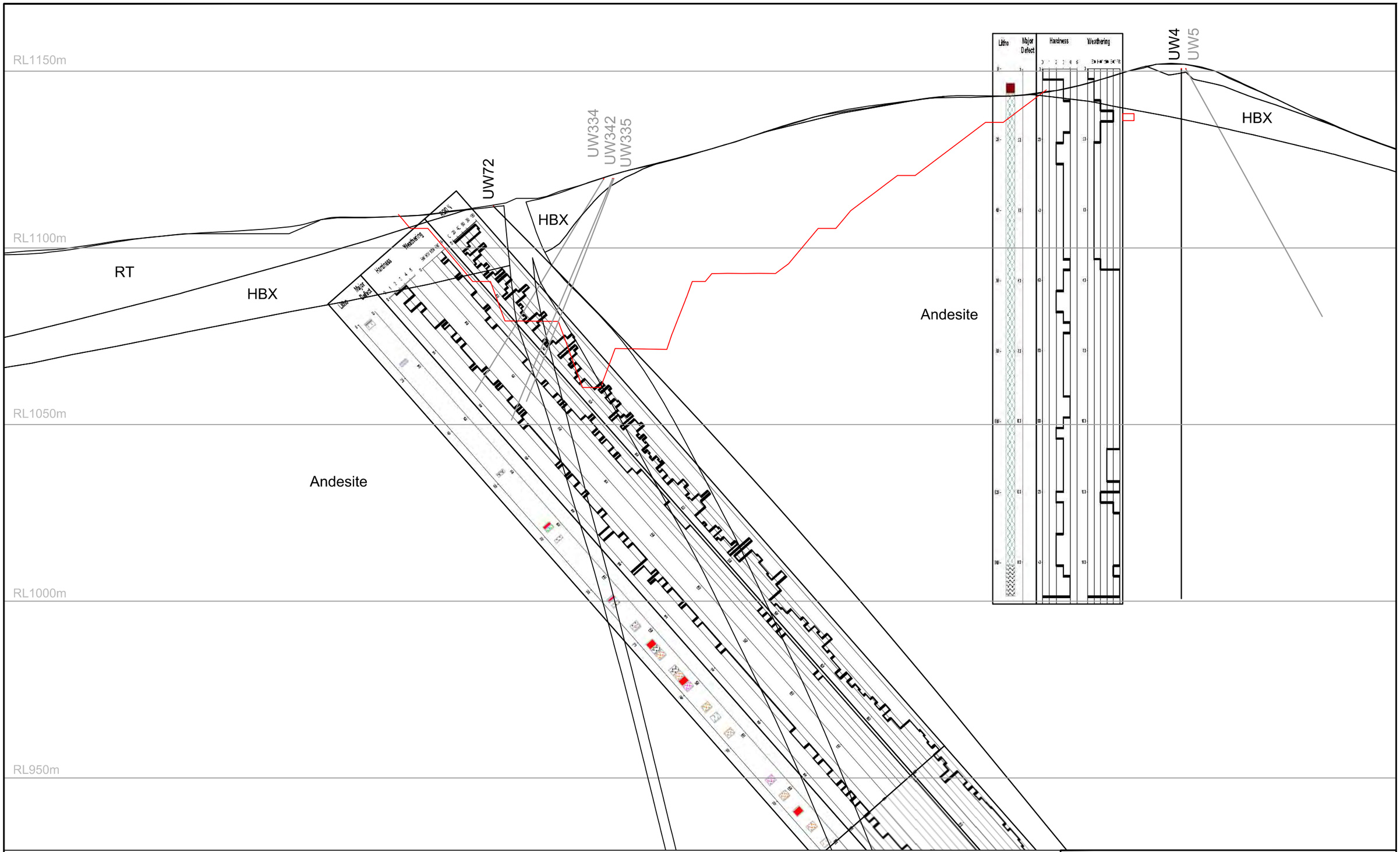
Pells Sullivan Meynink

OceanaGold
Preliminary Geotechnical Study
Favona & Gladstone Pits

GLADSTONE PIT
SECTION B

PSM 125-260R

Figure D2



0 10 20 30 40 50

Scale(m)

Pells Sullivan Meynink

OceanaGold
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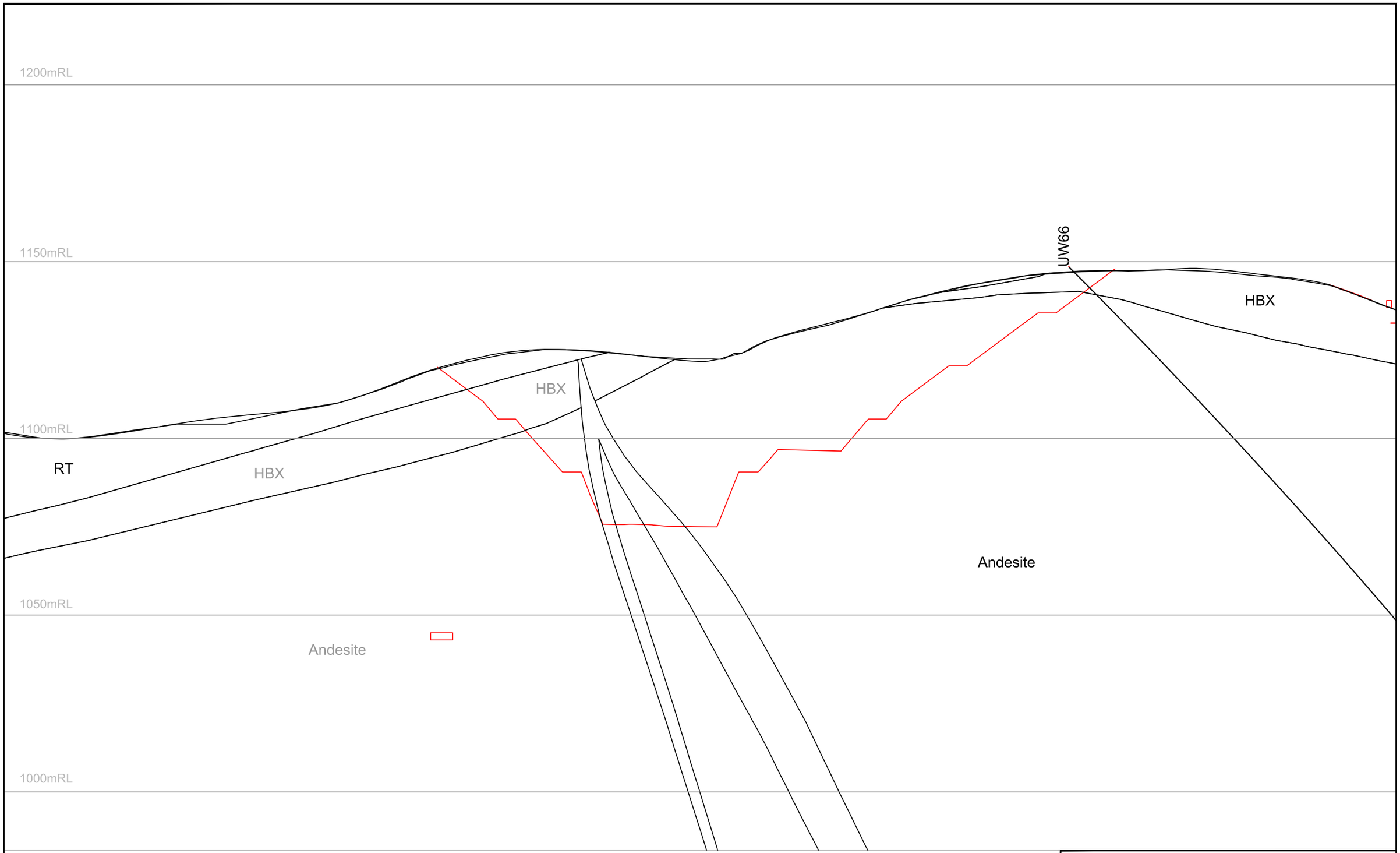
Favona & Gladstone Pits

GLADSTONE PIT
SECTION C

PSM 125-260R

Figure D3



0 10 20 30 40 50
Scale(m)

Pells Sullivan Meynink

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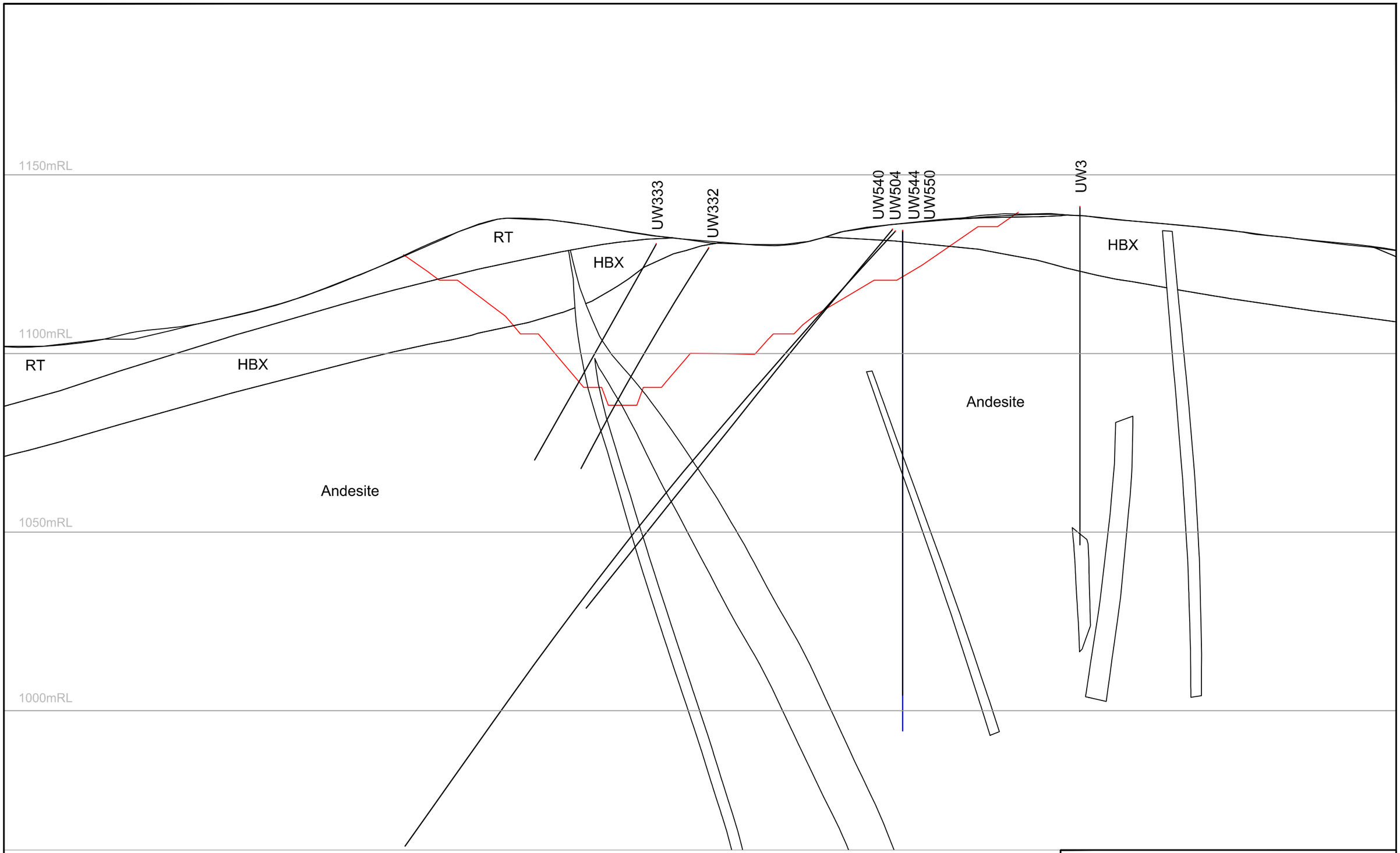
Favona & Gladstone Pits

GLADSTONE PIT
SECTION D

PSM 125-260R | Figure D4



0 10 20 30 40 50

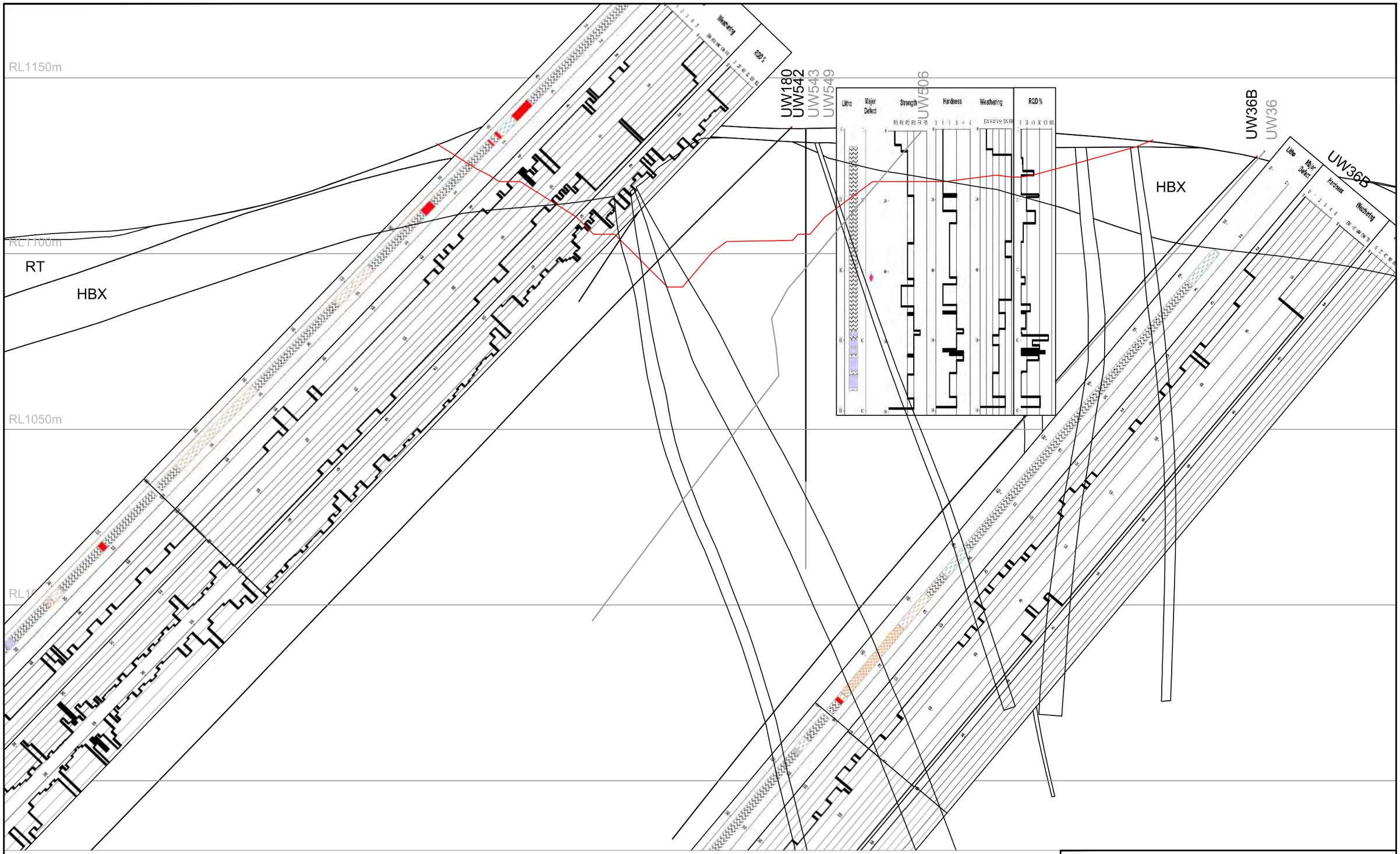
Scale(m)

Pells Sullivan Meynink

OceanaGold
Preliminary Geotechnical Study
Favona & Gladstone Pits

GLADSTONE PIT
SECTION E

PSM 125-260R	Figure D5



0 10 20 30 40 50

Scale(m)

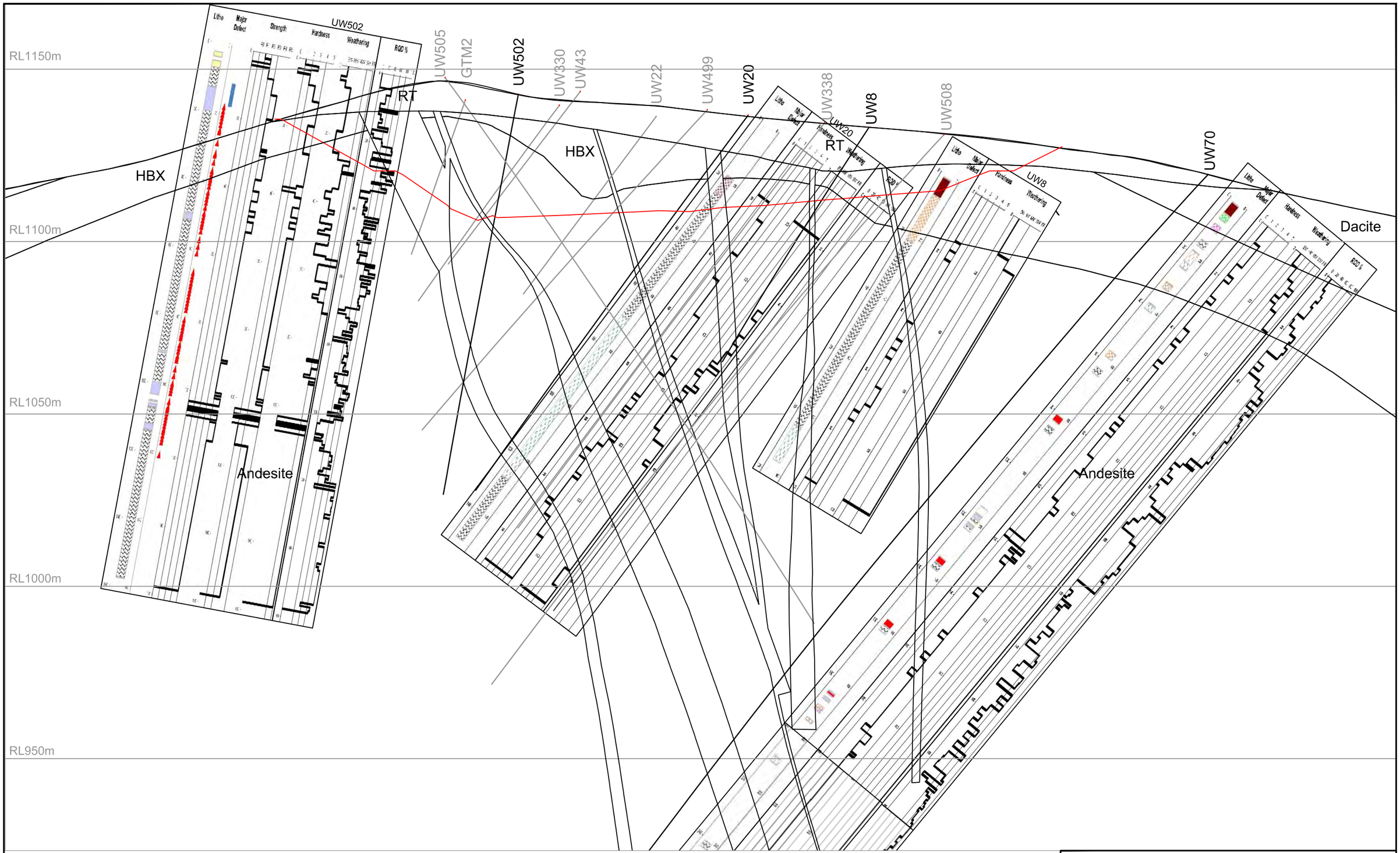
PSM

Pells Sullivan Meynink

OceanaGold
Preliminary Geotechnical Study
Favona & Gladstone Pits

GLADSTONE PIT
SECTION F

PSM 125-260R	Figure D6



0 10 20 30 40 50

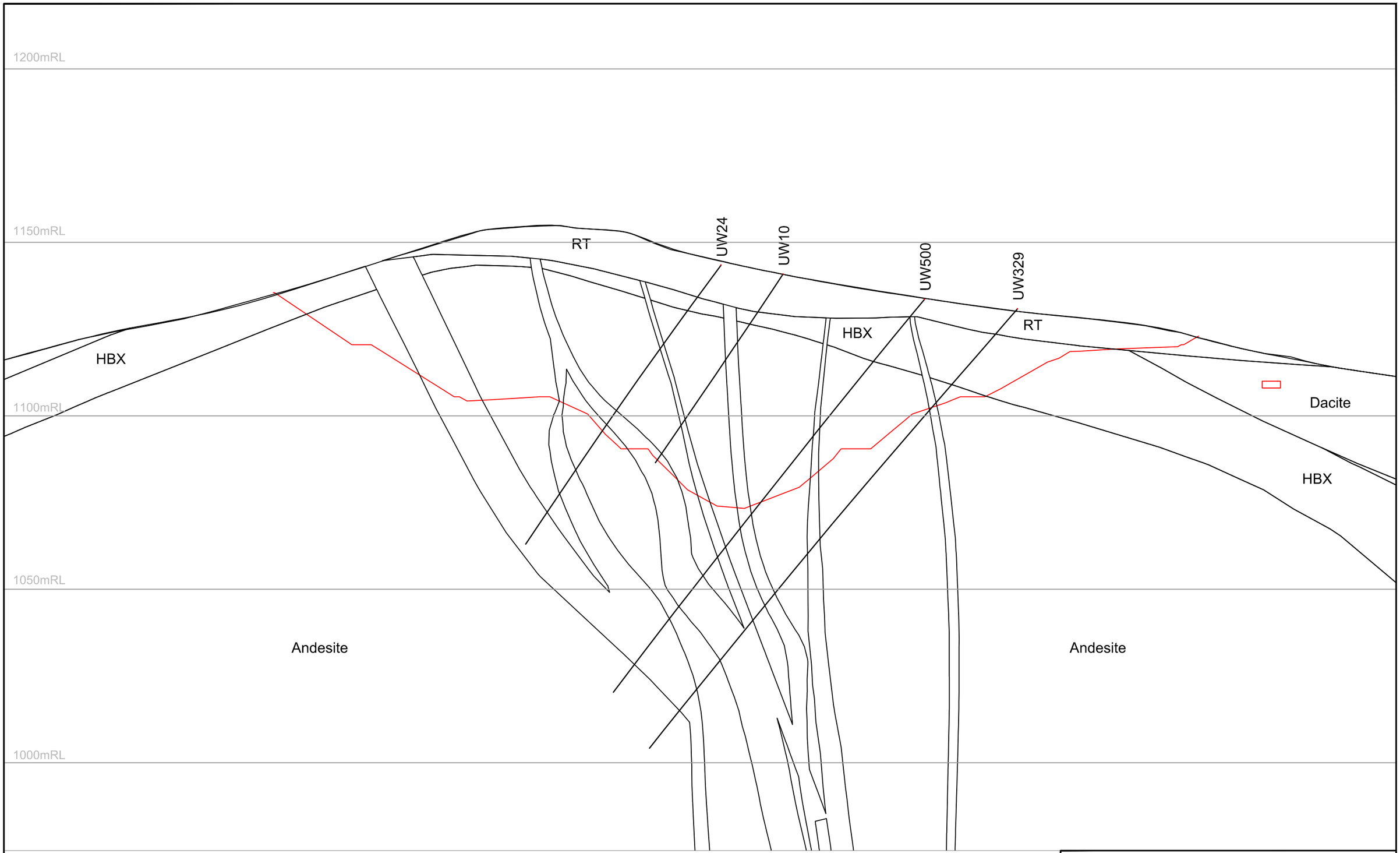
Scale(m)

Pells Sullivan Meynink

OceanaGold
Preliminary Geotechnical Study
Favona & Gladstone Pits

GLADSTONE PIT
SECTION G

PSM 125-260R	Figure D7



0 10 20 30 40 50

Scale(m)

Pells Sullivan Meynink

OceanaGold
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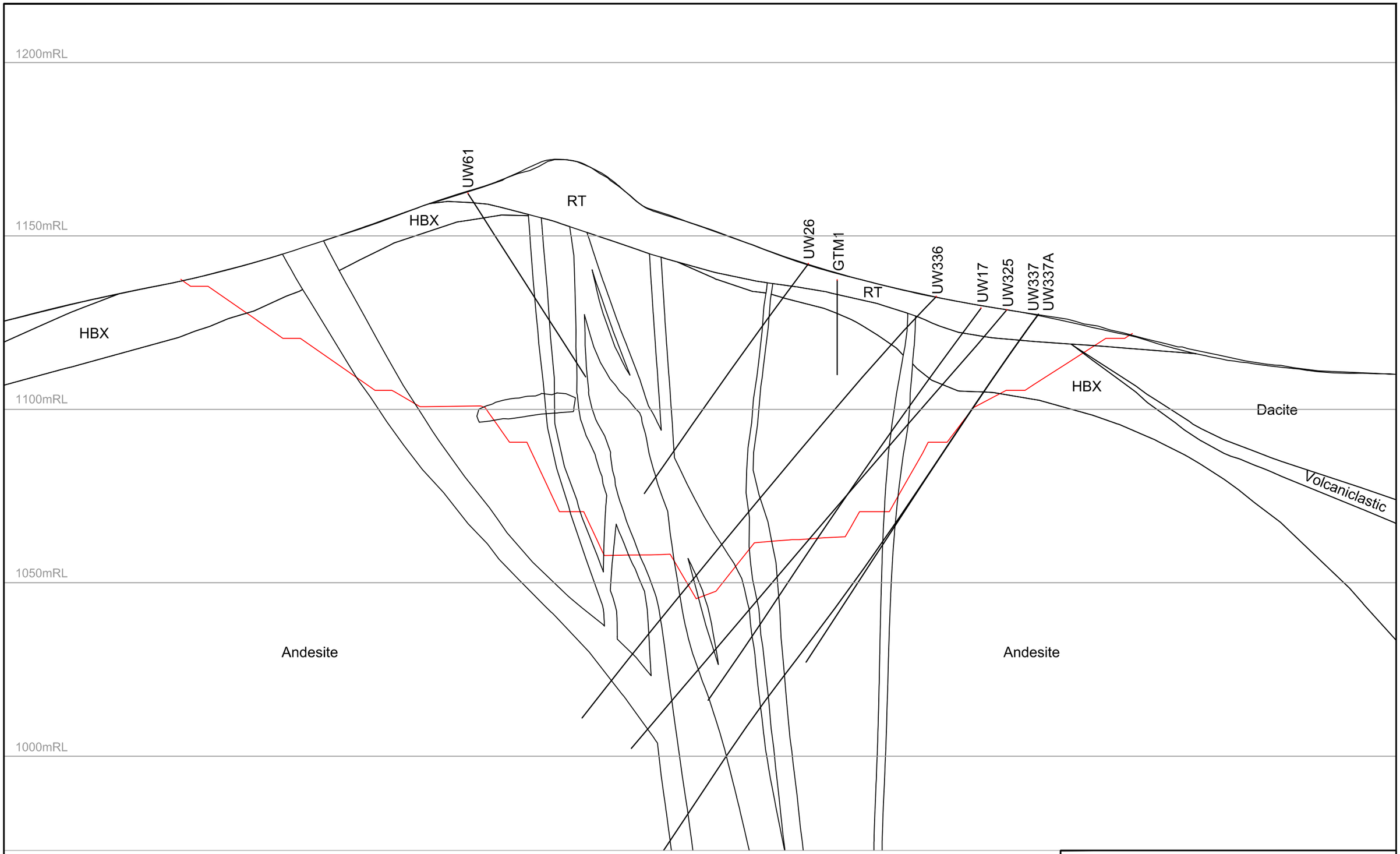
Favona & Gladstone Pits

GLADSTONE PIT
SECTION H

PSM 125-260R

Figure D8



0 10 20 30 40 50

Scale(m)

Pells Sullivan Meynink

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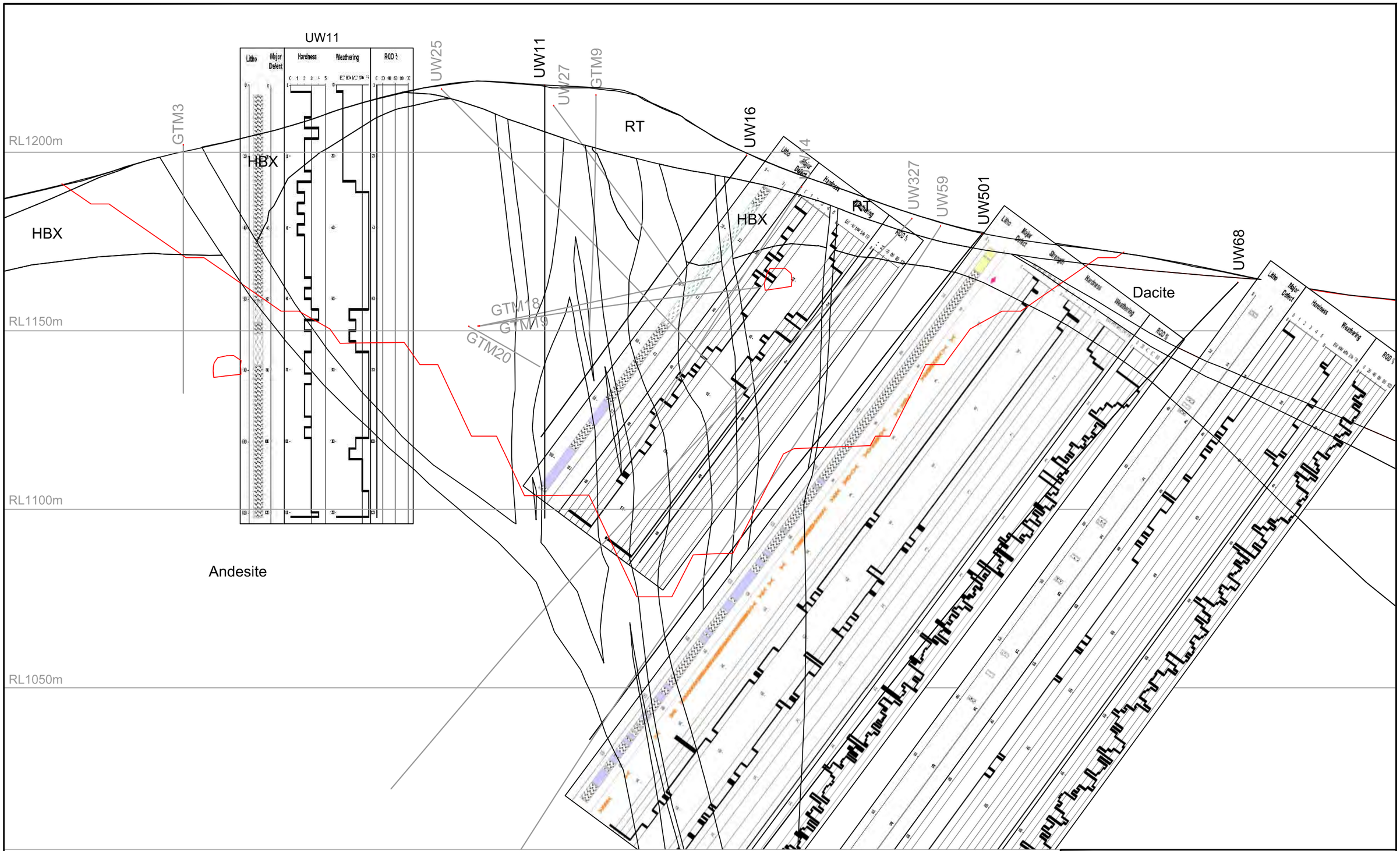
GLADSTONE PIT
SECTION I

PSM 125-260R

Figure D9



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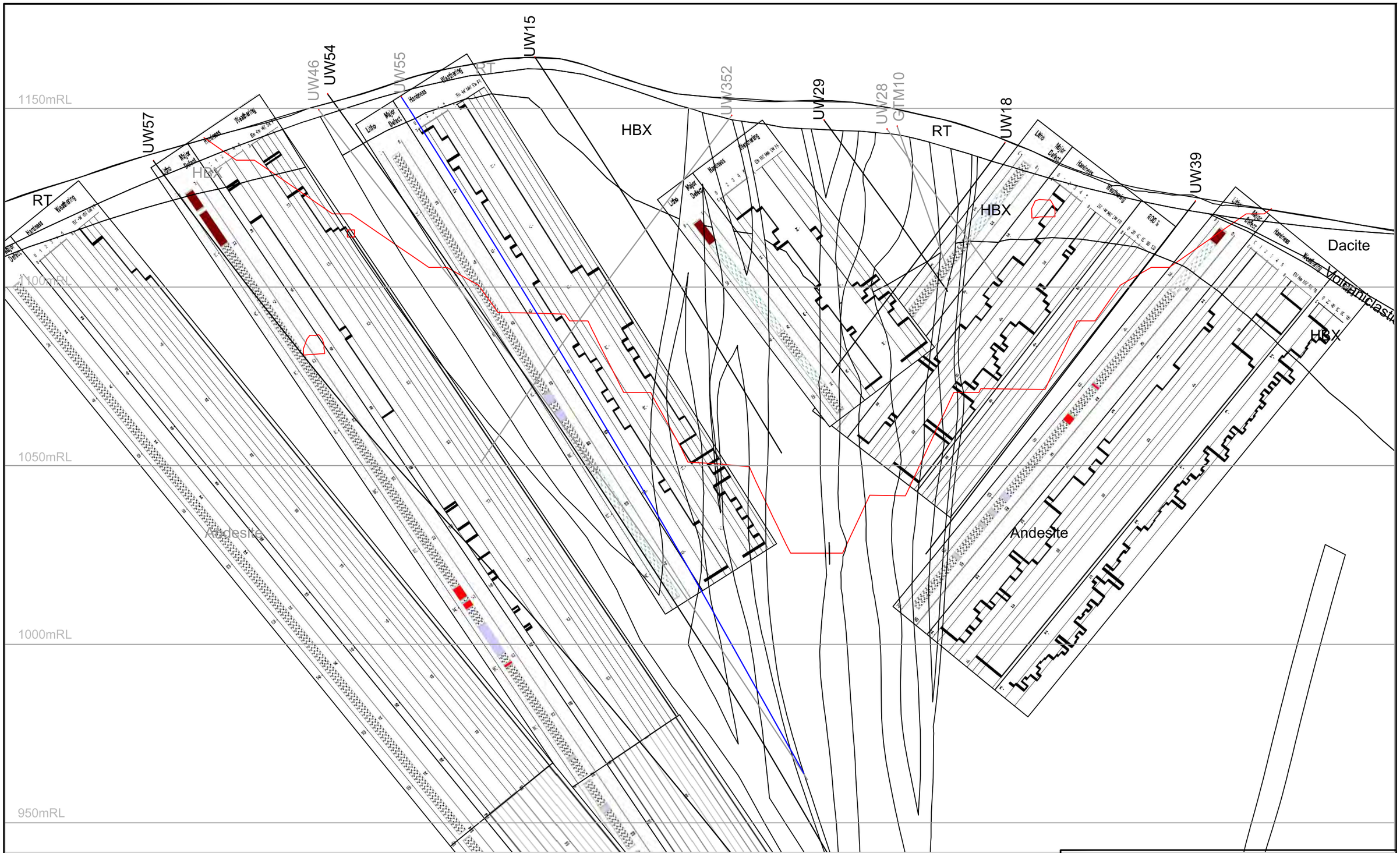
Favona & Gladstone Pits

GLADSTONE PIT
SECTION J

PSM 125-260R	Figure D10



PSM

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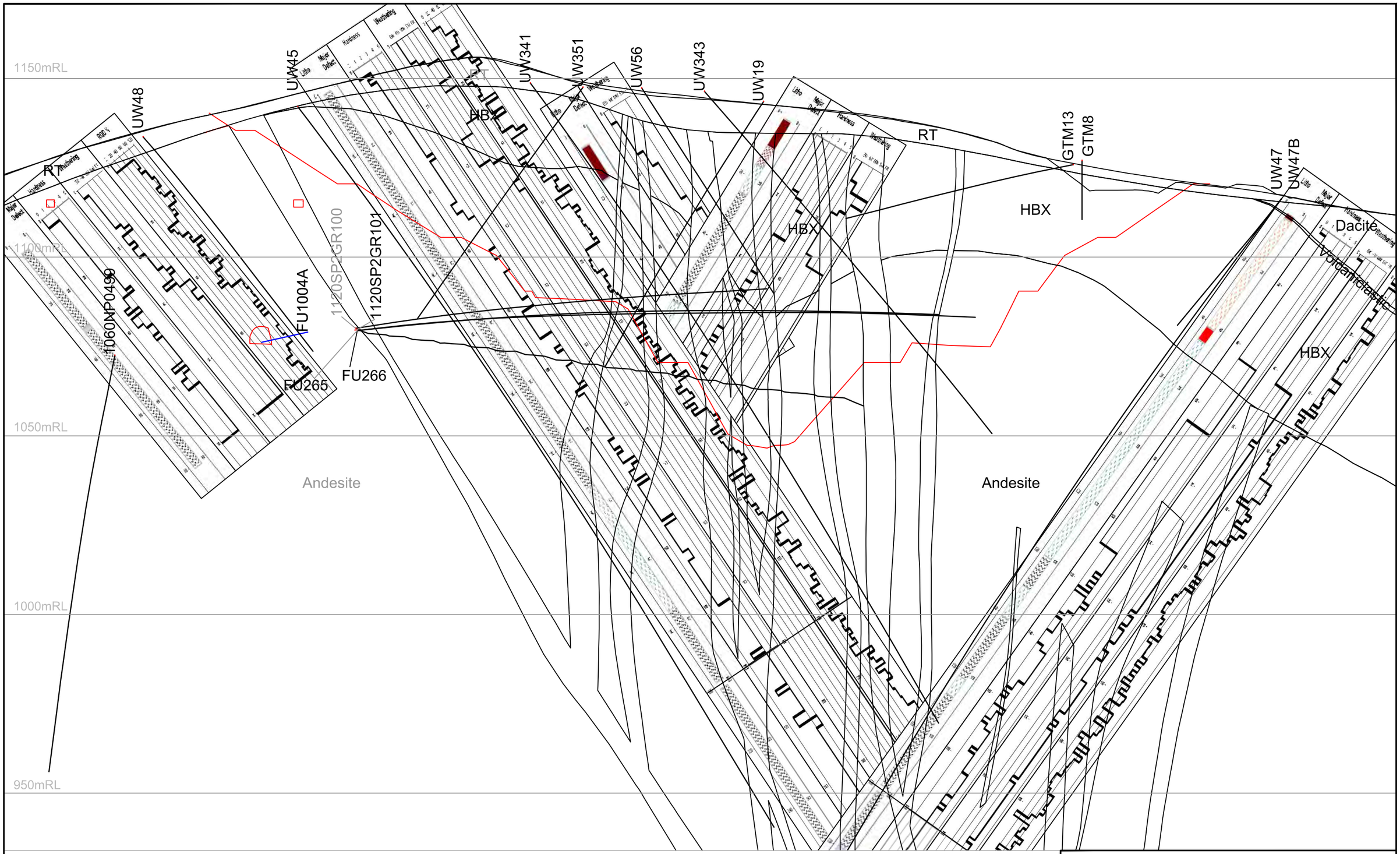
Favona & Gladstone Pits

GLADSTONE PIT
SECTION K

PSM 125-260R	Figure D11



0 10 20 30 40 50

Scale(m)

Pells Sullivan Meynink

OceanaGold
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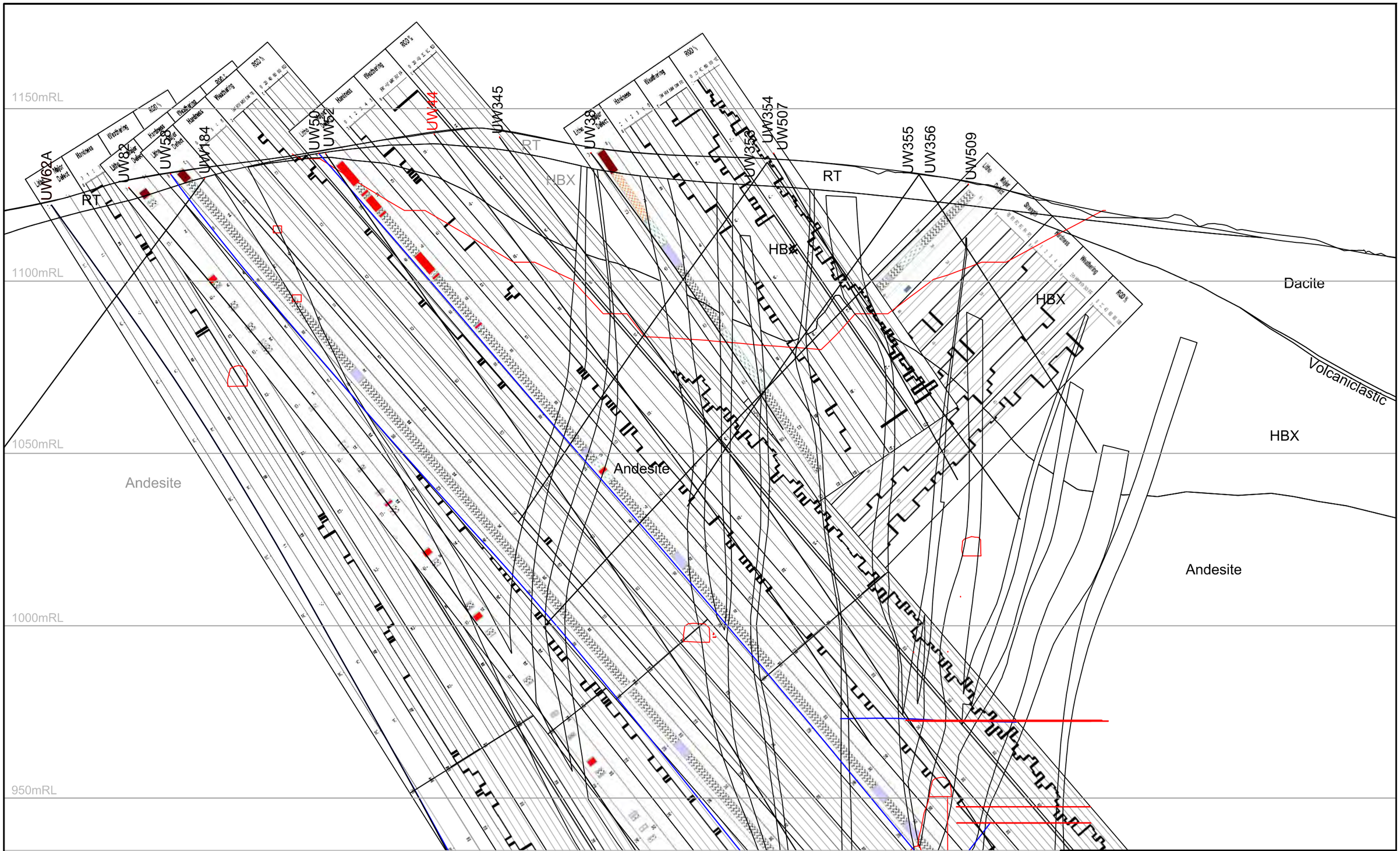
Favona & Gladstone Pits

GLADSTONE PIT
SECTION L

PSM 125-260R

Figure D12



PSM

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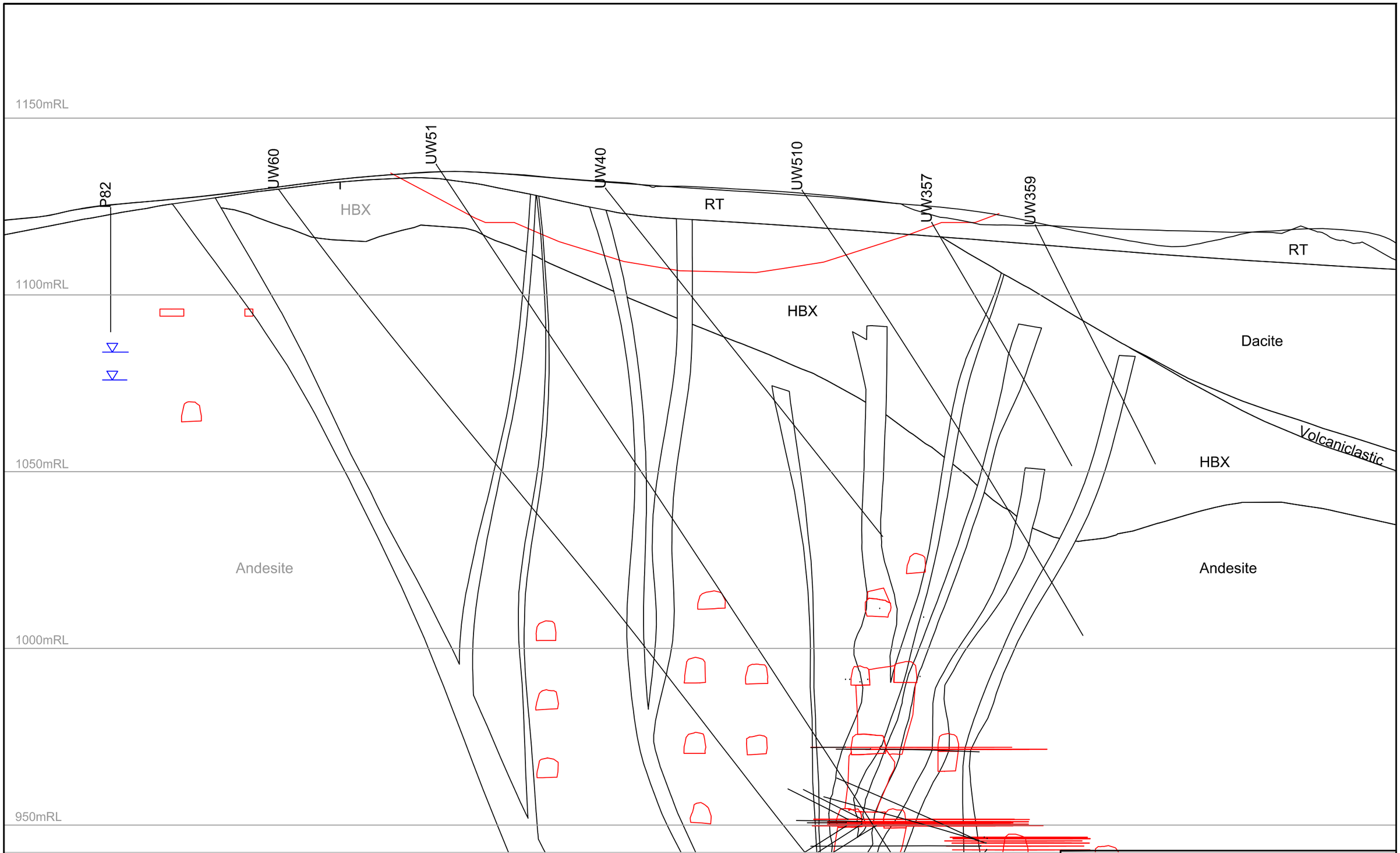
Preliminary Geotechnical Study
Favona & Gladstone Pits

GLADSTONE PIT
SECTION M

PSM 125-260R	Figure D13



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Preliminary Geotechnical Study
Favona & Gladstone Pits

GLADSTONE PIT
SECTION N

PSM 125-260R | Figure D14

Appendix G
Histograms

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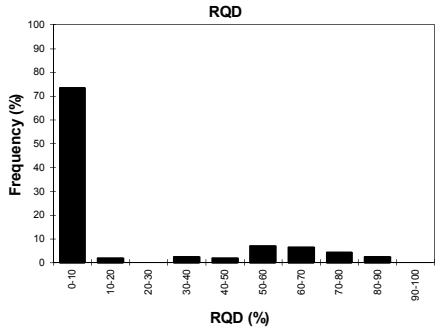
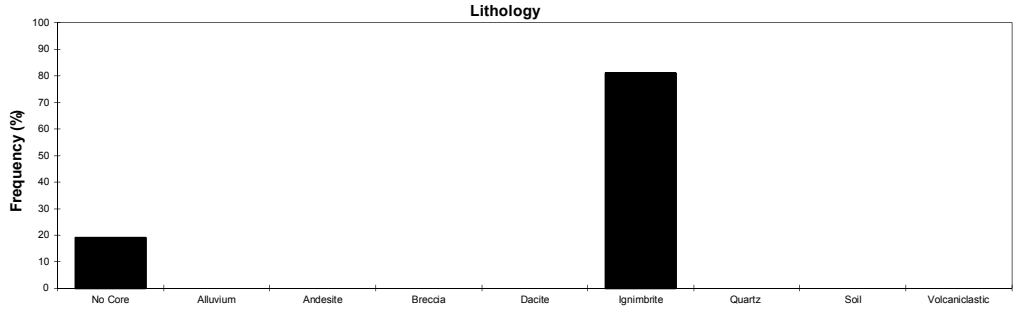
Engineering Consultants

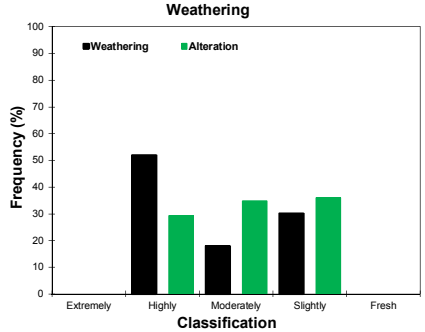
Rock - Soil - Water

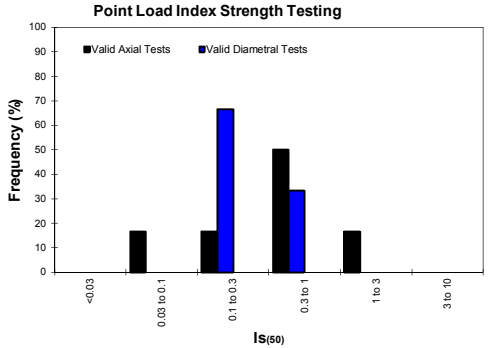
Geotechnical Database
Borehole Data Histograms

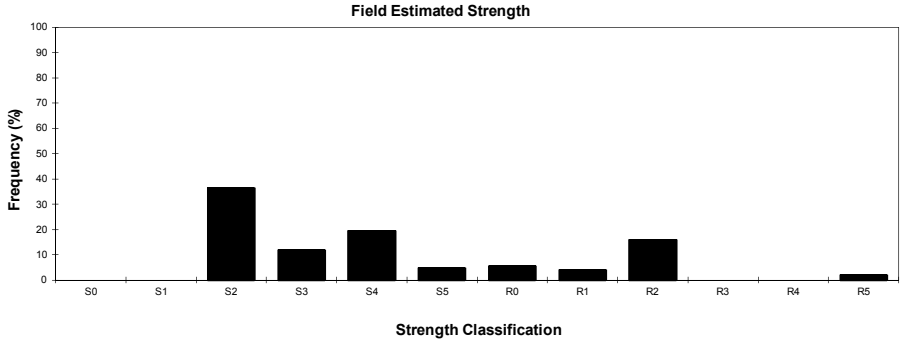
Job Number:	**PSM125**	**Produced by:**	AGI
Project:	**Project Quattro - Geotechnical Boreholes**	**Date**	11-Jul-17
Rock Mass Unit:	**Ignimbrite**	**Borehole:** Multiple holes	**Defect types:** Multiple Types
Stratigraphy:	**N/A**	**Length of Core:** **86.7m**	**No defects:** **93**

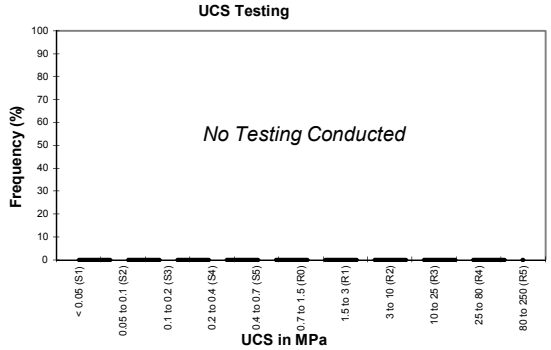












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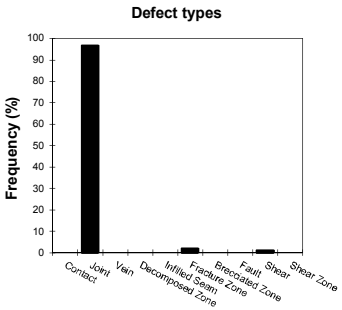
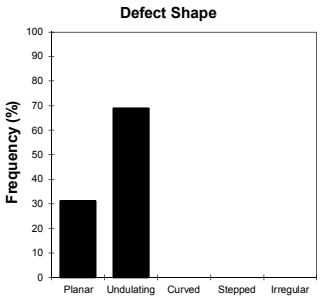
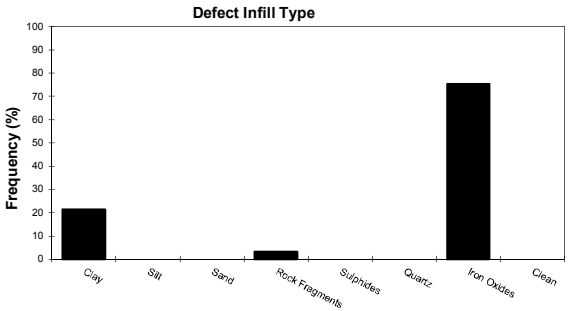
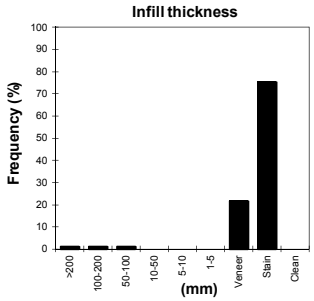
Mean= #####

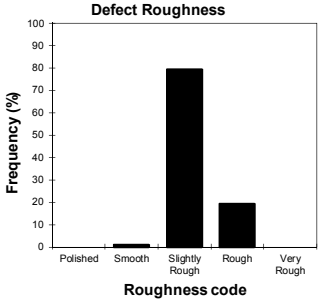
Numb=











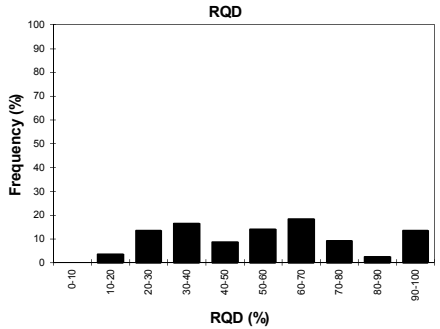
Pells Sullivan Meynink

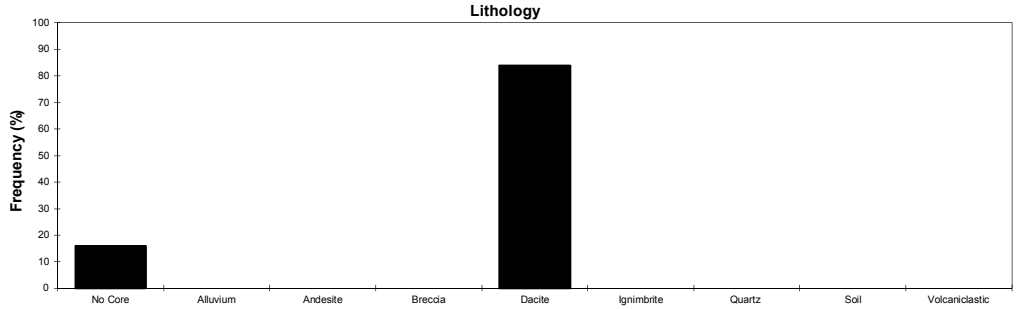
Engineering Consultants

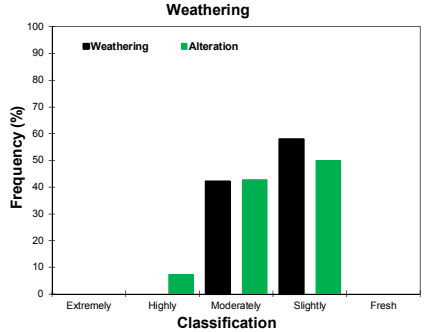
Rock - Soil - Water

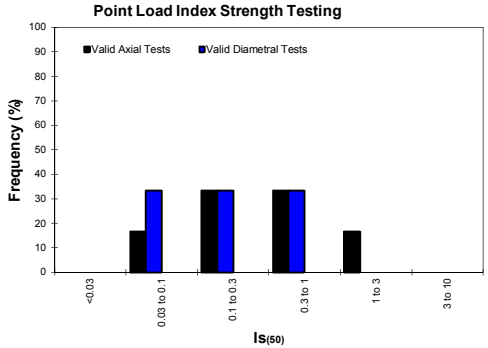
Geotechnical Database
Borehole Data Histograms

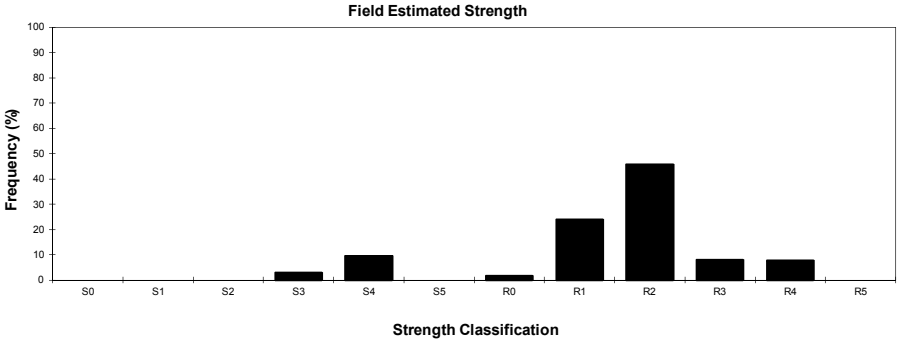
Job Number:	**PSM125**	**Produced by:**	AGI
Project:	**Project Quattro - Geotechnical Boreholes**	**Date**	11-Jul-17
Rock Mass Unit:	**Dacite**	**Borehole:** Multiple holes	**Defect types:** Multiple Types
Stratigraphy:	**N/A**	**Length of Core:** **19.3m**	**No defects:** **56**

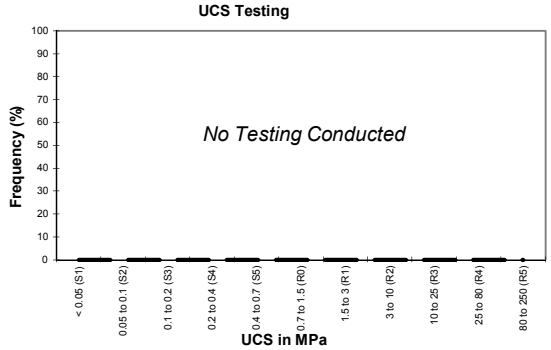












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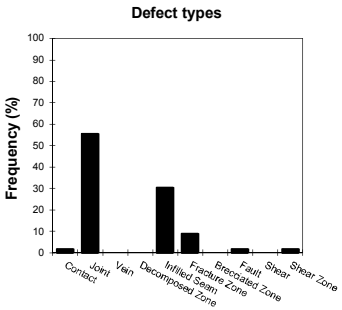
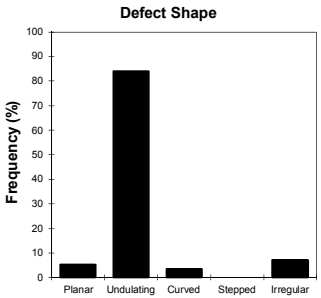
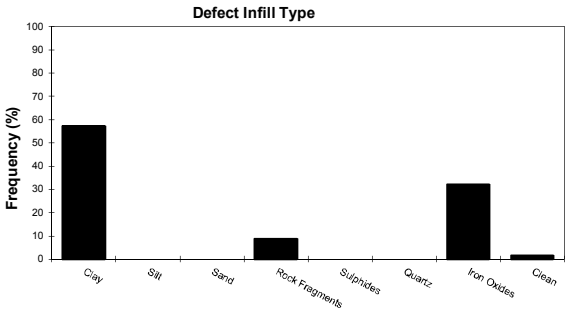
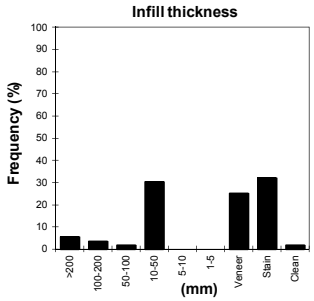
Mean= #####

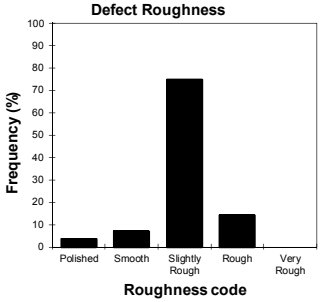
Numb=











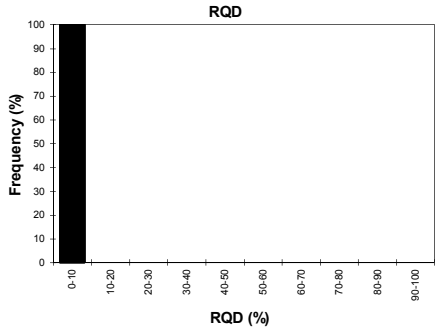
Pells Sullivan Meynink

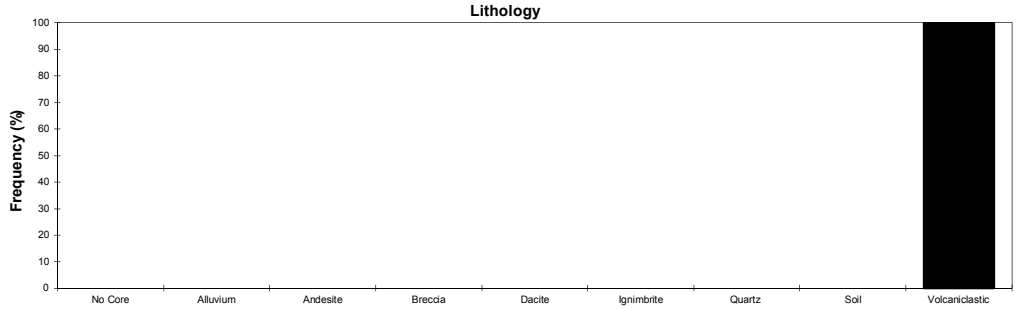
Engineering Consultants

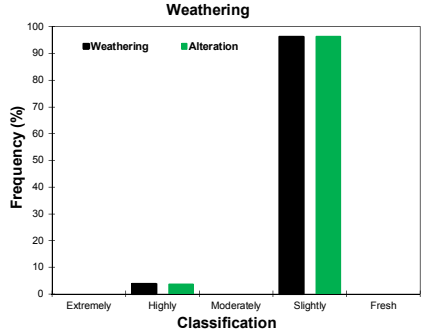
Rock - Soil - Water

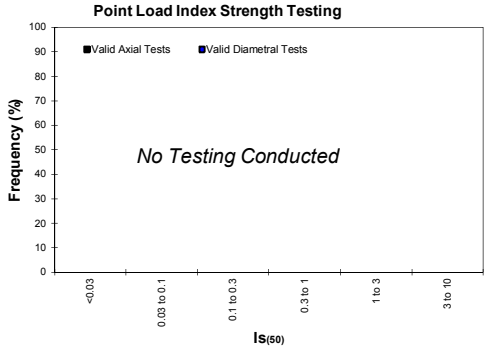
Geotechnical Database
Borehole Data Histograms

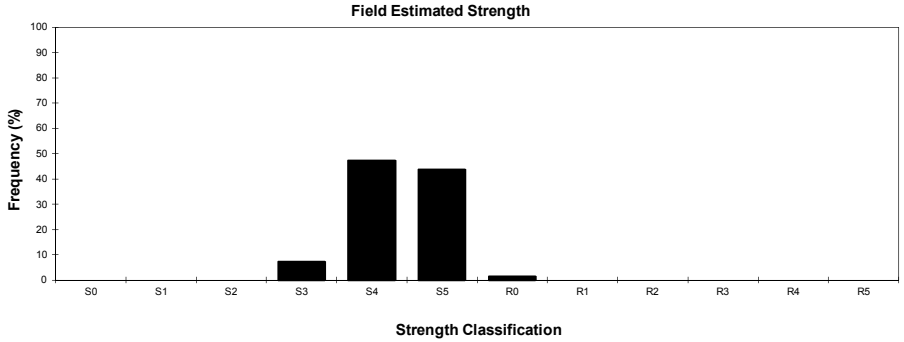
Job Number:	**PSM125**			**Produced by:**	AGI
Project:	**Project Quattro - Geotechnical Boreholes**			**Date**	11-Jul-17
Rock Mass Unit:	**Volcaniclastic**	**Borehole:**	Multiple holes	**Defect types:**	Multiple Types
Stratigraphy:	**N/A**	**Length of Core:**	**9.45m**	**No defects:**	**6**

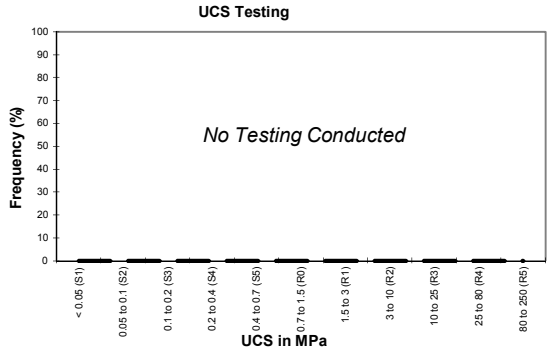












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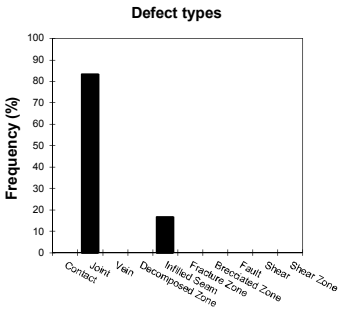
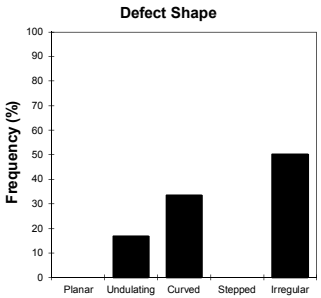
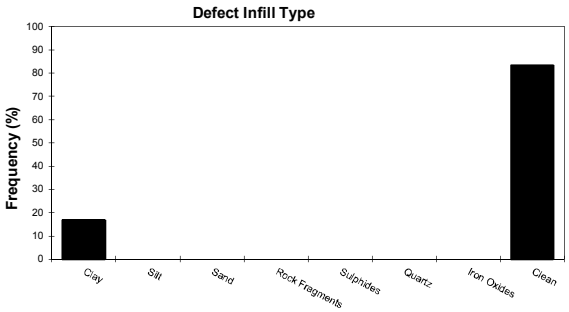
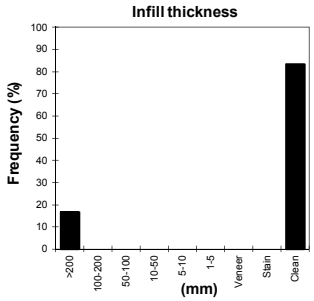
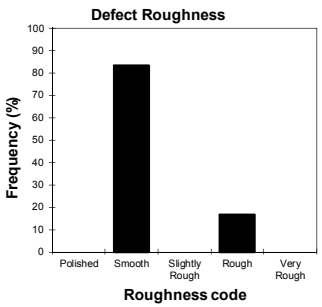










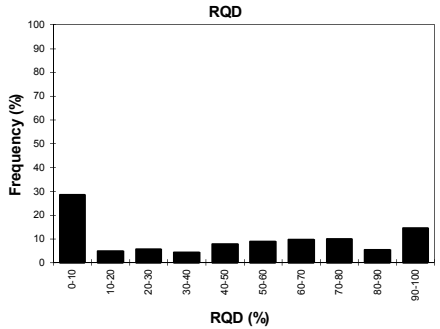
Pells Sullivan Meynink

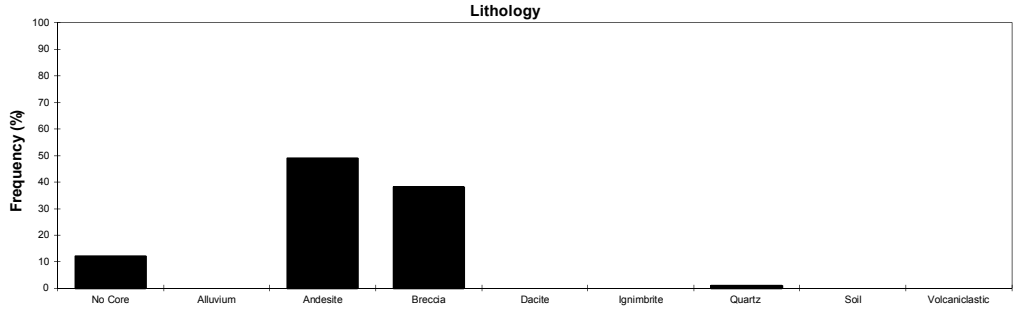
Engineering Consultants

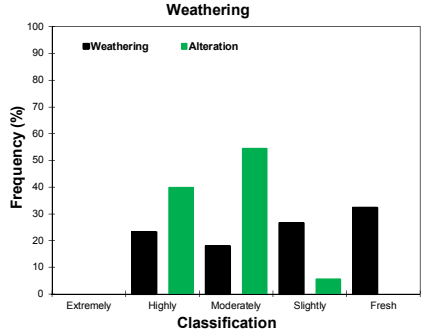
Rock - Soil - Water

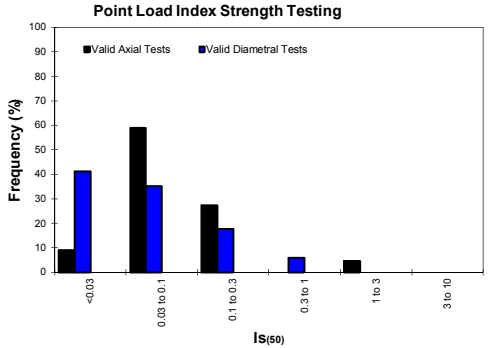
Geotechnical Database
Borehole Data Histograms

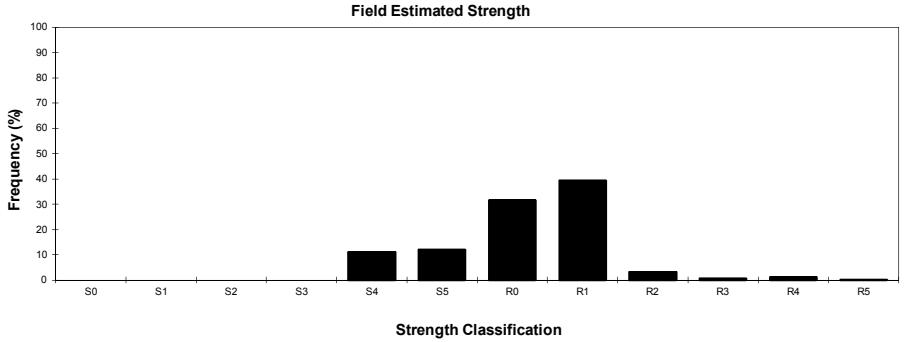
Job Number:	**PSM125**	**Produced by:**	AGI
Project:	**Project Quattro - Geotechnical Boreholes**	**Date**	11-Jul-17
Rock Mass Unit:	**Class 4**	**Borehole:** Multiple holes	**Defect types:** Multiple Types
Stratigraphy:	**N/A**	**Length of Core:** **132.73m**	**No defects:** **311**

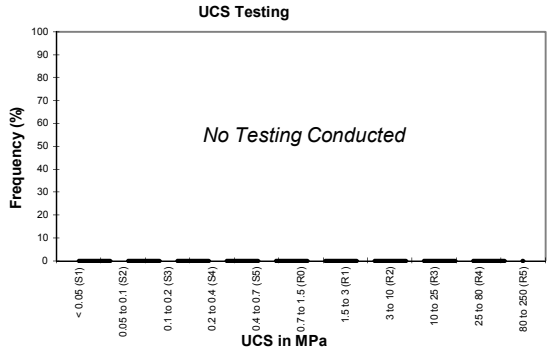












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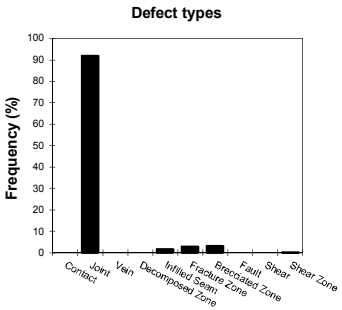
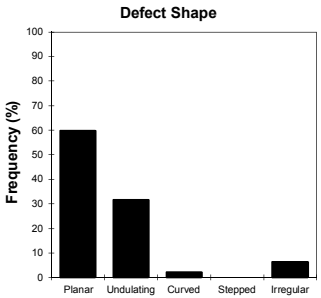
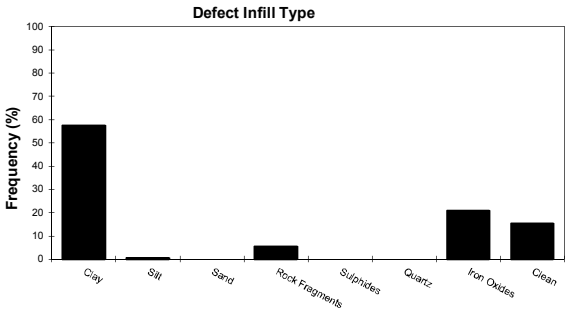
Mean Diam =	0.07	Numb=	17

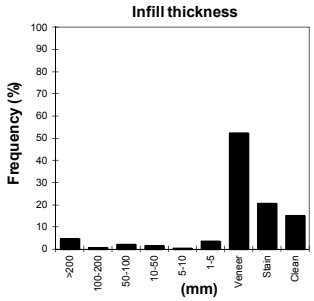
Mean= #####

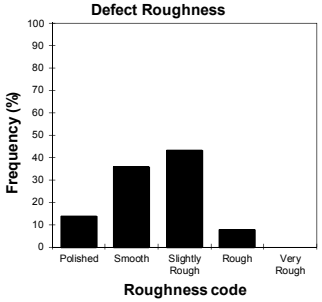
Numb=











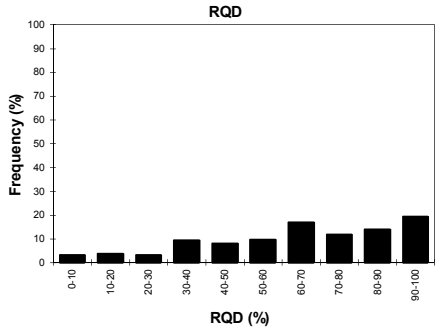
Pells Sullivan Meynink

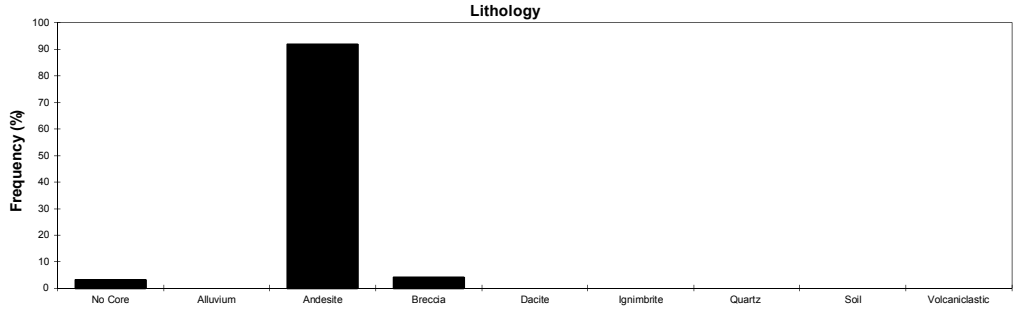
Engineering Consultants

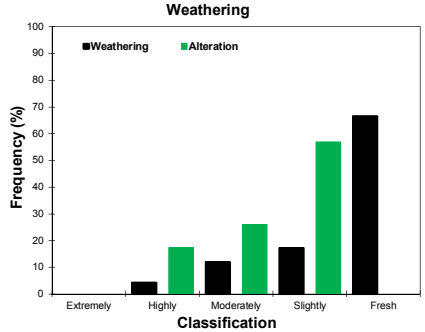
Rock - Soil - Water

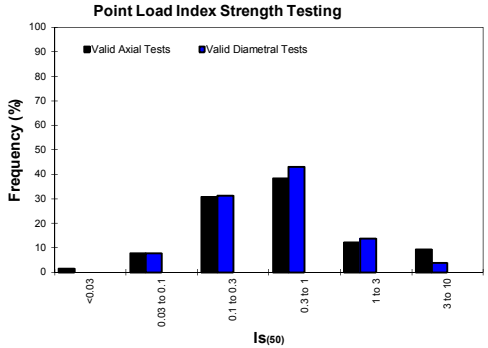
Geotechnical Database
Borehole Data Histograms

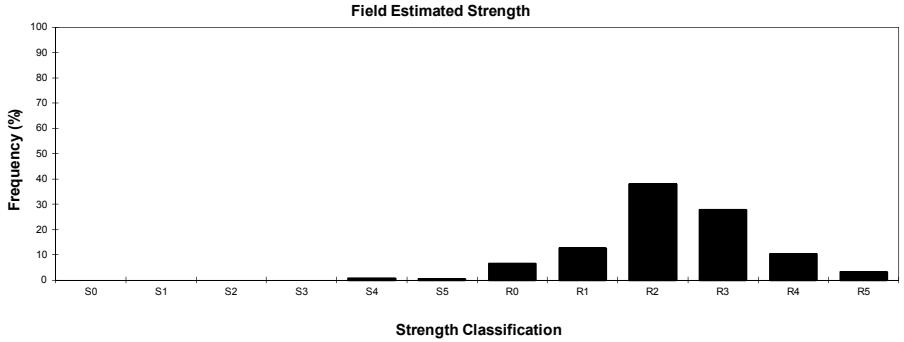
Job Number:	**PSM125**	**Produced by:**	AGI
Project:	**Project Quattro - Geotechnical Boreholes**	**Date**	11-Jul-17
Rock Mass Unit:	**Class 3**	**Borehole:** Multiple holes	**Defect types:** Multiple Types
Stratigraphy:	**N/A**	**Length of Core:** **251.42m**	**No defects:** **953**

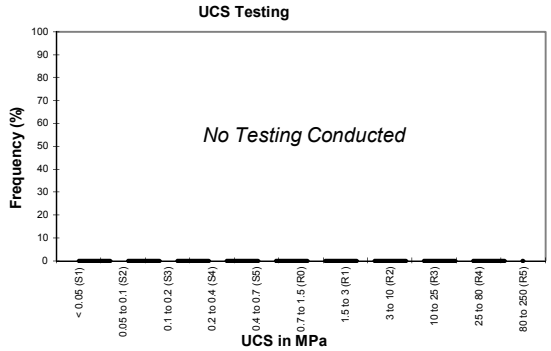












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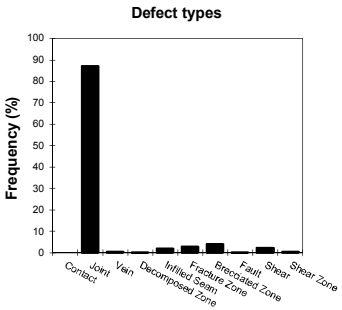
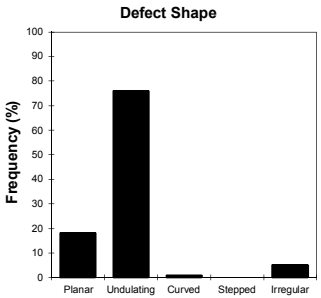
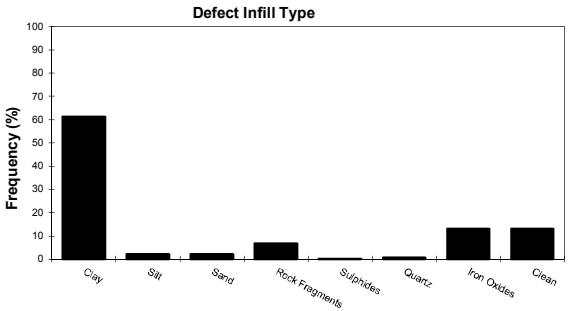
Mean Diam =	0.79	Numb=	51

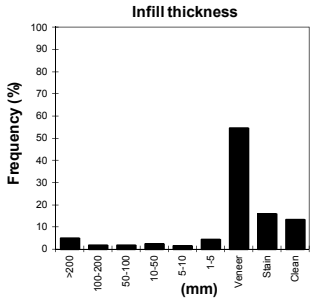
Mean= #####

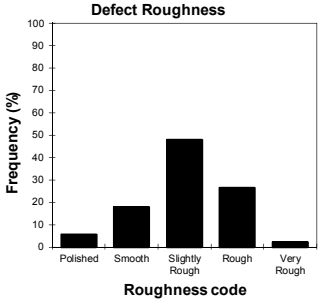
Numb=











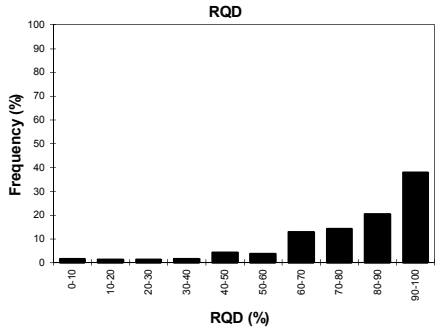
Pells Sullivan Meynink

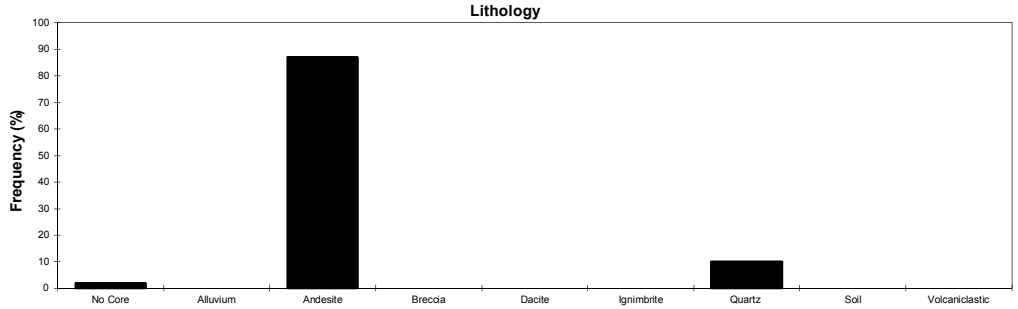
Engineering Consultants

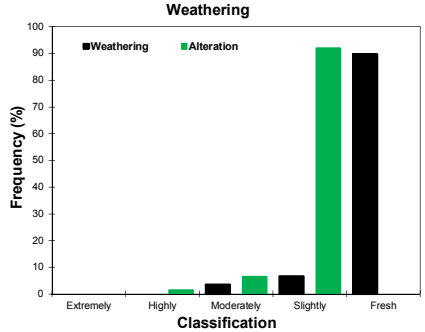
Rock - Soil - Water

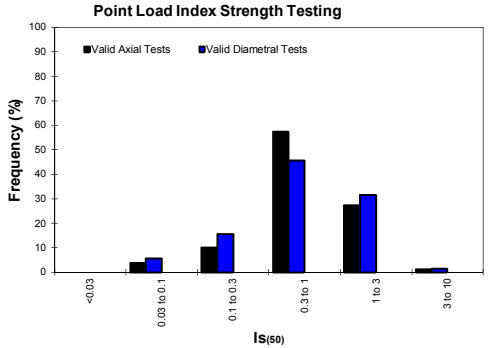
Geotechnical Database
Borehole Data Histograms

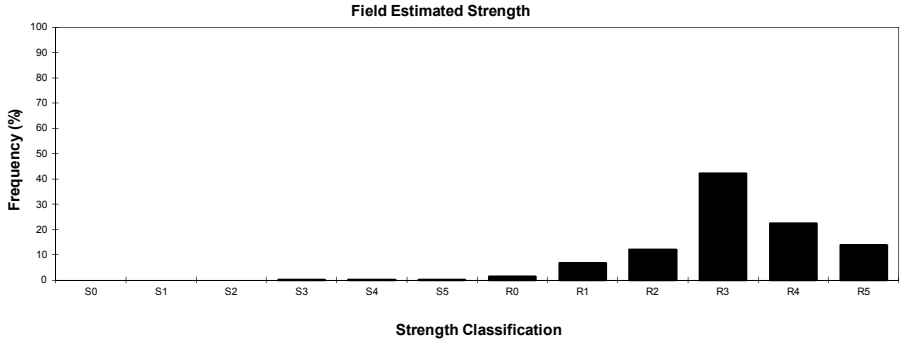
Job Number:	**PSM125**	**Produced by:**	AGI
Project:	**Project Quattro - Geotechnical Boreholes**	**Date**	11-Jul-17
Rock Mass Unit:	**Class 2**	**Borehole:** Multiple holes	**Defect types:** Multiple Types
Stratigraphy:	**N/A**	**Length of Core:** **349.75m**	**No defects:** **1186**

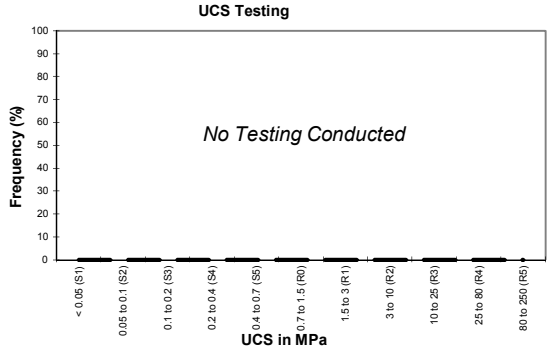












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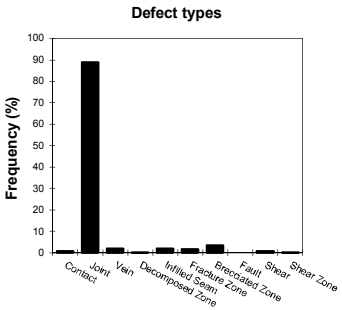
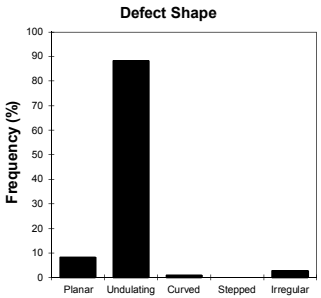
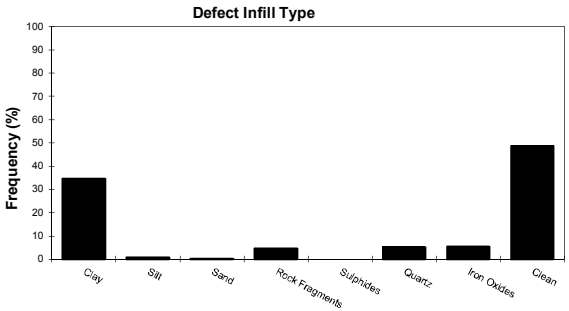
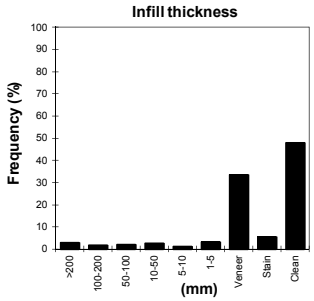
Mean= #####

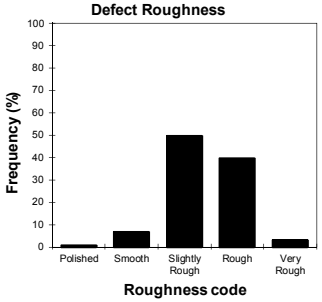
Numb=









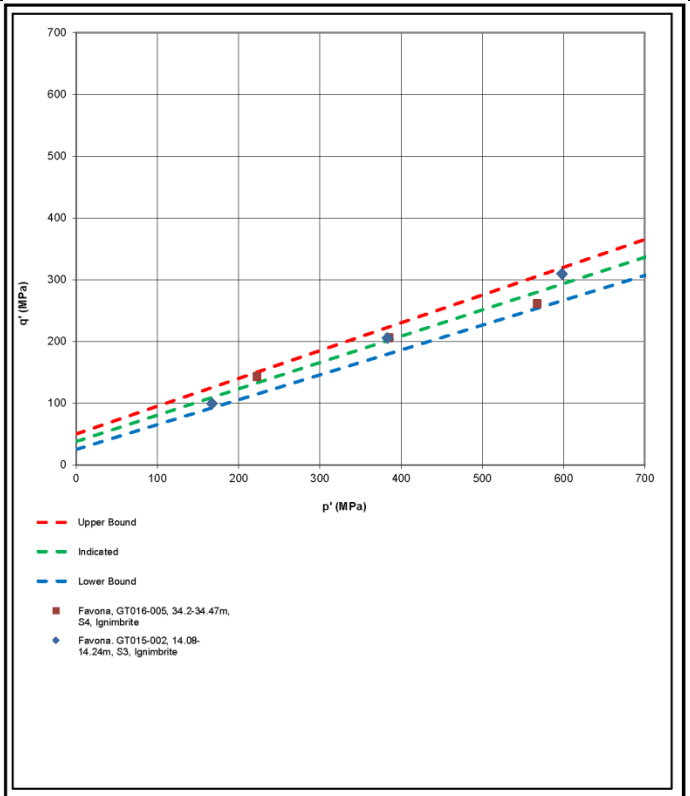


Appendix H
RMZ Sheets Updated

RHYOLITIC TUFF/IGNIMBRITE

Typical Rock Mass Photographs

Shear Strength Estimate



	Cohesion (kPa)	Friction Angle (deg)
Upper Bound	56	27
Lower Bound	27	24
Indicated Strength	42	25

Anderson Lloyd
OceanaGold Project Quattro
Waihi, New Zealand

TRIAXIAL 'p' q' PLOT
IGNIMBRITE

PSM
Pells Sullivan Meynink

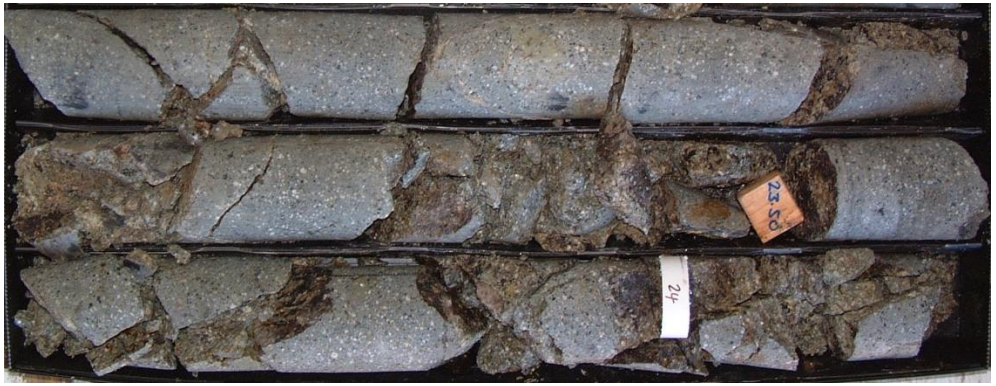
PSM125 | Appendix K

Intact Strength Estimate

Non-welded – S2 – S5, Welded – R0 - R2

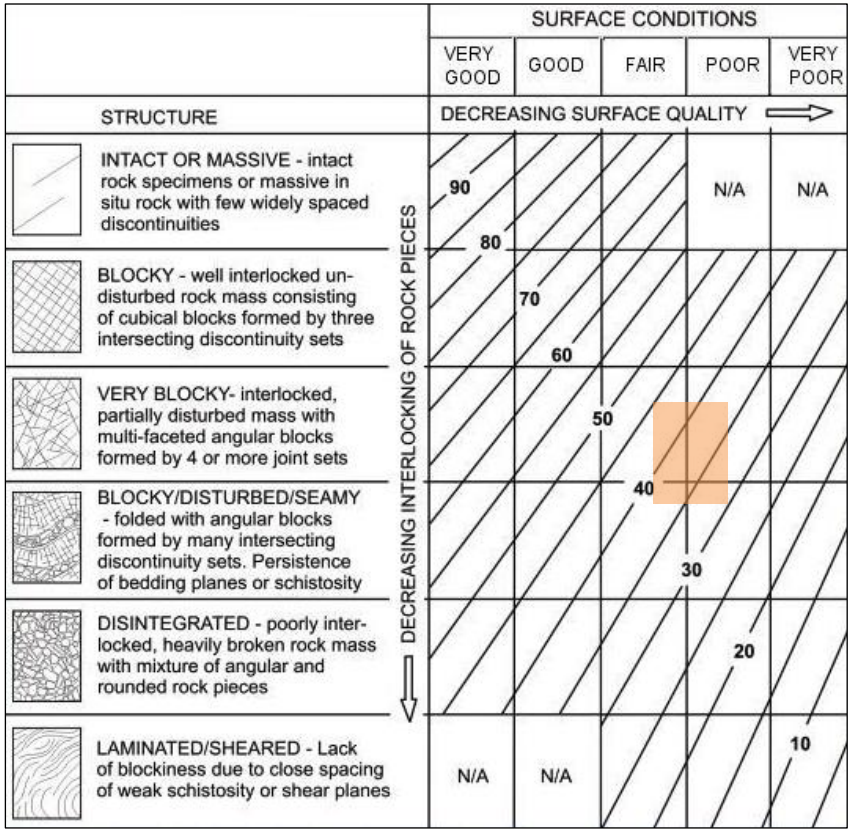
DACITE

Typical Rock Mass Photographs



GSI Estimate

Visual GSI Estimate = 30 - 45

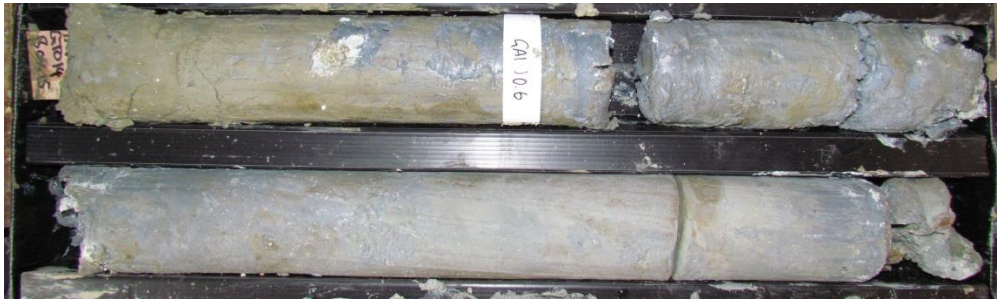


Intact Strength Estimate

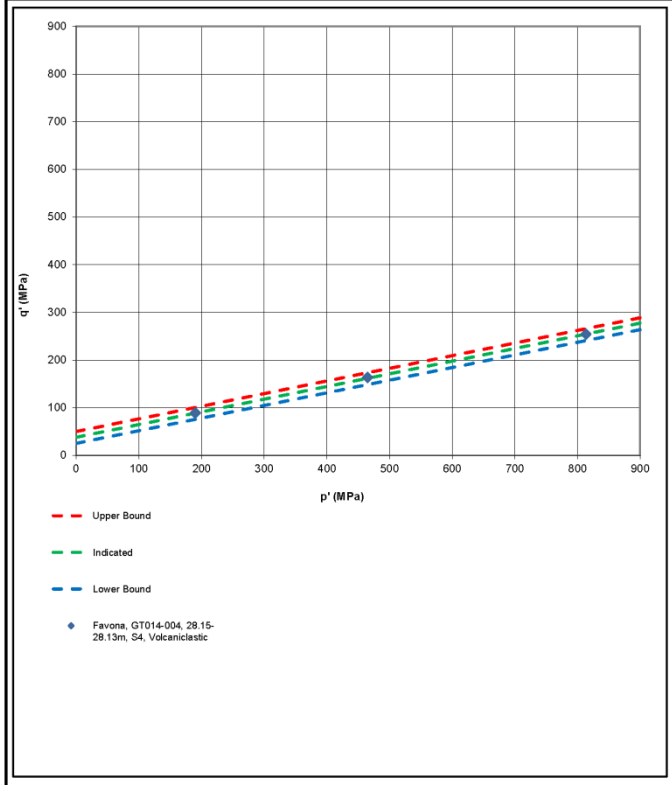
R1 – R3

VOLCANICLASTIC

Typical Rock Mass Photographs



Shear Strength Estimate



	Cohesion (kPa)	Friction Angle (deg)
Upper Bound	52	15
Lower Bound	26	15
Indicated Strength	39	15

Anderson Lloyd
OceanaGold Project Quattro
Waihi, New Zealand

TRIAXIAL 'p' q' PLOT
VOLCANICLASTIC

PSM125 | Appendix K

Pells Sullivan Meynink

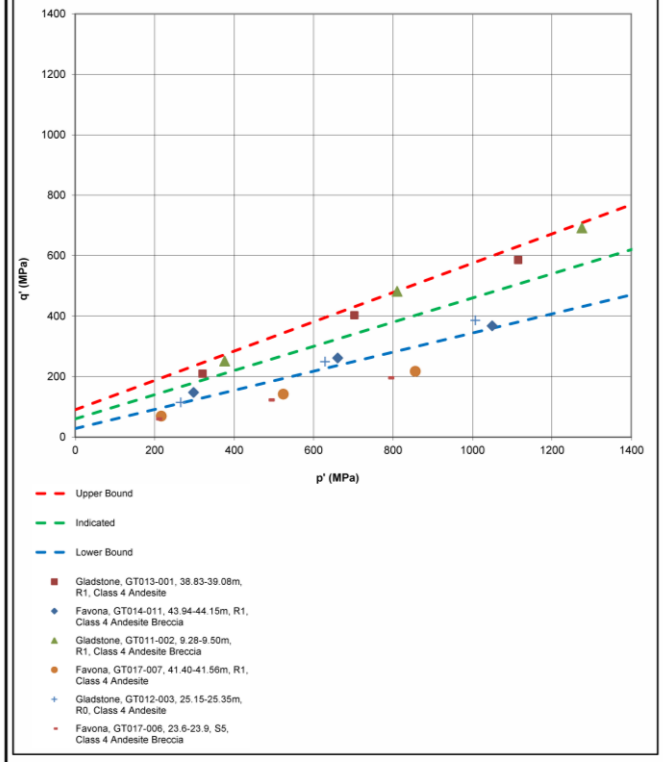
Intact Strength Estimate

S4 – S5

CLASS 4 ANDESITE AND BRECCIA

Typical Rock Mass Photographs

Shear Strength Estimate



	Cohesion (kPa)	Friction Angle (deg)
Upper Bound	103	29
Lower Bound	30	18
Indicated Strength	65	24

Anderson Lloyd
OceanaGold Project Quattro
Waihi, New Zealand

TRIAXIAL 'p' q' PLOT
CLASS 4 ANDESITE

Pells Sullivan Meynink

PSM125 | Appendix K

Intact Strength Estimate

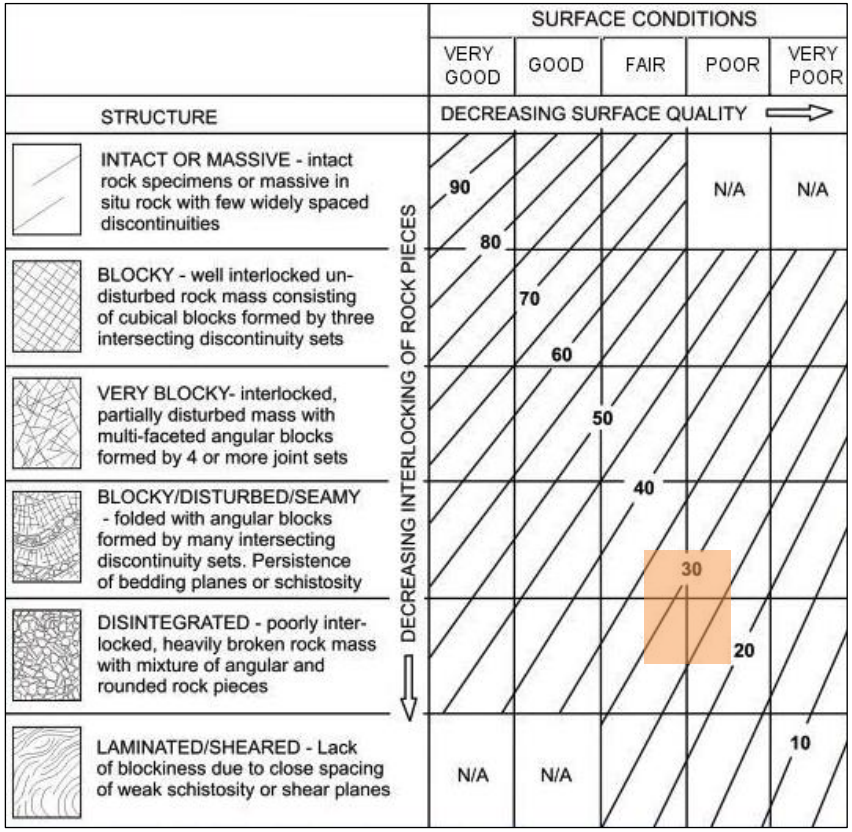
S5 – R1

CLASS 3 ANDESITE

Typical Rock Mass Photographs

GSI Estimate

Visual GSI Estimate = 20 - 35



Intact Strength Estimate

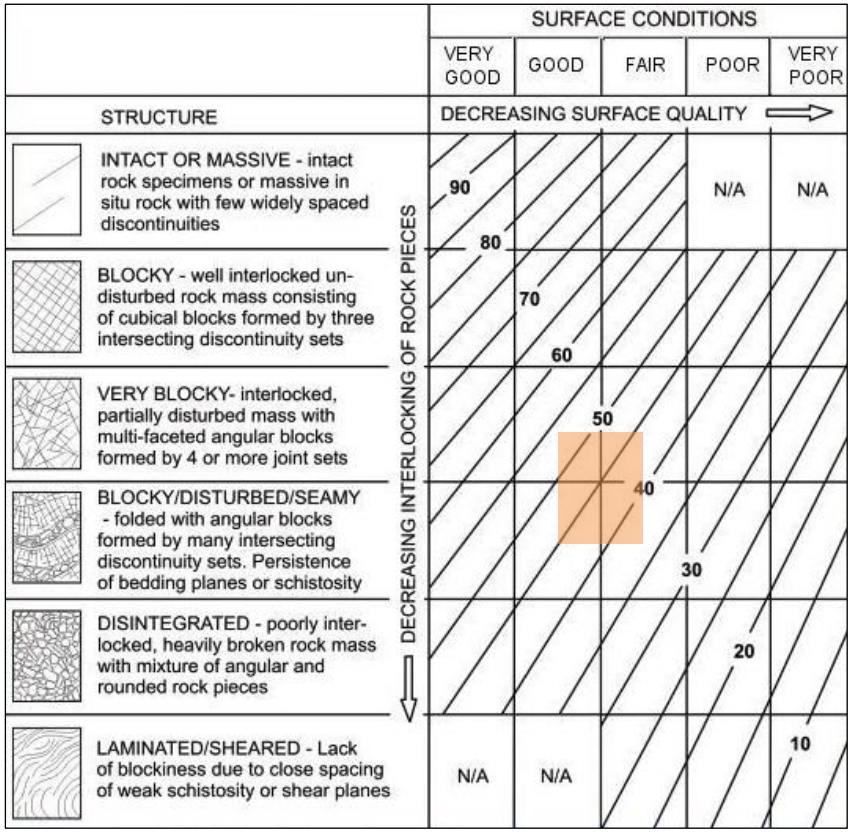
R2 – R3

CLASS 2 ANDESITE

Typical Rock Mass Photographs

GSI Estimate

Visual GSI Estimate = 30 - 50



Intact Strength Estimate

R3 – R4

Appendix I
Lab Testing

GEOTECHNICS

Our Ref: 1003796, 1003798
Customer Ref: PSM125
9 August 2017

Pells Sullivan Meynink
G3 56 Delhi Road
North Ryde
NSW 2113
AUSTRALIA

Attention: Adam Irvine

Dear Mr. Irvine

Waihi, NZ -- PSM125

Laboratory Test Report

Introduction

Geotechnics was engaged to carry out laboratory testing on samples from the above mentioned location.

Sampling Procedure

Samples have been tested as received from the customer.

Sample Location Plan

Not applicable.

Samples

Numerous core samples were received. All samples were labelled with sample ID and depth.

Date of Sample Receipt

30 June 2017

Customer's Instructions

The detailed testing instructions were provided via e-mail, dated from 3 July to 28 July 2017, from Mr. Irvine.

Test Method(s)

NZS 4402:1986 Test 6.3.1	Determination of the unconfined compressive strength of cohesive soil
BS1377:Part 8:1990:Clause 5	Saturation
BS1377:Part 8:1990:Clause 6	Consolidation
BS 1377:Part 8:1990 Clause 7	Consolidated-undrained triaxial compression test with pore pressure measurement

Material Description

Sample descriptions are included in the presentation pages.

Test Results

Test results are attached on page 2 to page 51.

Test Remarks

Test remarks are detailed in the presentation pages.

General Remarks

Samples not destroyed during testing, will be retained for one month from the date of this report before being discarded.

Descriptions are enclosed for your information, are not covered under the IANZ endorsement of this report.

Please reproduce this report in full when transmitting to others or including in internal reports.

If we can be of any further assistance, feel free to get in touch. Contact details are provided at the bottom of the letterhead page.

GEOTECHNICS LTD

Report prepared by:

Helen Wang

.....
Helen Wang
Triaxial Laboratory Manager

Authorised for Geotechnics by:

.....
Steven Anderson
Project Director
Approved Signatory

Report checked by:

.....
Steven Anderson
Regional Manager
Approved Signatory

IANZ ACCREDITED LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

9-Aug-17
t:\geotechnicsgroup\projects\1003796\issueddocuments\20170809.yhw.rep1.docx

GEOTECHNICS

19 - 23 Morgan Street
Newmarket
Auckland 1023
New Zealand

p. +64 9 356 3510

Geotechnics Project ID	1003798.0000
Customer Project ID	PSM 125

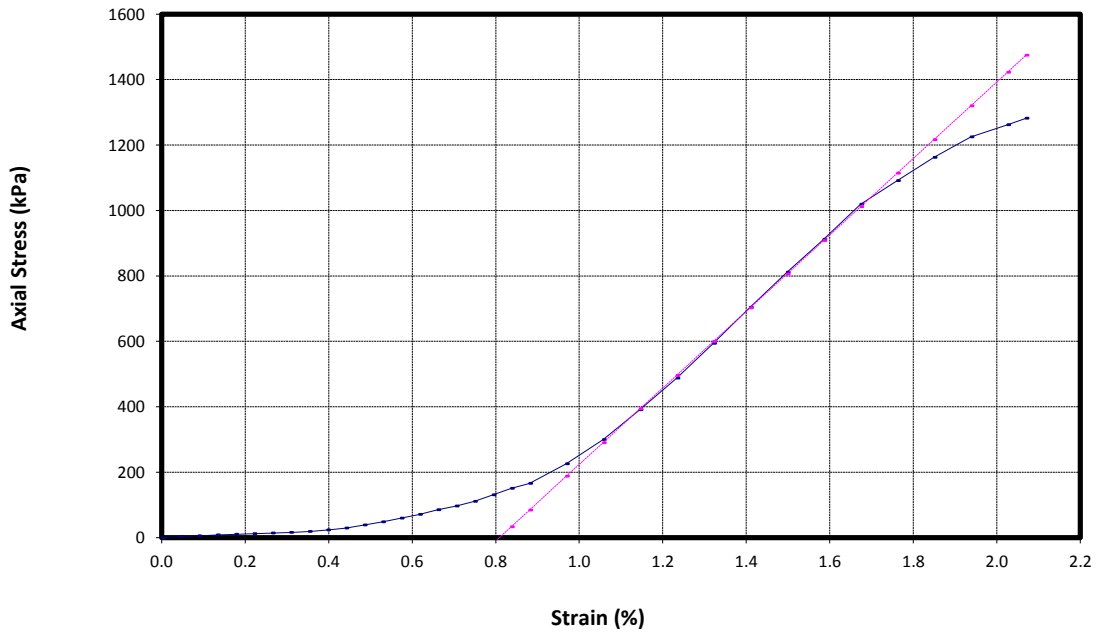
Determination of the unconfined compressive strength of cohesive soil - NZS 4402:1986 Test 6.3.1

Sample Details

Geotechnics Sample ID	---				
Site	Waihi, NZ				
BH No	GT011	Sample ID	GTO11-005	Depth (m)	79.58-79.77m
Sample Description Supplied by Client:	Weakly altered and fresh R2 Andesite				

Test Result

Unconfined Compressive Strength Test
Axial Stress vs Strain



Sample Parameters

Sample Height	(mm)	113.56	Bulk Density	(t/m³)	2.38
Sample Diameter	(mm)	83.35	Dry Density	(t/m³)	2.22
Test Height	(mm)	113.56	Water Content	(%)	7.1
Test H/D Ratio		1.36			

Failure Value

Axial Strain (%)	Unconfined Compressive Strength qu (kPa)	Rate of Compression (mm/min)	Modulus of Elasticity (MPa)
2.07	1282	0.24	117

Mode of Failure Shear

Sample History Undisturbed core trimmed at natural water content.

Test Remarks

The sample height to diameter ratio is less than the required 2. The strength may be lower, due to the height to diameter ratio.

Unconfined Compressive Strength reported to the nearest 1 kPa and provided as indicative only.

Modulus of Elasticity value reported based on the straight line portion of the curve and provided as indicative only.

Sample description, UCS and modulus of elasticity value reported are not IANZ accredited.

Entered by	ST	Date	9/08/2017	Checked by	JK	Date	9/08/2017

GEOTECHNICS

19 - 23 Morgan Street
Newmarket
Auckland 1023
New Zealand

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Geotechnics Project ID	1003798.0000
Customer Project ID	PSM 125

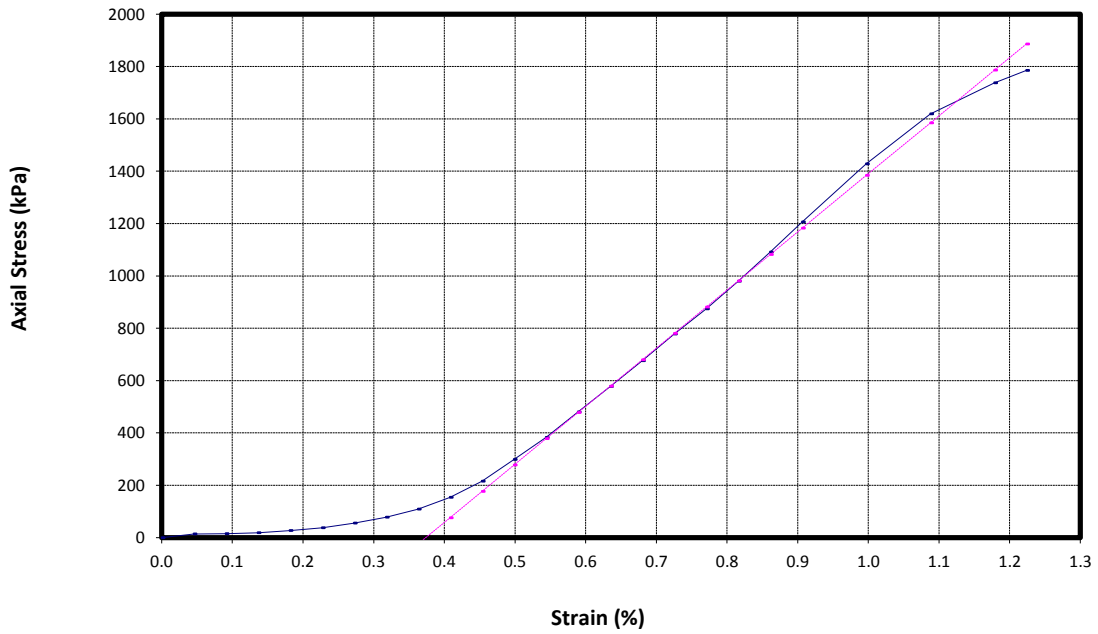
Determination of the unconfined compressive strength of cohesive soil - NZS 4402:1986 Test 6.3.1

Sample Details

Geotechnics Sample ID	---				
Site	Waihi, NZ				
BH No	GTO13	Sample ID	GTO13-005	Depth (m)	68.80-69.00m
Sample Description Supplied by Client:	Moderately altered and slightly weathered R2 Andesite				

Test Result

Unconfined Compressive Strength Test
Axial Stress vs Strain



Sample Parameters

Sample Height	(mm)	110.33	Bulk Density	(t/m³)	2.03
Sample Diameter	(mm)	83.77	Dry Density	(t/m³)	1.79
Test Height	(mm)	110.33	Water Content	(%)	13.6
Test H/D Ratio		1.32			

Failure Value

Axial Strain (%)	Unconfined Compressive Strength qu (kPa)	Rate of Compression (mm/min)	Modulus of Elasticity (MPa)
1.22	1785	0.17	222

Mode of Failure Shear

Sample History Undisturbed core trimmed at natural water content.

Test Remarks

The sample height to diameter ratio is less than the required 2. The strength may be lower, due to the height to diameter ratio.

Unconfined Compressive Strength reported to the nearest 1 kPa and provided as indicative only.

Modulus of Elasticity value reported based on the straight line portion of the curve and provided as indicative only.

Sample description, UCS and modulus of elasticity value reported are not IANZ accredited.

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Geotechnics Project ID	1003798.0000
Customer Project ID	PSM 125

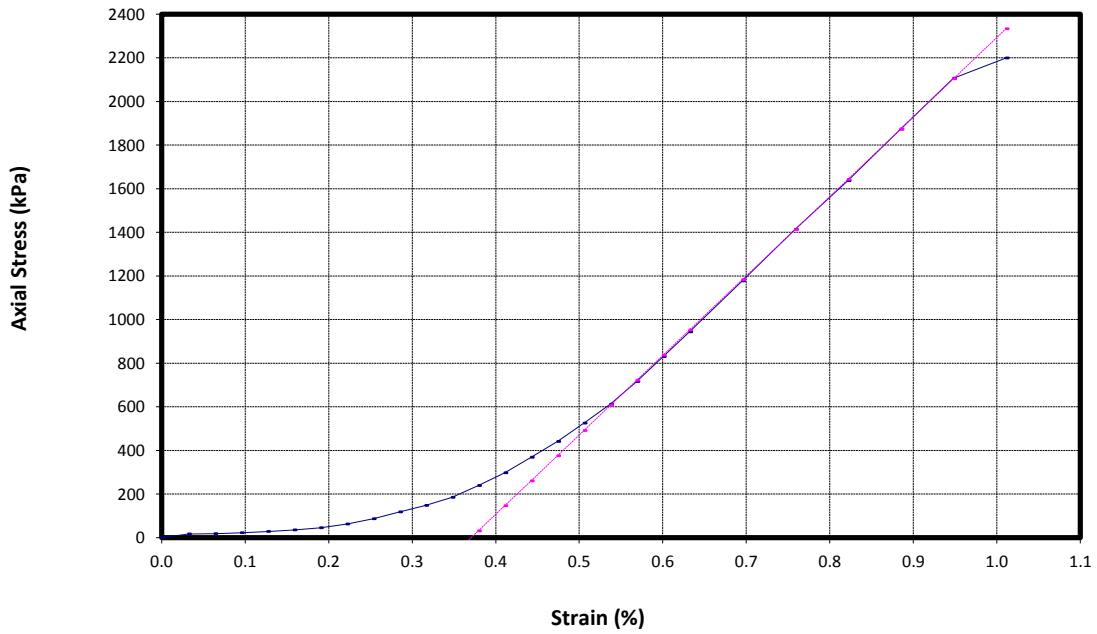
Determination of the unconfined compressive strength of cohesive soil - NZS 4402:1986 Test 6.3.1

Sample Details

Geotechnics Sample ID	---				
Site	Waihi, NZ				
BH No	GTO14	Sample ID	GTO14-007	Depth (m)	21.35-21.58m
Sample Description Supplied by Client:	Weakly altered and slightly to moderately weathered R2 Dacite				

Test Result

Unconfined Compressive Strength Test
Axial Stress vs Strain



Sample Parameters

Sample Height	(mm)	158.27	Bulk Density	(t/m³)	1.75
Sample Diameter	(mm)	76.66	Dry Density	(t/m³)	1.20
Test Height	(mm)	158.27	Water Content	(%)	45.1
Test H/D Ratio		2.06			

Failure Value

Axial Strain (%)	Unconfined Compressive Strength qu (kPa)	Rate of Compression (mm/min)	Modulus of Elasticity (MPa)
1.01	2199	0.26	364

Mode of Failure Shear

Sample History Undisturbed core trimmed at natural water content.

Test Remarks

Unconfined Compressive Strength reported to the nearest 1 kPa.
Modulus of Elasticity value reported based on the straight line portion of the curve and provided as indicative only.
Sample description and modulus of elasticity value reported are not IANZ accredited.

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Geotechnics Project ID	1003798.0000
Customer Project ID	PSM 125

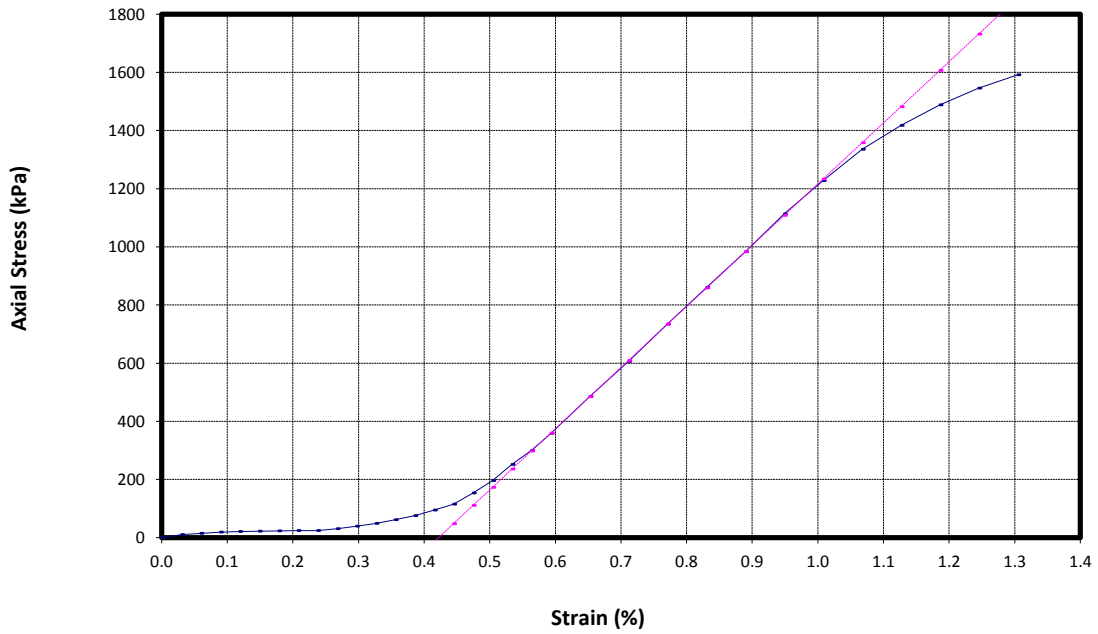
Determination of the unconfined compressive strength of cohesive soil - NZS 4402:1986 Test 6.3.1

Sample Details

Geotechnics Sample ID	---				
Site	Waihi, NZ				
BH No	GTO16	Sample ID	GTO16-013	Depth (m)	60.90-61.20m
Sample Description Supplied by Client:	Moderately altered and moderately weathered R2 andesite				

Test Result

Unconfined Compressive Strength Test
Axial Stress vs Strain



Sample Parameters

Sample Height	(mm)	168.68	Bulk Density	(t/m³)	2.30
Sample Diameter	(mm)	82.43	Dry Density	(t/m³)	2.12
Test Height	(mm)	168.68	Water Content	(%)	8.6
Test H/D Ratio		2.05			

Failure Value

Axial Strain (%)	Unconfined Compressive Strength qu (kPa)	Rate of Compression (mm/min)	Modulus of Elasticity (MPa)
1.30	1591	0.27	210

Mode of Failure Shear

Sample History Undisturbed core trimmed at natural water content.

Test Remarks

Unconfined Compressive Strength reported to the nearest 1 kPa.
Modulus of Elasticity value reported based on the straight line portion of the curve and provided as indicative only.
Sample description and modulus of elasticity value reported are not IANZ accredited.

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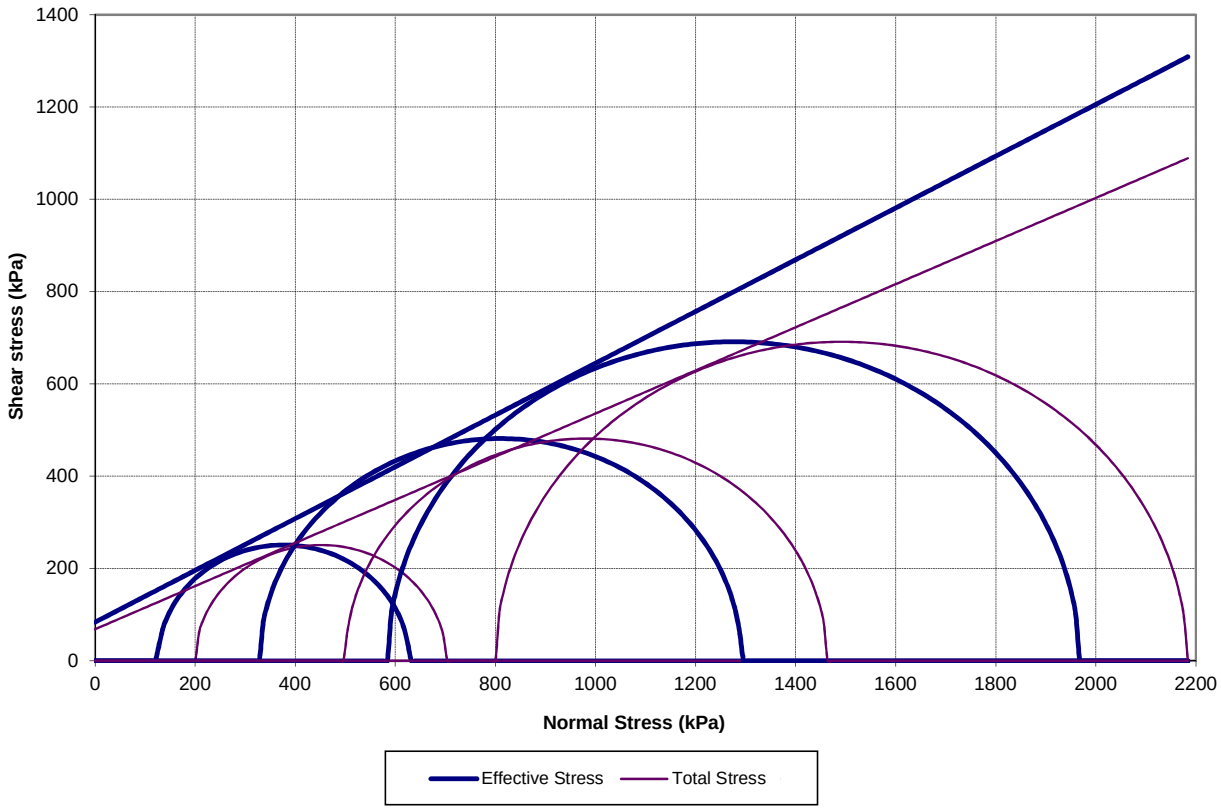
Site:	Waihi, NZ	Your Project ID:	PSM125	Project ID:	1003796.0000
Location ID:	GT011	Sample Ref.:	GT011-002	Depth:	9.28 -- 9.50 (m)

Test method used: BS1377:Part 8:1990:Clause 5 Saturation BS1377:Part 8:1990:Clause 6 Consolidation
BS1377:Part 8:1990:Clause 7 Consolidated-undrained triaxial compression test with pore pressure measurement

CONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST (3 STAGES)
MOHR CIRCLES OF TOTAL AND EFFECTIVE STRESSES



Initial Sample Height:	164.68	mm	Initial Water Content:	15.4	%
Initial Sample Diameter:	81.78	mm	Initial Bulk Density:	2.23	t/m³
Initial B Value:	--	%	Initial Dry Density:	1.93	t/m³
B Value before Consolidation:	100	%	Final Water Content:	14.6	%

	Consolidation Stage			Failure Values				
	Cell Pressure (kPa)	Back Pressure (kPa)	Eff. Consol. Stress (kPa)	Deviator Stress (kPa)	Pore Pressure Change During Shearing δμ (kPa)	Effective Principal Stress (kPa) Major σ1'	Effective Principal Stress (kPa) Minor σ3'	Vertical Strain (%)
STAGE 1	500	300	200	501.98	74.5	627.48	125.50	1.57
STAGE 2	800	300	500	963.30	171.2	1292.10	328.80	1.60
STAGE 3	1100	300	800	1382.59	215.6	1966.99	584.40	2.62

		Total			Effective	
Angle of Frictional Resistance:	ϕ =	25	°	ϕ' =	29	°
Cohesion:	c =	68	kPa	c' =	84	kPa
Linear Regression Coefficient:	r =	1.000		r =	0.998	

Sample History: Undisturbed core trimmed at natural water content.

Soil description: Gladstone, GT011-002, 9.28-9.50m, R1, Class 4 Andesite Breccia.

Failure Mode: Planar / Plastic Test Speed: 0.015 (mm/min)

Test Remarks: The sample was saturated by increments of cell pressure and back pressure.
Failure for each stage was determined by either the maximum effective stress ratio or the maximum deviator stress. Strength parameters have been derived by using a linear regression fitting method.

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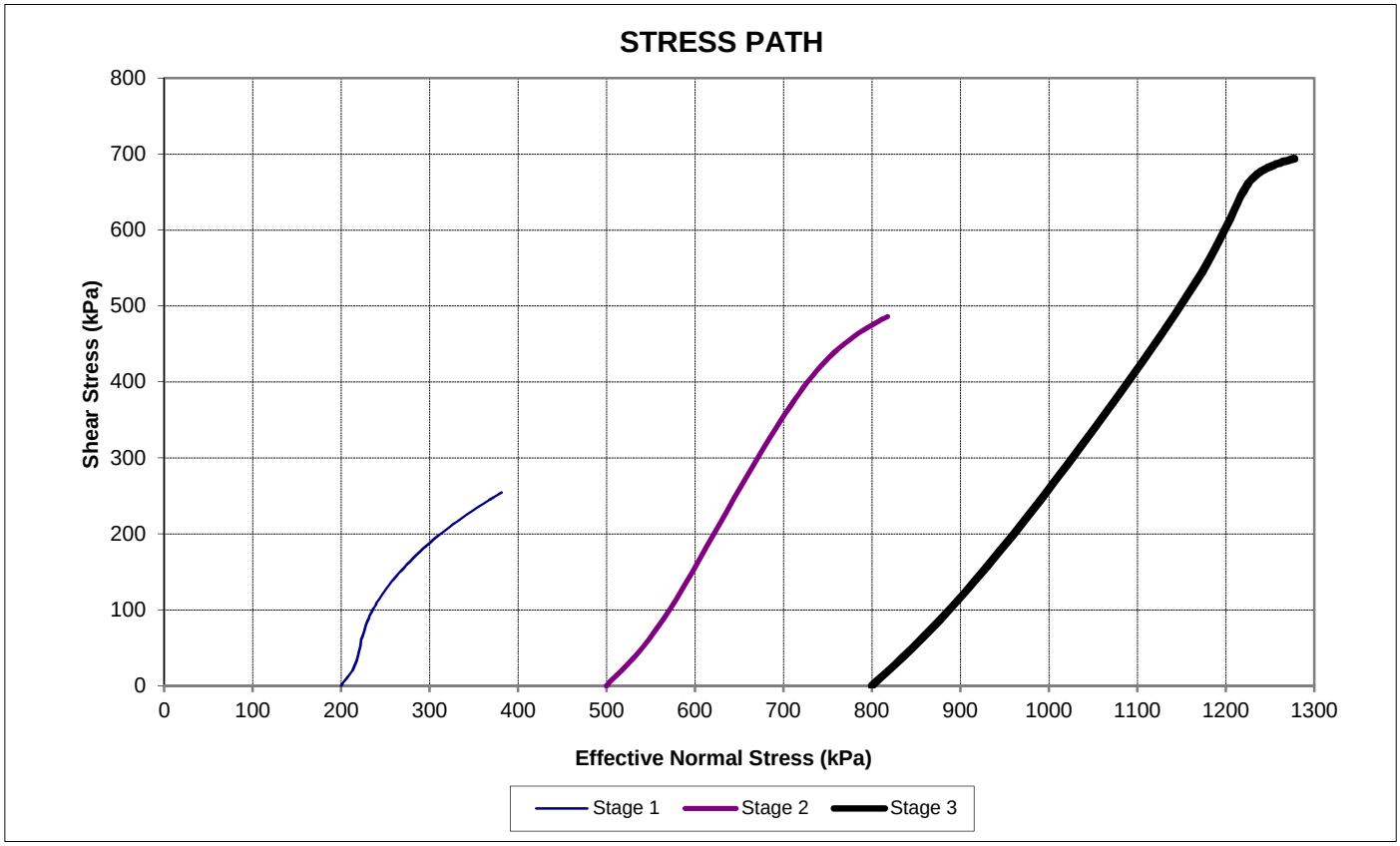
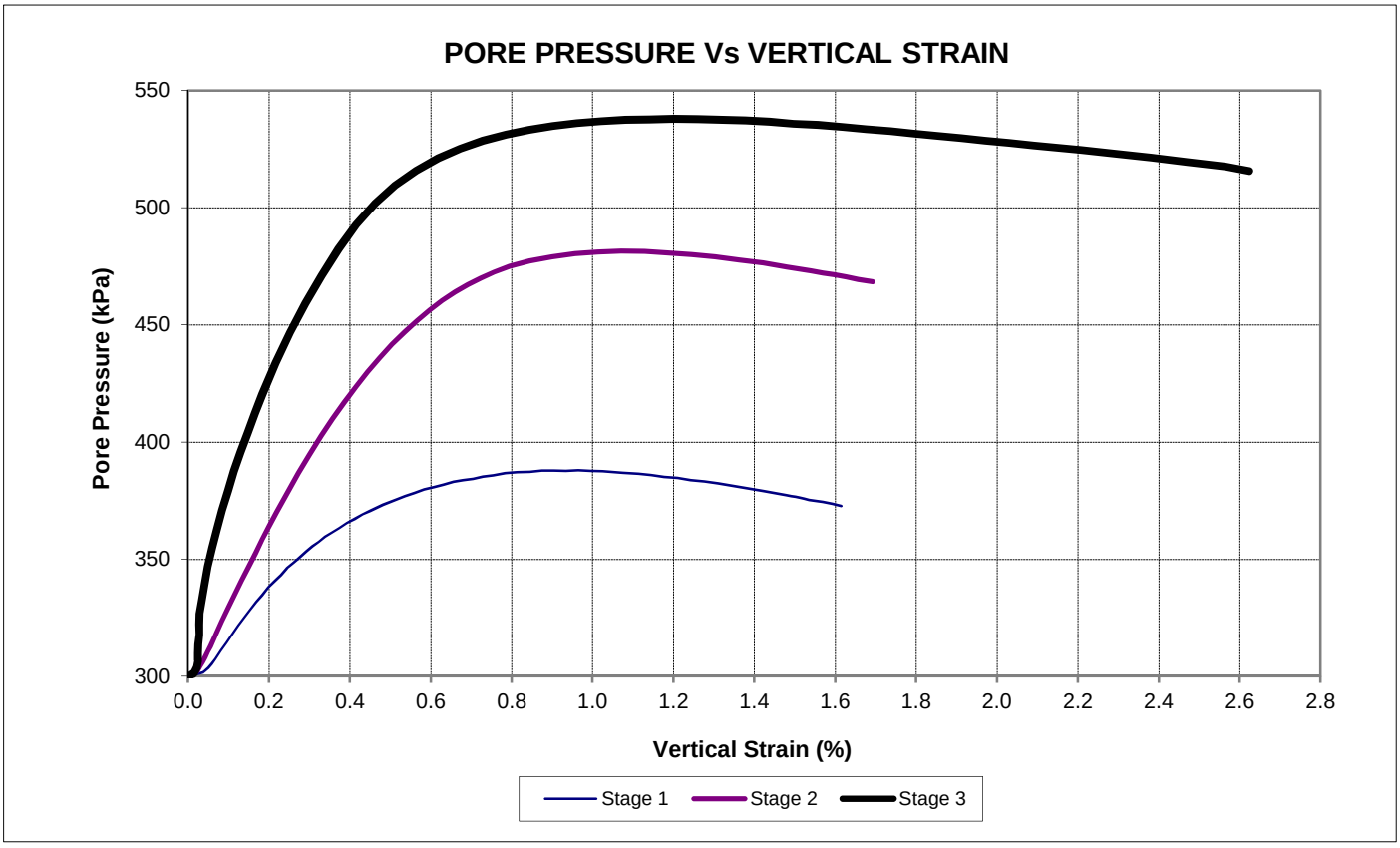
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT011	Sample Ref.: GT011-002	Depth: 9.28 -- 9.50 (m)

GRAPHS





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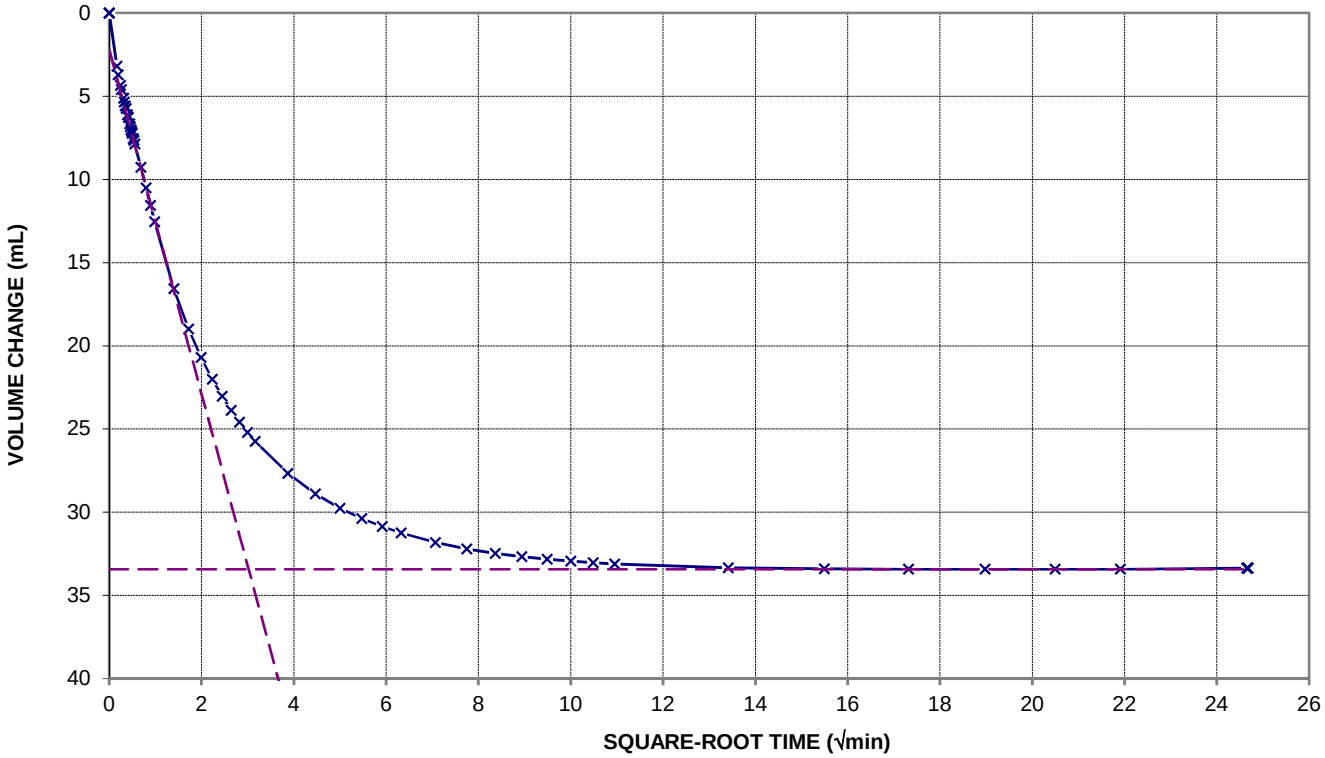
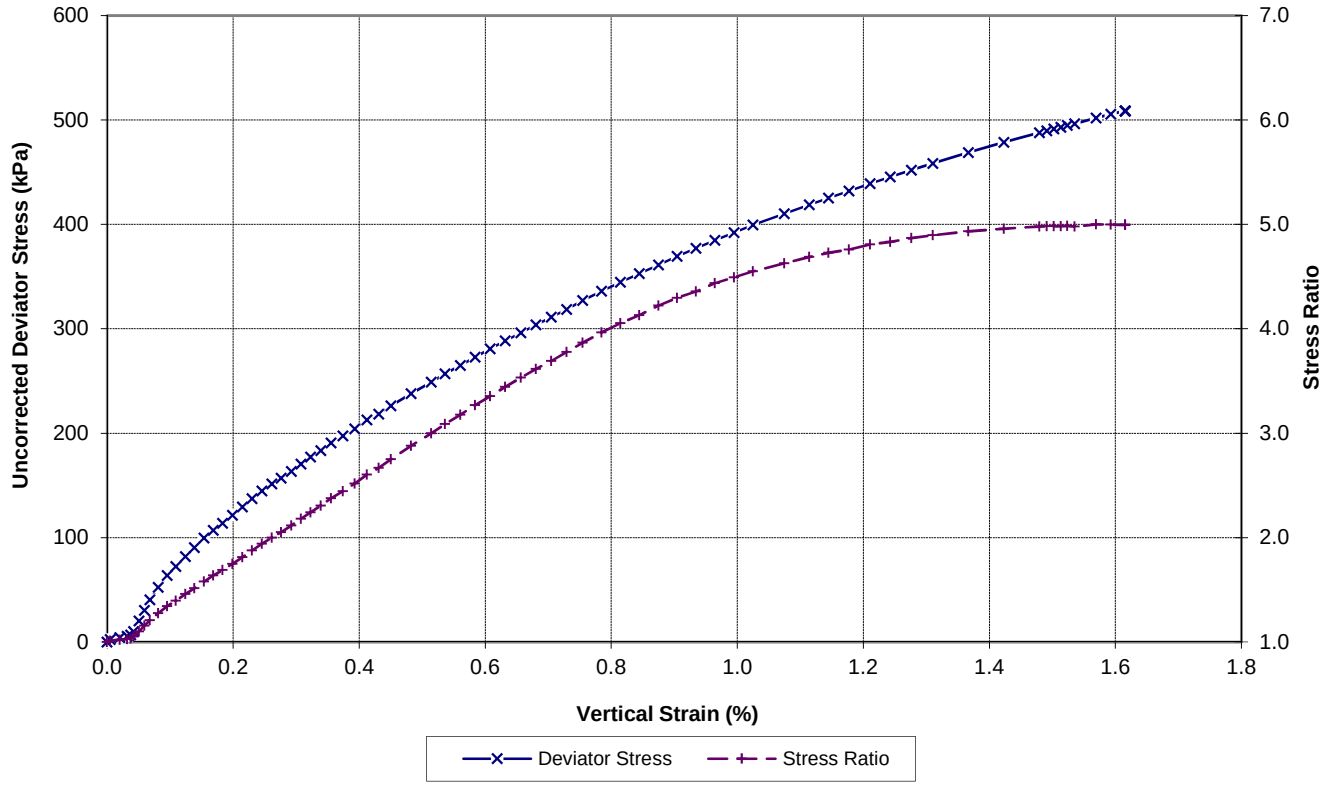
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT011	Sample Ref.: GT011-002	Depth: 9.28 -- 9.50 (m)

STAGE 1 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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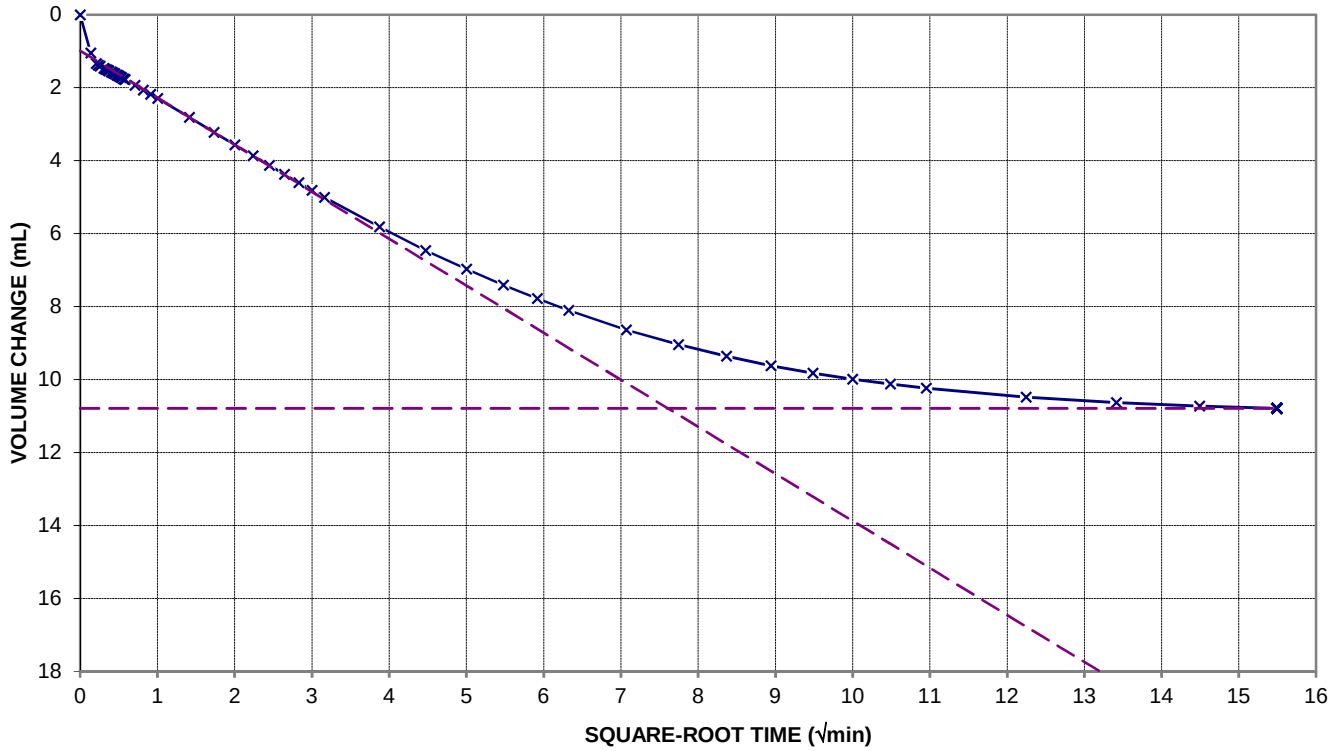
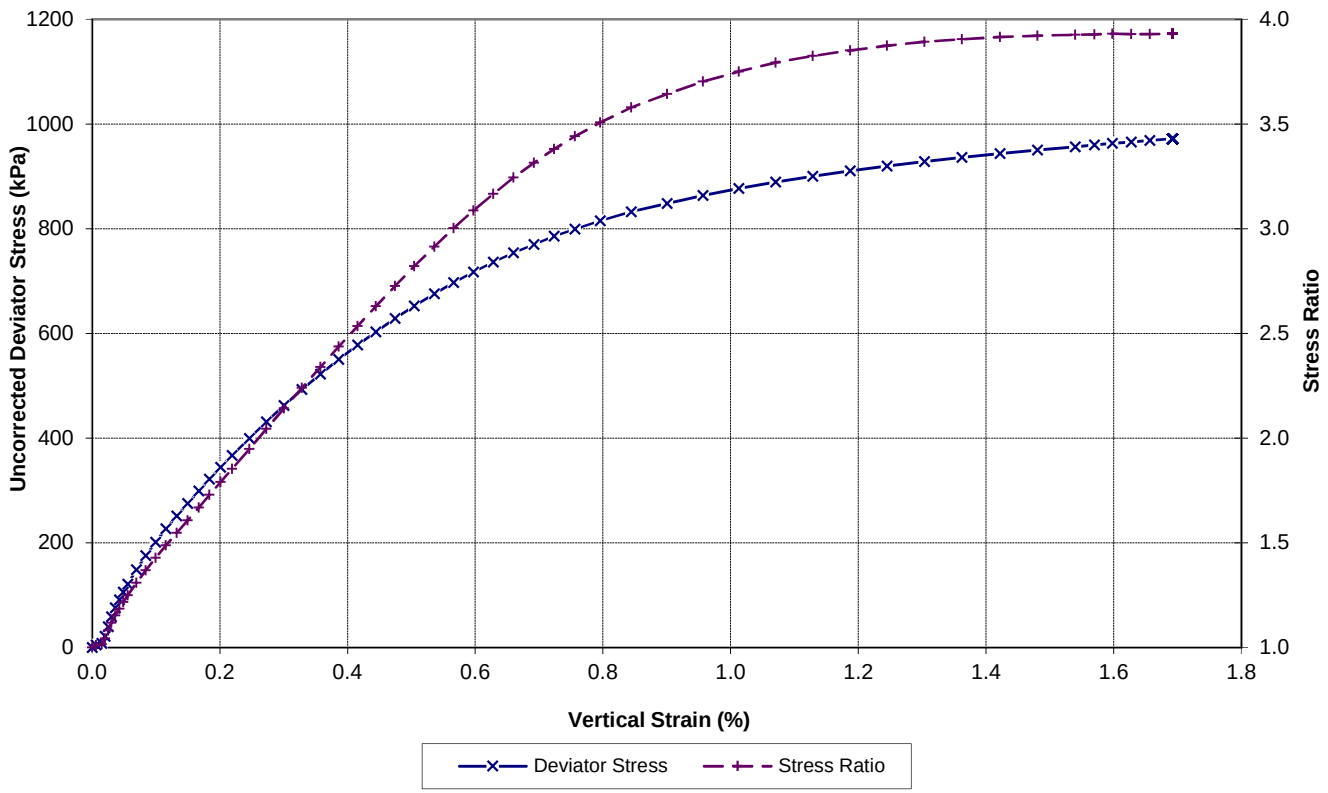
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT011	Sample Ref.: GT011-002	Depth: 9.28 -- 9.50 (m)

STAGE 2 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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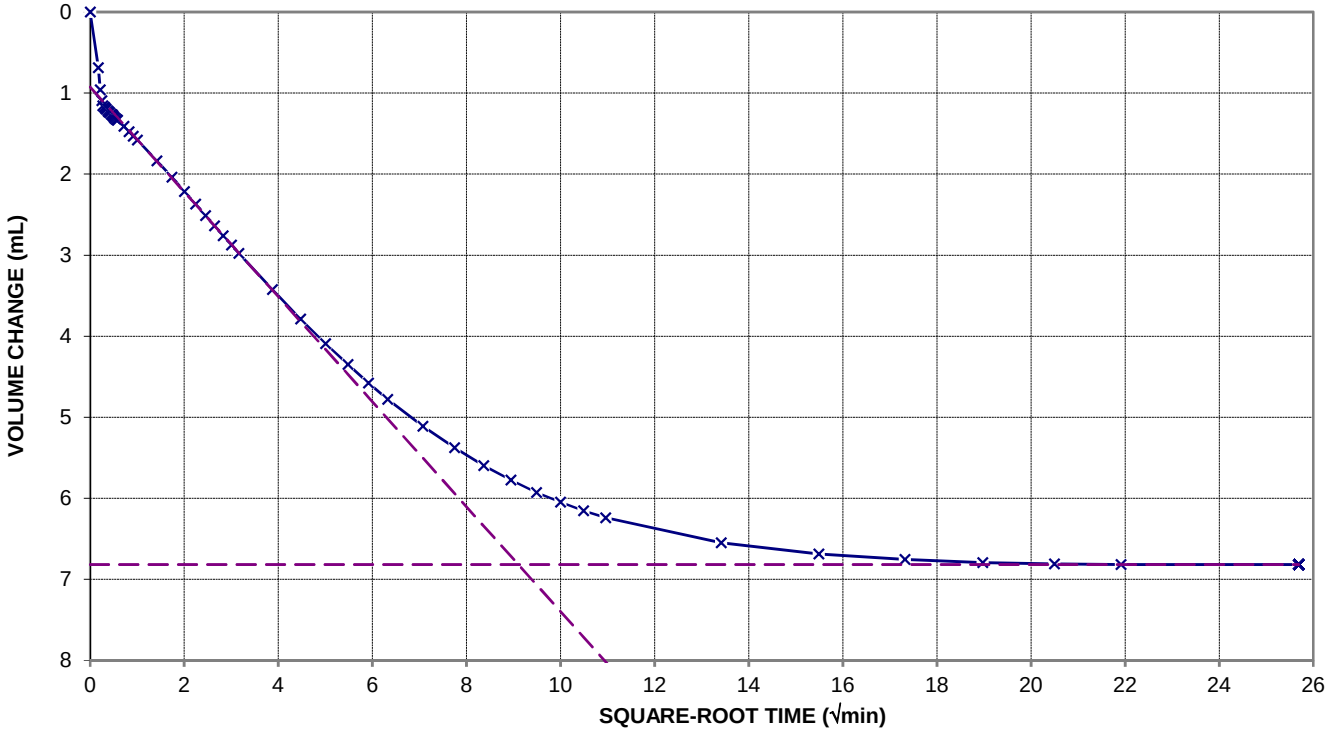
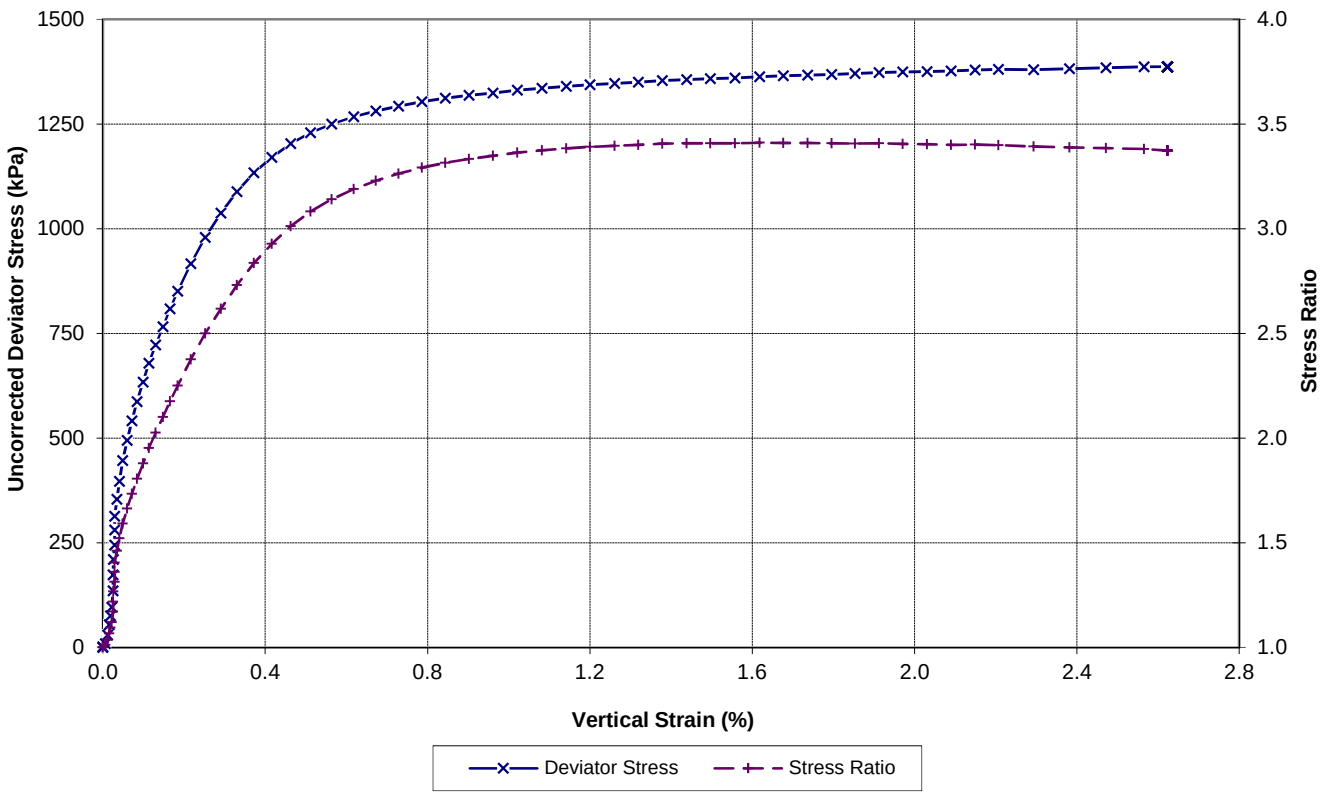
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT011	Sample Ref.: GT011-002	Depth: 9.28 -- 9.50 (m)

STAGE 3 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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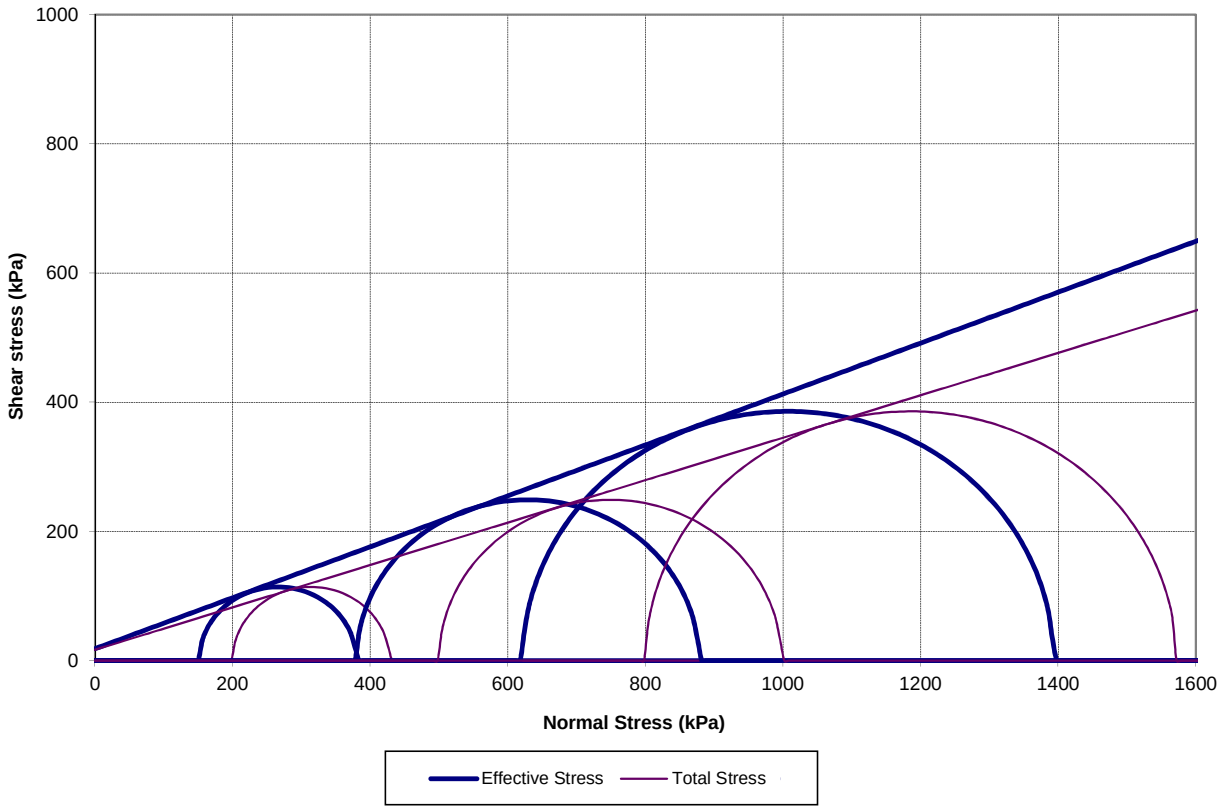
Site:	Waihi, NZ	Your Project ID:	PSM125	Project ID:	1003796.0000
Location ID:	GT012	Sample Ref.:	GT012-003	Depth:	25.15 -- 25.35 (m)

Test method used: BS1377:Part 8:1990:Clause 5 Saturation BS1377:Part 8:1990:Clause 6 Consolidation
BS1377:Part 8:1990:Clause 7 Consolidated-undrained triaxial compression test with pore pressure measurement

CONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST (3 STAGES)
MOHR CIRCLES OF TOTAL AND EFFECTIVE STRESSES



Initial Sample Height:	170.02	mm	Initial Water Content:	15.3	%
Initial Sample Diameter:	82.85	mm	Initial Bulk Density:	2.23	t/m³
Initial B Value:	18	%	Initial Dry Density:	1.94	t/m³
B Value before Consolidation:	96	%	Final Water Content:	14.7	%

	Consolidation Stage			Failure Values				
	Cell Pressure (kPa)	Back Pressure (kPa)	Eff. Consol. Stress (kPa)	Deviator Stress (kPa)	Pore Pressure Change During Shearing δμ (kPa)	Effective Principal Stress (kPa) Major σ1'	Effective Principal Stress (kPa) Minor σ3'	Vertical Strain (%)
STAGE 1	500	300	200	228.26	48.3	379.96	151.70	3.19
STAGE 2	800	300	500	498.01	119.9	878.11	380.10	3.34
STAGE 3	1100	300	800	771.78	178.5	1393.28	621.50	3.21

		Total			Effective	
Angle of Frictional Resistance:	ϕ =	18	°	ϕ' =	22	°
Cohesion:	c =	17	kPa	c' =	19	kPa
Linear Regression Coefficient:	r =	1.000		r =	1.000	

Sample History: Undisturbed core trimmed at natural water content.

Soil description: Gladstone, GT012-003, 25.15-25.35m, R0, Class 4 Andesite.

Failure Mode: Planar / Plastic Test Speed: 0.018 (mm/min)

Test Remarks: The sample was saturated by increments of cell pressure and back pressure.
Failure for each stage was determined by the maximum effective stress ratio. Strength parameters have been derived by using a linear regression fitting method.

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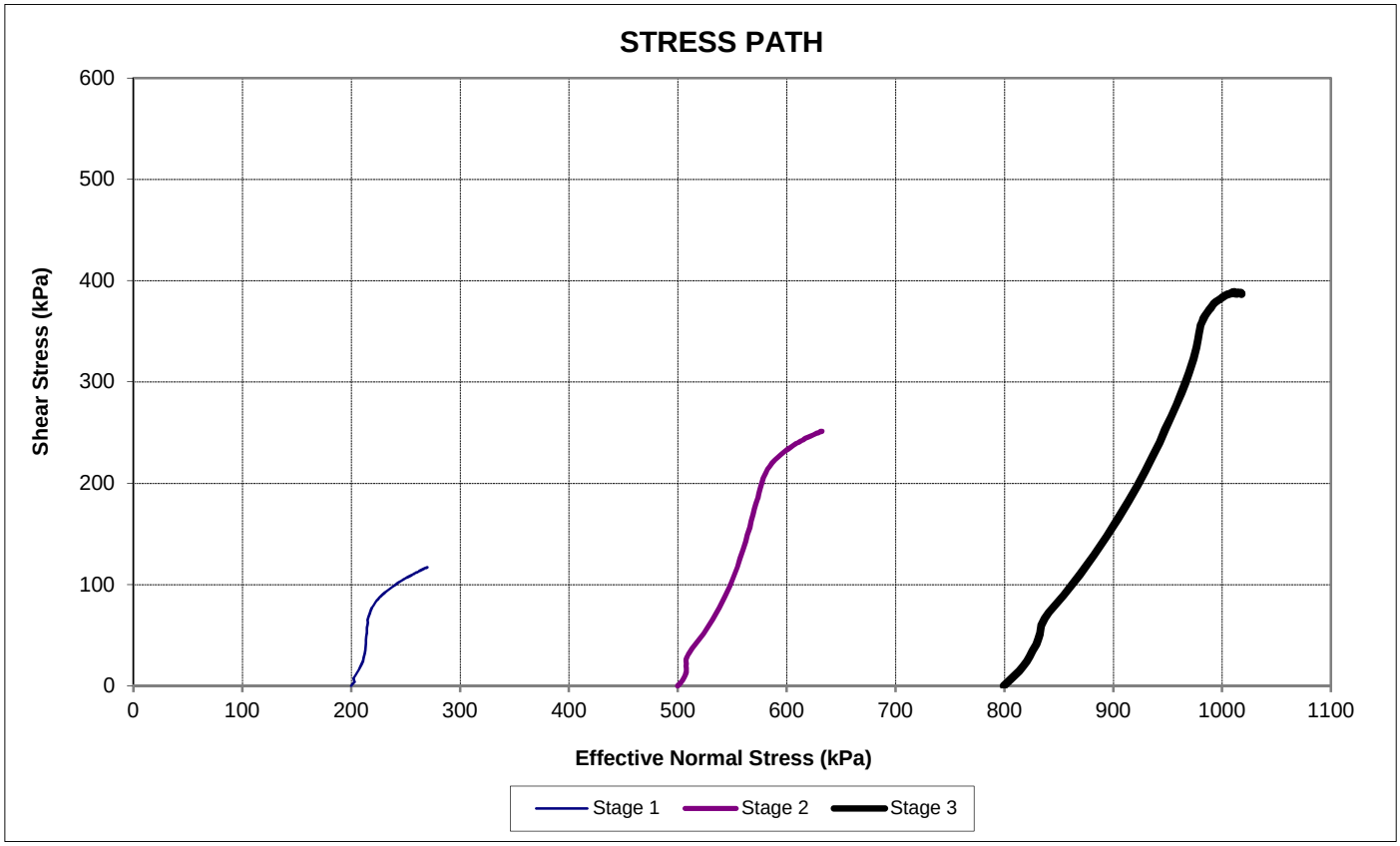
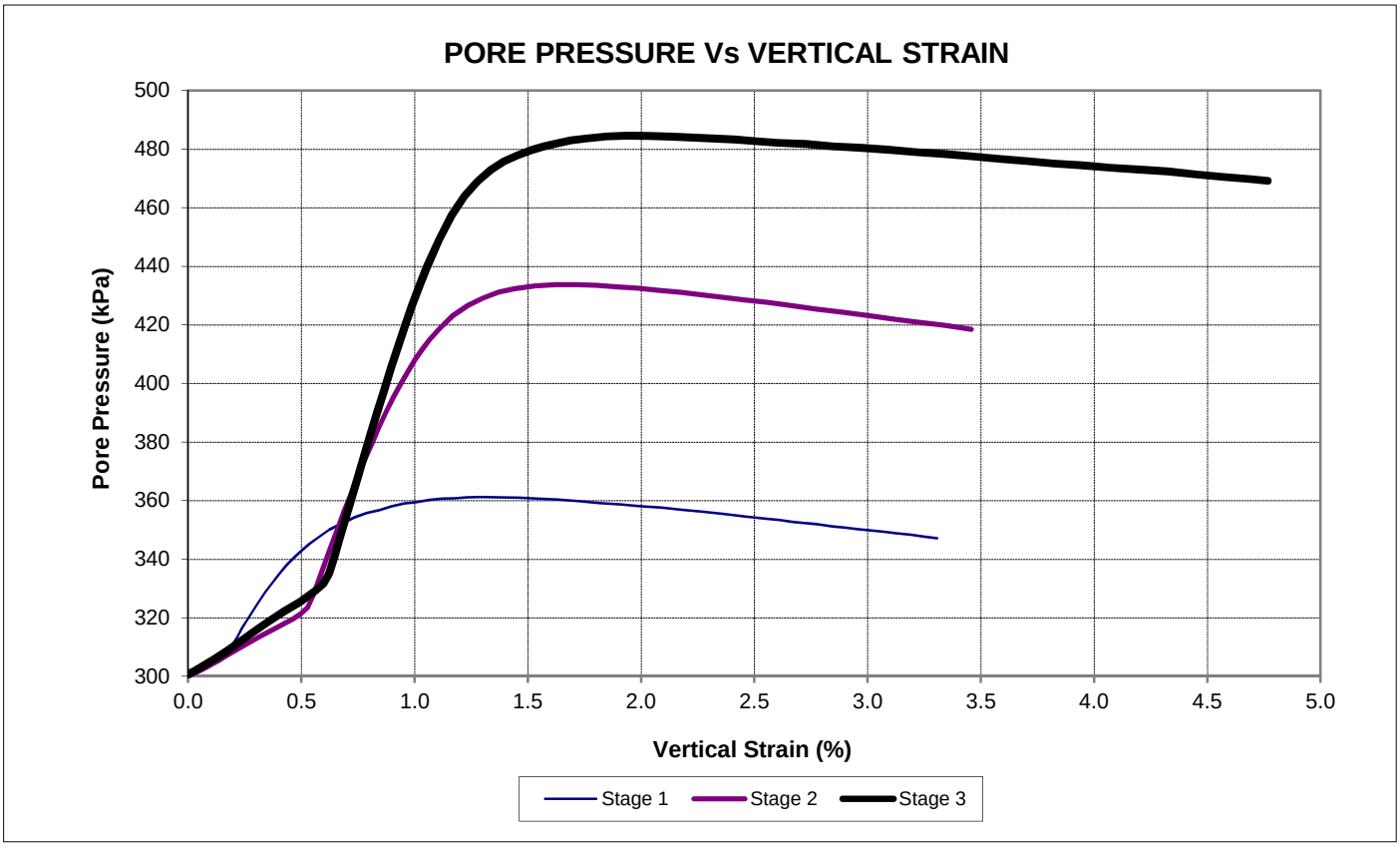
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT012	Sample Ref.: GT012-003	Depth: 25.15 -- 25.35 (m)

GRAPHS





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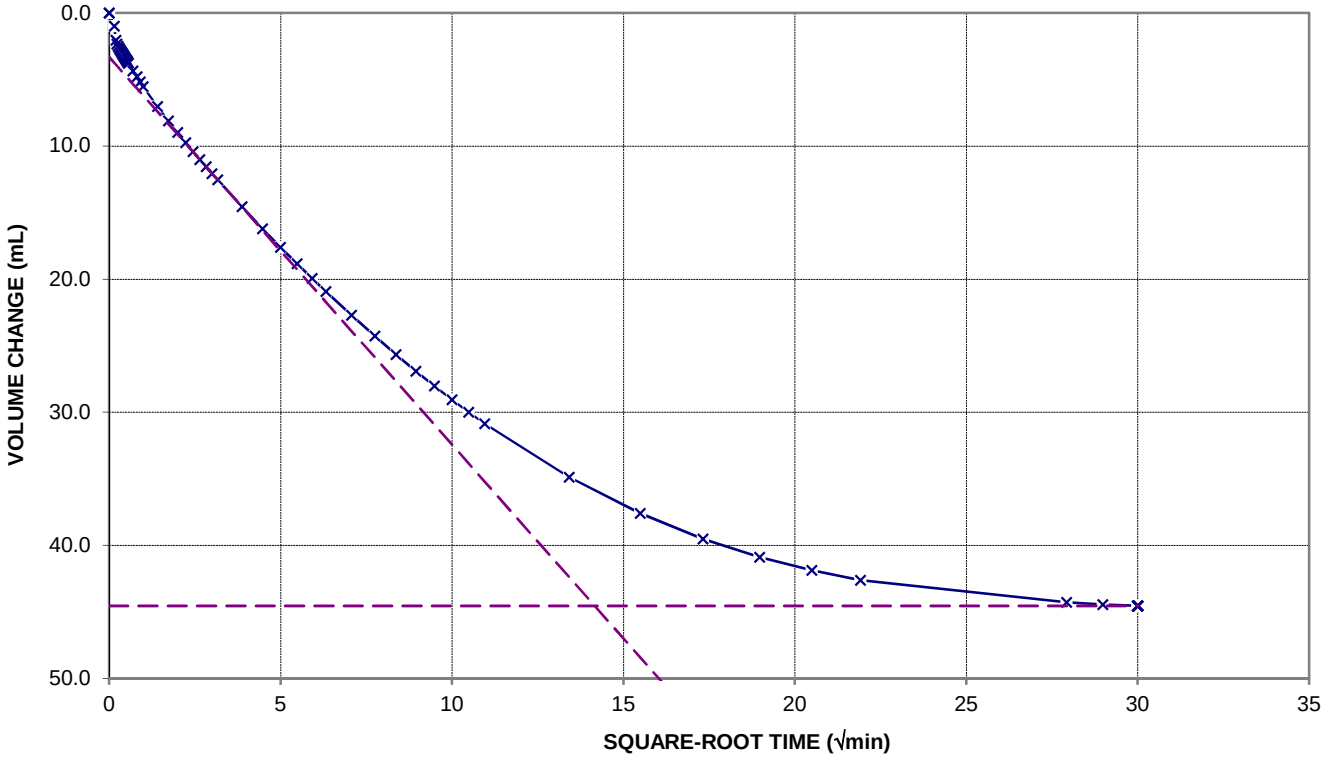
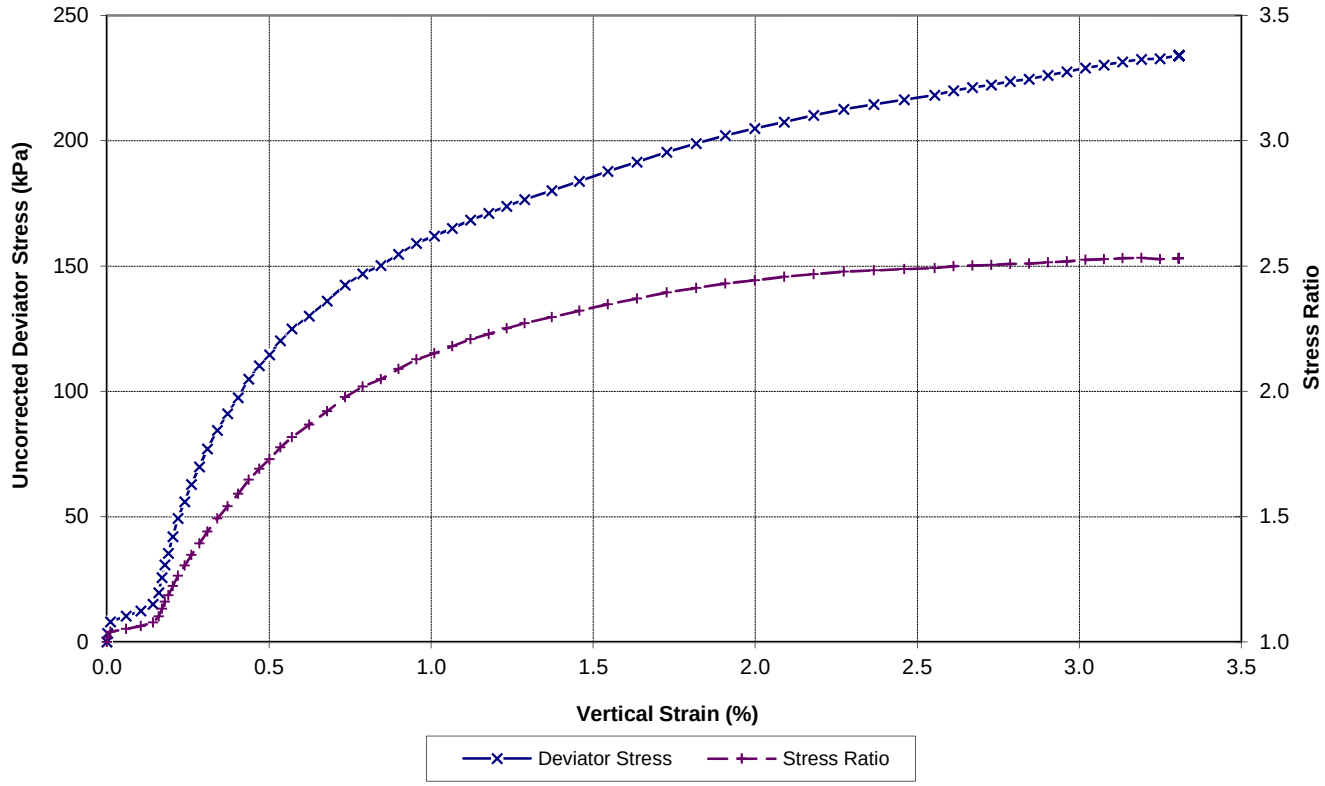
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT012	Sample Ref.: GT012-003	Depth: 25.15 -- 25.35 (m)

STAGE 1 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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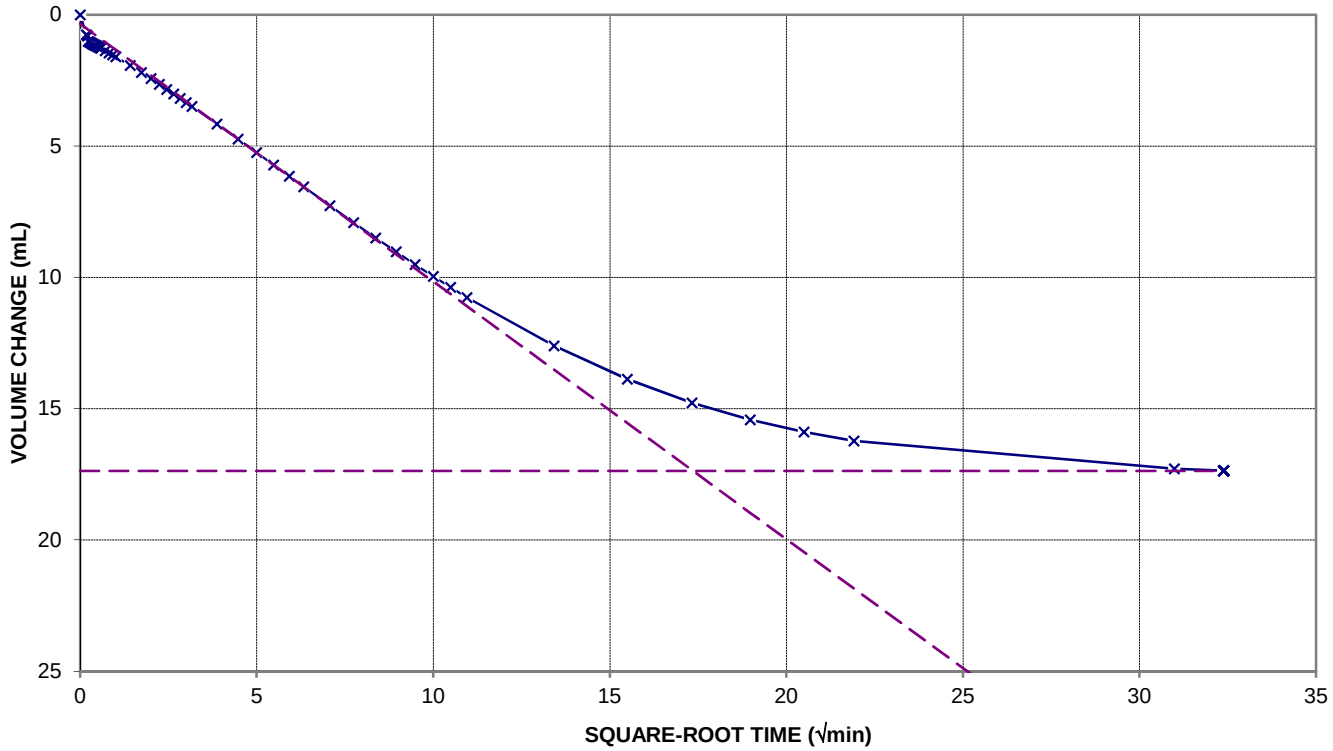
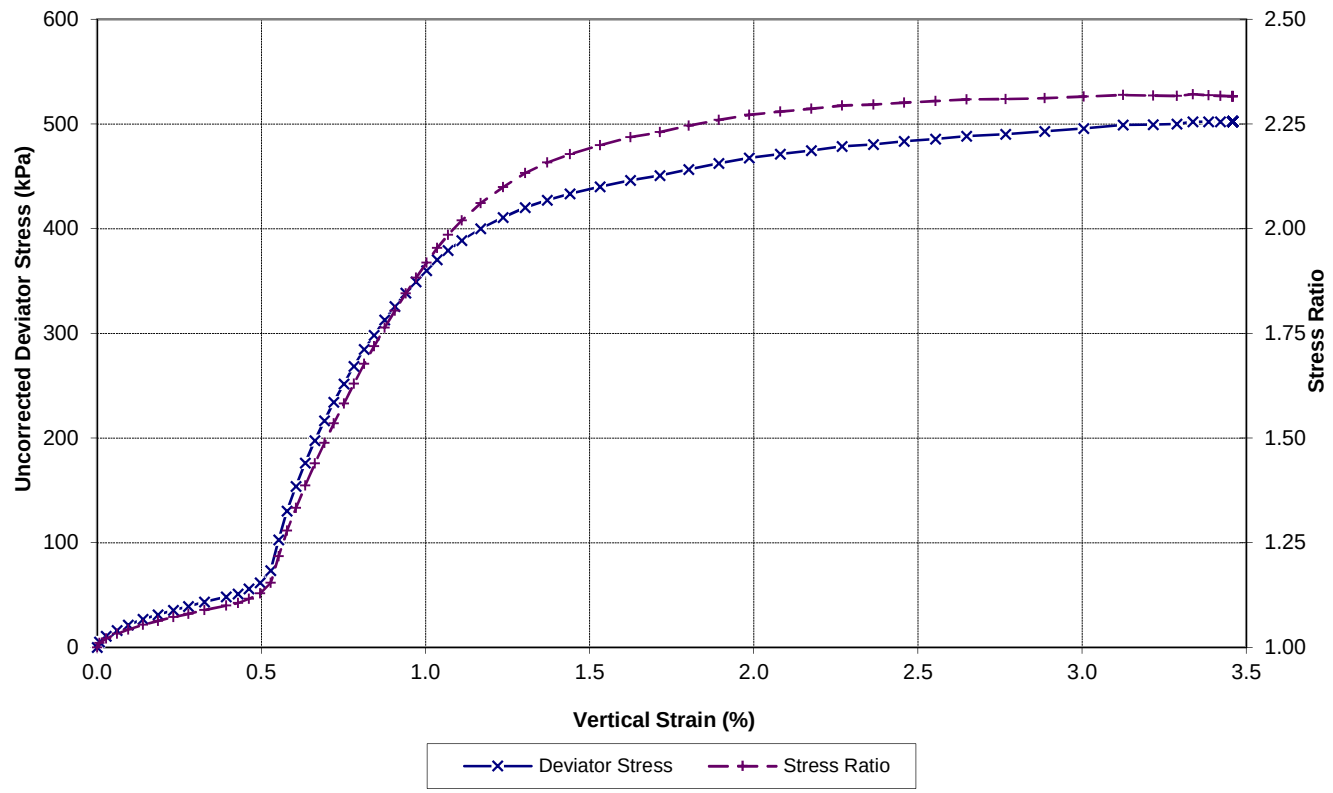
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT012	Sample Ref.: GT012-003	Depth: 25.15 -- 25.35 (m)

STAGE 2 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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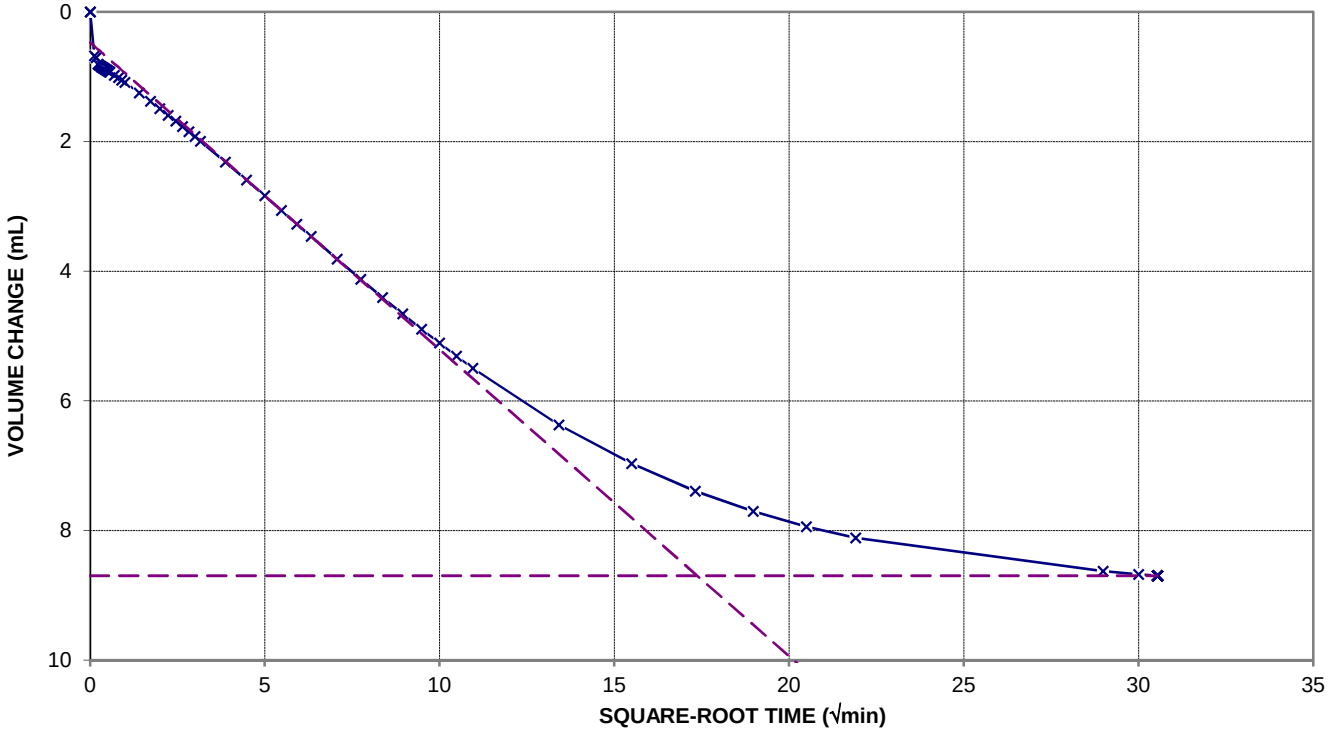
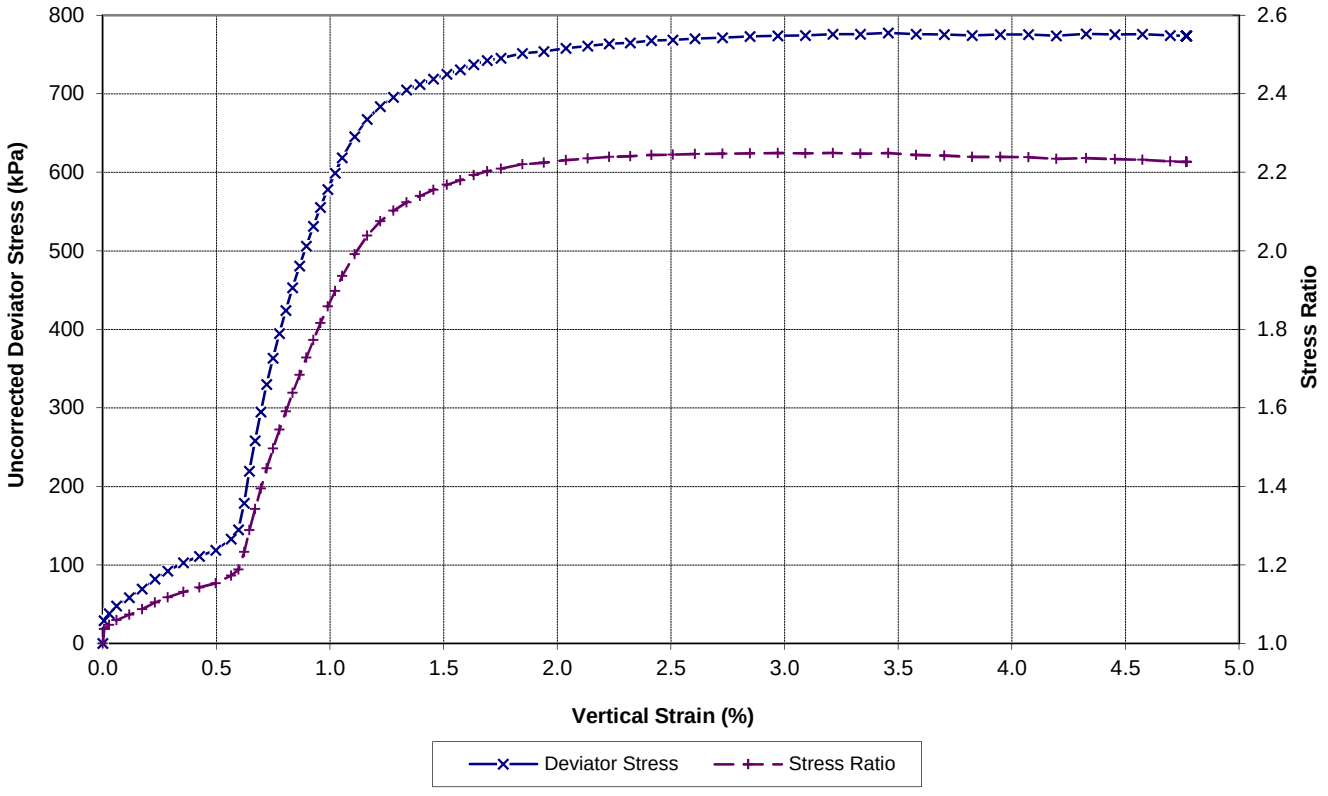
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT012	Sample Ref.: GT012-003	Depth: 25.15 -- 25.35 (m)

STAGE 3 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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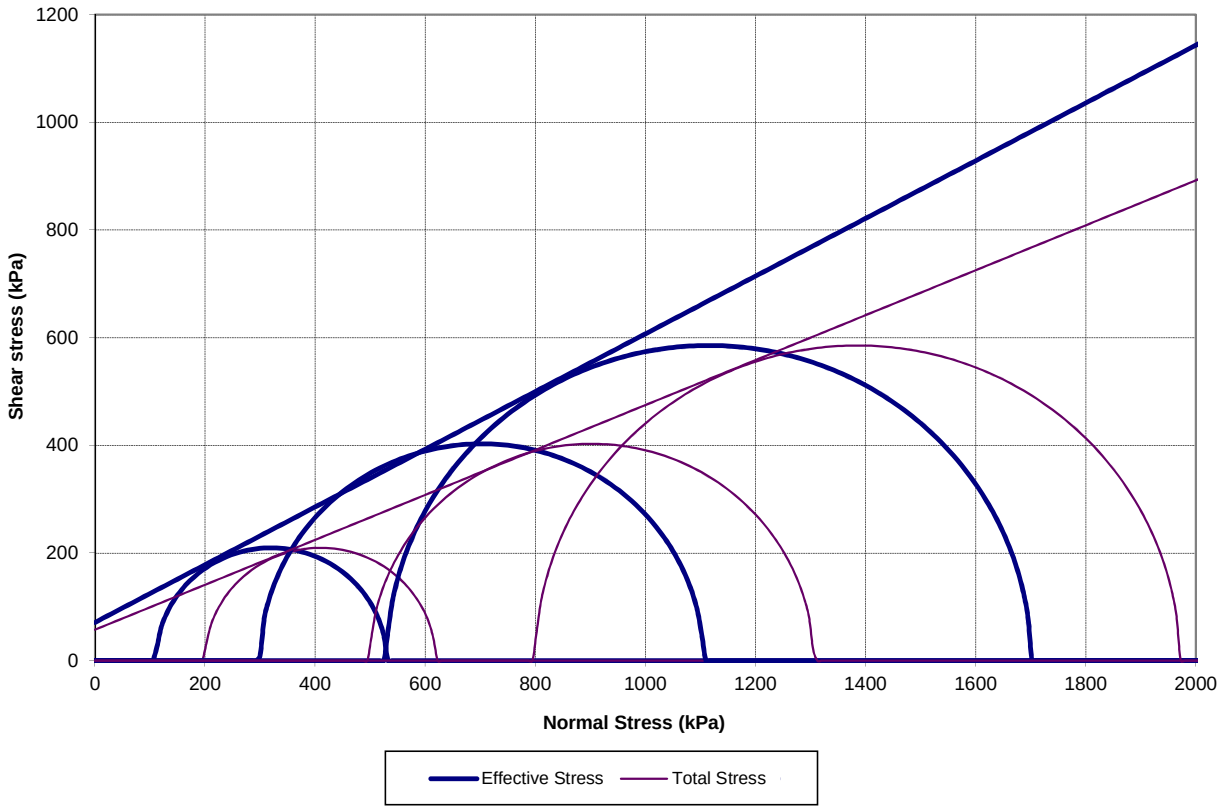
Site:	Waihi, NZ	Your Project ID:	PSM125	Project ID:	1003796.0000
Location ID:	GT013	Sample Ref.:	GT013-001	Depth:	38.83 -- 39.08 (m)

Test method used: BS1377:Part 8:1990:Clause 5 Saturation BS1377:Part 8:1990:Clause 6 Consolidation
BS1377:Part 8:1990:Clause 7 Consolidated-undrained triaxial compression test with pore pressure measurement

CONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST (3 STAGES)
MOHR CIRCLES OF TOTAL AND EFFECTIVE STRESSES



Initial Sample Height:	161.43	mm	Initial Water Content:	25.1	%
Initial Sample Diameter:	81.72	mm	Initial Bulk Density:	1.97	t/m³
Initial B Value:	--	%	Initial Dry Density:	1.58	t/m³
B Value before Consolidation:	98	%	Final Water Content:	25.7	%

	Consolidation Stage			Failure Values				
	Cell Pressure (kPa)	Back Pressure (kPa)	Eff. Consol. Stress (kPa)	Deviator Stress (kPa)	Pore Pressure Change During Shearing δμ (kPa)	Effective Principal Stress (kPa) Major σ1'	Effective Principal Stress (kPa) Minor σ3'	Vertical Strain (%)
STAGE 1	500	300	200	419.07	89	530.07	111.00	0.40
STAGE 2	800	300	500	805.49	200.1	1105.39	299.90	0.30
STAGE 3	1100	300	800	1170.78	270.1	1700.68	529.90	0.28

		Total			Effective	
Angle of Frictional Resistance:	ϕ =	23	°	ϕ' =	28	°
Cohesion:	c =	57	kPa	c' =	71	kPa
Linear Regression Coefficient:	r =	1.000		r =	0.999	

Sample History: Undisturbed core trimmed at natural water content.

Soil description: Gladstone, GT013-001, 38.83-39.08m, R1, Class 4 Andesite.

Failure Mode: Planar / Plastic Test Speed: 0.06 (mm/min)

Test Remarks: The sample was saturated by increments of cell pressure and back pressure.
Failure for each stage was determined by the maximum effective stress ratio. Strength parameters have been derived by using a linear regression fitting method.

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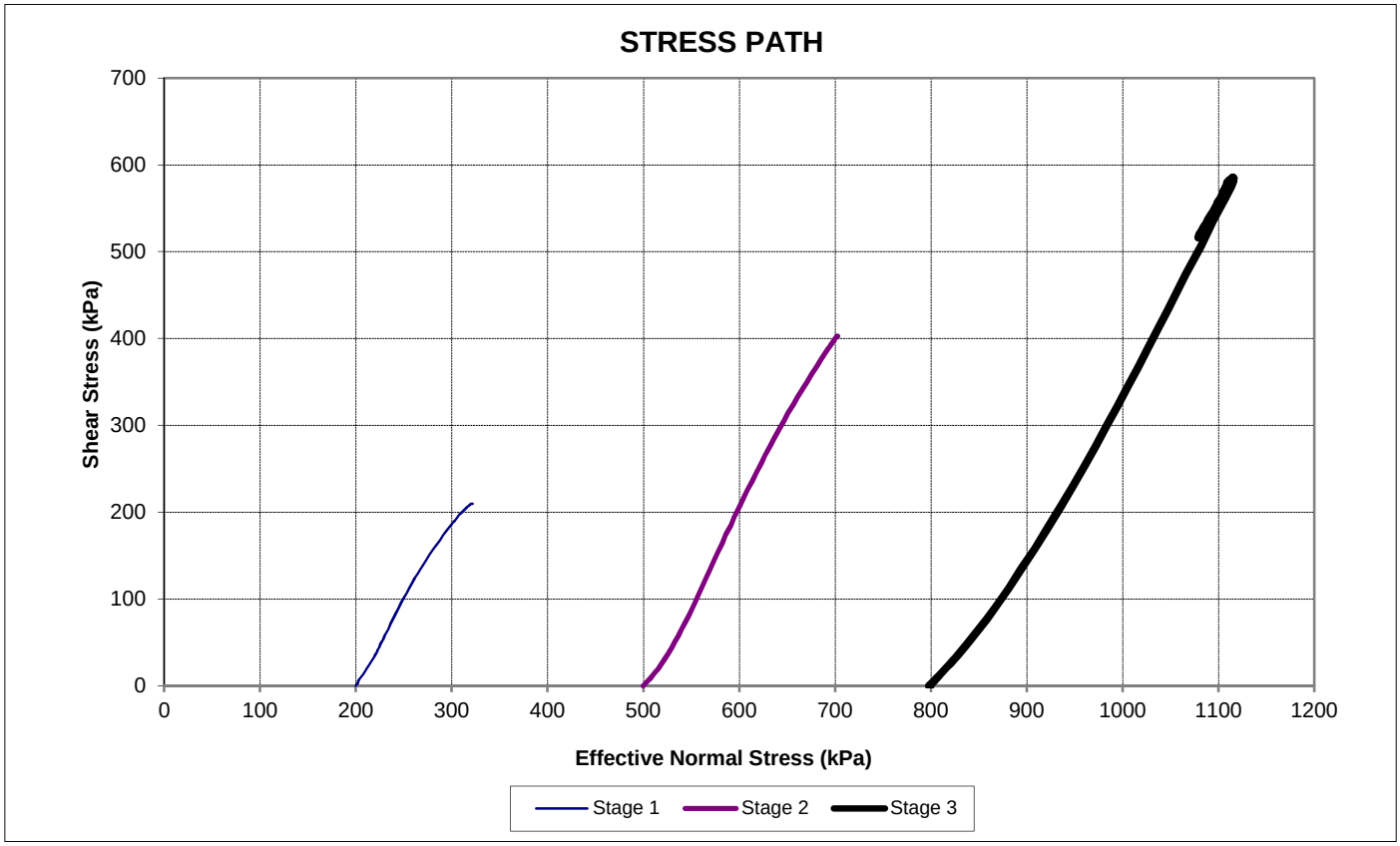
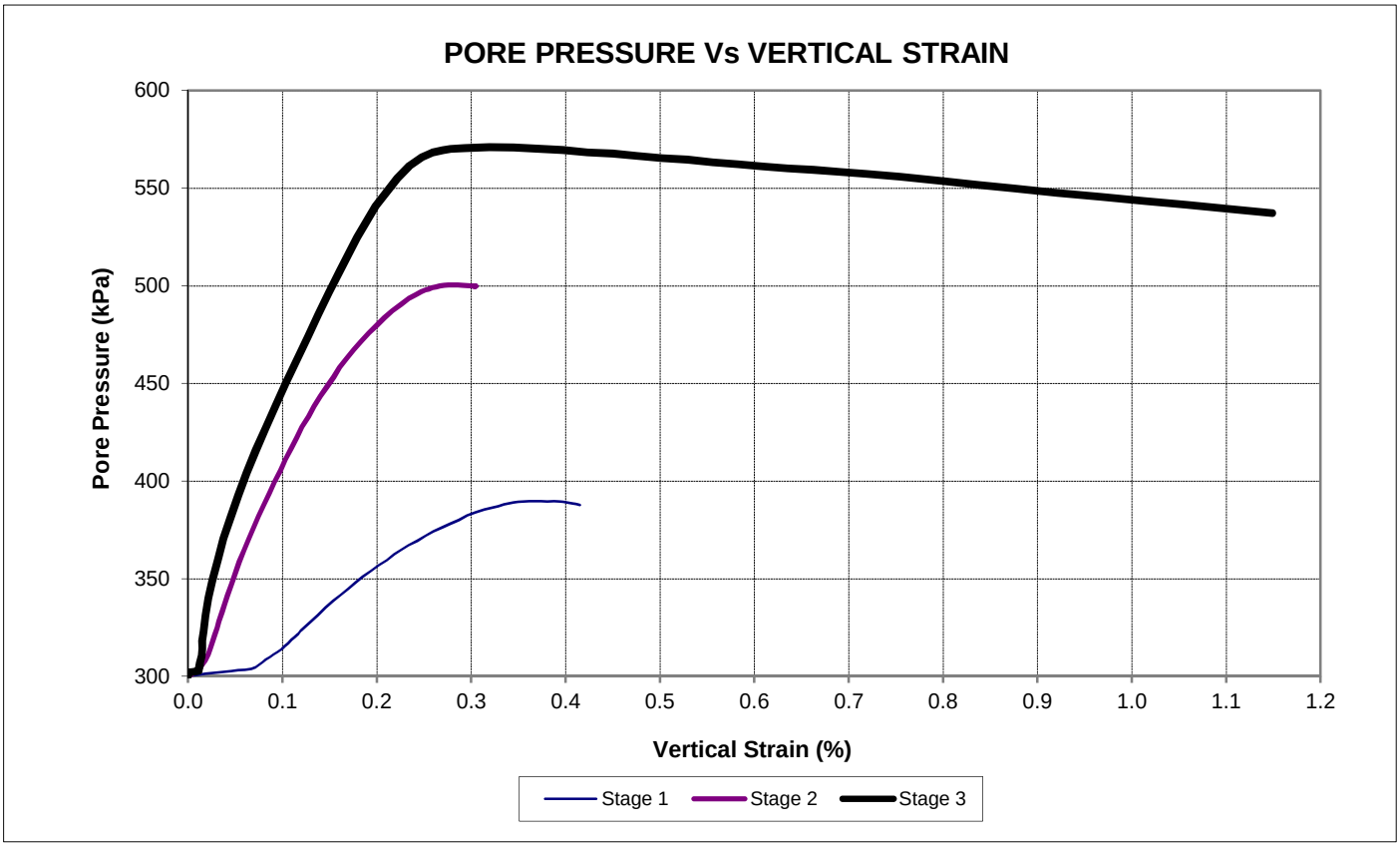
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT013	Sample Ref.: GT013-001	Depth: 38.83 -- 39.08 (m)

GRAPHS





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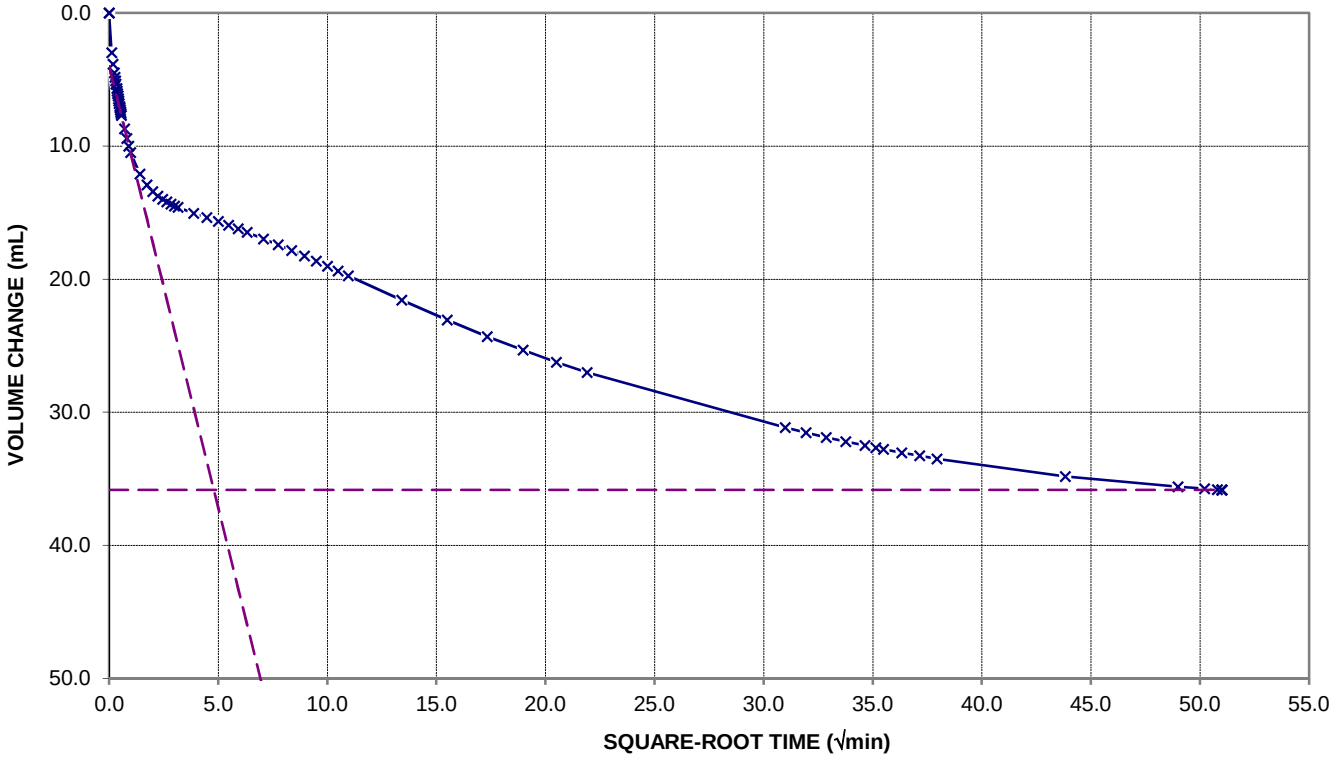
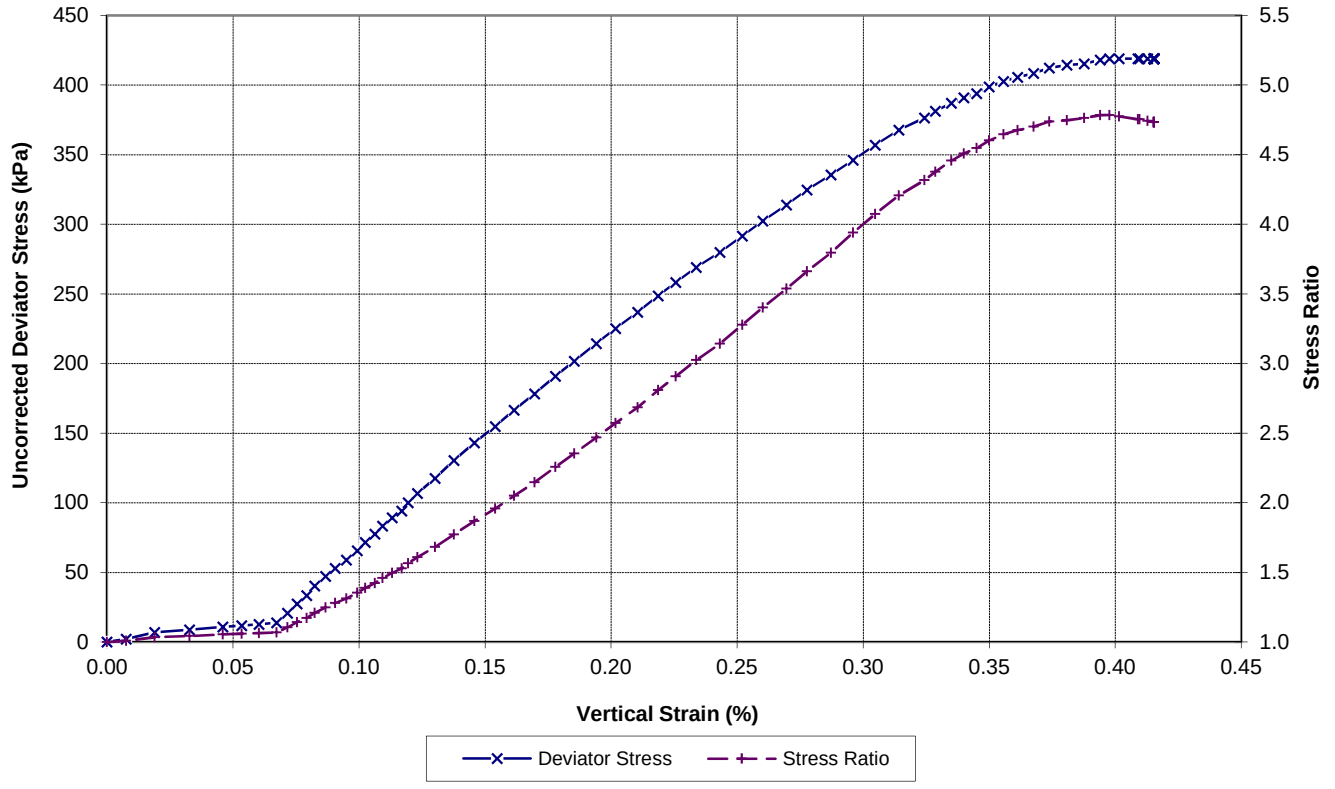
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT013	Sample Ref.: GT013-001	Depth: 38.83 -- 39.08 (m)

STAGE 1 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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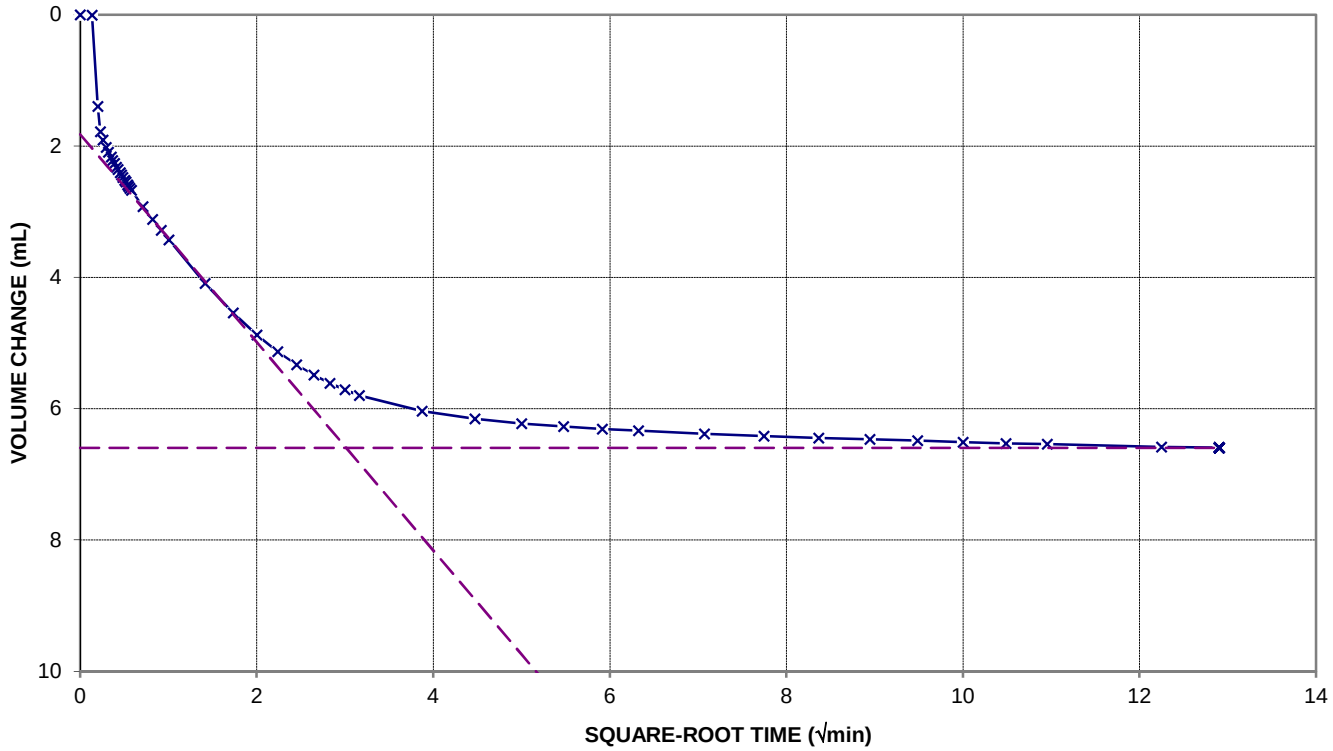
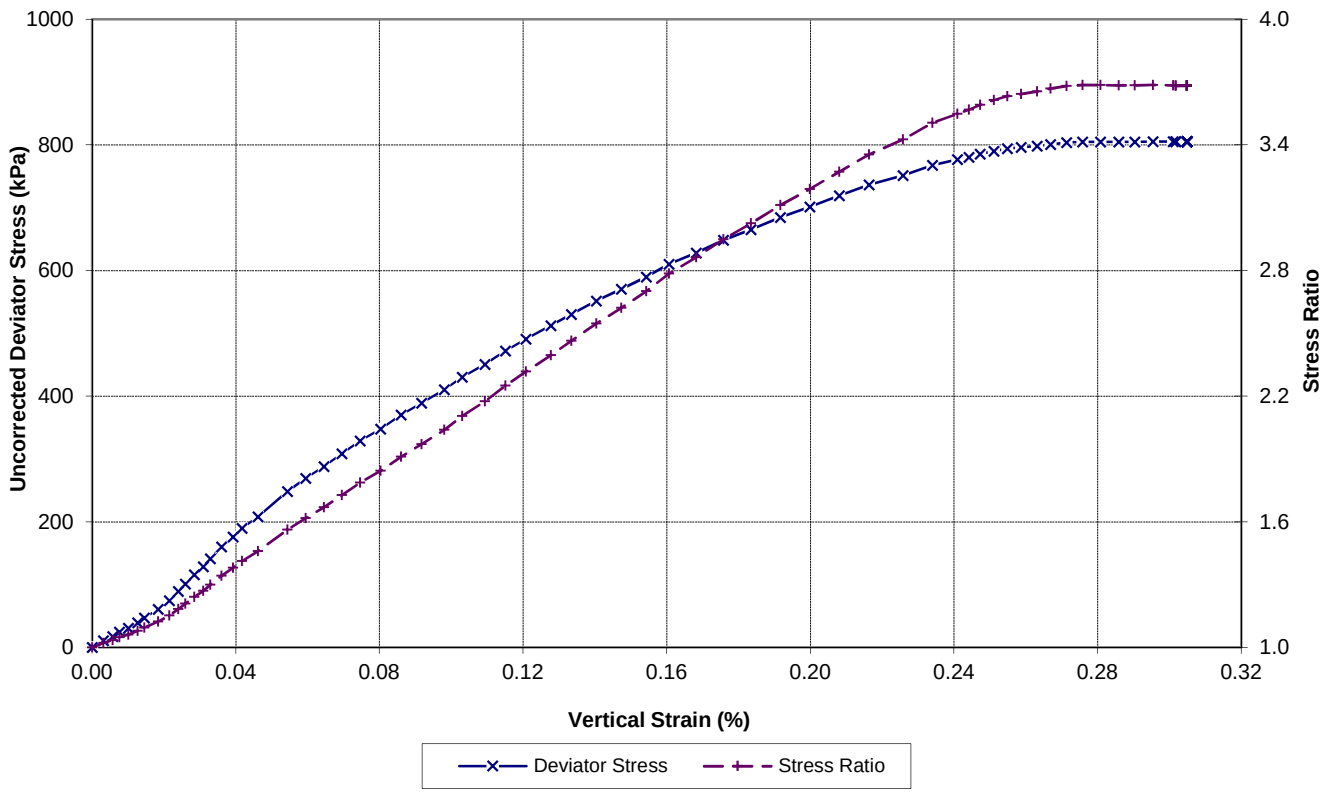
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT013	Sample Ref.: GT013-001	Depth: 38.83 -- 39.08 (m)

STAGE 2 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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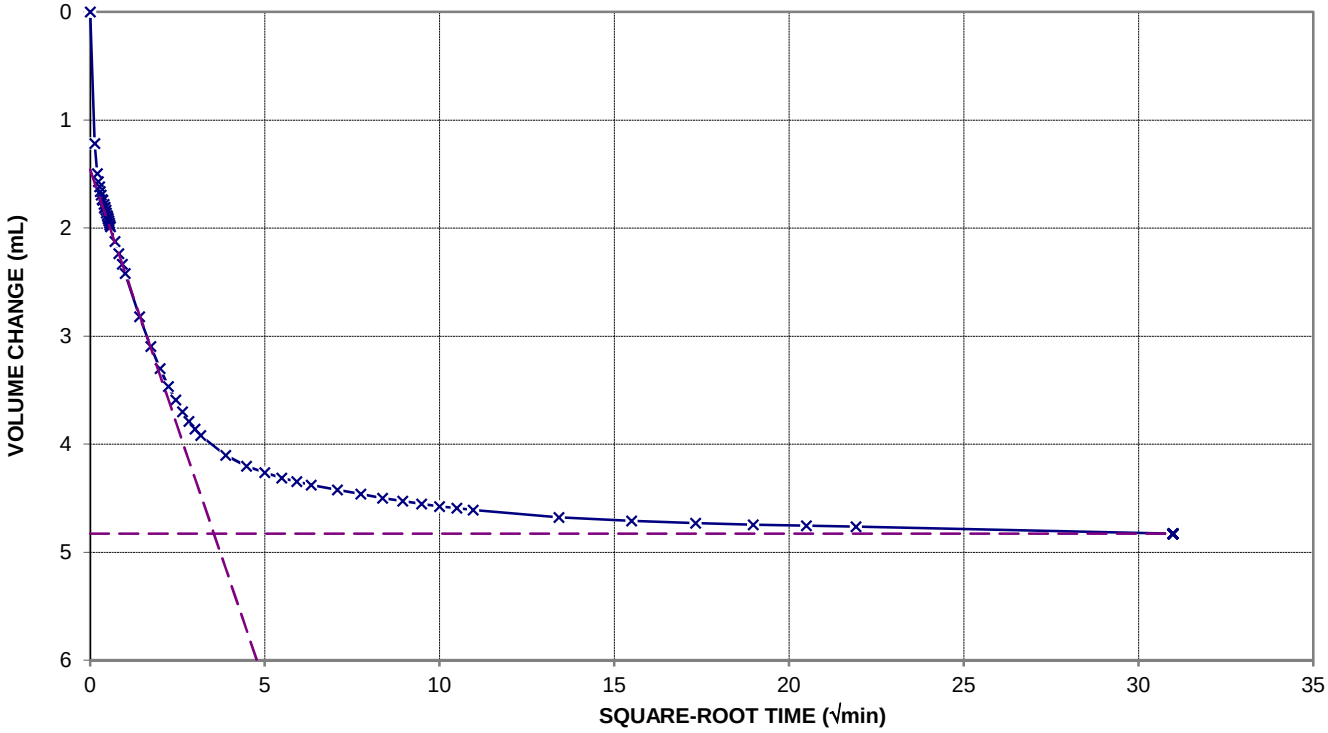
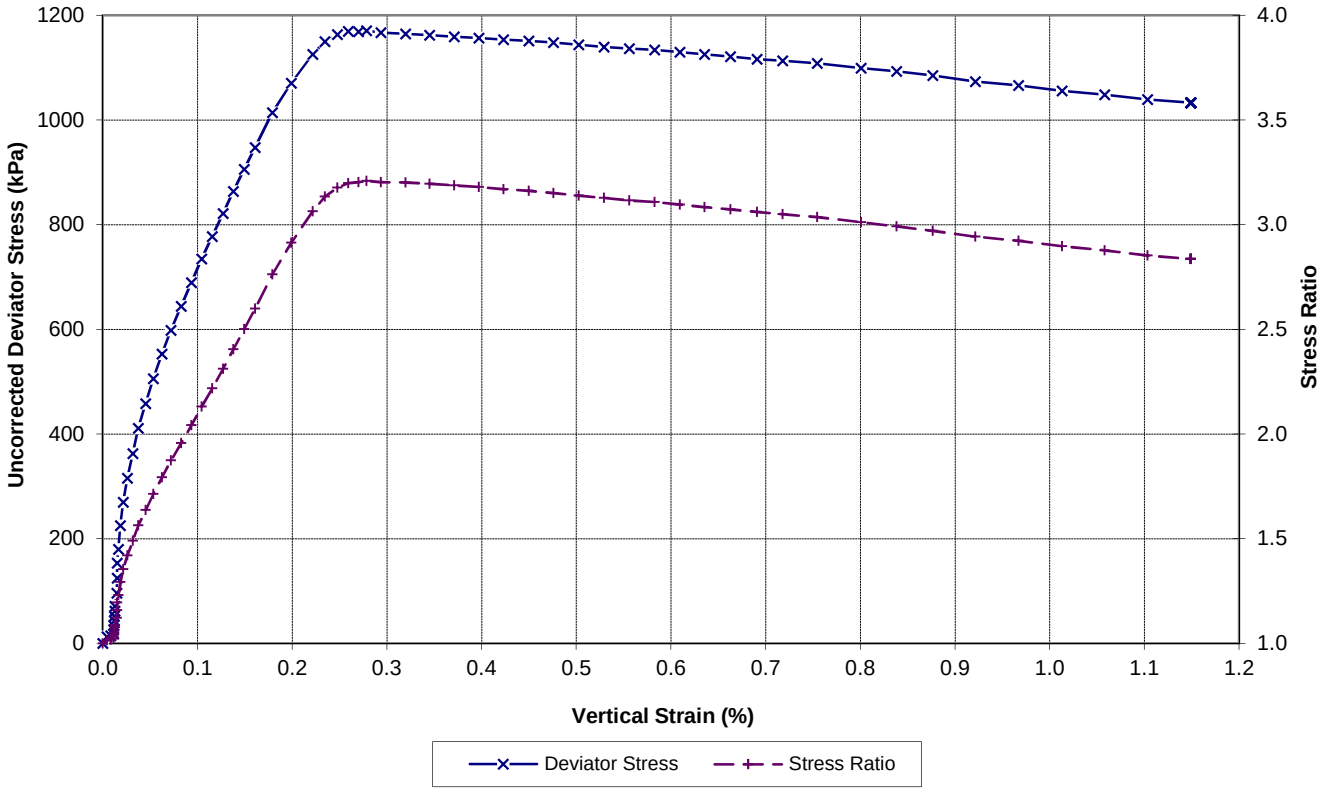
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT013	Sample Ref.: GT013-001	Depth: 38.83 -- 39.08 (m)

STAGE 3 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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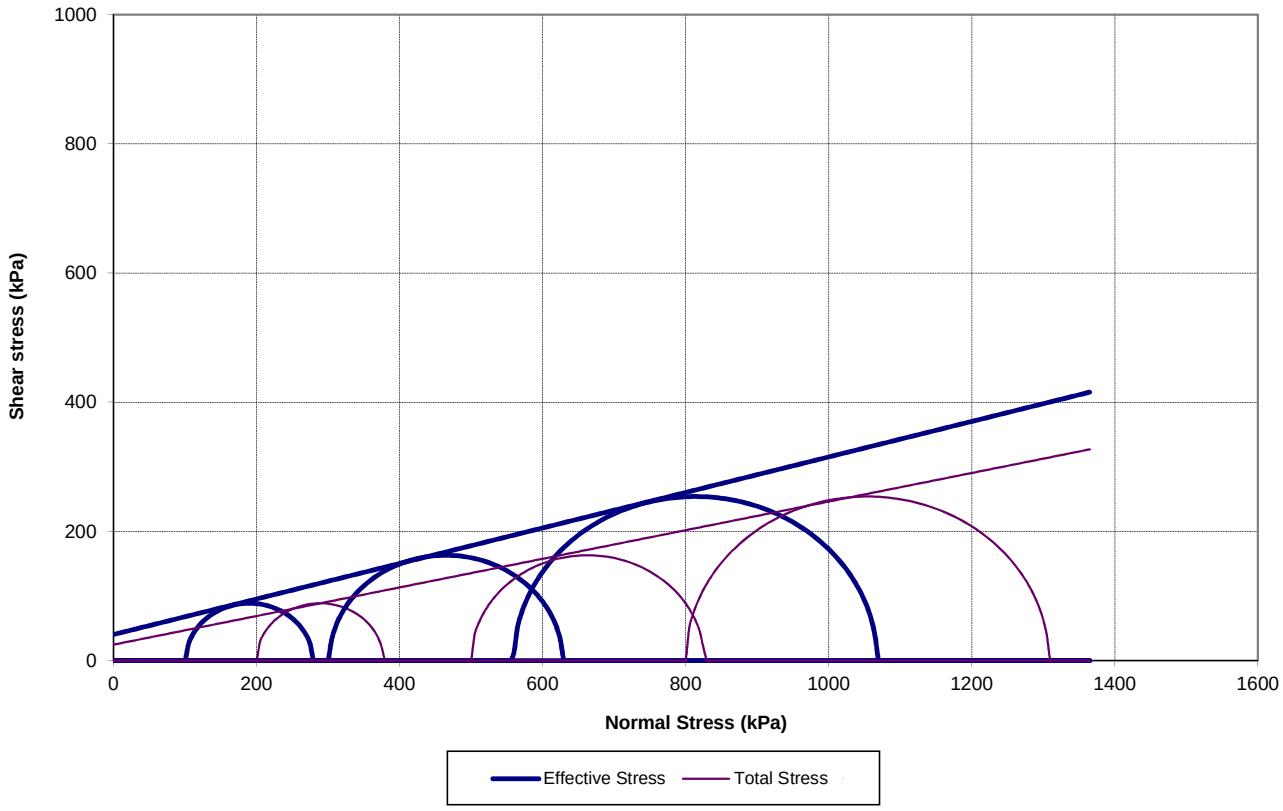
Site: Waihi, NZ | Your Project ID: PSM125 | Project ID: 1003796.0000
Location ID: GT014 | Sample Ref.: GT014-004 | Depth: 28.15 -- 28.31 (m)
Test method used: BS1377:Part 8:1990:Clause 5 Saturation | BS1377:Part 8:1990:Clause 6 Consolidation
BS1377:Part 8:1990:Clause 7 Consolidated-undrained triaxial compression test with pore pressure measurement

CONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST (3 STAGES)
MOHR CIRCLES OF TOTAL AND EFFECTIVE STRESSES



Initial Sample Height:	160.23	mm	Initial Water Content:	36.4	%
Initial Sample Diameter:	85.00	mm	Initial Bulk Density:	1.80	t/m³
Initial B Value:	4	%	Initial Dry Density:	1.32	t/m³
B Value before Consolidation:	90	%	Final Water Content:	38.9	%

	Consolidation Stage			Failure Values				
	Cell Pressure (kPa)	Back Pressure (kPa)	Eff. Consol. Stress (kPa)	Deviator Stress (kPa)	Pore Pressure Change During Shearing δμ (kPa)	Effective Principal Stress (kPa) Major σ1'	Effective Principal Stress (kPa) Minor σ3'	Vertical Strain (%)
STAGE 1	550	350	200	177.58	98.7	278.88	101.30	6.59
STAGE 2	850	350	500	326.21	198.1	628.11	301.90	8.55
STAGE 3	1150	350	800	508.09	240.3	1067.79	559.70	5.32

		Total			Effective	
Angle of Frictional Resistance:	ϕ =	12	°	ϕ' =	15	°
Cohesion:	c =	25	kPa	c' =	40	kPa
Linear Regression Coefficient:	r =	0.998		r =	1.000	

Sample History: Undisturbed core trimmed at natural water content.

Soil description: Favona, GT014-004, 28.15-28.13m, S4, Volcaniclastic.

Failure Mode: Planar / Plastic | Test Speed: 0.02 (mm/min)

Test Remarks: The sample was saturated by increments of cell pressure and back pressure.
Failure for each stage was determined by the maximum Deviator stress. Strength parameters have been derived by using a linear regression fitting method.

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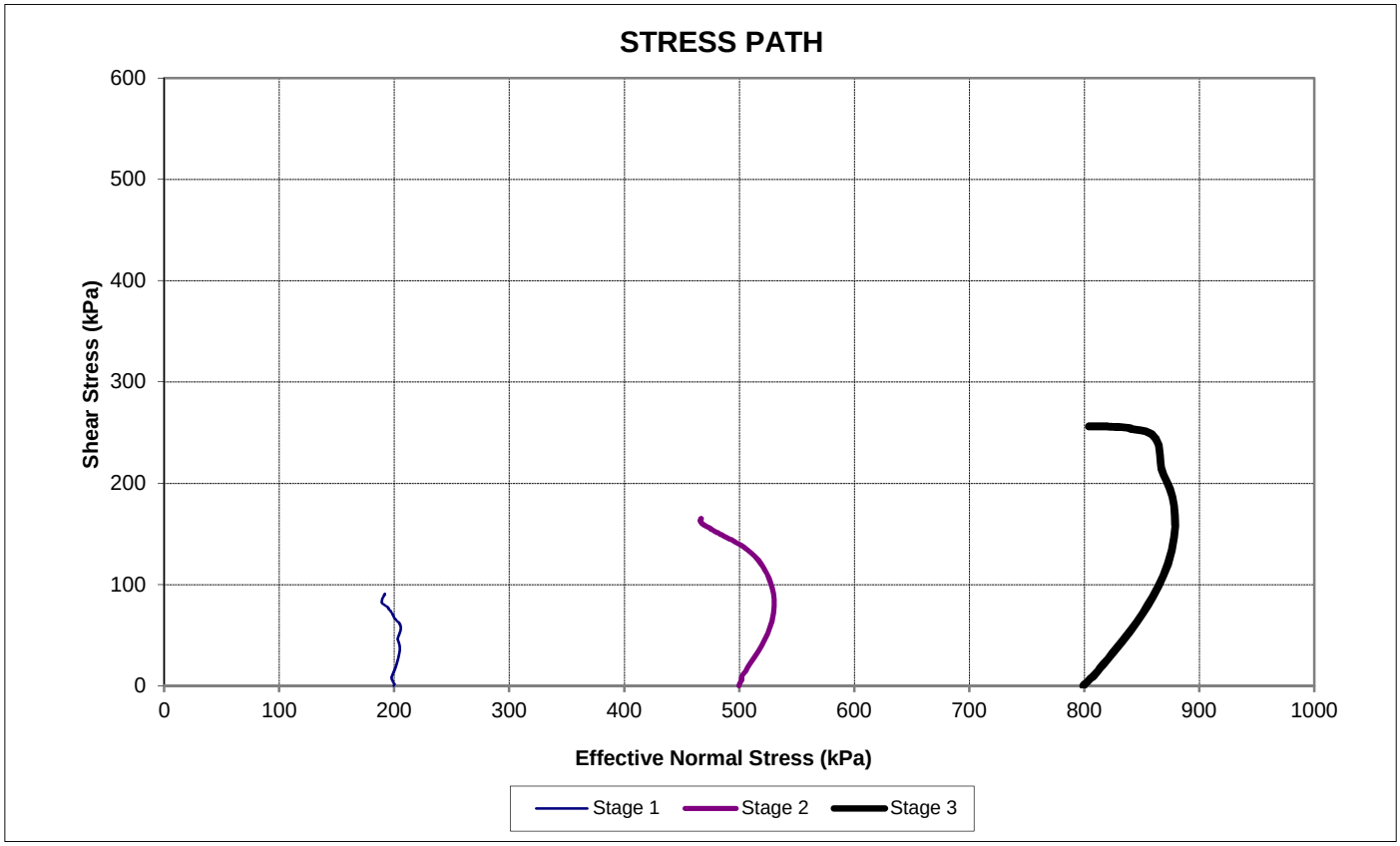
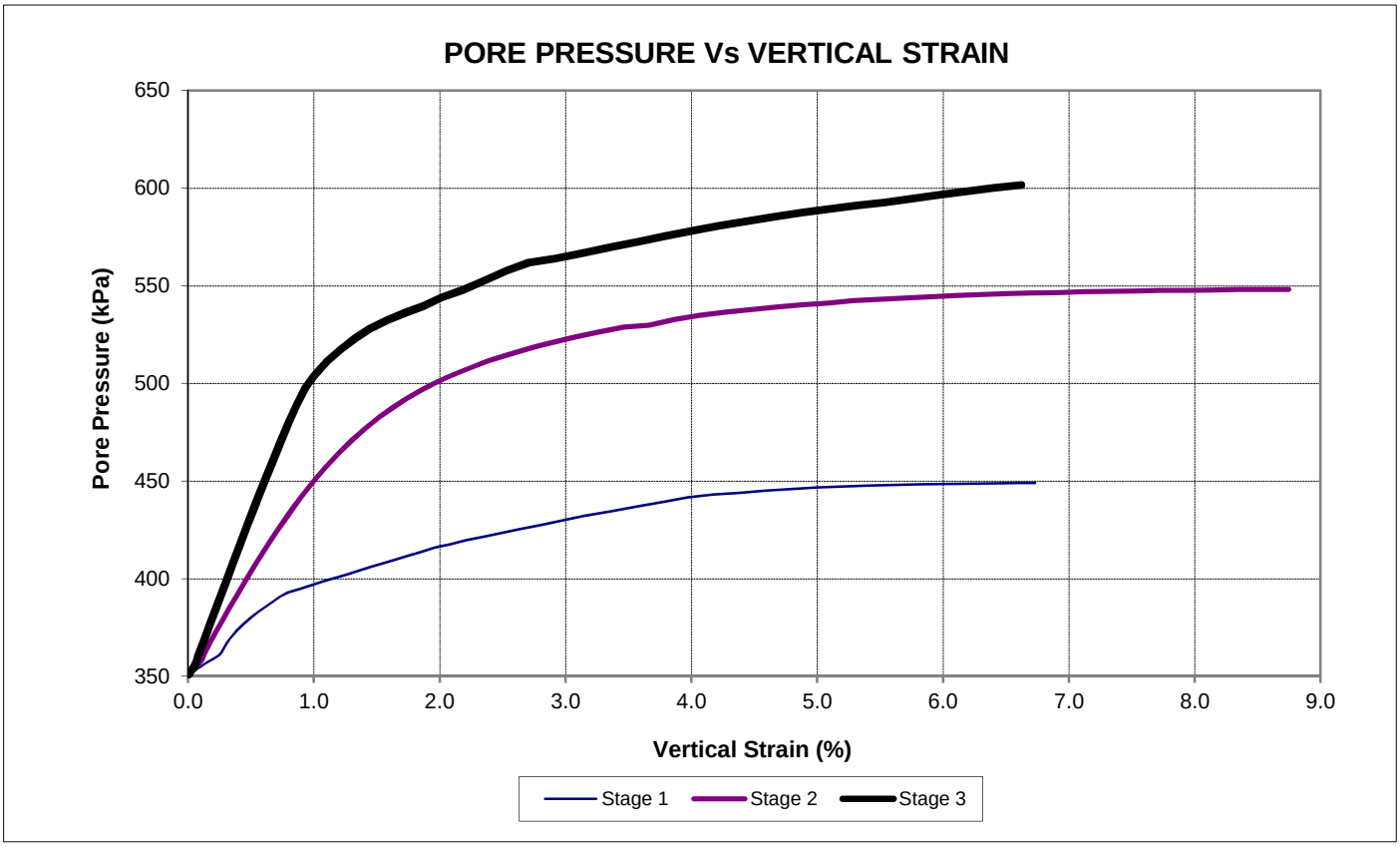
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT014	Sample Ref.: GT014-004	Depth: 28.15 -- 28.31 (m)

GRAPHS





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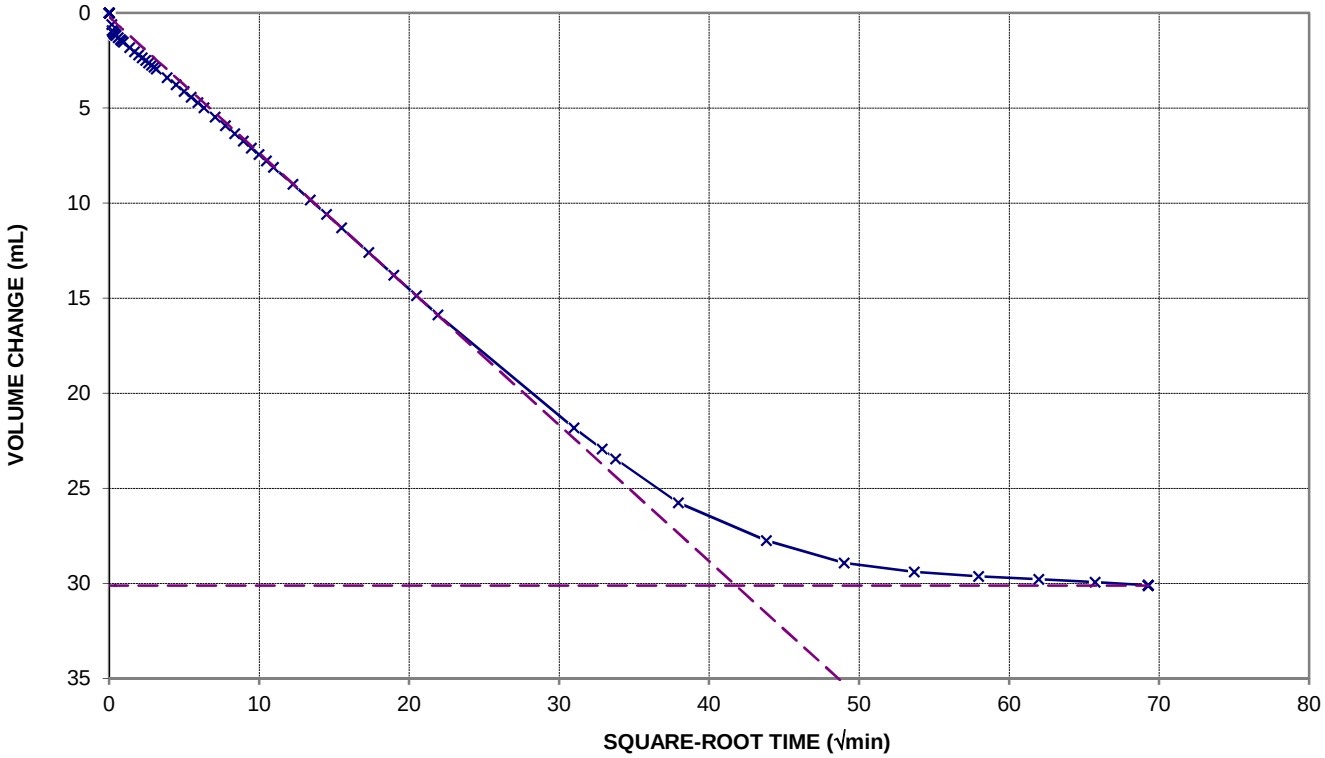
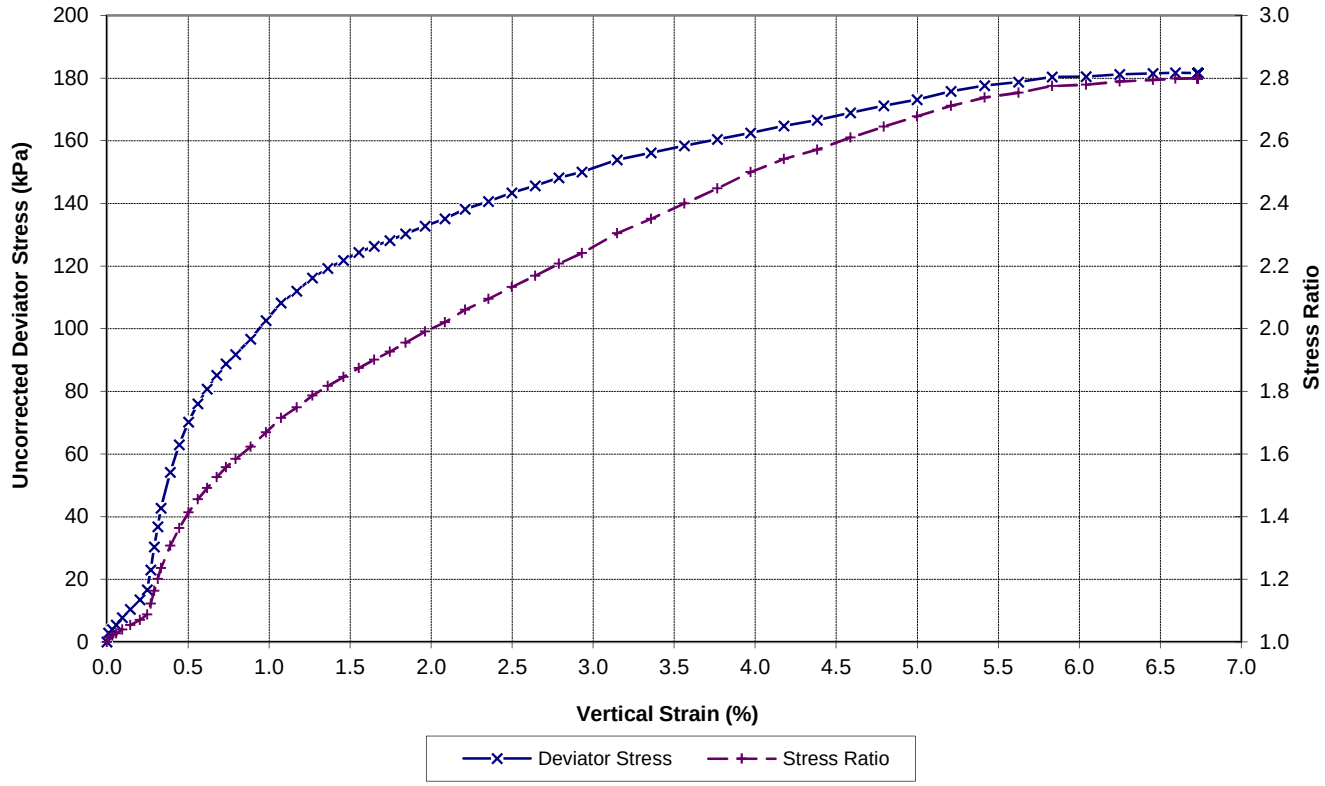
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT014	Sample Ref.: GT014-004	Depth: 28.15 -- 28.31 (m)

STAGE 1 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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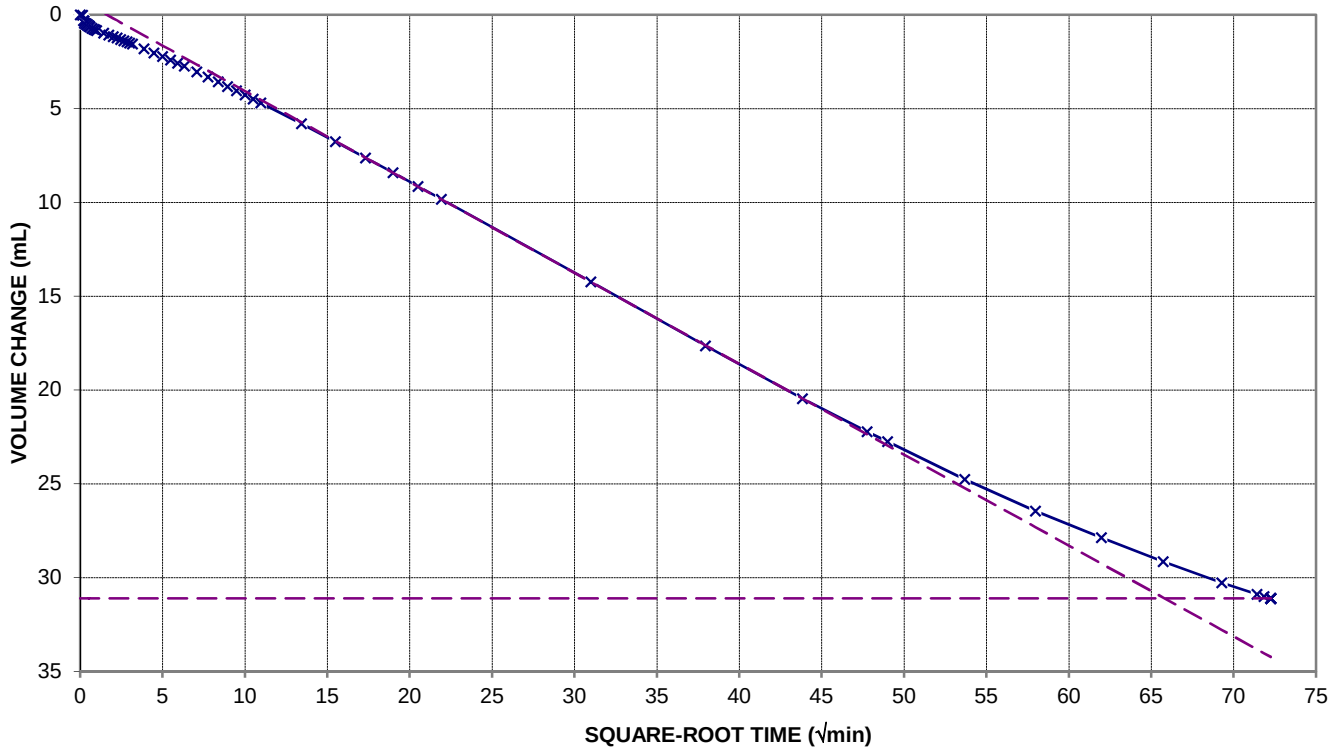
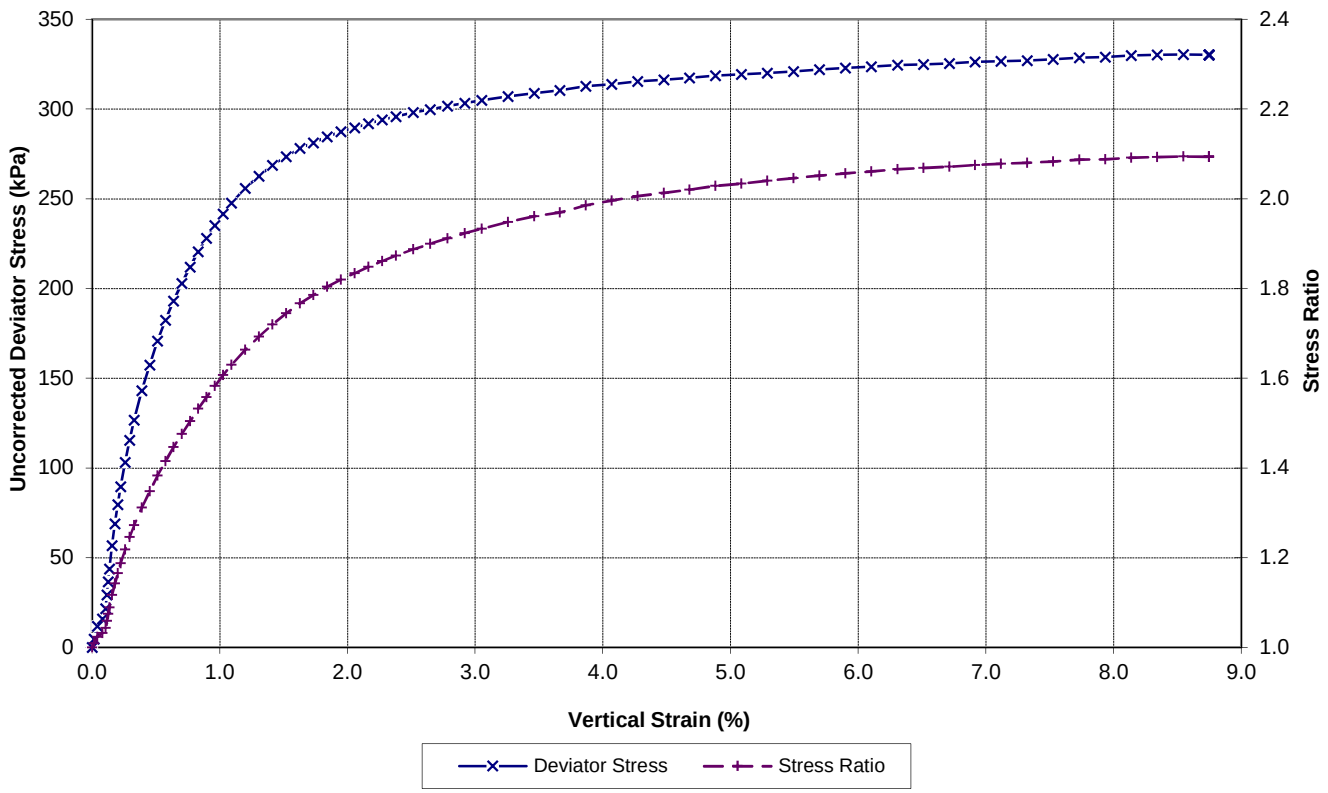
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT014	Sample Ref.: GT014-004	Depth: 28.15 -- 28.31 (m)

STAGE 2 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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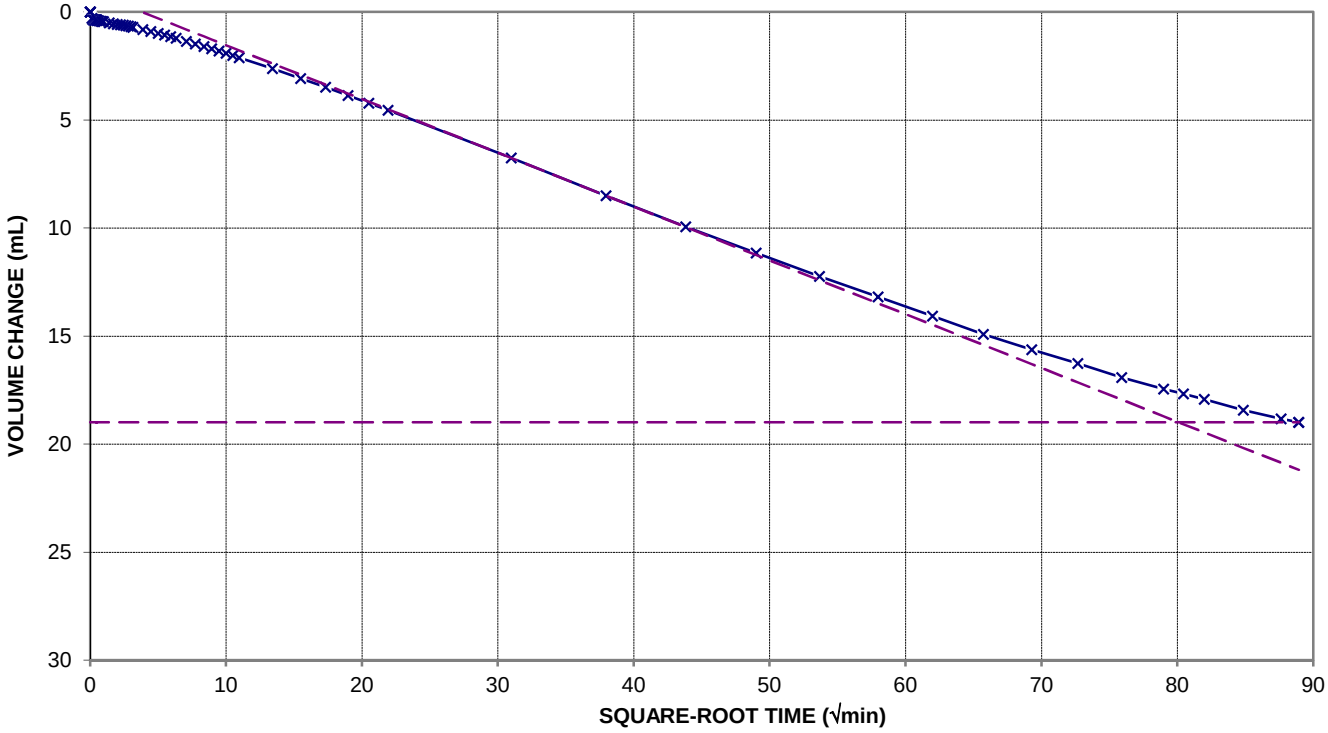
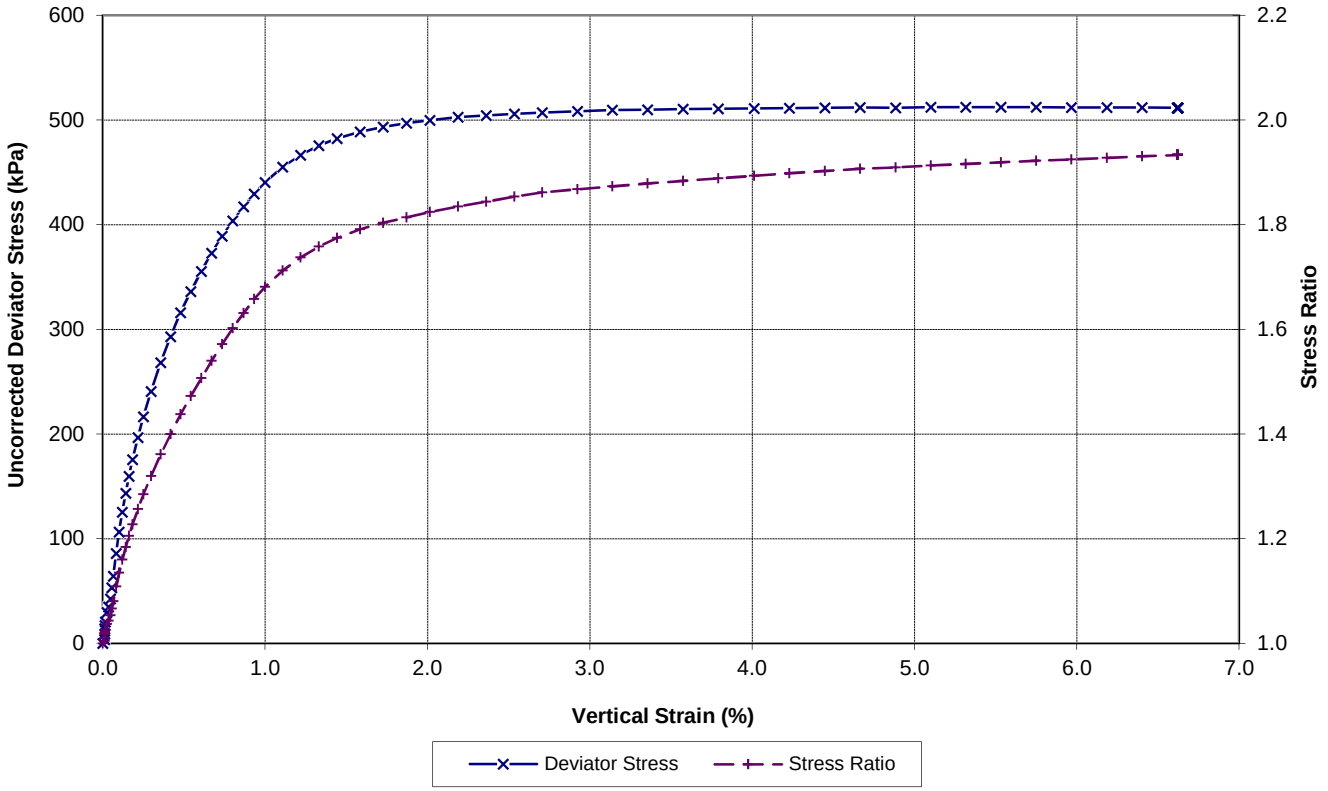
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT014	Sample Ref.: GT014-004	Depth: 28.15 -- 28.31 (m)

STAGE 3 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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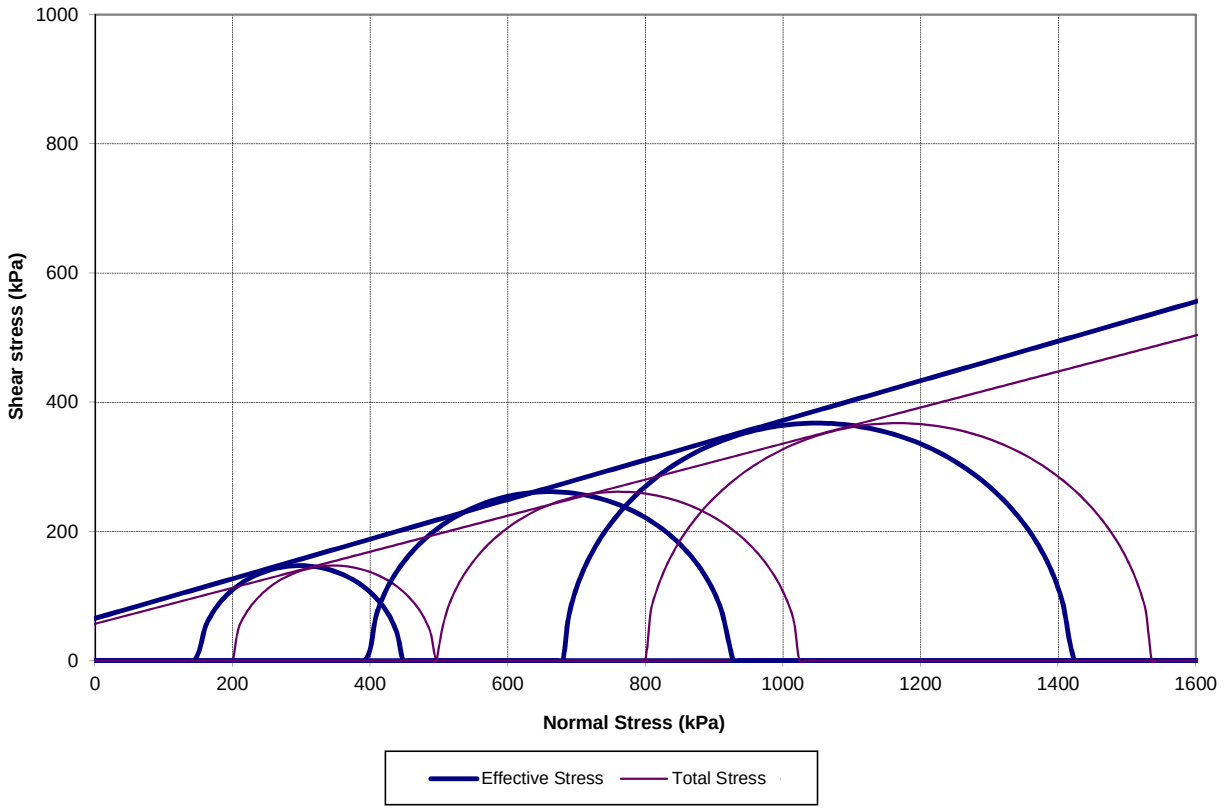
Site:	Waihi, NZ	Your Project ID:	PSM125	Project ID:	1003796.0000
Location ID:	GT014	Sample Ref.:	GT014-011	Depth:	43.94 -- 44.15 (m)

Test method used: BS1377:Part 8:1990:Clause 5 Saturation BS1377:Part 8:1990:Clause 6 Consolidation
BS1377:Part 8:1990:Clause 7 Consolidated-undrained triaxial compression test with pore pressure measurement

CONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST (3 STAGES)
MOHR CIRCLES OF TOTAL AND EFFECTIVE STRESSES



Initial Sample Height:	123.60	mm	Initial Water Content:	16.5	%
Initial Sample Diameter:	60.01	mm	Initial Bulk Density:	2.06	t/m³
Initial B Value:	26	%	Initial Dry Density:	1.77	t/m³
B Value before Consolidation:	96	%	Final Water Content:	19.0	%

	Consolidation Stage			Failure Values				
	Cell Pressure (kPa)	Back Pressure (kPa)	Eff. Consol. Stress (kPa)	Deviator Stress (kPa)	Pore Pressure Change During Shearing δμ (kPa)	Effective Principal Stress (kPa) Major σ1'	Effective Principal Stress (kPa) Minor σ3'	Vertical Strain (%)
STAGE 1	500	300	200	294.16	49	445.16	151.00	3.29
STAGE 2	800	300	500	522.95	100.6	922.35	399.40	2.69
STAGE 3	1100	300	800	735.24	117.7	1417.54	682.30	2.99

		Total			Effective	
Angle of Frictional Resistance:	ϕ =	16	°	ϕ' =	17	°
Cohesion:	c =	57	kPa	c' =	65	kPa
Linear Regression Coefficient:	r =	1.000		r =	0.998	

Sample History: Undisturbed core trimmed at natural water content.

Soil description: Favona, GT014-011, 43.94-44.15m, R1, Class 4 Andesite Breccia.

Failure Mode: Planar / Plastic Test Speed: 0.012 (mm/min)

Test Remarks: The sample was saturated by increments of cell pressure and back pressure.
Failure for each stage was determined by either the maximum effective stress ratio or the maximum deviator stress. Strength parameters have been derived by using a linear regression fitting method.

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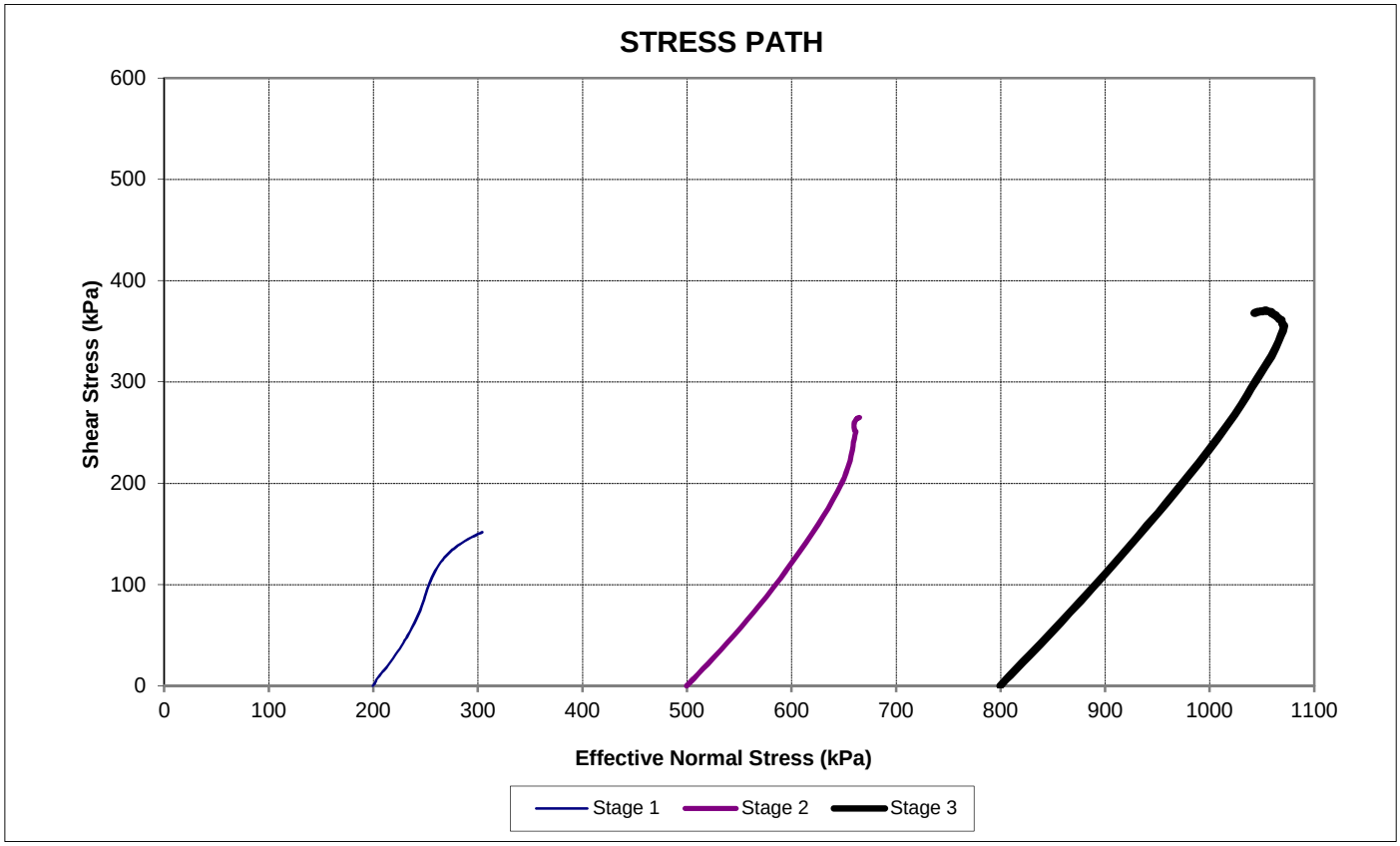
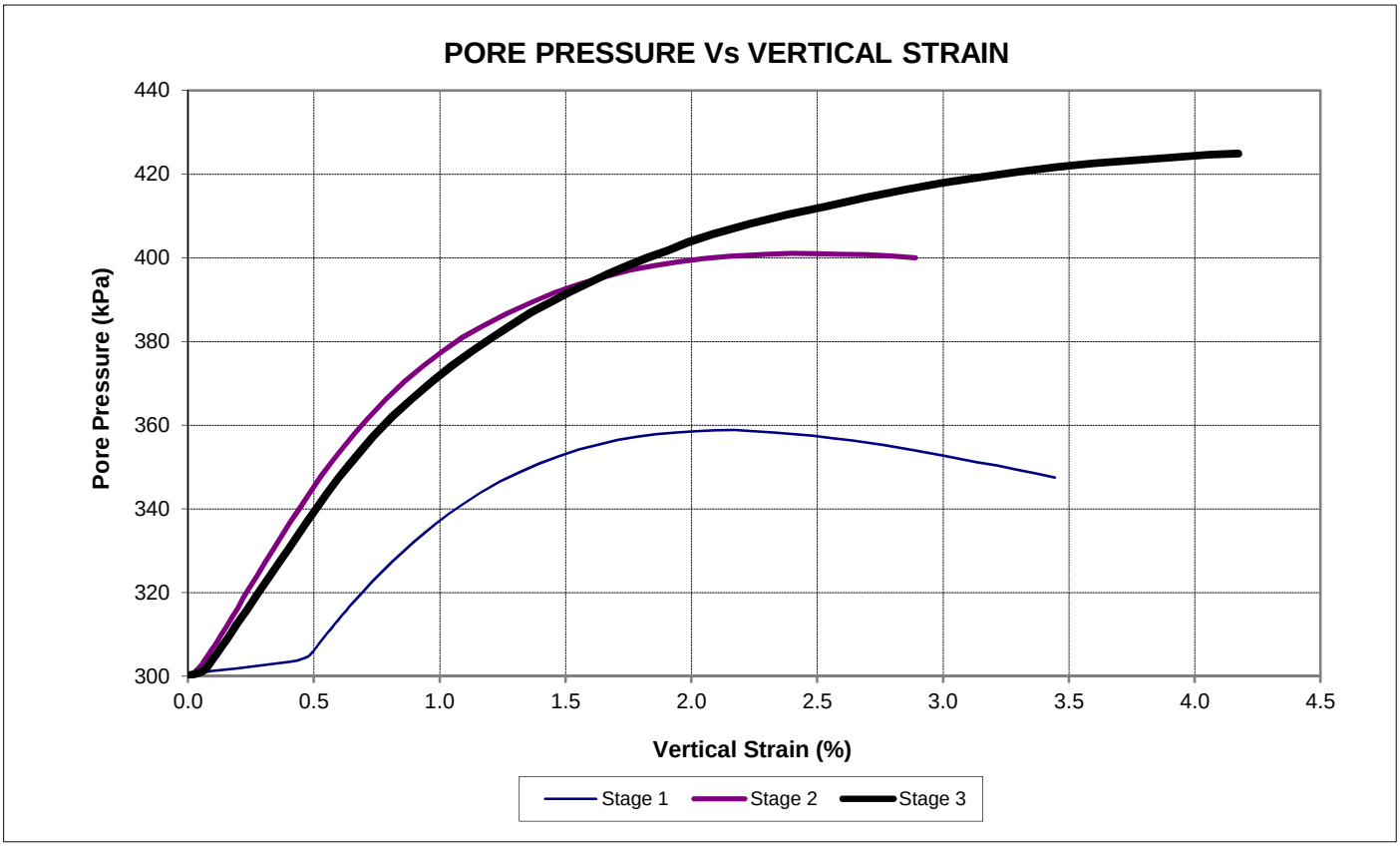
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT014	Sample Ref.: GT014-011	Depth: 43.94 -- 44.15 (m)

GRAPHS





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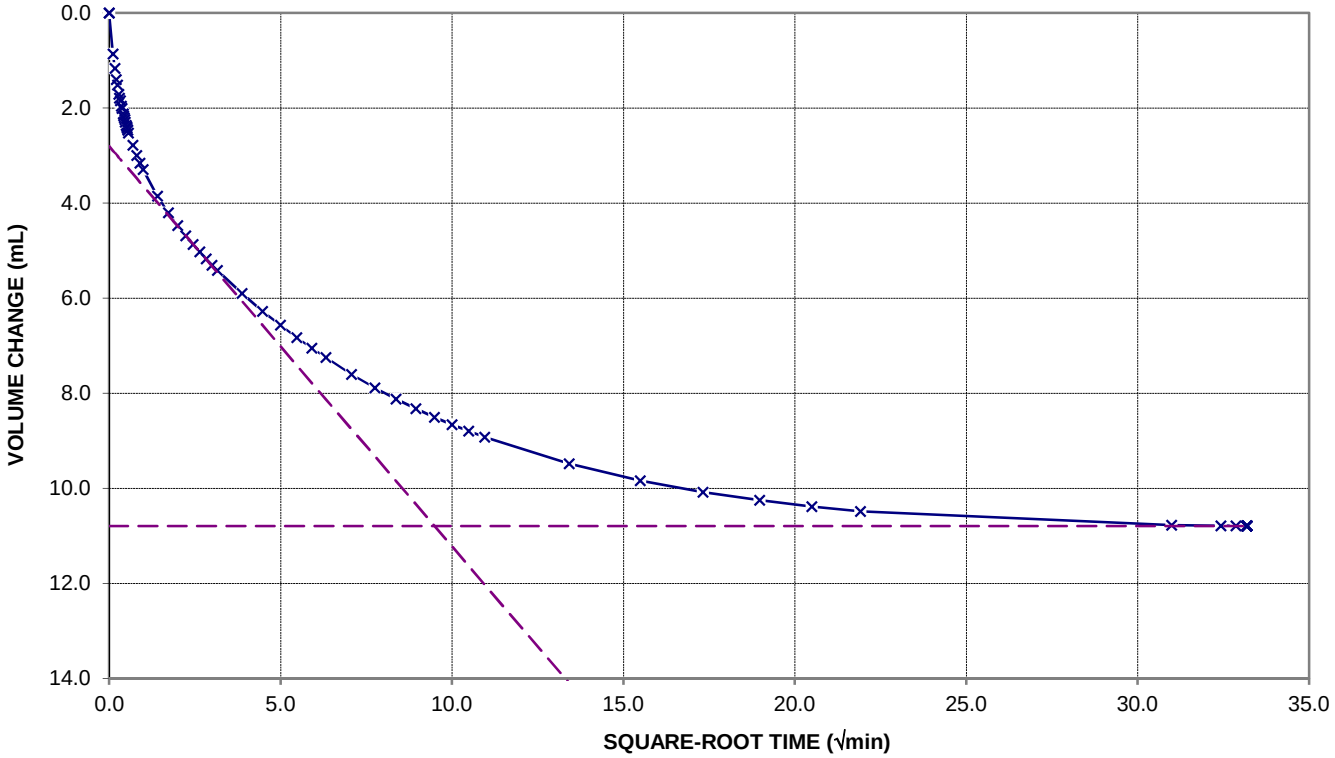
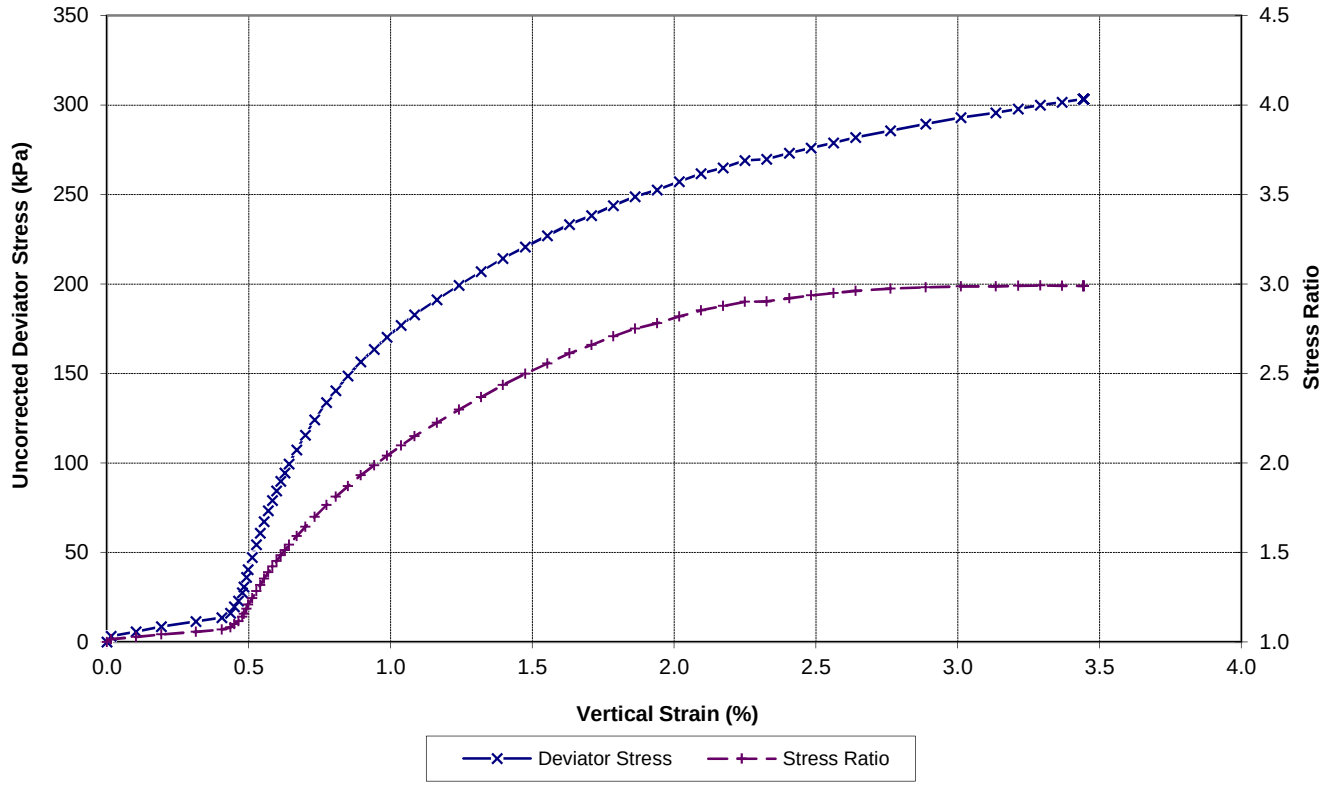
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT014	Sample Ref.: GT014-011	Depth: 43.94 -- 44.15 (m)

STAGE 1 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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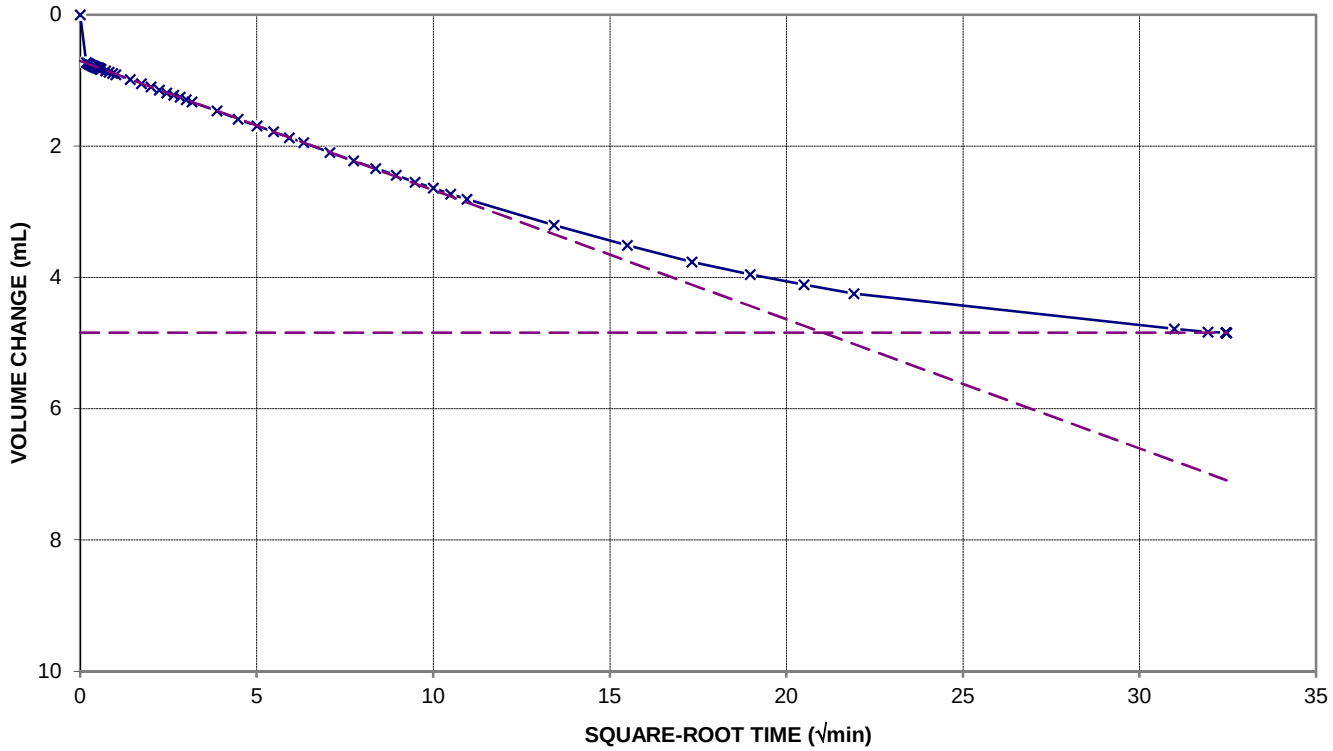
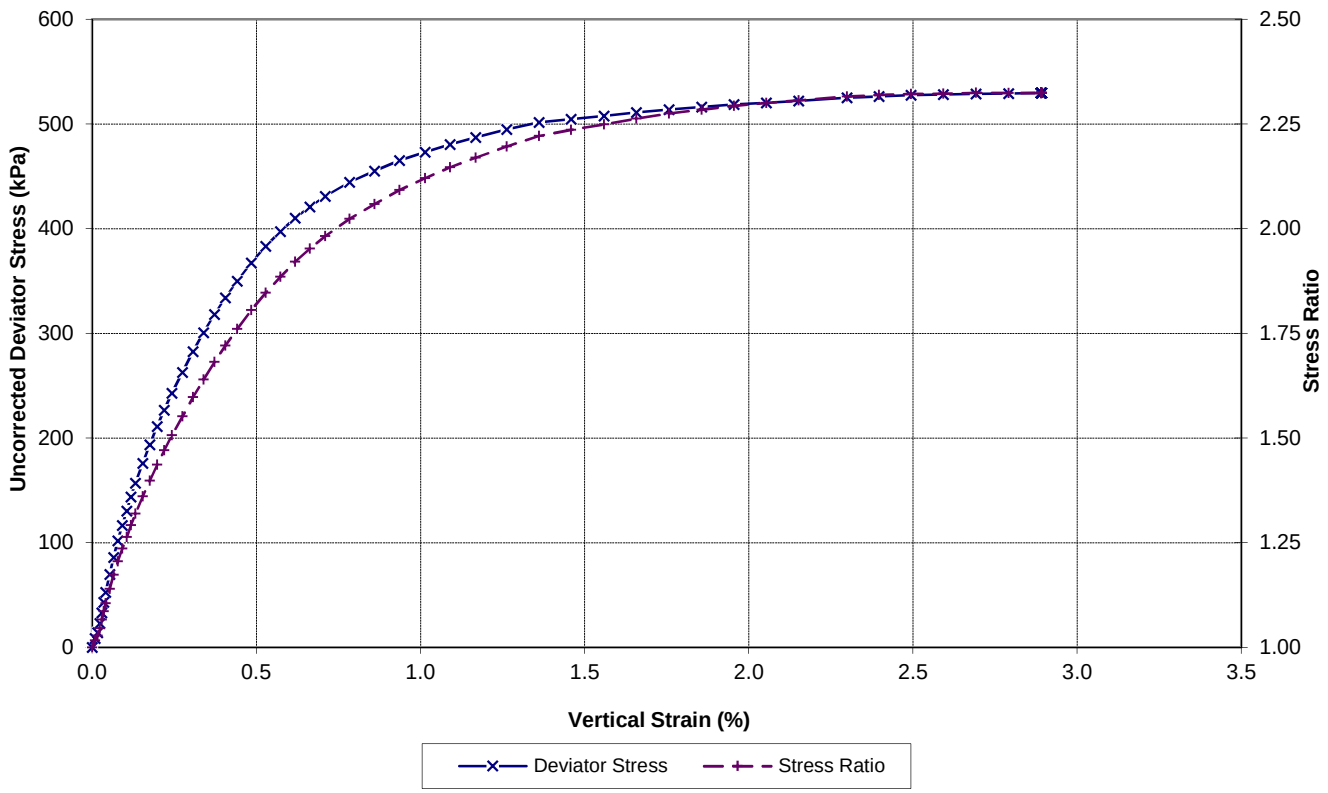
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT014	Sample Ref.: GT014-011	Depth: 43.94 -- 44.15 (m)

STAGE 2 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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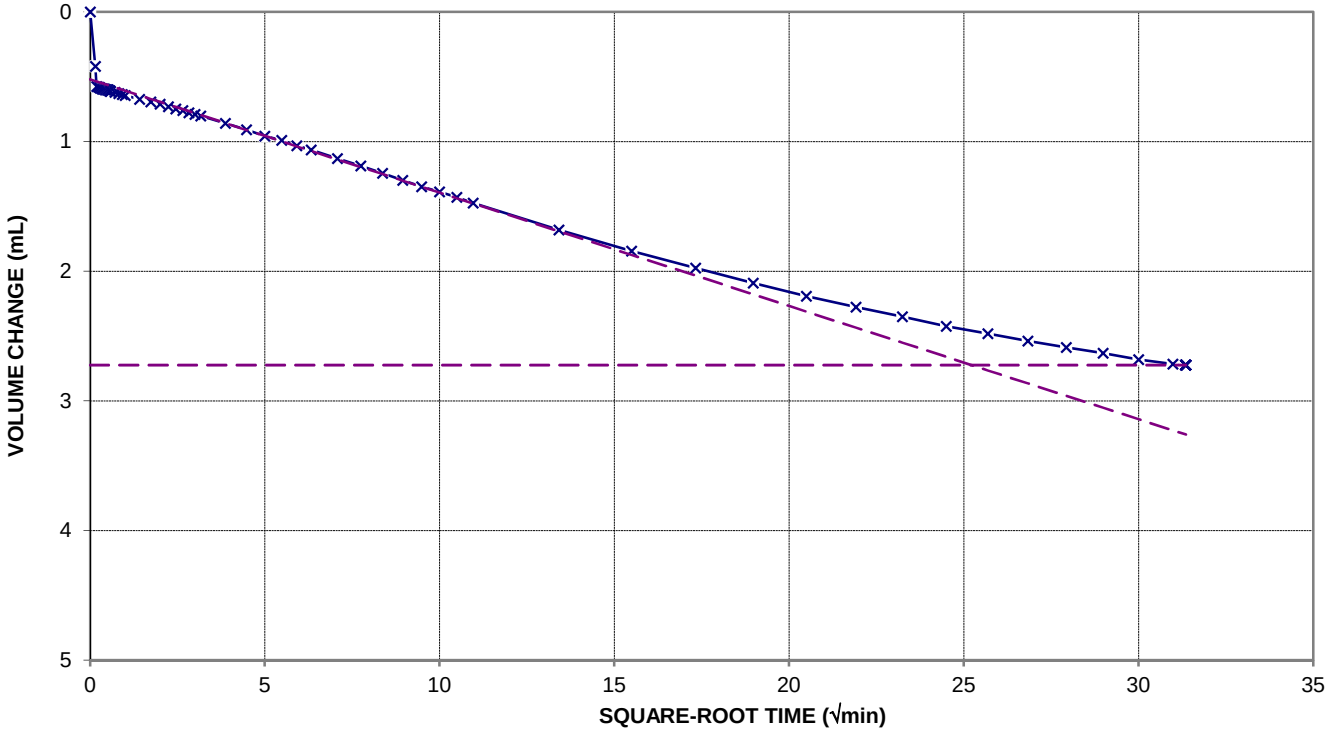
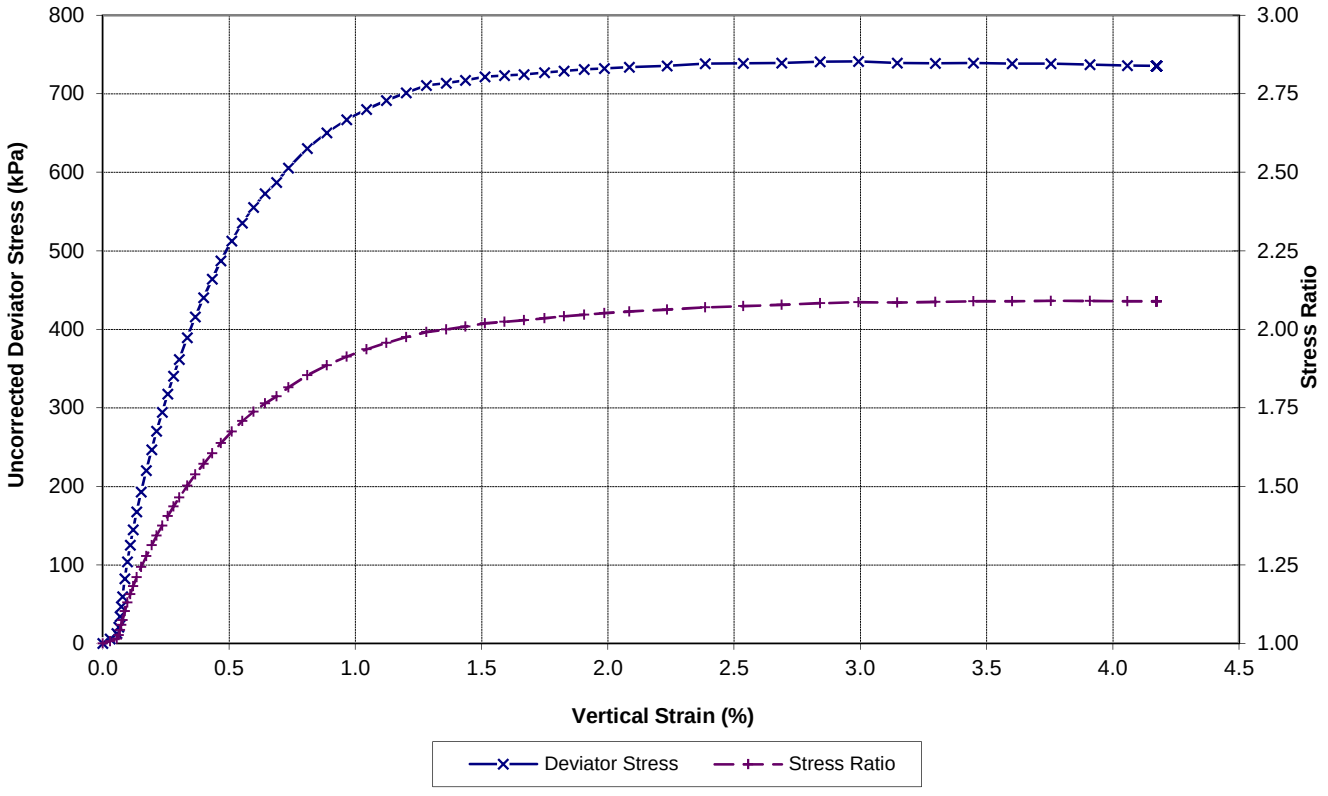
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT014	Sample Ref.: GT014-011	Depth: 43.94 -- 44.15 (m)

STAGE 3 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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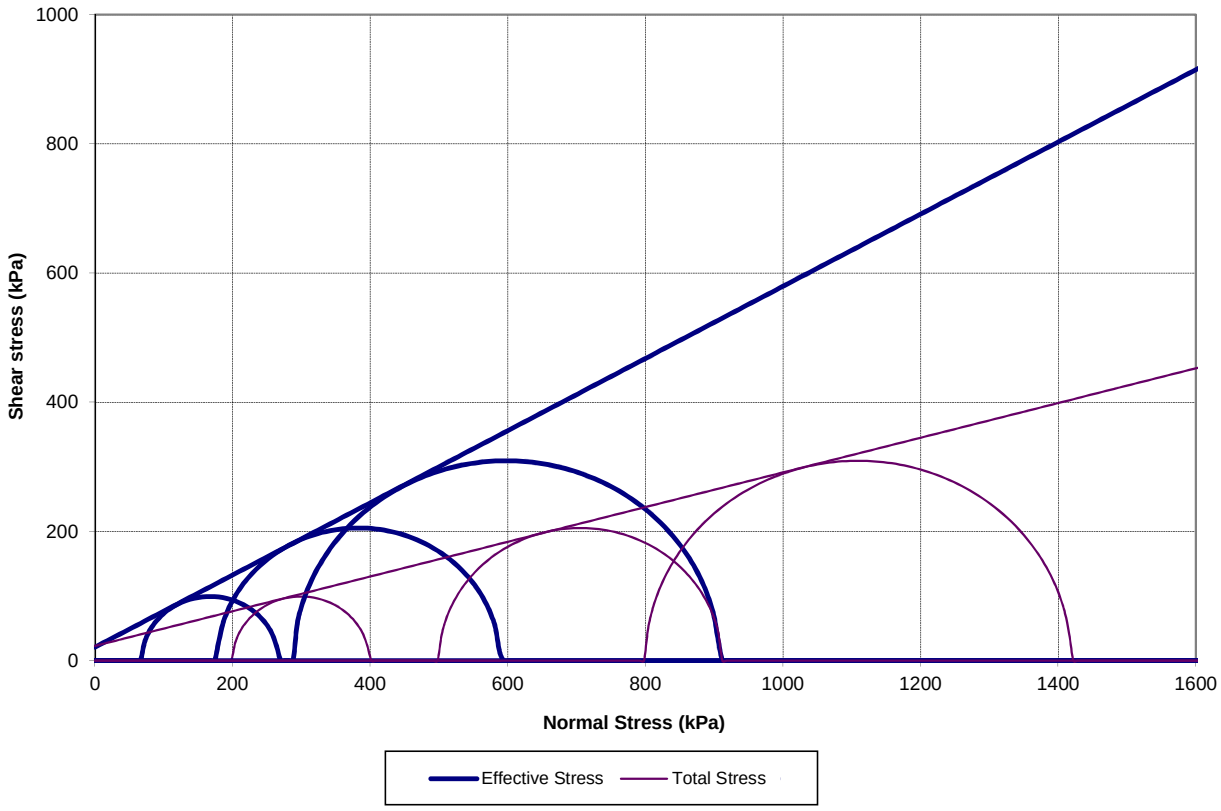
Site:	Waihi, NZ	Your Project ID:	PSM125	Project ID:	1003796.0000
Location ID:	GT015	Sample Ref.:	GT015-002	Depth:	14.08 -- 14.24 (m)

Test method used: BS1377:Part 8:1990:Clause 5 Saturation BS1377:Part 8:1990:Clause 6 Consolidation
BS1377:Part 8:1990:Clause 7 Consolidated-undrained triaxial compression test with pore pressure measurement

CONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST (3 STAGES)
MOHR CIRCLES OF TOTAL AND EFFECTIVE STRESSES



Initial Sample Height:	169.50	mm	Initial Water Content:	69.2	%
Initial Sample Diameter:	85.54	mm	Initial Bulk Density:	1.60	t/m³
Initial B Value:	100	%	Initial Dry Density:	0.94	t/m³
B Value before Consolidation:	100	%	Final Water Content:	51.1	%

	Consolidation Stage			Failure Values				
	Cell Pressure (kPa)	Back Pressure (kPa)	Eff. Consol. Stress (kPa)	Deviator Stress (kPa)	Pore Pressure Change During Shearing δμ (kPa)	Effective Principal Stress (kPa) Major σ1'	Effective Principal Stress (kPa) Minor σ3'	Vertical Strain (%)
STAGE 1	500	300	200	198.61	132	266.61	68.00	5.77
STAGE 2	800	300	500	410.71	322.2	588.51	177.80	3.91
STAGE 3	1100	300	800	618.80	511.3	907.50	288.70	4.43

		Total			Effective	
Angle of Frictional Resistance:	ϕ =	15	°	ϕ' =	29	°
Cohesion:	c =	23	kPa	c' =	21	kPa
Linear Regression Coefficient:	r =	1.000		r =	1.000	

Sample History: Undisturbed core trimmed at natural water content.

Soil description: Favona, GT015-002, 14.08-14.24m, S3, Ignimbrite.

Failure Mode: Plastic Test Speed: 0.021 (mm/min)

Test Remarks: The sample was saturated by increments of cell pressure and back pressure.
Failure for each stage was determined by either the maximum effective stress ratio or the maximum deviator stress. Strength parameters have been derived by using a linear regression fitting method.

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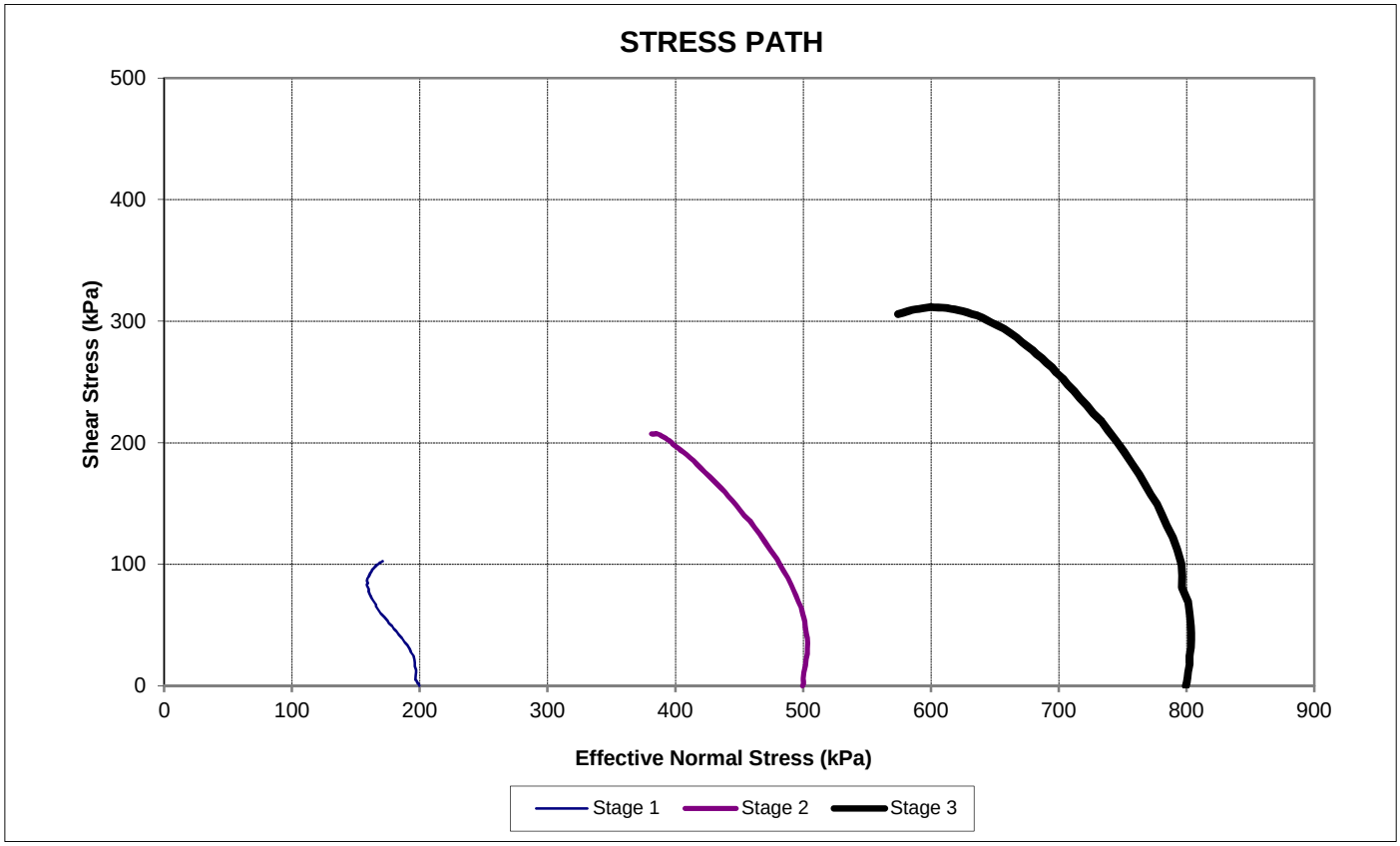
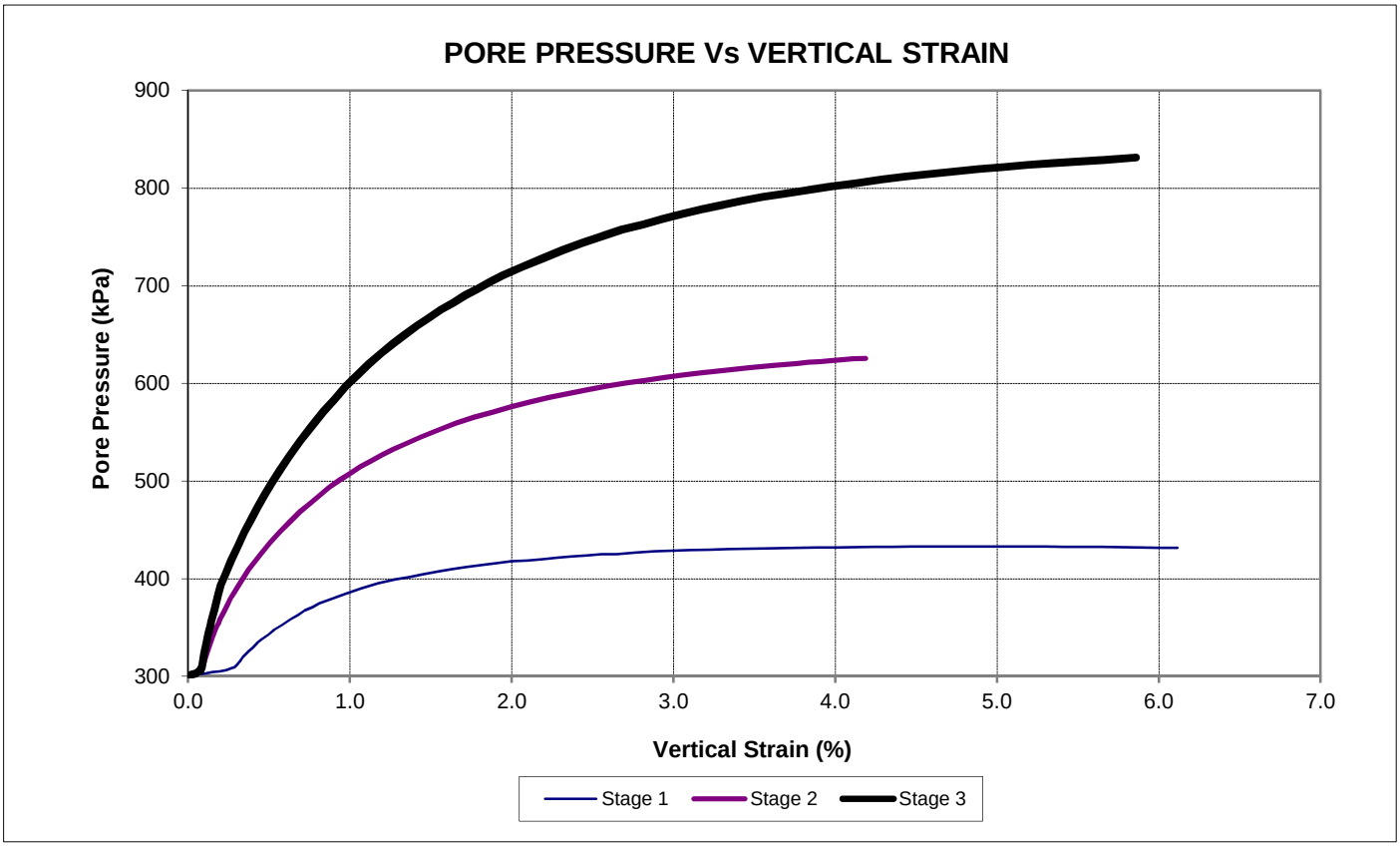
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT015	Sample Ref.: GT015-002	Depth: 14.08 -- 14.24 (m)

GRAPHS





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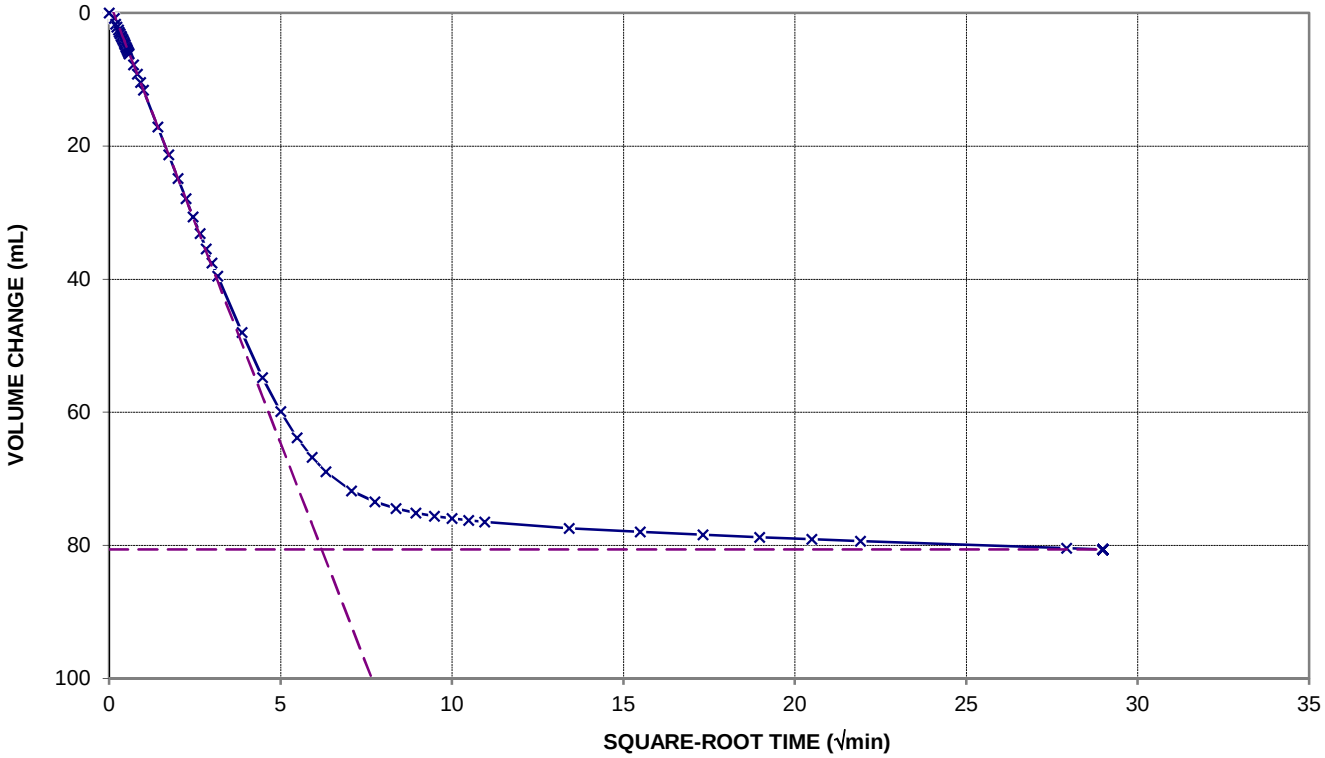
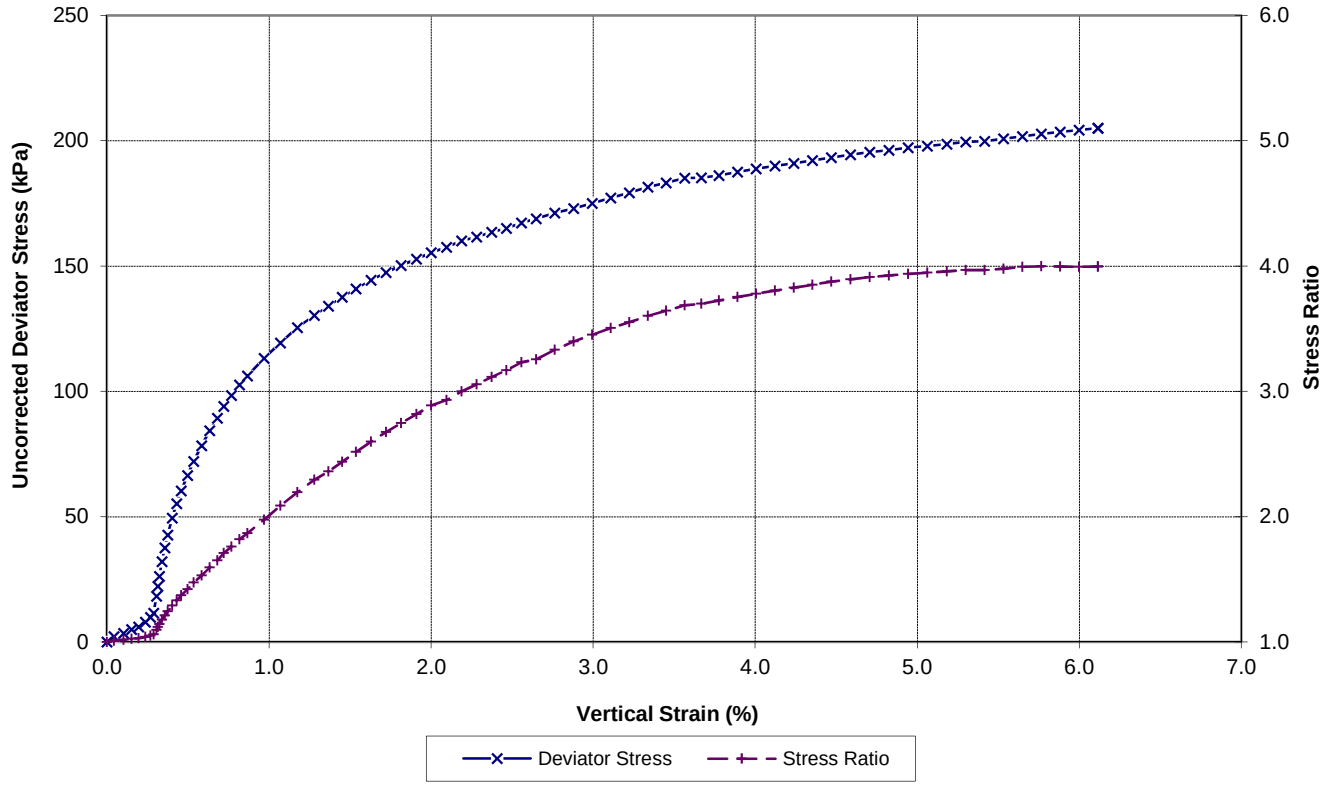
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT015	Sample Ref.: GT015-002	Depth: 14.08 -- 14.24 (m)

STAGE 1 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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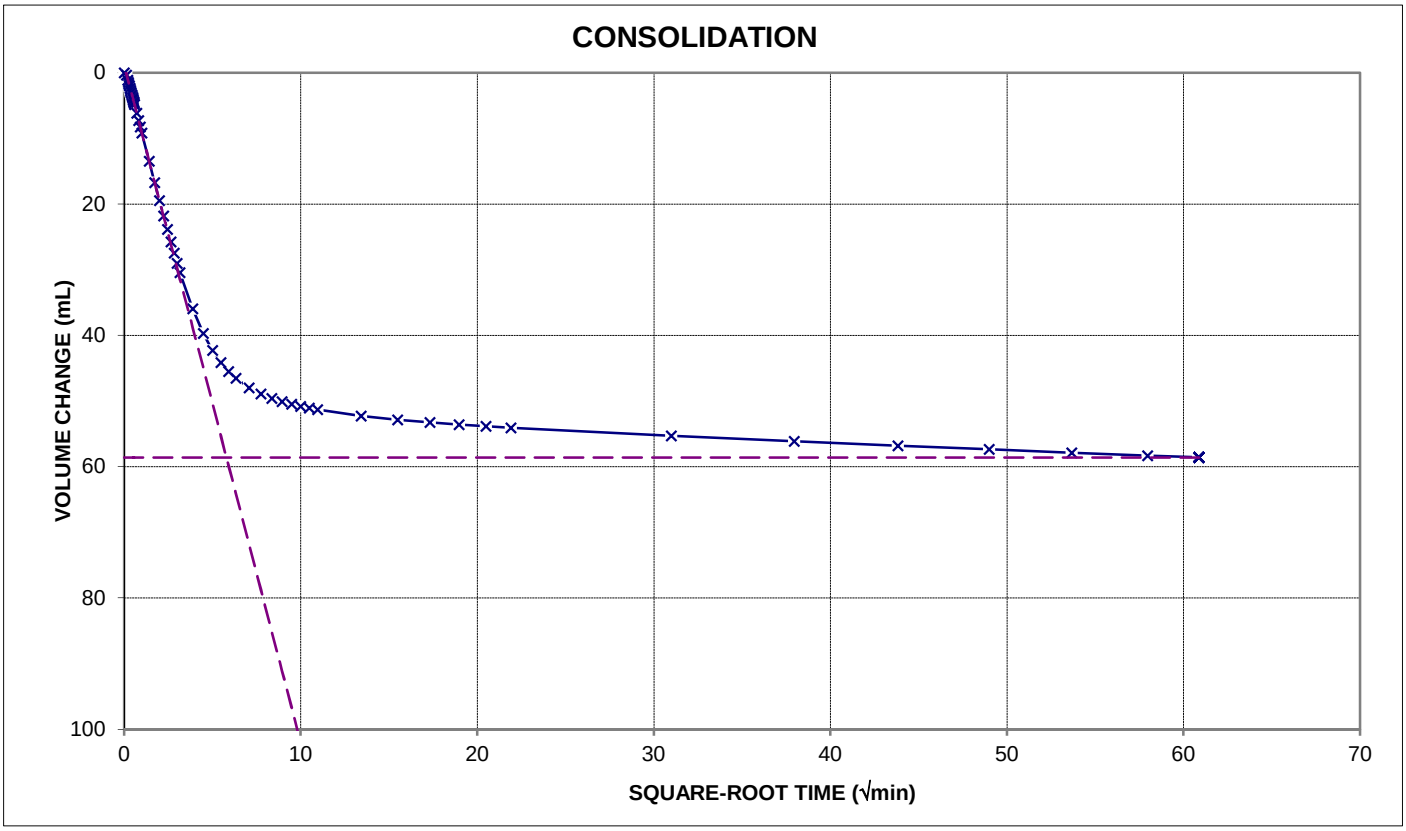
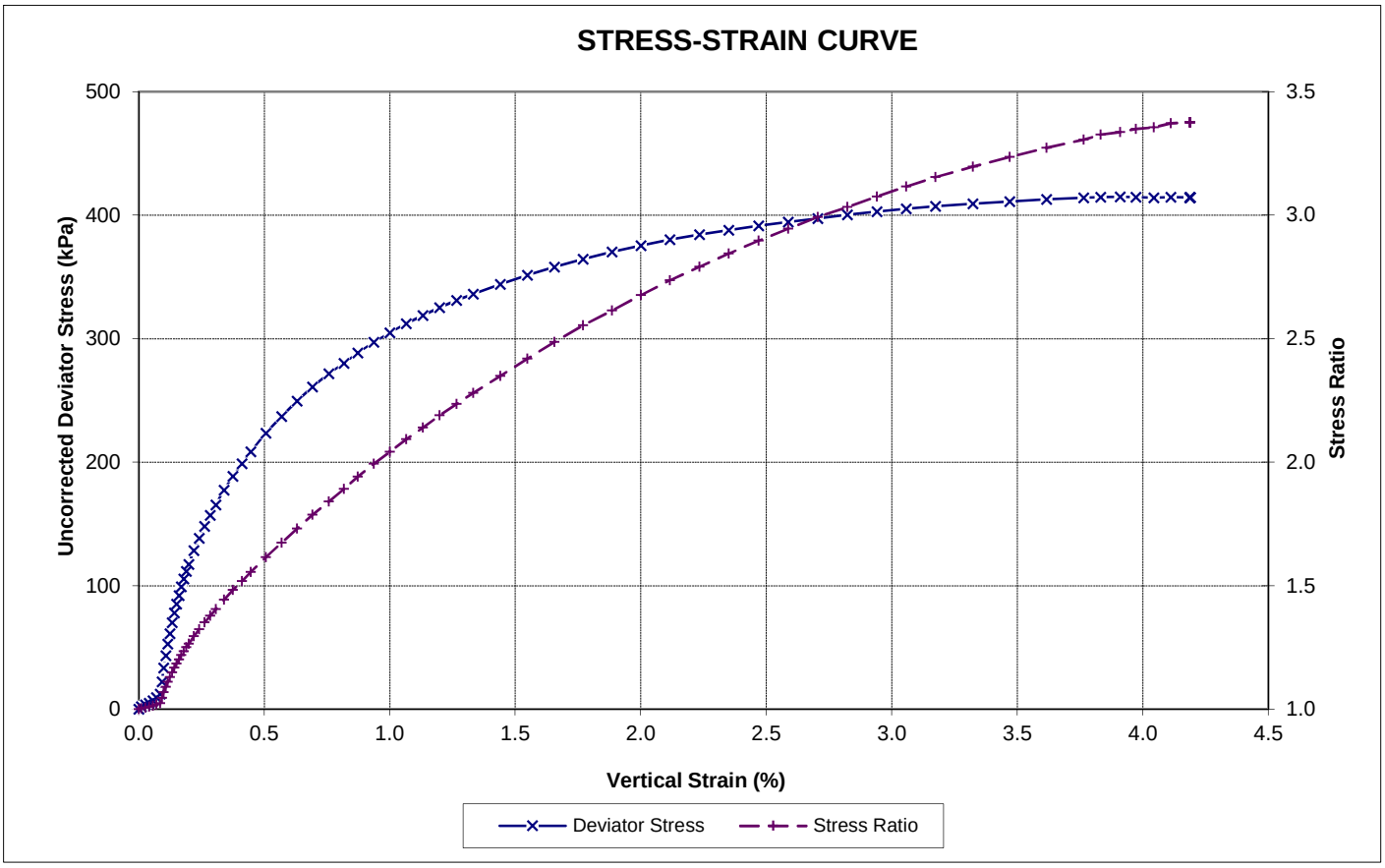
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT015	Sample Ref.: GT015-002	Depth: 14.08 -- 14.24 (m)

STAGE 2 GRAPHS





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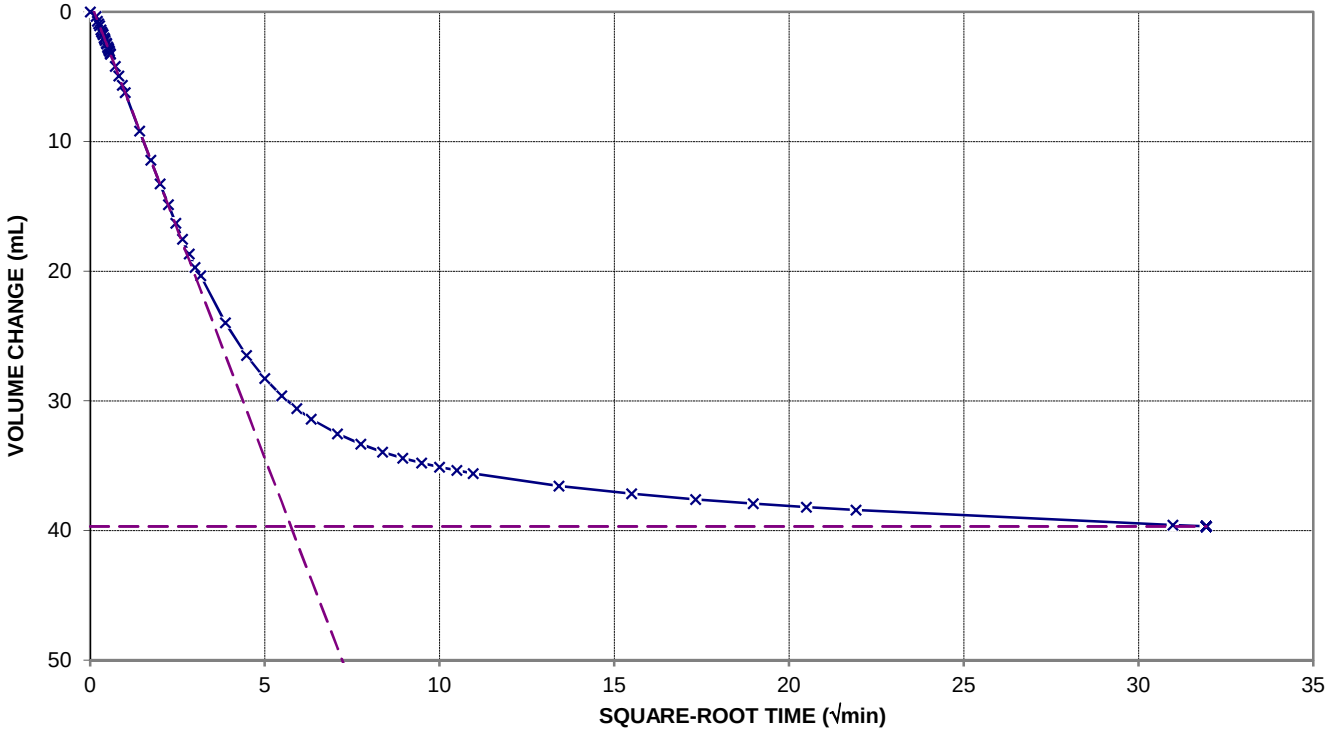
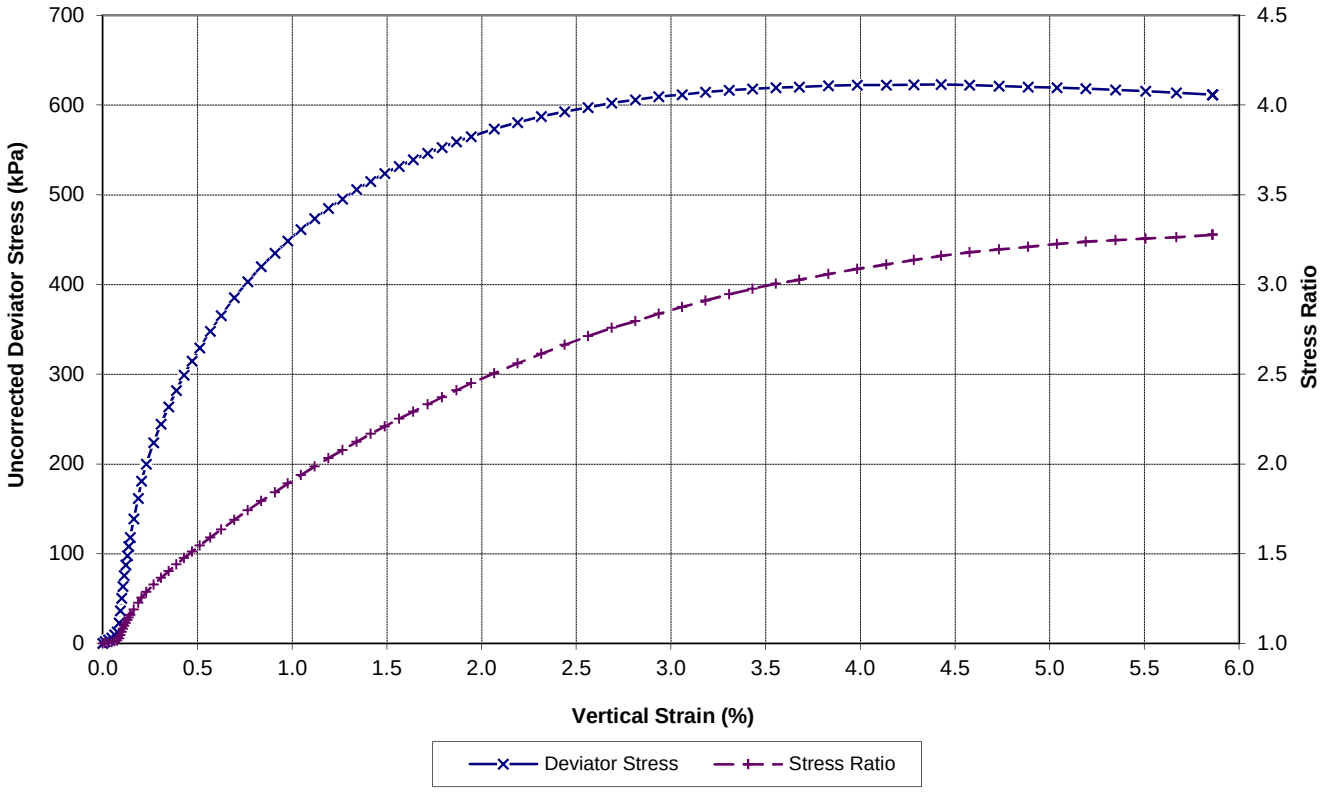
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT015	Sample Ref.: GT015-002	Depth: 14.08 -- 14.24 (m)

STAGE 3 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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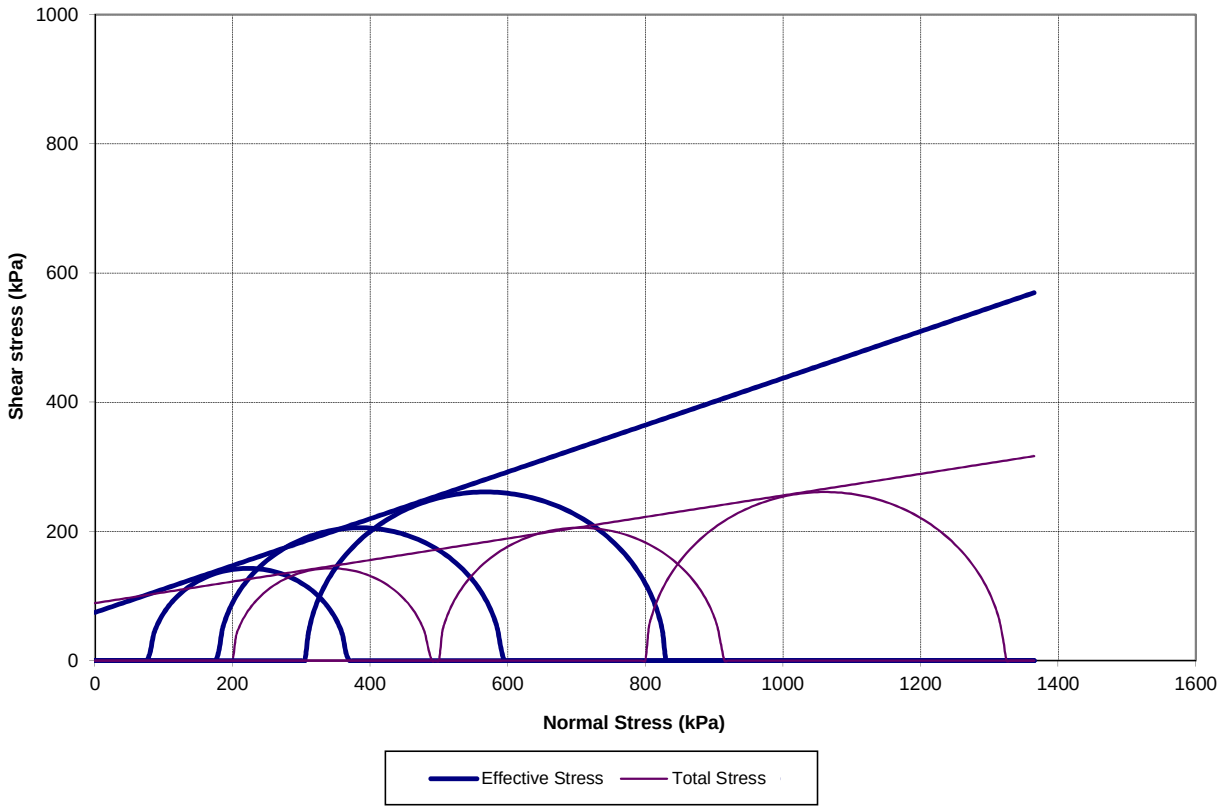
Site:	Waihi, NZ	Your Project ID:	PSM125	Project ID:	1003796.0000
Location ID:	GT016	Sample Ref.:	GT016-005	Depth:	34.20 -- 34.47 (m)

Test method used: BS1377:Part 8:1990:Clause 5 Saturation BS1377:Part 8:1990:Clause 6 Consolidation
BS1377:Part 8:1990:Clause 7 Consolidated-undrained triaxial compression test with pore pressure measurement

CONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST (3 STAGES)
MOHR CIRCLES OF TOTAL AND EFFECTIVE STRESSES



Initial Sample Height:	149.89	mm	Initial Water Content:	73.6	%
Initial Sample Diameter:	71.76	mm	Initial Bulk Density:	1.47	t/m³
Initial B Value:	44	%	Initial Dry Density:	0.85	t/m³
B Value before Consolidation:	96	%	Final Water Content:	64.2	%

	Consolidation Stage			Failure Values				
	Cell Pressure (kPa)	Back Pressure (kPa)	Eff. Consol. Stress (kPa)	Deviator Stress (kPa)	Pore Pressure Change During Shearing δμ (kPa)	Effective Principal Stress (kPa) Major σ1'	Effective Principal Stress (kPa) Minor σ3'	Vertical Strain (%)
STAGE 1	500	300	200	285.98	120.5	365.48	79.50	0.81
STAGE 2	800	300	500	411.48	320.5	590.98	179.50	1.90
STAGE 3	1100	300	800	522.05	493.2	828.85	306.80	3.51

		Total			Effective	
Angle of Frictional Resistance:	ϕ =	9	°	ϕ' =	20	°
Cohesion:	c =	89	kPa	c' =	75	kPa
Linear Regression Coefficient:	r =	0.999		r =	0.994	

Sample History: Undisturbed core trimmed at natural water content.

Soil description: Favona, GT016-005, 34.2-34.47m, S4, Ignimbrite.

Failure Mode: Plastic Test Speed: 0.016 (mm/min)

Test Remarks: The sample was saturated by increments of cell pressure and back pressure.
Failure for each stage was determined by the maximum Deviator stress. Strength parameters have been derived by using a linear regression fitting method.

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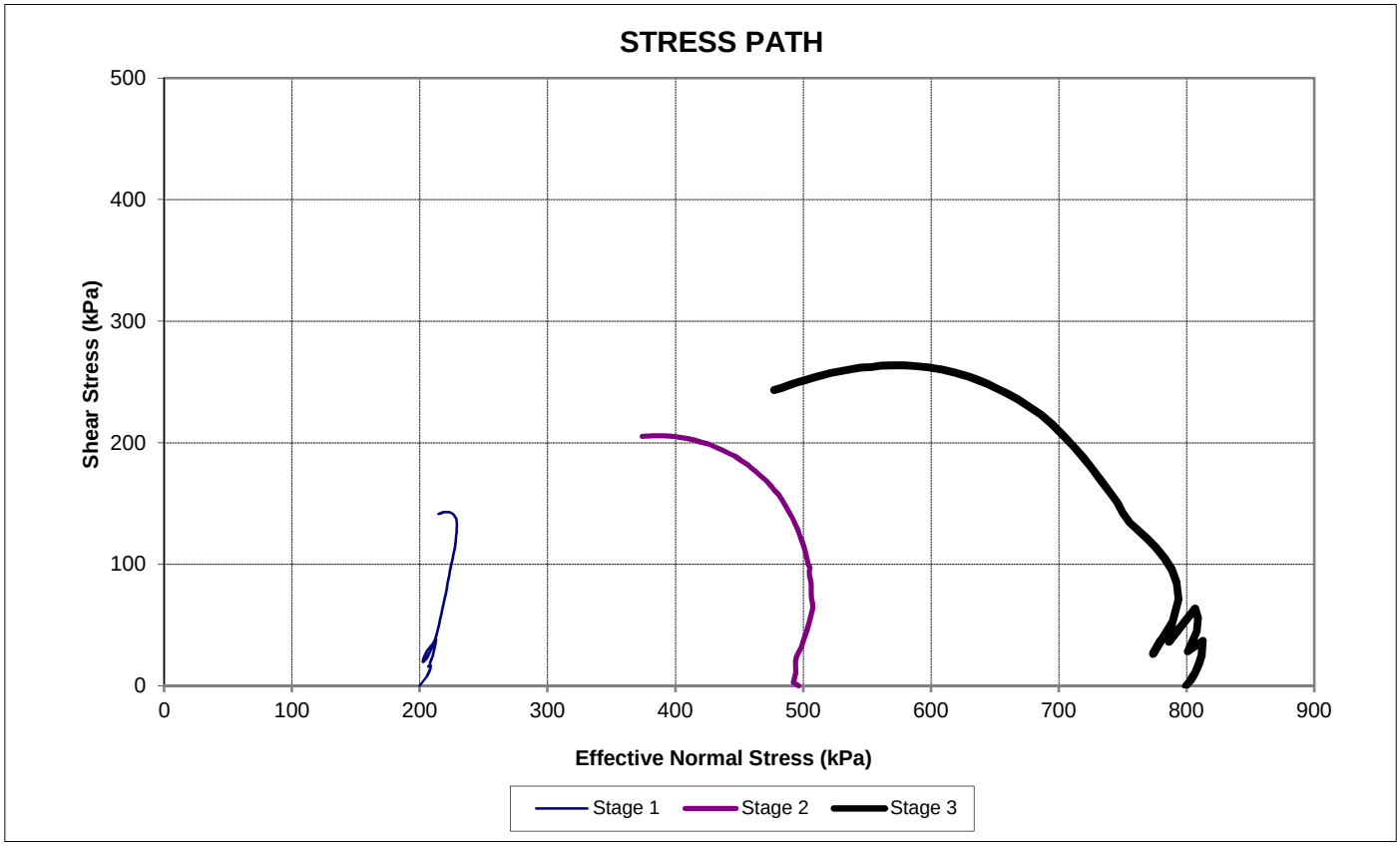
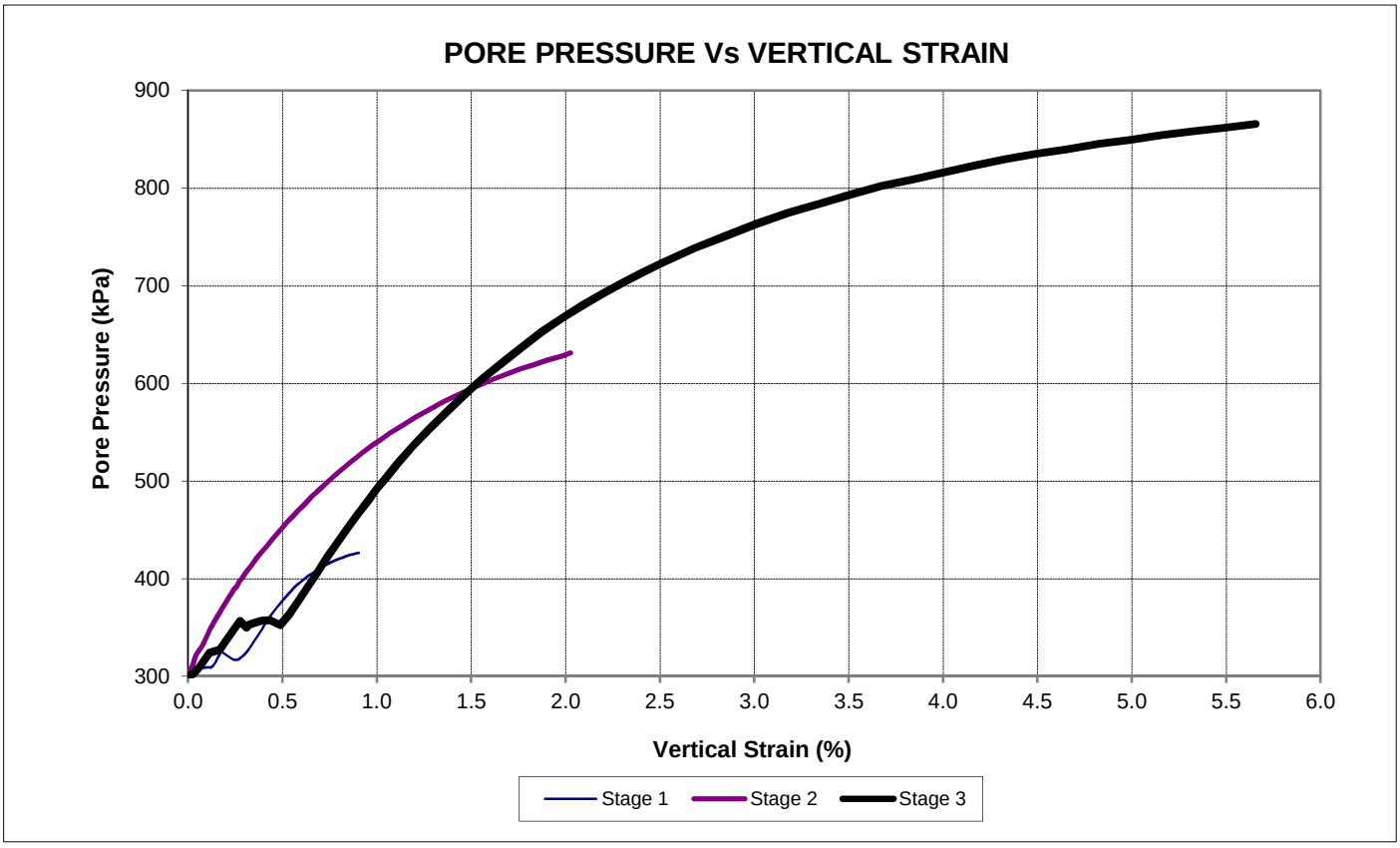
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT016	Sample Ref.: GT016-005	Depth: 34.20 -- 34.47 (m)

GRAPHS





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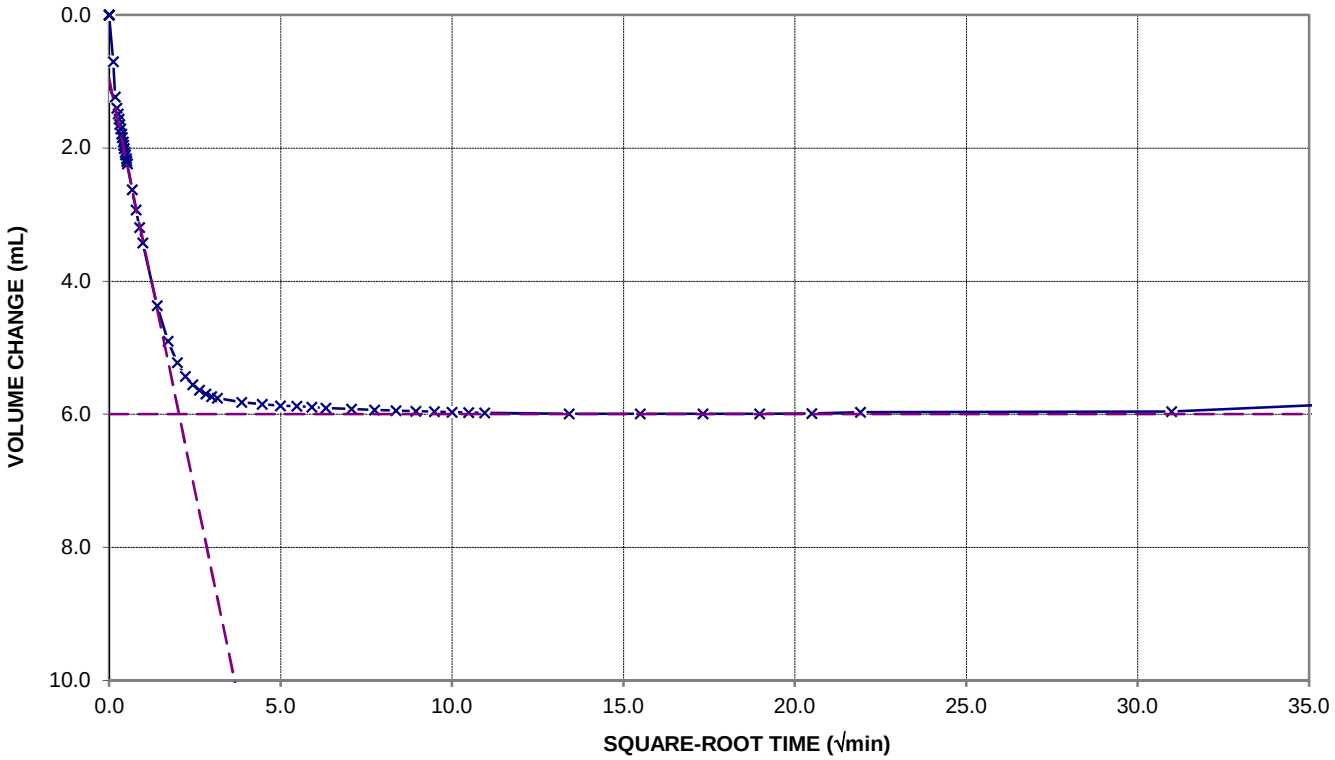
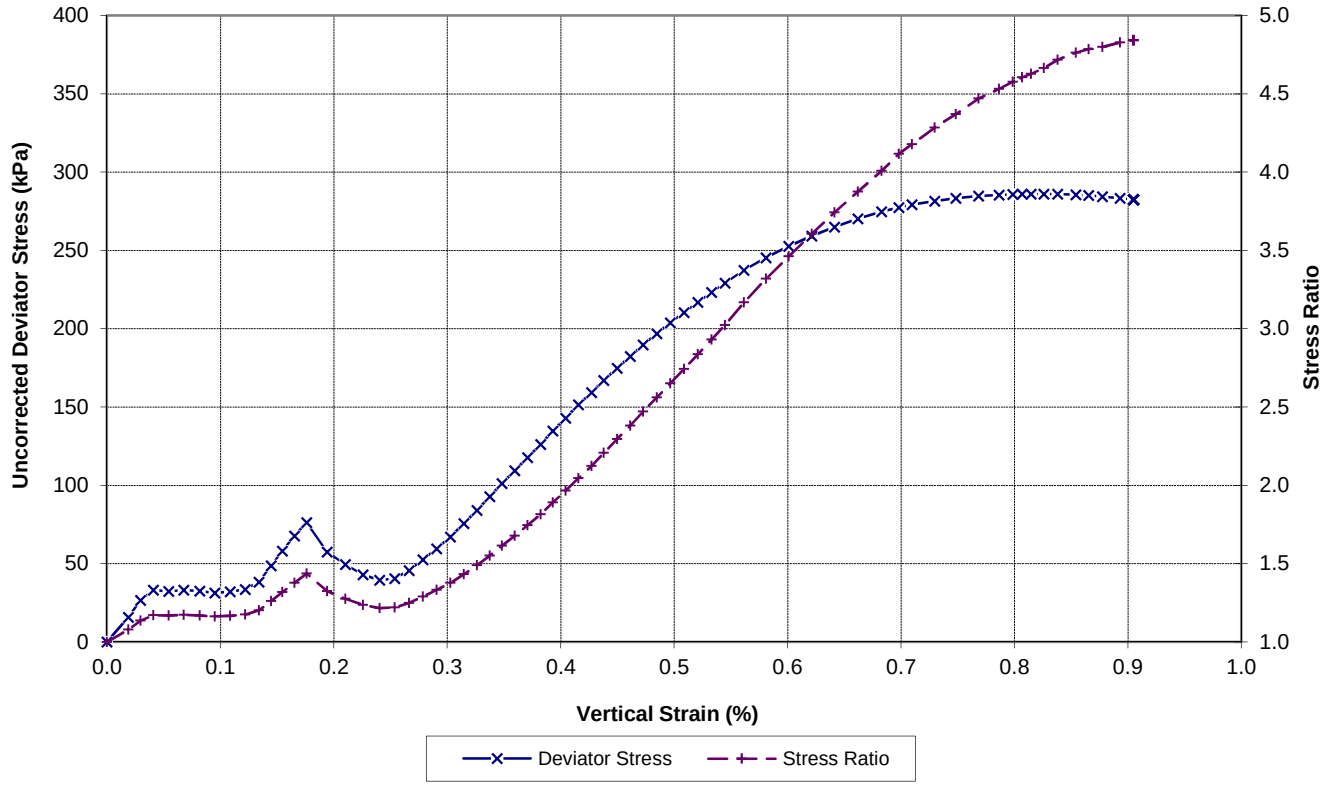
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT016	Sample Ref.: GT016-005	Depth: 34.20 -- 34.47 (m)

STAGE 1 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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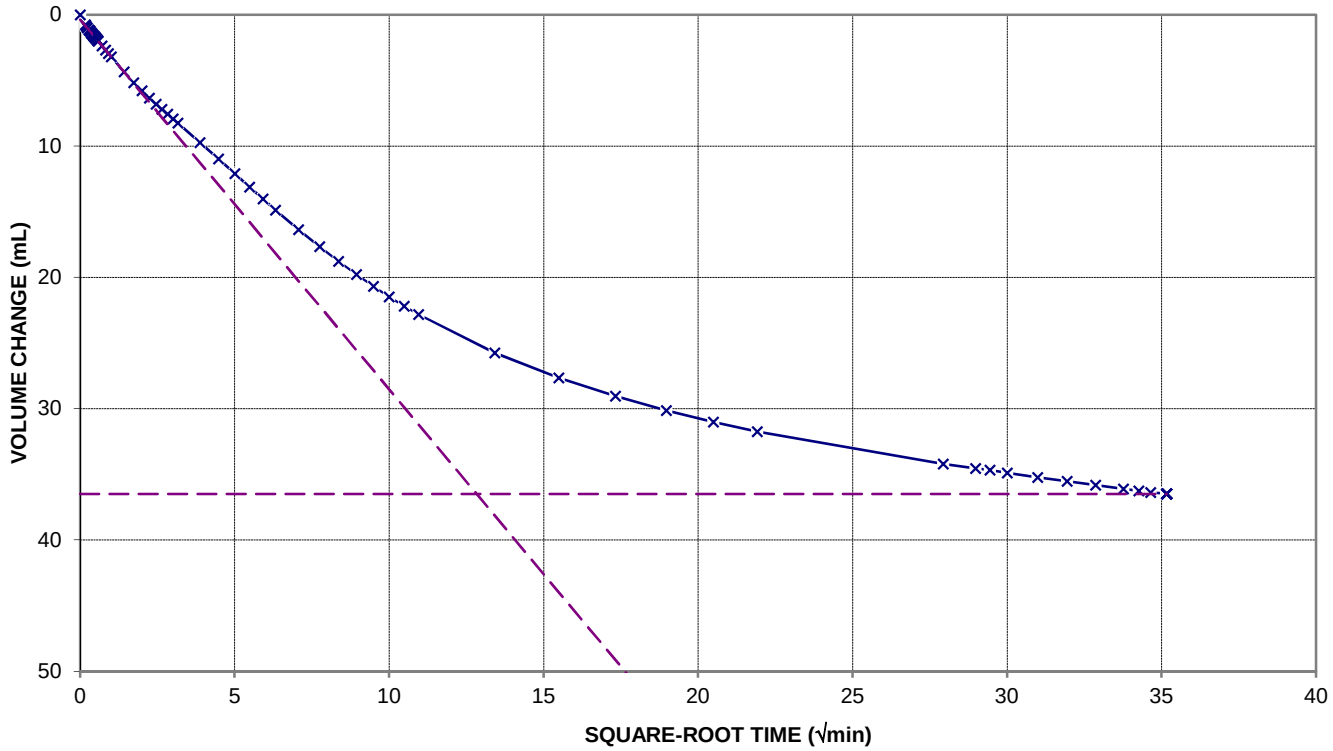
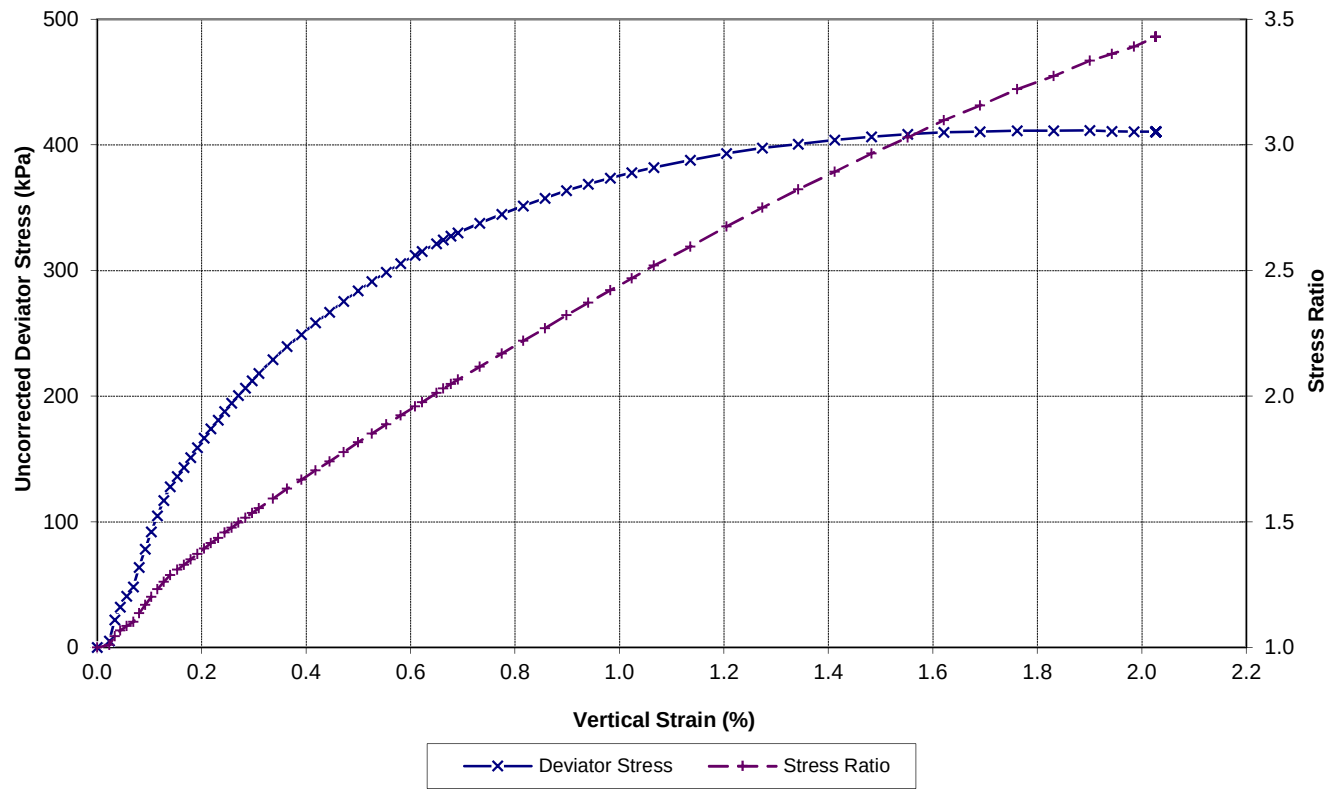
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT016	Sample Ref.: GT016-005	Depth: 34.20 -- 34.47 (m)

STAGE 2 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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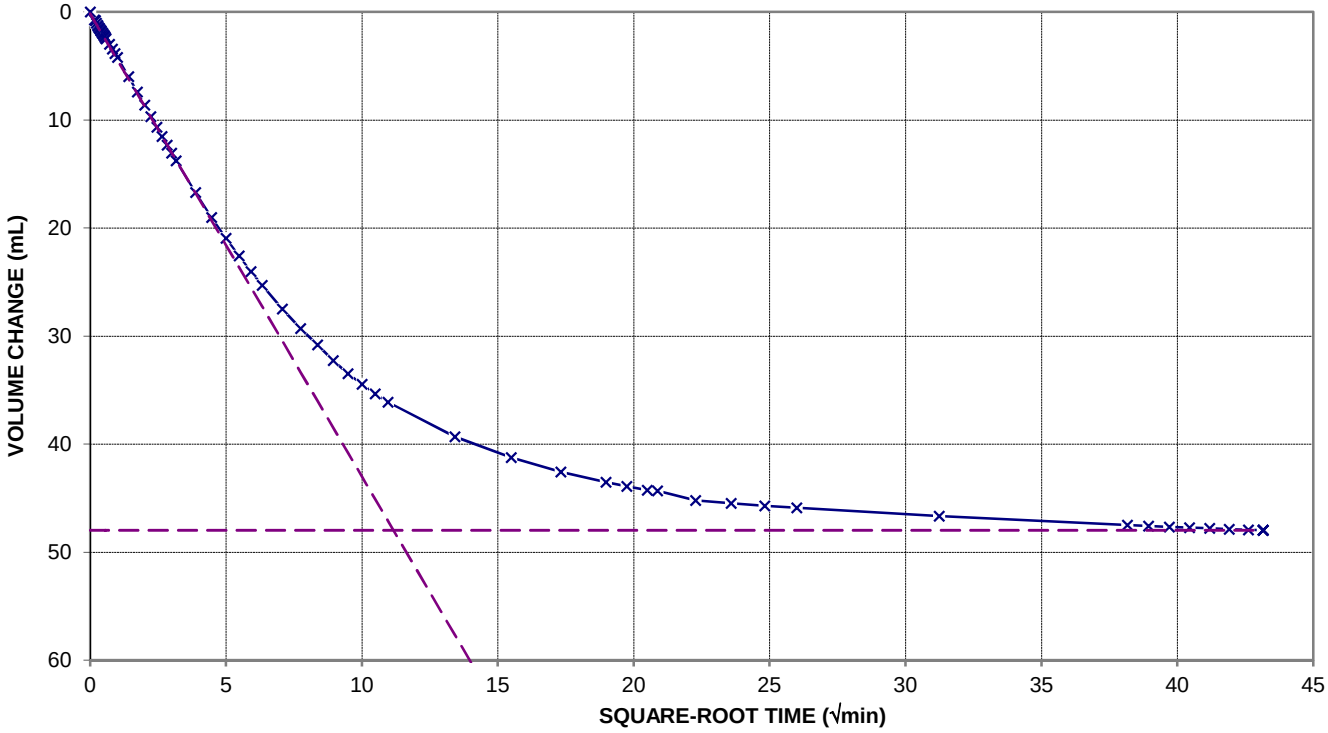
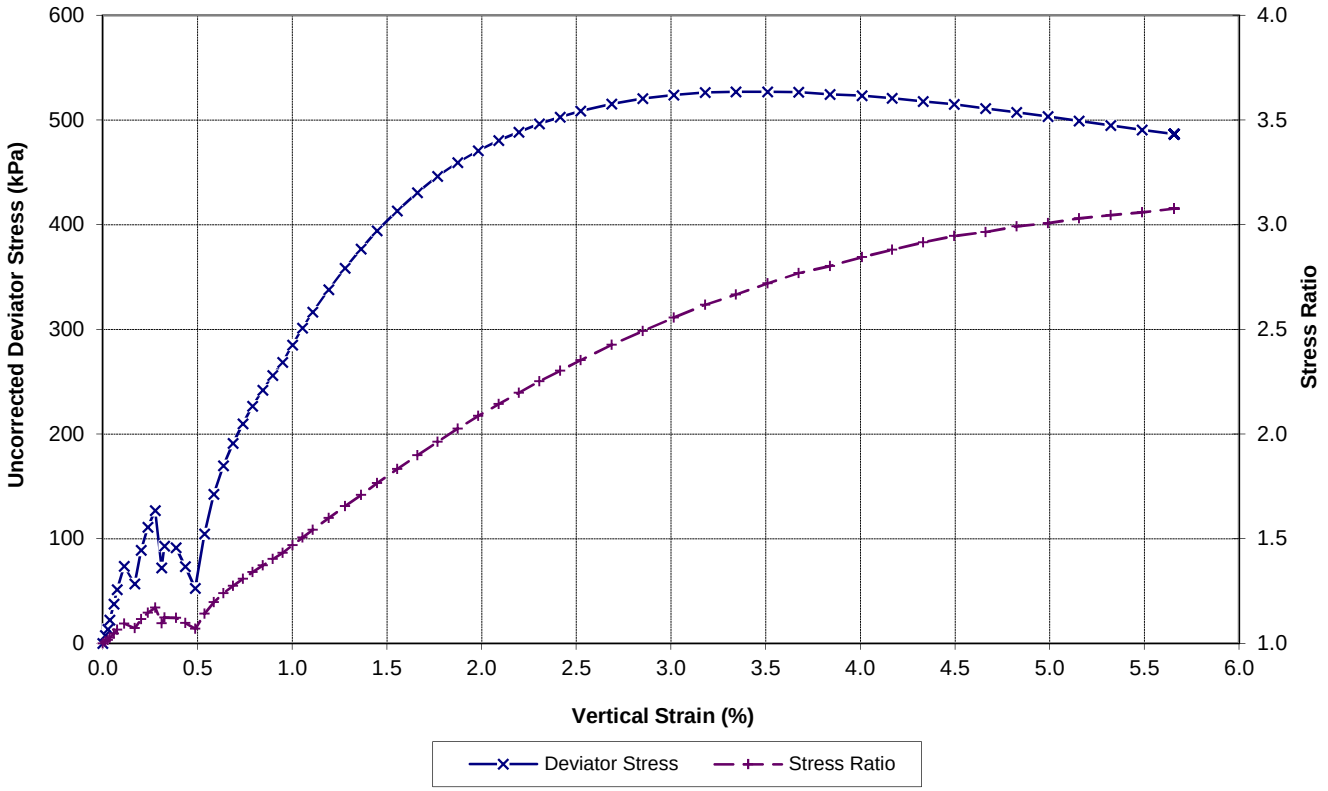
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT016	Sample Ref.: GT016-005	Depth: 34.20 -- 34.47 (m)

STAGE 3 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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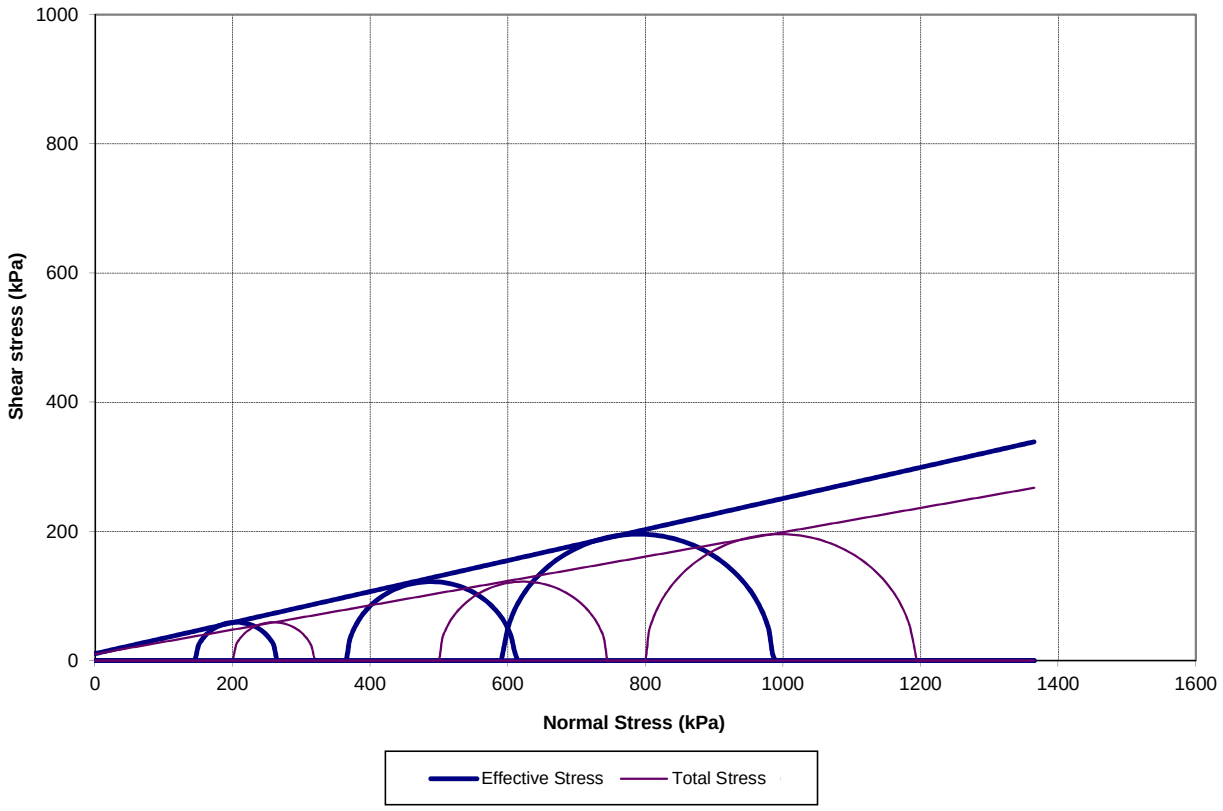
Site:	Waihi, NZ	Your Project ID:	PSM125	Project ID:	1003796.0000
Location ID:	GT017	Sample Ref.:	GT017-006	Depth:	23.60 -- 23.90 (m)

Test method used: BS1377:Part 8:1990:Clause 5 Saturation BS1377:Part 8:1990:Clause 6 Consolidation
BS1377:Part 8:1990:Clause 7 Consolidated-undrained triaxial compression test with pore pressure measurement

CONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST (3 STAGES)
MOHR CIRCLES OF TOTAL AND EFFECTIVE STRESSES



Initial Sample Height:	169.20	mm	Initial Water Content:	37.2	%
Initial Sample Diameter:	82.84	mm	Initial Bulk Density:	1.88	t/m³
Initial B Value:	12	%	Initial Dry Density:	1.37	t/m³
B Value before Consolidation:	96	%	Final Water Content:	34.6	%

	Consolidation Stage			Failure Values				
	Cell Pressure (kPa)	Back Pressure (kPa)	Eff. Consol. Stress (kPa)	Deviator Stress (kPa)	Pore Pressure Change During Shearing δμ (kPa)	Effective Principal Stress (kPa) Major σ1'	Effective Principal Stress (kPa) Minor σ3'	Vertical Strain (%)
STAGE 1	500	300	200	118.94	54.2	264.74	145.80	3.69
STAGE 2	800	300	500	244.69	133.9	610.79	366.10	4.75
STAGE 3	1100	300	800	391.65	206.4	985.25	593.60	4.94

		Total			Effective	
Angle of Frictional Resistance:	ϕ =	11	°	ϕ' =	14	°
Cohesion:	c =	10	kPa	c' =	11	kPa
Linear Regression Coefficient:	r =	0.999		r =	0.999	

Sample History: Undisturbed core trimmed at natural water content.

Soil description: Favona, GT017-006, 23.6-23.9, S5, Class 4 Andesite Breccia.

Failure Mode: Planar / Plastic Test Speed: 0.019 (mm/min)

Test Remarks: The sample was saturated by increments of cell pressure and back pressure.
Failure for each stage was determined by the maximum Deviator stress. Strength parameters have been derived by using a linear regression fitting method.

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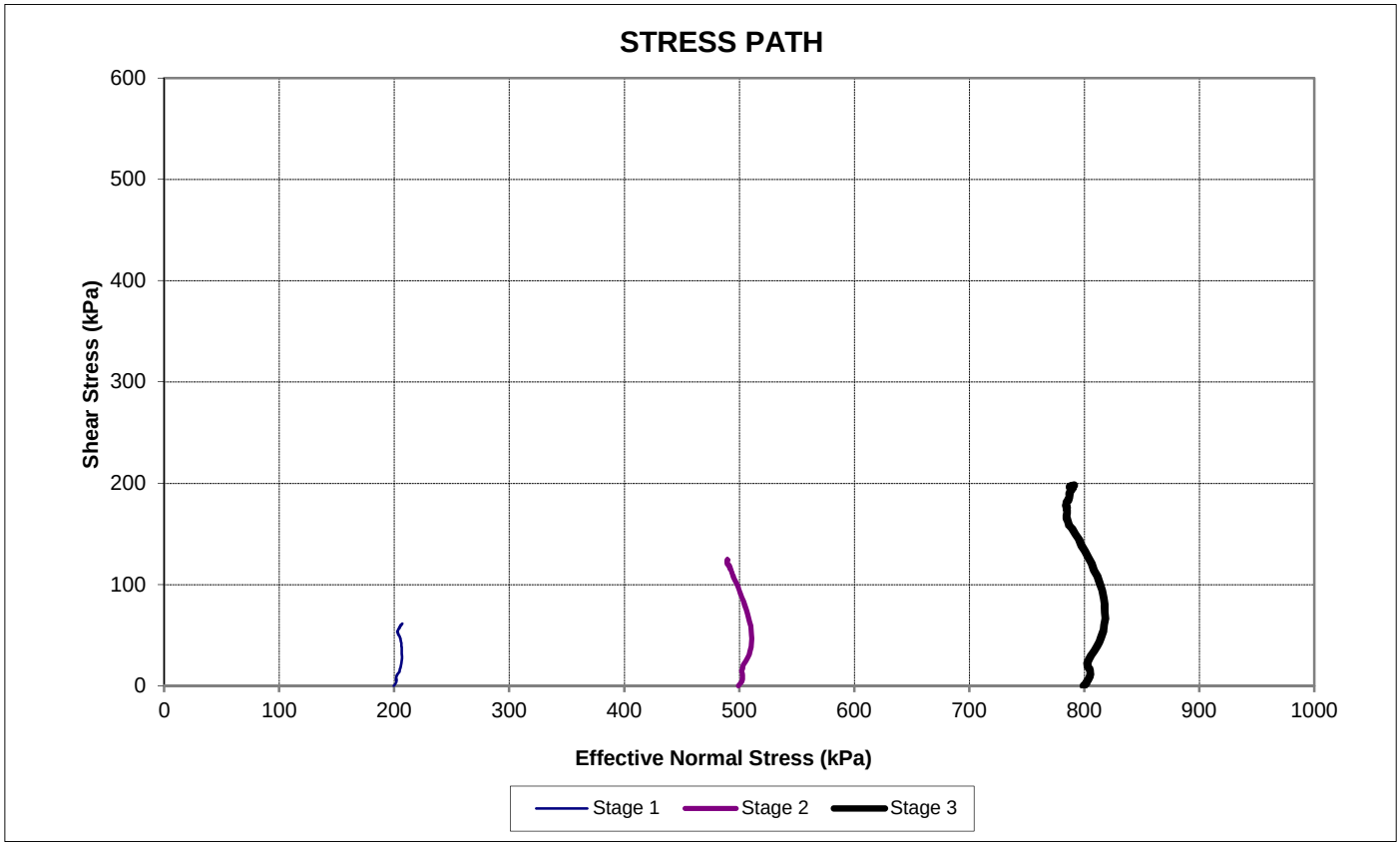
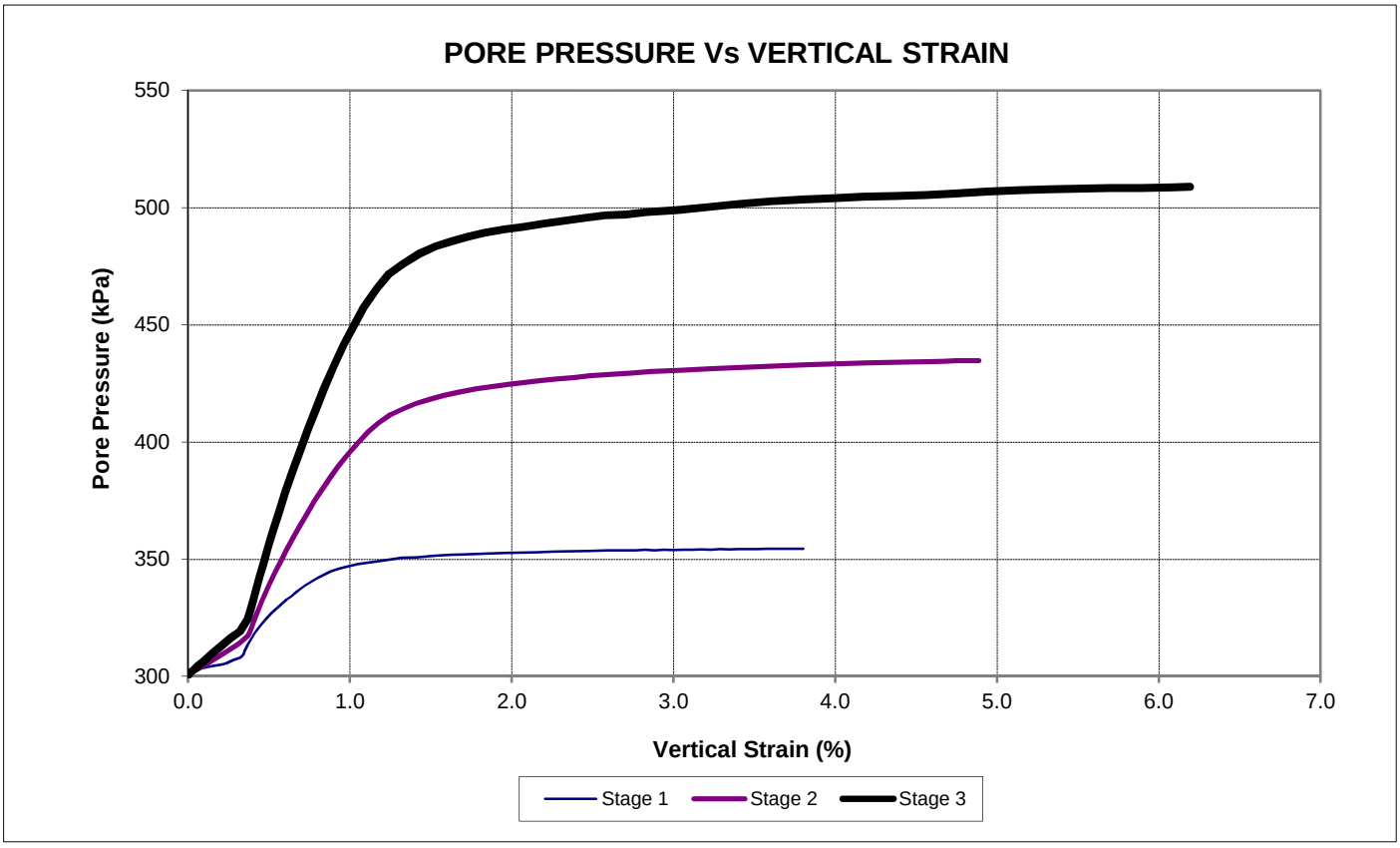
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT017	Sample Ref.: GT017-006	Depth: 23.60 -- 23.90 (m)

GRAPHS





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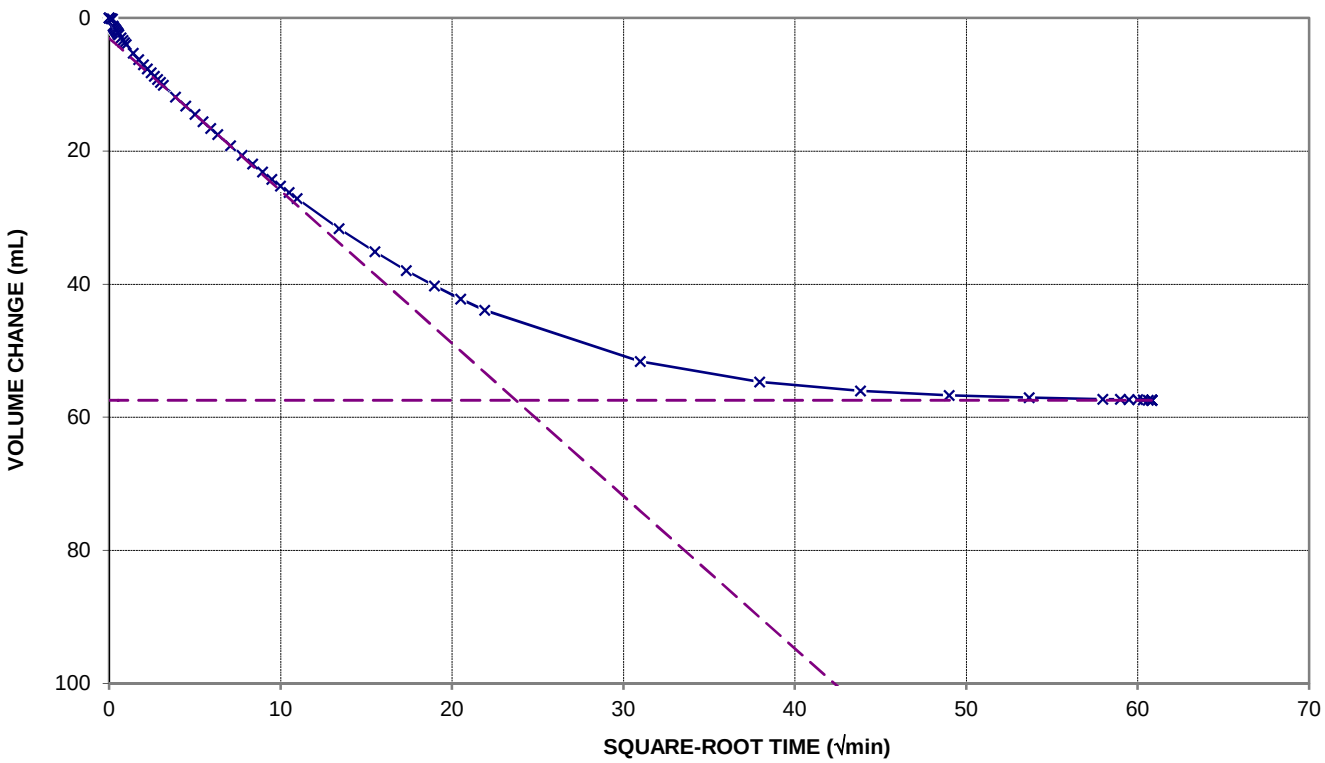
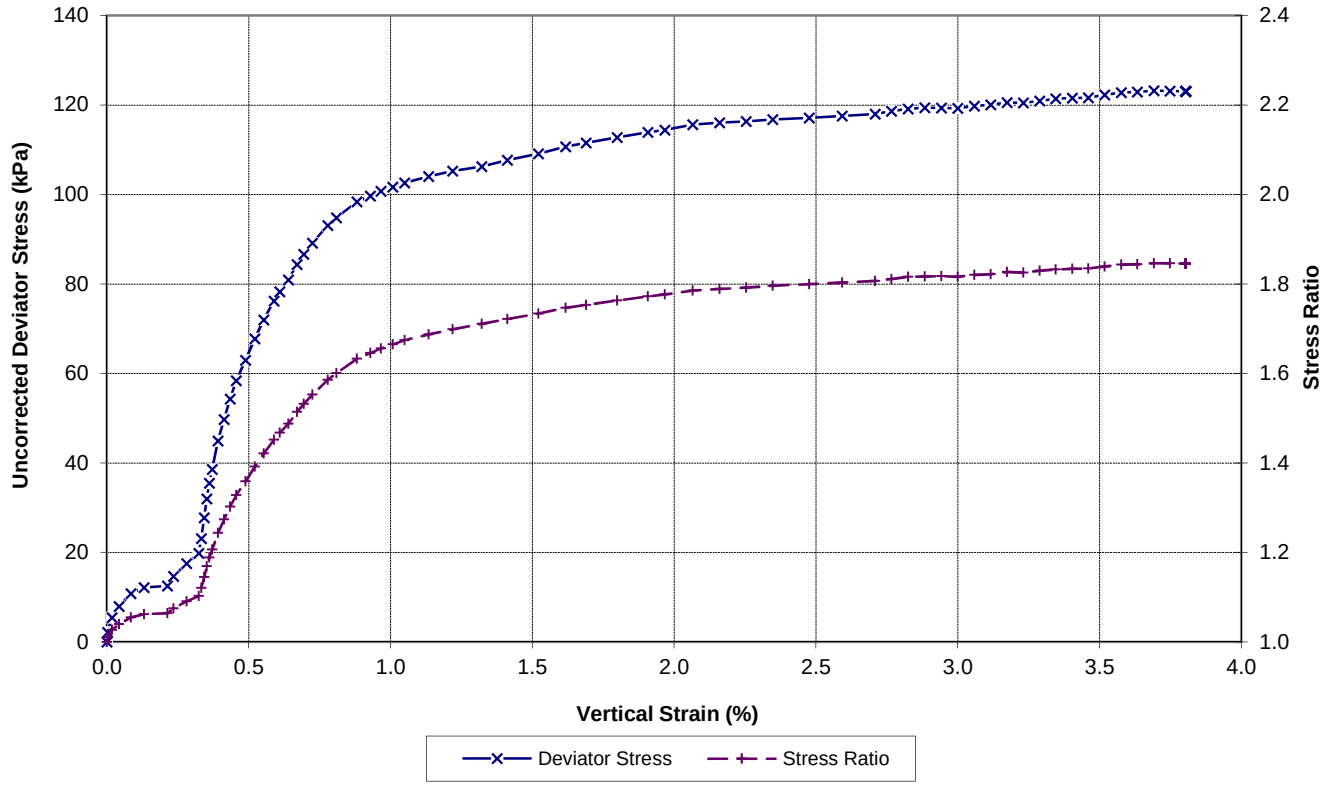
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT017	Sample Ref.: GT017-006	Depth: 23.60 -- 23.90 (m)

STAGE 1 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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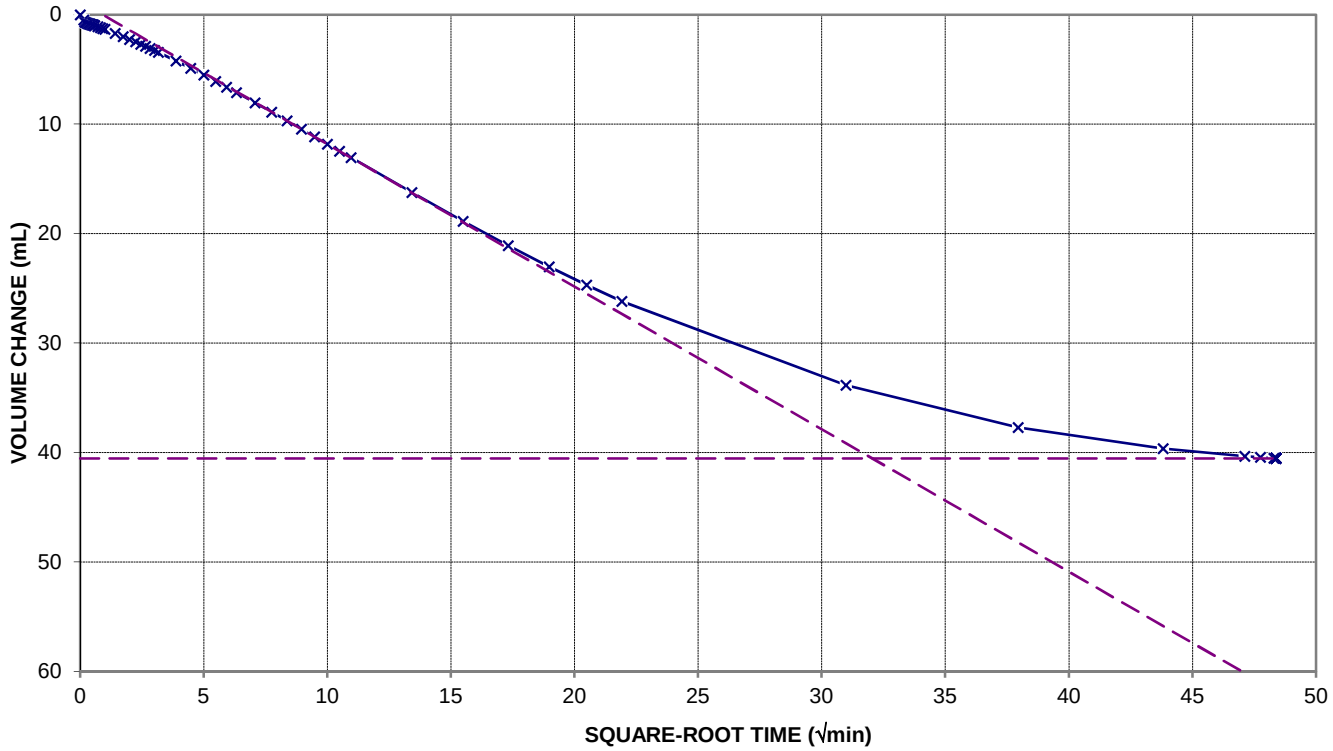
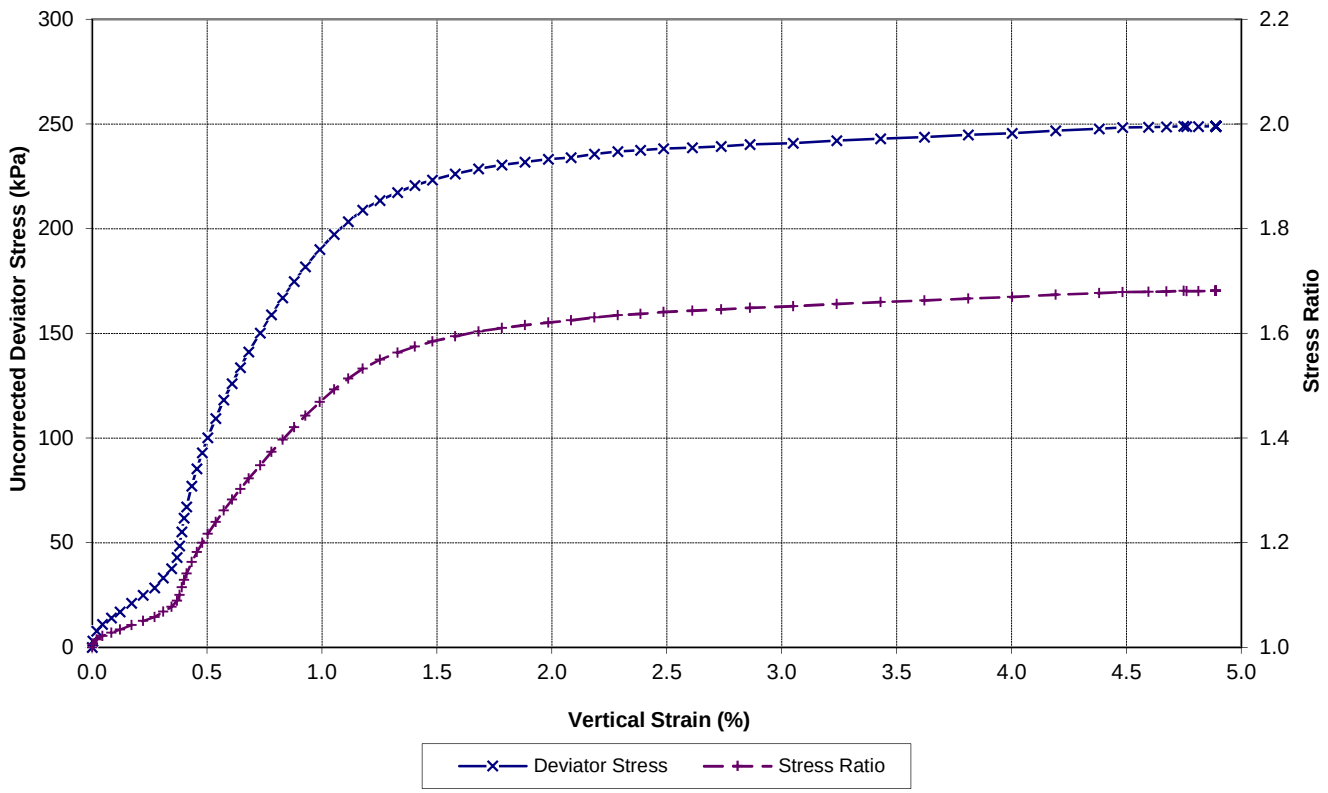
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT017	Sample Ref.: GT017-006	Depth: 23.60 -- 23.90 (m)

STAGE 2 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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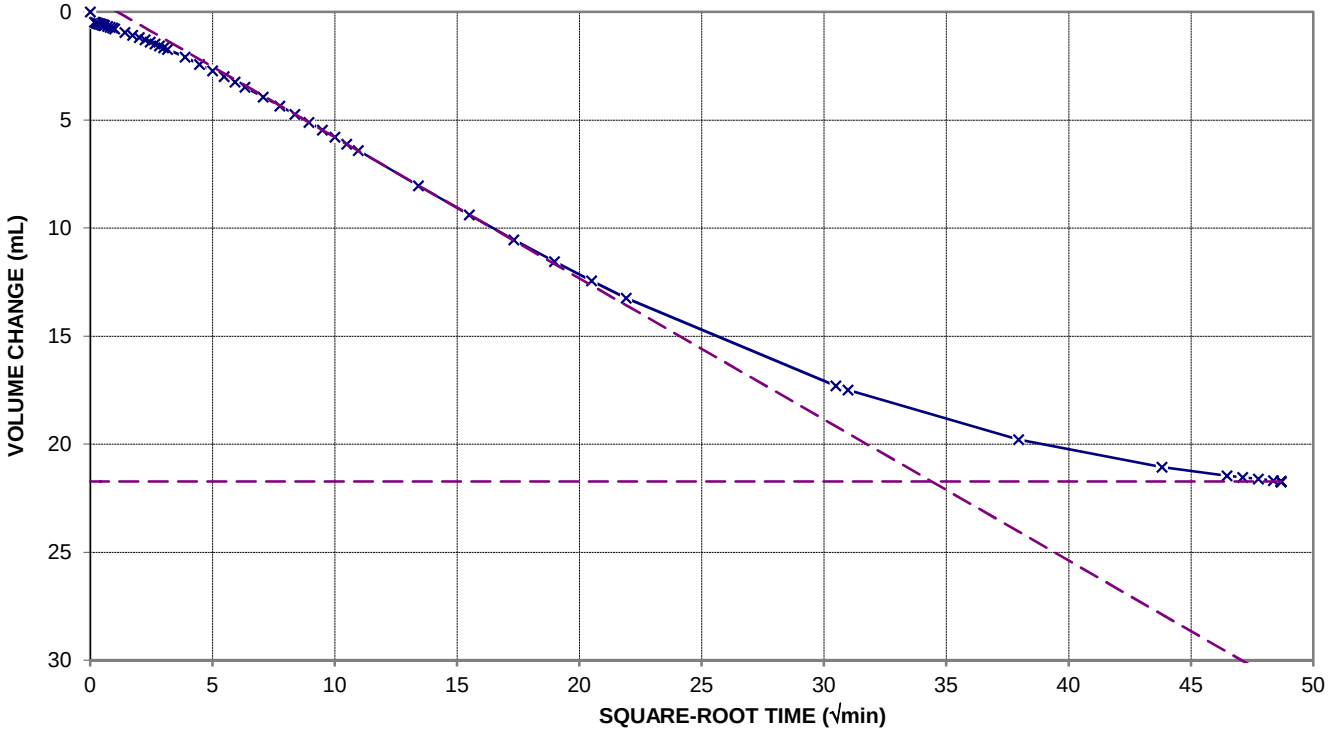
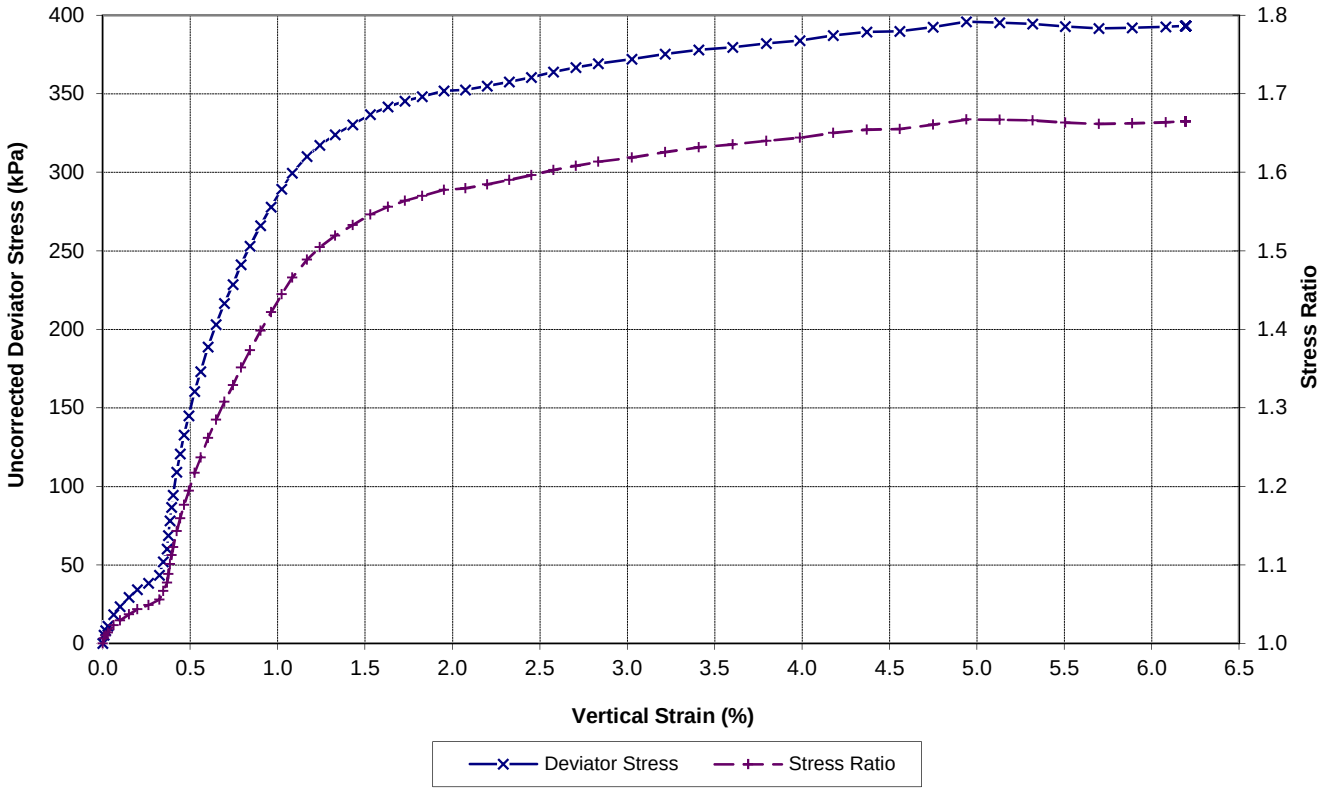
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT017	Sample Ref.: GT017-006	Depth: 23.60 -- 23.90 (m)

STAGE 3 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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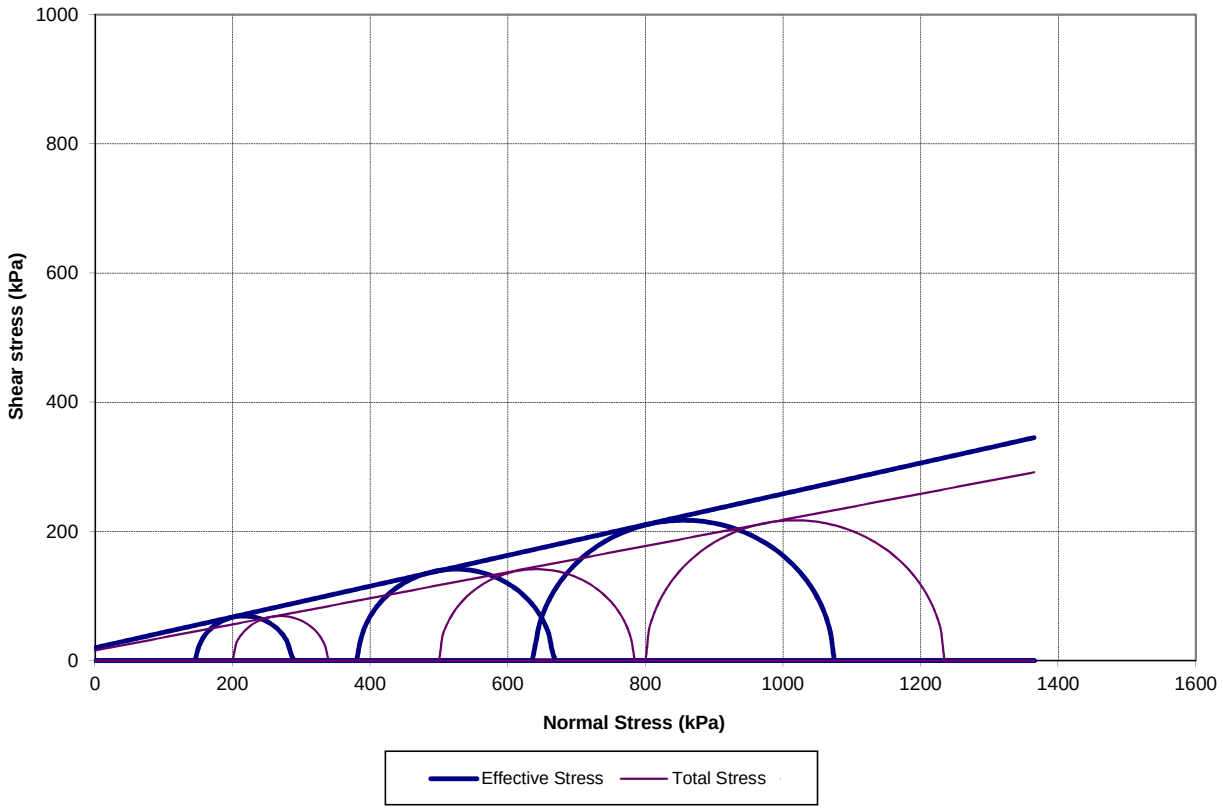
Site:	Waihi, NZ	Your Project ID:	PSM125	Project ID:	1003796.0000
Location ID:	GT017	Sample Ref.:	GT017-007	Depth:	41.40 -- 41.56 (m)

Test method used: BS1377:Part 8:1990:Clause 5 Saturation BS1377:Part 8:1990:Clause 6 Consolidation
BS1377:Part 8:1990:Clause 7 Consolidated-undrained triaxial compression test with pore pressure measurement

CONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST (3 STAGES)
MOHR CIRCLES OF TOTAL AND EFFECTIVE STRESSES



Initial Sample Height:	172.19	mm	Initial Water Content:	15.6	%
Initial Sample Diameter:	81.32	mm	Initial Bulk Density:	2.24	t/m³
Initial B Value:	10	%	Initial Dry Density:	1.94	t/m³
B Value before Consolidation:	100	%	Final Water Content:	17.1	%

	Consolidation Stage			Failure Values				
	Cell Pressure (kPa)	Back Pressure (kPa)	Eff. Consol. Stress (kPa)	Deviator Stress (kPa)	Pore Pressure Change During Shearing δμ (kPa)	Effective Principal Stress (kPa) Major σ1'	Effective Principal Stress (kPa) Minor σ3'	Vertical Strain (%)
STAGE 1	500	300	200	138.31	52.5	285.81	147.50	3.02
STAGE 2	800	300	500	283.26	117.6	665.66	382.40	3.06
STAGE 3	1100	300	800	434.62	161.3	1073.32	638.70	5.02

		Total			Effective	
Angle of Frictional Resistance:	ϕ =	11	°	ϕ' =	13	°
Cohesion:	c =	16	kPa	c' =	20	kPa
Linear Regression Coefficient:	r =	1.000		r =	1.000	

Sample History: Undisturbed core trimmed at natural water content.

Soil description: Favona, GT017-007, 41.40-41.56m, R1, Class 4 Andesite.

Failure Mode: Planar / Plastic Test Speed: 0.02 (mm/min)

Test Remarks: The sample was saturated by increments of cell pressure and back pressure.
Failure for each stage was determined by the maximum effective stress ratio. Strength parameters have been derived by using a linear regression fitting method.

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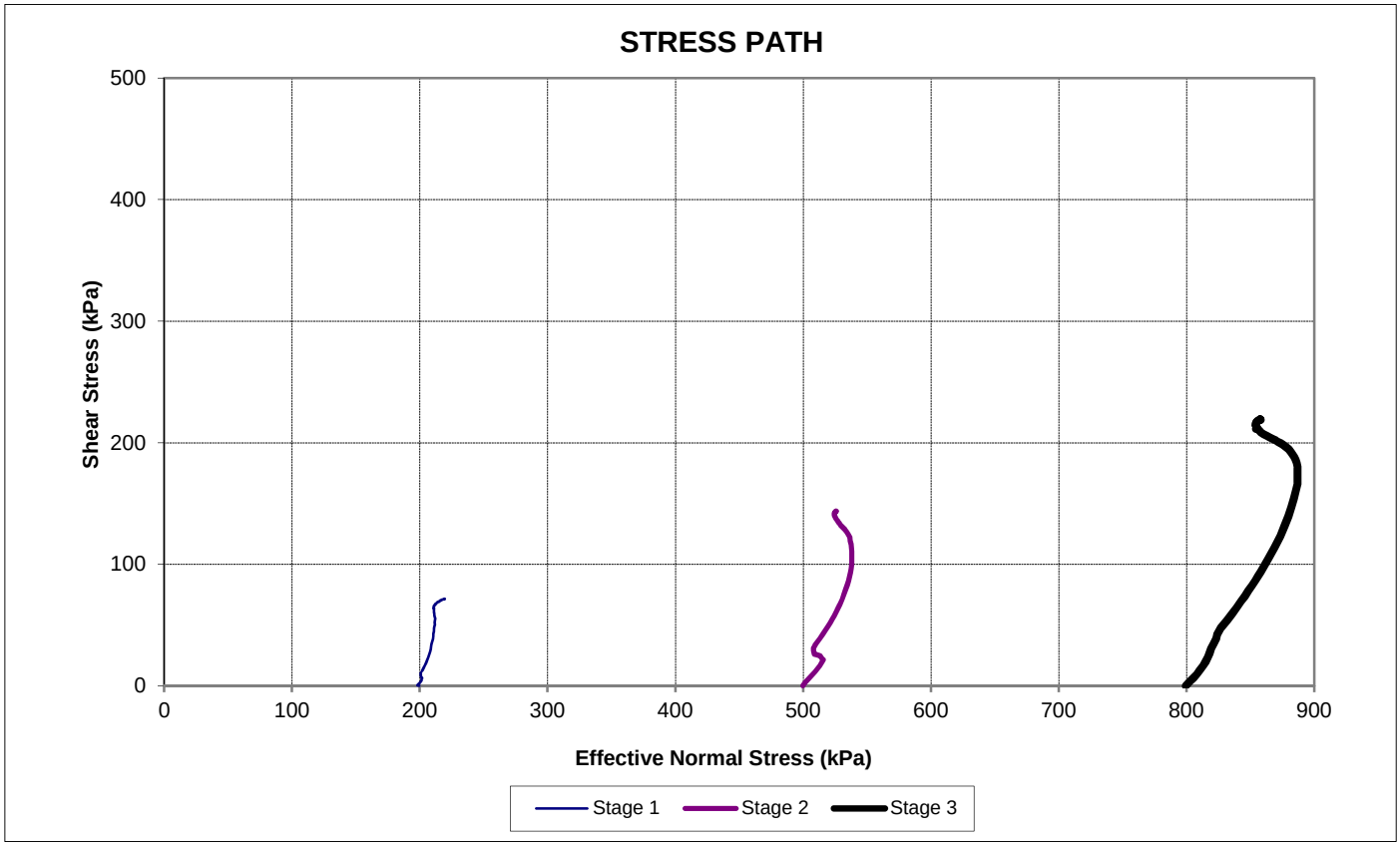
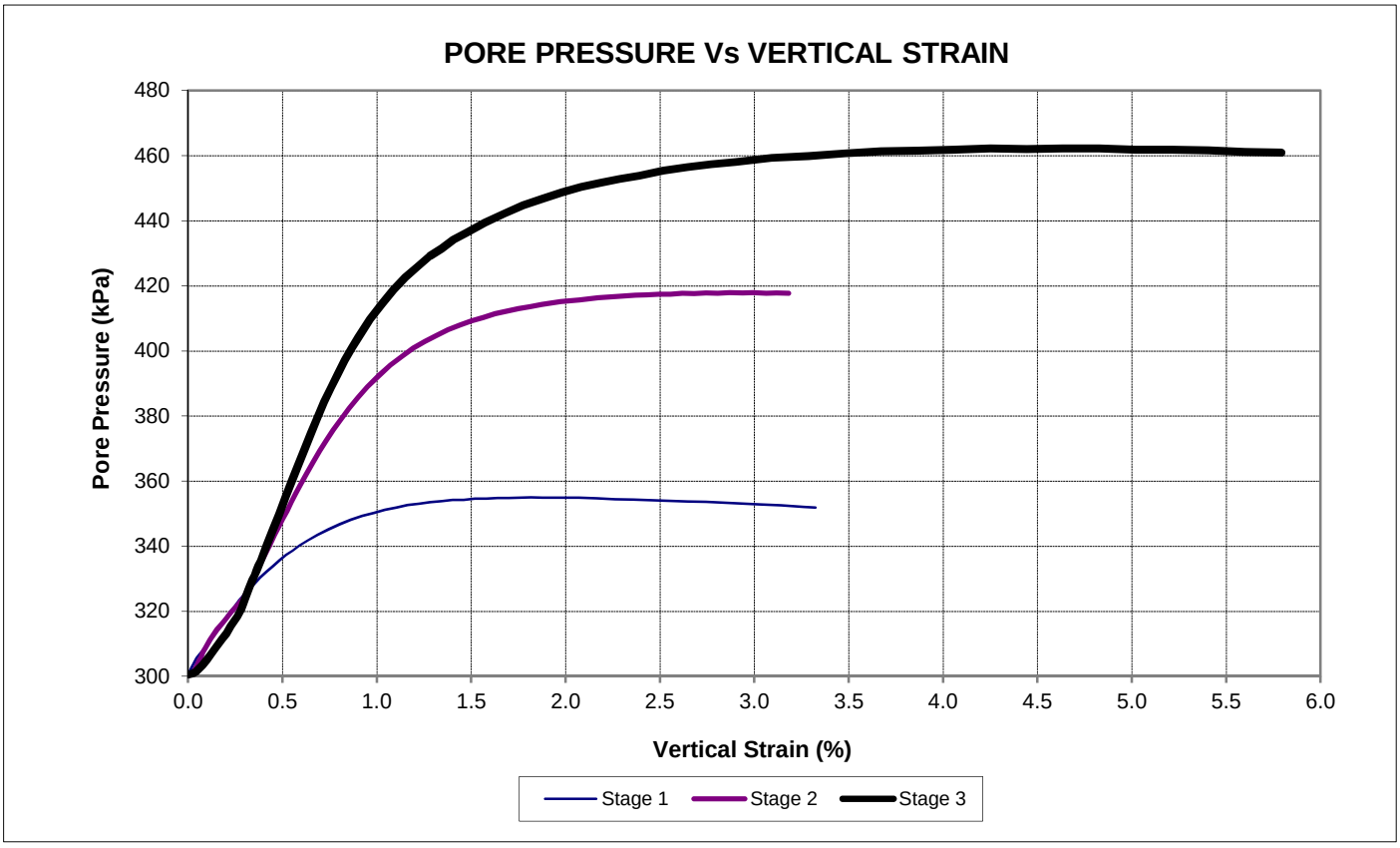
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT017	Sample Ref.: GT017-007	Depth: 41.40 -- 41.56 (m)

GRAPHS





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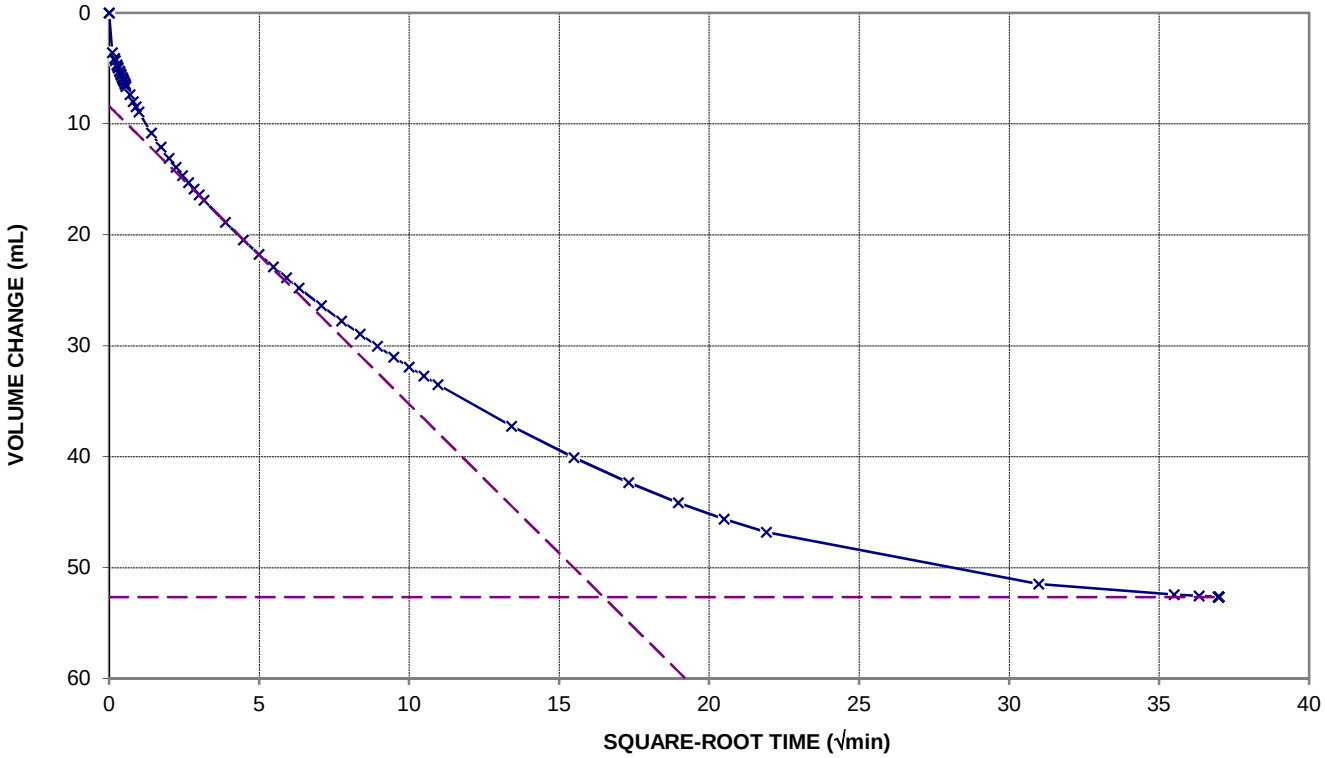
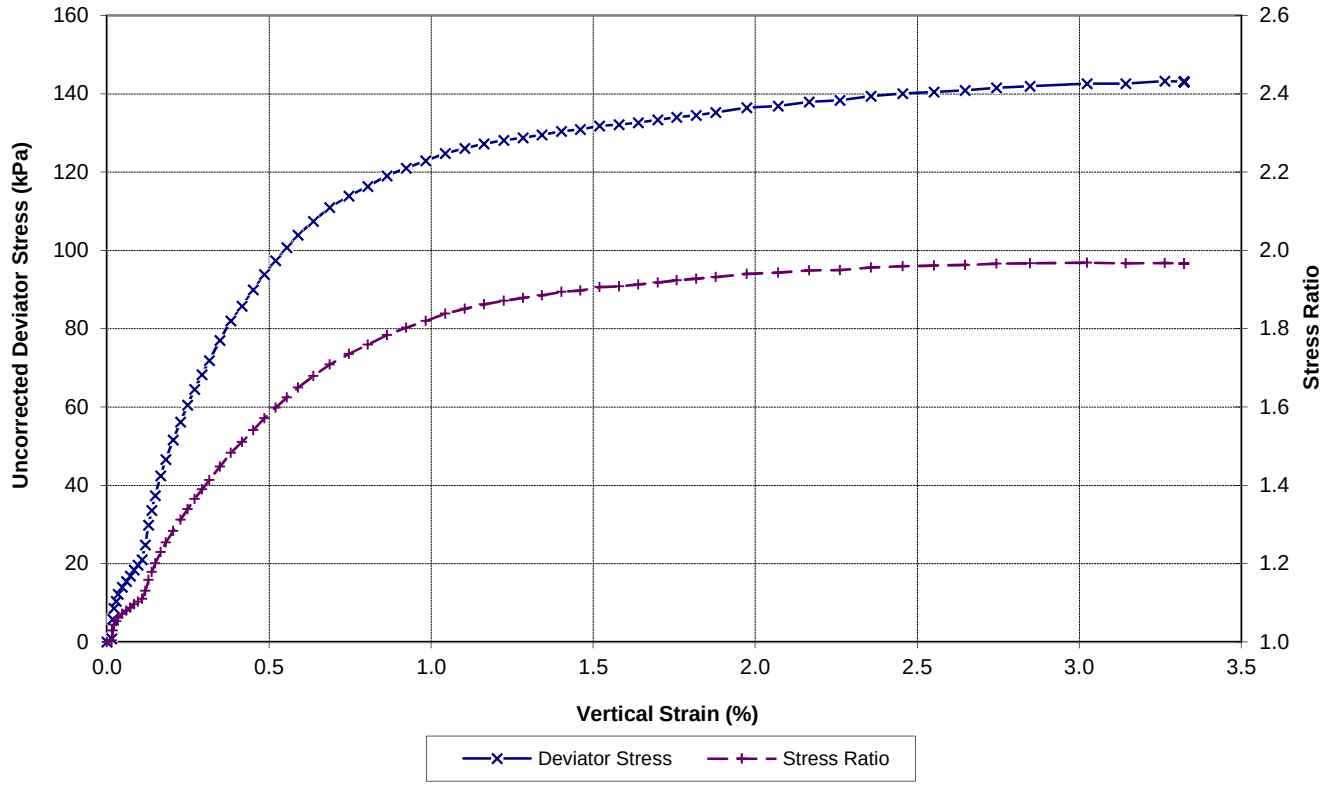
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT017	Sample Ref.: GT017-007	Depth: 41.40 -- 41.56 (m)

STAGE 1 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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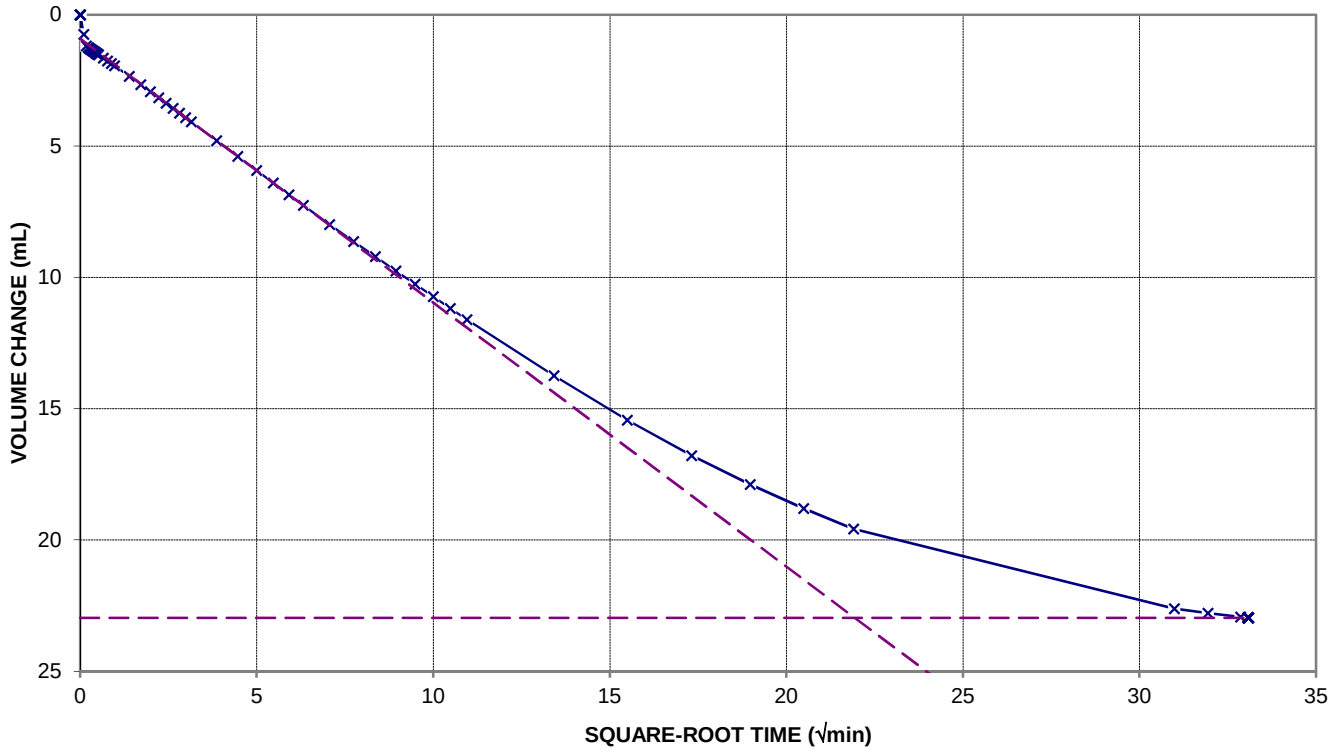
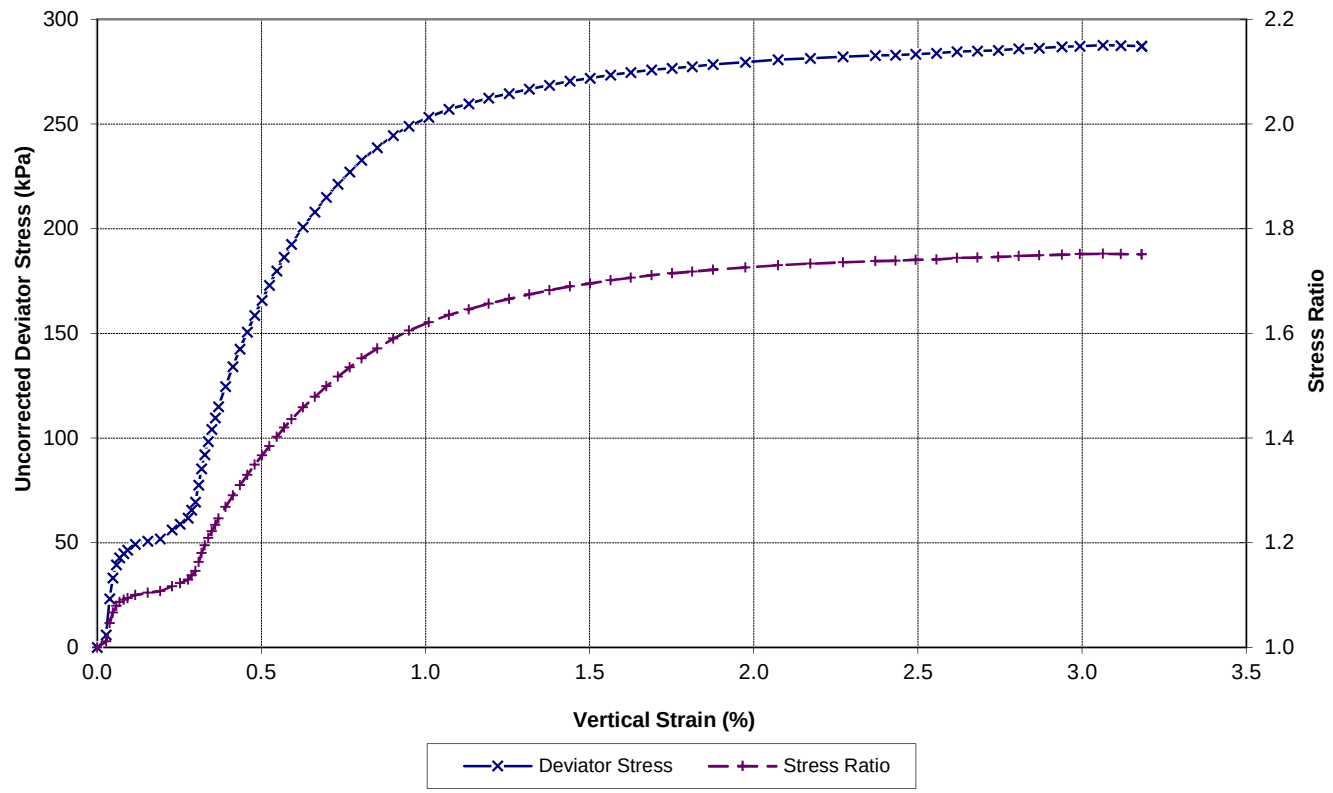
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT017	Sample Ref.: GT017-007	Depth: 41.40 -- 41.56 (m)

STAGE 2 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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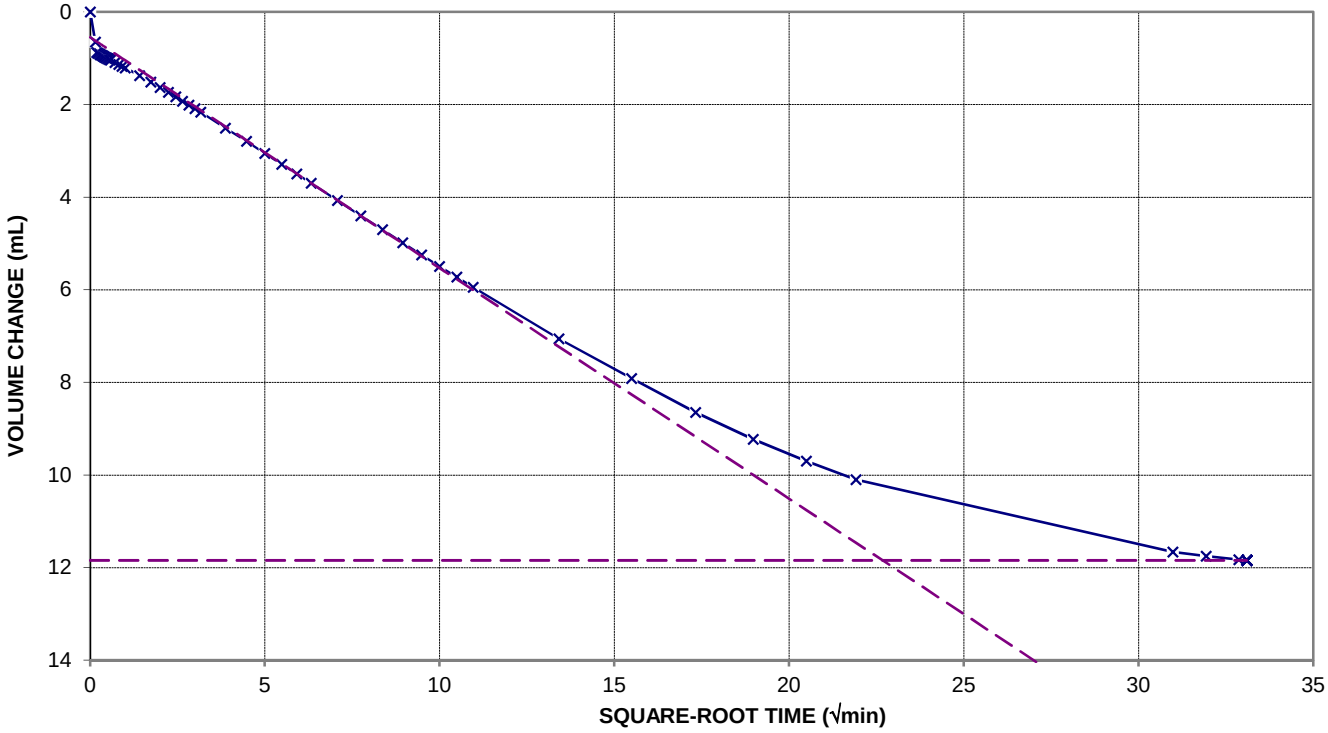
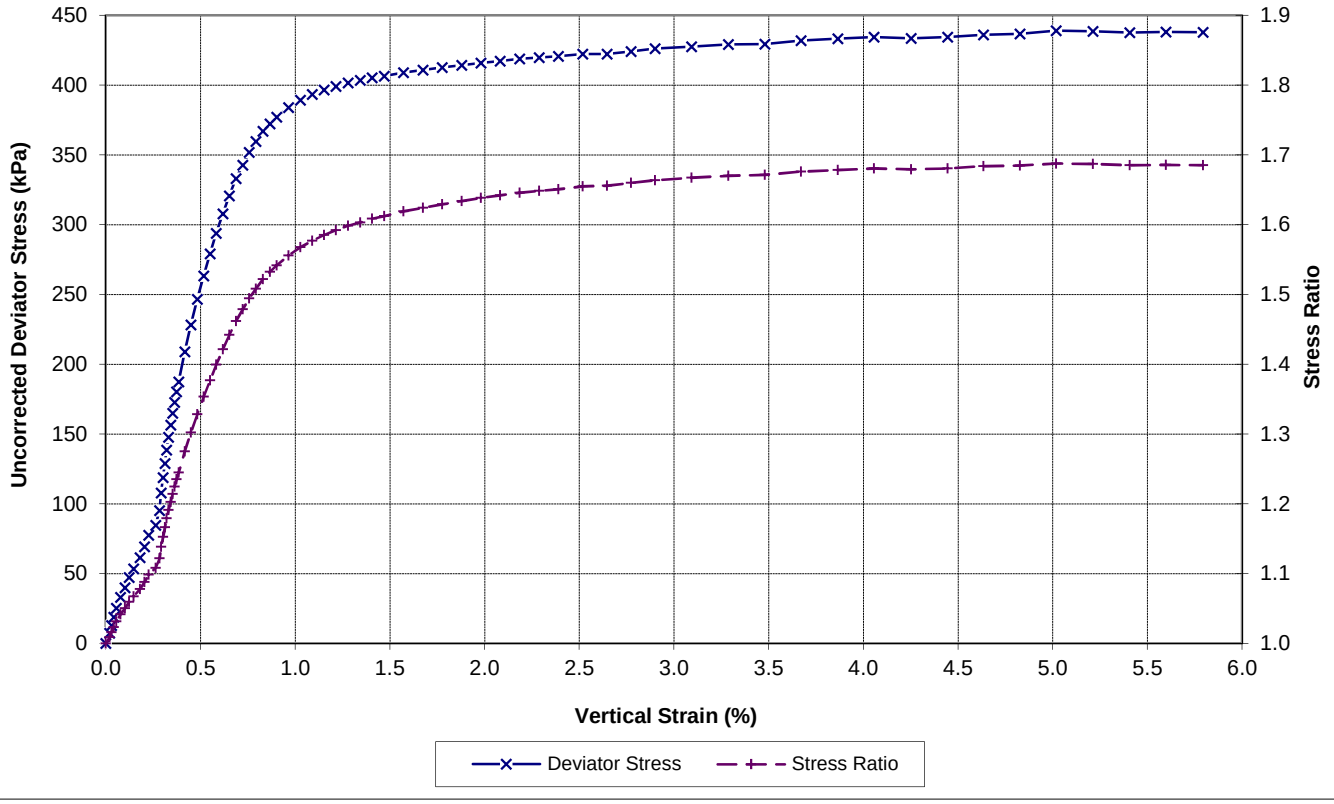
Site: Waihi, NZ	Your Project ID: PSM125	Project ID: 1003796.0000
Location ID: GT017	Sample Ref.: GT017-007	Depth: 41.40 -- 41.56 (m)

STAGE 3 GRAPHS

CONSOLIDATION



STRESS-STRAIN CURVE



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Appendix J
Raw Point Load

Pells Sullivan Meynink

POINT LOAD STRENGTH INDEX TEST RESULTS

Job No.	***PSM125***		**Sheet 1 of 2**
Project	***Project Pye***	***GT011***	**Core Shed**

Test Method	*AS 4133.4.1 - 1993 Methods of Testing Rocks for Engineering Purposes, Determination of Point Load Strength Index*	Sampling Technique	*Coring*	Sampling Date	
		Storage History	*Core Shed*	Testing Date	*27/06/2017*
Test Machine	*GSA 6500*	Moisture Condition	*Field Moisture*	Tested By	*AGI*
Calibration Date	*1/2/2012*	Loading Rate	*< 30 seconds*	UCS / Is(50)	*18.0*

Rock Type	Location	Depth (m)	Diametral Tests					Axial, Block, and Irregular Lump Tests							PSM Strength Class
			D (mm)	L (mm)	P (kN)	$I_{s(50)}$ (MPa)	Failure Mode	W (mm)	D (mm)	L (mm)	P (kN)	I_s (MPa)	$I_{s(50)}$ (MPa)	Failure Mode	
Andesite	***GT011***	***3.10***	*80*	*100*	*0.5*	***0.09***		*80*	*65*		*0.3*	*0*	***0.05***		***R0 / R1***
Andesite	***GT011***	***5.90***	*80*	*100*	*0.2*	***0.03***		*80*	*55*		*0.3*	*0.1*	***0.06***		***R0***
Andesite	***GT011***	***9.00***	*80*	*100*	*0.2*	***0.04***		*80*	*50*		*0.2*	*0*	***0.04***		***R0***
Andesite	***GT011***	***12.80***	*72*	*100*	*0.6*	***0.14***		*72*	*45*		*0.5*	*0.1*	***0.14***		***R1***
Andesite	***GT011***	***20.10***	*80*	*100*	*1.6*	***0.31***		*80*	*50*		*0.4*	*0.1*	***0.09***	*Break along existing*	***R1 / R2***
Andesite	***GT011***	***26.70***	*80*	*100*	*2.7*	***0.51***		*80*	*50*		*1.9*	*0.4*	***0.45***		***R2***
Andesite	***GT011***	***28.50***	*80*	*100*	*2.3*	***0.44***		*80*	*50*		*0.6*	*0.1*	***0.15***	*Break along existing*	***R1 / R2***
Andesite	***GT011***	***33.00***	*80*	*100*	*1.9*	***0.37***	*Break along incipient*	*80*	*52*		*2.6*	*0.5*	***0.58***		***R2 / R3***
Andesite	***GT011***	***35.00***	*80*	*100*	*0.9*	***0.17***	*Break along incipient*	*80*	*40*		*1.5*	*0.4*	***0.4***	*Break along existing*	***R1 / R2***
Andesite	***GT011***	***38.00***	*80*	*100*	*0.6*	***0.11***		*80*	*57*		*1.2*	*0.2*	***0.25***		***R1 / R2***
Andesite	***GT011***	***42.00***		*100*				*34*	*35*		*0.2*	*0.1*	***0.1***	*Disaggregates along quartz veining*	***R1***
Andesite	***GT011***	***45.40***		*100*				*80*	*48*		*0.6*	*0.1*	***0.15***		***R1***
Andesite	***GT011***	***47.90***	*80*	*100*	*0.6*	***0.11***		*80*	*60*		*0.3*	*0*	***0.06***		***R0***
Andesite	***GT011***	***49.70***	*80*	*100*	*0.7*	***0.14***	*Break along incipient*	*80*	*50*		*0.4*	*0.1*	***0.1***	*Break along incipient*	***R1***
Andesite	***GT011***	***52.80***	*80*	*100*	*2*	***0.38***	*Break along incipient*	*75*	*50*		*1.2*	*0.3*	***0.29***	*Break along incipient*	***R2***
Andesite	***GT011***	***55.35***	*80*	*100*	*0.3*	***0.06***	*Break along incipient*	*80*	*40*		*0.7*	*0.2*	***0.18***		***R0 / R2***
Andesite	***GT011***	***58.42***	*80*	*100*	*0.6*	***0.11***	*Break along incipient*	*64*	*40*		*0.9*	*0.3*	***0.28***		***R1 / R2***
Andesite	***GT011***	***60.50***	*80*	*100*	*0.7*	***0.13***	*Break along incipient*	*80*	*55*		*1.2*	*0.2*	***0.26***		***R1 / R2***
Andesite	***GT011***	***65.00***	*80*	*100*	*1.9*	***0.36***	*Break along incipient*	*80*	*43*		*2.3*	*0.5*	***0.59***		***R2 / R3***
Andesite	***GT011***	***69.00***	*80*	*100*	*2.7*	***0.52***		*80*	*36*		*2.2*	*0.6*	***0.65***		***R2 / R3***
Andesite	***GT011***	***70.00***	*80*	*100*	*3*	***0.57***		*60*	*45*		*1.7*	*0.5*	***0.54***		***R2 / R3***
Andesite	***GT011***	***72.80***	*80*	*100*	*2.6*	***0.5***		*60*	*48*		*2.8*	*0.8*	***0.82***		***R2 / R3***
Andesite	***GT011***	***74.60***	*80*	*100*	*3.7*	***0.71***		*57*	*40*		*2.2*	*0.8*	***0.78***	.	***R3***
Andesite	***GT011***	***77.20***	*80*	*100*	*0.3*	***0.06***	*Disintegration along incipient*	*78*	*45*		*0.7*	*0.2*	***0.18***		***R0 / R2***
Andesite	***GT011***	***80.00***	*80*	*100*	*0.8*	***0.15***		*80*	*38*		*0.8*	*0.2*	***0.24***		***R1 / R2***
Andesite	***GT011***	***87.70***	*80*	*100*	*0.8*	***0.15***		*80*	*40*		*1.2*	*0.3*	***0.33***		***R1 / R2***

By:	***AGI***	**Checked:**		**Date:**	***27/6/2017***

Pells Sullivan Meynink

POINT LOAD STRENGTH INDEX TEST RESULTS

Job No.	***PSM125***		**Sheet 2 of 2**
Project	***Project Pye***	***GT011***	**Core Shed**

Test Method	*AS 4133.4.1 - 1993 Methods of Testing Rocks for Engineering Purposes, Determination of Point Load Strength Index*	Sampling Technique	*Coring*	Sampling Date	
		Storage History	*Core Shed*	Testing Date	*27/06/2017*
Test Machine	*GSA 6500*	Moisture Condition	*Field Moisture*	Tested By	*AGI*
Calibration Date	*1/2/2012*	Loading Rate	*< 30 seconds*	UCS / Is(50)	*18.0*

Rock Type	Location	Depth (m)	Diametral Tests					Axial, Block, and Irregular Lump Tests							PSM Strength Class
			D (mm)	L (mm)	P (kN)	$I_{s(50)}$ (MPa)	Failure Mode	W (mm)	D (mm)	L (mm)	P (kN)	I_s (MPa)	$I_{s(50)}$ (MPa)	Failure Mode	
Andesite	***GT011***	***91.80***	*80*	*100*	*0.6*	***0.12***		*80*	*33*		*0.6*	*0.2*	***0.18***		***R1 / R2***
Andesite	***GT011***	***94.80***	*80*	*100*	*0.6*	***0.12***	*Break along incipient*	*56*	*36*		*0.9*	*0.3*	***0.34***		***R1 / R2***
Andesite	***GT011***	***99.80***	*80*	*100*	*0.5*	***0.1***		*80*	*38*		*0.4*	*0.1*	***0.11***		***R1***
Andesite	***GT011***	***104.20***	*80*	*100*	*0.3*	***0.05***		*80*	*45*		*0.4*	*0.1*	***0.09***		***R0 / R1***
Andesite	***GT011***	***105.25***	*80*	*100*	*6.1*	***1.17***		*80*	*40*		*5.7*	*1.4*	***1.55***		***R3 / R4***
Andesite	***GT011***	***109.90***	*80*	*100*	*23*	***4.44***	*Break along incipient*	*80*	*43*		*4*	*0.9*	***1.02***		***R3 / R4***
Andesite	***GT011***	***117.90***		*100*			*No adequate sample*	*80*	*50*		*4.2*	*0.8*	***0.98***		***R3***
Andesite	***GT011***	***119.25***	*80*	*100*	*0.1*	***0.02***	*Disintegration along incipient*	*80*	*40*		*0.1*	*0*	***0.02***	*Disintegration along incipient*	

By:	***AGI***	**Checked:**		**Date:**	***27/6/2017***

Pells Sullivan Meynink

POINT LOAD STRENGTH INDEX TEST RESULTS

Job No.	***PSM125***		**Sheet 1 of 2**
Project	***Project Pye***	***GT012***	**Core Shed**

Test Method	*AS 4133.4.1 - 1993 Methods of Testing Rocks for Engineering Purposes, Determination of Point Load Strength Index*	Sampling Technique	*Coring*	Sampling Date	
		Storage History	*Core Shed*	Testing Date	*29/06/2017*
Test Machine	*GSA 6500*	Moisture Condition	*Field Moisture*	Tested By	*AGI*
Calibration Date	*1/2/2012*	Loading Rate	*< 30 seconds*	UCS / Is(50)	*18.0*

Rock Type	Location	Depth	Diametral Tests					Axial, Block, and Irregular Lump Tests							PSM Strength Class
		(m)	D (mm)	L (mm)	P (kN)	$I_{s(50)}$ (MPa)	Failure Mode	W (mm)	D (mm)	L (mm)	P (kN)	I_s (MPa)	$I_{s(50)}$ (MPa)	Failure Mode	
Andesite	***GT012***	***29.50***	*80*	*100*	*0.5*	***0.09***		*81*	*80*		*0.3*	*0*	***0.05***		***R0 / R1***
Andesite	***GT012***	***32.50***	*80*	*100*	*1.3*	***0.25***		*80*	*45*		*0.9*	*0.2*	***0.22***		***R2***
Andesite	***GT012***	***36.25***	*80*	*100*	*1.5*	***0.29***		*80*	*56*		*0.9*	*0.2*	***0.19***		***R2***
Andesite	***GT012***	***38.75***	*80*	*100*	*1.9*	***0.36***		*80*	*42*		*1.6*	*0.4*	***0.42***		***R2***
Andesite	***GT012***	***41.70***	*80*	*100*	*1*	***0.2***		*80*	*49*		*2*	*0.4*	***0.47***		***R2***
Andesite	***GT012***	***45.58***	*80*	*100*	*1.2*	***0.23***		*48*	*35*		*1.2*	*0.6*	***0.55***		***R2***
Andesite	***GT012***	***48.20***	*80*	*100*	*5*	***0.97***		*80*	*50*		*3.4*	*0.7*	***0.79***		***R3***
Andesite	***GT012***	***49.70***	*80*	*100*	*0.5*	***0.1***		*62*	*39*		*0.4*	*0.1*	***0.15***		***R1***
Andesite	***GT012***	***53.35***	*80*	*100*	*4.4*	***0.85***		*70*	*34*		*1.9*	*0.6*	***0.64***		***R3***
Andesite	***GT012***	***57.00***	*80*	*100*	*3.2*	***0.61***	*Break along incipient*	*80*	*42*		*3.5*	*0.8*	***0.91***		***R3***
Andesite	***GT012***	***58.80***		*100*				*45*	*30*		*0.6*	*0.3*	***0.32***		***R2***
Andesite	***GT012***	***61.25***	*80*	*100*	*3.4*	***0.66***		*80*	*66*		*3.5*	*0.5*	***0.65***	*Partial break along incipient*	***R3***
Andesite	***GT012***	***65.23***	*80*	*100*	*2.9*	***0.56***		*80*	*48*		*3.2*	*0.6*	***0.75***		***R3***
Andesite	***GT012***	***68.20***	*80*	*100*	*1.2*	***0.23***	*Break along incipient*	*80*	*51*		*1.2*	*0.2*	***0.27***	*Break along incipient*	***R2***
Andesite	***GT012***	***72.30***	*80*	*100*	*1*	***0.19***	*Break along incipient*	*80*	*47*		*1.5*	*0.3*	***0.36***		***R2***
Andesite	***GT012***	***75.00***	*90*	*100*	*0.3*	***0.05***	*Break along incipient*	*60*	*44*		*0.3*	*0.1*	***0.09***		***R0 / R1***
Andesite	***GT012***	***76.90***	*80*	*100*	*2.5*	***0.48***	*Partial break along incipient*	*80*	*70*		*4.5*	*0.6*	***0.79***		***R2 / R3***
Andesite	***GT012***	***78.80***	*80*	*100*	*0.5*	***0.09***		*52*	*44*		*0.3*	*0.1*	***0.1***		***R1***
Andesite	***GT012***	***81.10***	*80*	*100*	*5.8*	***1.12***		*62*	*38*		*1.8*	*0.6*	***0.61***	*Partial break along incipient*	***R3***
Andesite	***GT012***	***83.62***	*80*	*100*	*0.3*	***0.05***		*80*	*39*		*0.1*	*0*	***0.03***	*Break along incipient*	***R0***
Andesite	***GT012***	***87.00***	*80*	*100*	*5.7*	***1.1***		*60*	*37*		*2.5*	*0.9*	***0.91***		***R3***
Andesite	***GT012***	***90.00***	*80*	*100*	*3.9*	***0.75***	*Partial break along incipient*	*80*	*58*		*5.9*	*1*	***1.21***		***R3***
Andesite	***GT012***	***93.00***	*60*	*100*	*5.3*	***1.6***		*60*	*40*		*6.9*	*2.3*	***2.36***		***R4***
Andesite	***GT012***	***96.65***	*58*	*100*	*4.1*	***1.31***		*58*	*40*		*3.3*	*1.1*	***1.15***		***R3***
Andesite	***GT012***	***100.40***	*58*	*100*	*5.5*	***1.73***		*58*	*35*		*3.7*	*1.4*	***1.42***		***R4***
Andesite	***GT012***	***104.50***		*100*			*Refusal*							*Refusal*	

By:	***AGI***	**Checked:**		**Date:**	***29/6/2017***

Pells Sullivan Meynink

POINT LOAD STRENGTH INDEX TEST RESULTS

Job No.	***PSM125***		**Sheet 2 of 2**
Project	***Project Pye***	***GT012***	**Core Shed**

Test Method	*AS 4133.4.1 - 1993 Methods of Testing Rocks for Engineering Purposes, Determination of Point Load Strength Index*	Sampling Technique	*Coring*	Sampling Date	
		Storage History	*Core Shed*	Testing Date	*29/06/2017*
Test Machine	*GSA 6500*	Moisture Condition	*Field Moisture*	Tested By	*AGI*
Calibration Date	*1/2/2012*	Loading Rate	*< 30 seconds*	UCS / Is(50)	*18.0*

Rock Type	Location	Depth (m)	Diametral Tests					Axial, Block, and Irregular Lump Tests							PSM Strength Class
			D (mm)	L (mm)	P (kN)	$I_{s(50)}$ (MPa)	Failure Mode	W (mm)	D (mm)	L (mm)	P (kN)	I_s (MPa)	$I_{s(50)}$ (MPa)	Failure Mode	
Andesite	***GT012***	***106.00***	*59*	*100*	*3.9*	***1.2***		*59*	*35*		*3.9*	*1.5*	***1.5***		***R4***
Andesite	***GT012***	***109.40***	*60*	*100*	*3.3*	***1***	*Partial break along incipient*	*60*	*46*		*2.9*	*0.8*	***0.88***	*Partial break along incipient*	***R3***
Andesite	***GT012***	***113.00***	*60*	*100*	*5.9*	***1.77***		*60*	*59*		*3.8*	*0.8*	***0.95***		***R3 / R4***
Andesite	***GT012***	***116.50***	*60*	*100*	*4.8*	***1.44***		*60*	*37*		*3.9*	*1.4*	***1.42***		***R4***
Andesite	***GT012***	***119.70***	*60*	*100*	*2.7*	***0.81***		*60*	*38*		*1*	*0.3*	***0.35***		***R2 / R3***
Andesite	***GT012***	***124.00***	*60*	*100*	*3.3*	***1***		*60*	*39*		*5*	*1.7*	***1.74***		***R3 / R4***
Andesite	***GT012***	***128.10***	*60*	*100*	*5.2*	***1.56***		*60*	*32*		*3.9*	*1.6*	***1.59***		***R4***
Andesite	***GT012***	***131.30***	*60*	*100*	*4.8*	***1.45***		*60*	*46*		*5.7*	*1.6*	***1.74***		***R4***
Andesite	***GT012***	***134.75***	*60*	*100*	*3.1*	***0.93***	*Break along incipient*	*60*	*39*		*3.5*	*1.2*	***1.21***		***R3***
Andesite	***GT012***	***138.65***	*60*	*100*	*7.4*	***2.23***		*60*	*36*		*4*	*1.4*	***1.48***		***R4***

By:	***AGI***	**Checked:**		**Date:**	***29/6/2017***

Pells Sullivan Meynink

POINT LOAD STRENGTH INDEX TEST RESULTS

Job No.	***PSM125***		**Sheet 1 of 2**
Project	***Project Pye***	***GT013***	**Core Shed**

Test Method	*AS 4133.4.1 - 1993 Methods of Testing Rocks for Engineering Purposes, Determination of Point Load Strength Index*	Sampling Technique	*Coring*	Sampling Date	
		Storage History	*Core Shed*	Testing Date	*24/06/2017*
Test Machine	*GSA 6500*	Moisture Condition	*Field Moisture*	Tested By	*AGI*
Calibration Date	*1/2/2012*	Loading Rate	*< 30 seconds*	UCS / Is(50)	*18.0*

Rock Type	Location	Depth (m)	Diametral Tests					Axial, Block, and Irregular Lump Tests							PSM Strength Class
			D (mm)	L (mm)	P (kN)	$I_{s(50)}$ (MPa)	Failure Mode	W (mm)	D (mm)	L (mm)	P (kN)	I_s (MPa)	$I_{s(50)}$ (MPa)	Failure Mode	
Andesite	***GT013***	***4.80***	*80*	*100*	*0.1*	***0.02***		*80*	*45*					*No reading*	
Andesite	***GT013***	***6.25***	*80*	*100*			*No reading, breaks along incipient*	*80*	*46*					*No reading*	
Andesite	***GT013***	***23.70***	*80*	*100*	*0.1*	***0.02***		*56*	*51*		*0.1*	*0*	***0.02***		
Andesite	***GT013***	***26.75***	*80*	*100*	*0.1*	***0.02***		*67*	*46*		*0.1*	*0*	***0.02***		
Andesite	***GT013***	***32.02***	*80*	*100*	*0.4*	***0.08***		*80*	*31*		*0.3*	*0.1*	***0.09***		***R0 / R1***
Andesite	***GT013***	***29.85***		*100*			*No reading, breaks along incipient*	*60*	*41*		*0.4*	*0.1*	***0.14***		***R1***
Andesite	***GT013***	***35.45***		*100*			*No reading, breaks along incipient*	*80*	*63*		*0.5*	*0.1*	***0.09***		***R1***
Andesite	***GT013***	***38.45***	*80*	*100*	*0.2*	***0.03***		*80*	*49*		*0.2*	*0*	***0.05***		***R0***
Andesite	***GT013***	***40.70***		*100*			*No reading, breaks along incipient*	*80*	*56*		*0.8*	*0.1*	***0.16***		***R1***
Andesite	***GT013***	***42.00***		*100*			*No reading, breaks along incipient*	*55*	*45*		*0.2*	*0*	***0.05***		***R0***
Andesite	***GT013***	***30.75***		*100*			*No reading, breaks along incipient*	*76*	*30*		*0.3*	*0.1*	***0.09***		***R1***
Andesite	***GT013***	***46.00***	*80*	*100*			*No reading, breaks along incipient*	*50*	*33*		*0.2*	*0.1*	***0.08***		***R0***
Andesite	***GT013***	***47.20***	*80*	*100*	*0.1*	***0.03***		*50*	*33*		*0.1*	*0*	***0.04***	*Break along incipient*	
Andesite	***GT013***	***50.70***		*100*			*No reading, breaks along incipient*	*78*	*45*		*0.6*	*0.1*	***0.15***	*Break along incipient*	***R1***
Andesite	***GT013***	***53.60***		*100*			*No reading, breaks along incipient*	*80*	*53*		*1.3*	*0.2*	***0.28***		***R2***
Andesite	***GT013***	***57.50***		*100*			*No reading, breaks along incipient*	*60*	*39*		*1.4*	*0.5*	***0.5***		***R2***
Andesite	***GT013***	***62.90***		*100*			*Disaggregates along incipient*							*Disaggregates along incipient*	
Andesite	***GT013***	***66.30***		*100*			*Disaggregates along incipient*	*48*	*46*		*0.2*	*0.1*	***0.08***	*Break along incipient*	***R0***
Andesite	***GT013***	***68.00***		*100*			*Disaggregates along incipient*	*69*	*50*		*0.4*	*0.1*	***0.1***		***R1***
Andesite	***GT013***	***70.00***	*80*	*100*	*0.3*	***0.05***	*Break along incipient*	*80*	*28*		*0.3*	*0.1*	***0.12***	*Break along incipient*	***R1***
Andesite	***GT013***	***73.00***	*80*	*100*	*4.2*	***0.8***		*80*	*55*		*2*	*0.4*	***0.43***		***R2 / R3***
Andesite	***GT013***	***76.00***	*80*	*100*	*3.4*	***0.65***		*58*	*45*		*1.2*	*0.4*	***0.38***		***R2 / R3***
Andesite	***GT013***	***78.40***	*80*	*100*	*3.6*	***0.7***		*80*	*53*		*2.3*	*0.4*	***0.5***		***R2 / R3***
Andesite	***GT013***	***80.72***	*80*	*100*	*4.1*	***0.79***		*80*	*49*		*2.5*	*0.5*	***0.59***		***R3***
Andesite	***GT013***	***83.00***		*100*			*Refusal*							*Refusal*	
Andesite	***GT013***	***88.20***	*80*	*100*	*3.5*	***0.67***		*80*	*65*		*4.6*	*0.7*	***0.87***		***R3***

By:	***AGI***	**Checked:**		**Date:**	***24/6/2017***

Pells Sullivan Meynink

POINT LOAD STRENGTH INDEX TEST RESULTS

Job No.	***PSM125***		**Sheet 2 of 2**
Project	***Project Pye***	***GT013***	**Core Shed**

Test Method	*AS 4133.4.1 - 1993 Methods of Testing Rocks for Engineering Purposes, Determination of Point Load Strength Index*	Sampling Technique	*Coring*	Sampling Date	
		Storage History	*Core Shed*	Testing Date	*24/06/2017*
Test Machine	*GSA 6500*	Moisture Condition	*Field Moisture*	Tested By	*AGI*
Calibration Date	*1/2/2012*	Loading Rate	*< 30 seconds*	UCS / Is(50)	*18.0*

Rock Type	Location	Depth (m)	Diametral Tests					Axial, Block, and Irregular Lump Tests							PSM Strength Class
			D (mm)	L (mm)	P (kN)	$I_{s(50)}$ (MPa)	Failure Mode	W (mm)	D (mm)	L (mm)	P (kN)	I_s (MPa)	$I_{s(50)}$ (MPa)	Failure Mode	
Andesite	***GT013***	***90.66***	*80*	*100*	*0.6*	***0.12***		*80*	*70*		*0.4*	*0.1*	***0.07***		***R0 / R1***
Andesite	***GT013***	***94.75***	*80*	*100*	*1.3*	***0.25***	*Break along incipient*	*70*	*44*		*3.3*	*0.8*	***0.93***		***R2 / R3***
Andesite	***GT013***	***97.65***	*80*	*100*	*0.6*	***0.11***		*80*	*66*		*0.8*	*0.1*	***0.14***		***R1***
Andesite	***GT013***	***99.60***	*80*	*100*	*2.2*	***0.42***		*80*	*46*		*4.1*	*0.9*	***1***		***R2 / R3***

By:	***AGI***	**Checked:**		**Date:**	***24/6/2017***

Pells Sullivan Meynink

POINT LOAD STRENGTH INDEX TEST RESULTS

Job No.	***PSM125***		**Sheet 1 of 1**
Project	***Project Pye***	***GT014***	**Core Shed**

Test Method	*AS 4133.4.1 - 1993 Methods of Testing Rocks for Engineering Purposes, Determination of Point Load Strength Index*	Sampling Technique	*Coring*	Sampling Date	
		Storage History	*Core Shed*	Testing Date	*22/06/2017*
Test Machine	*GSA 6500*	Moisture Condition	*Field Moisture*	Tested By	*AGI*
Calibration Date	*1/2/2012*	Loading Rate	*< 30 seconds*	UCS / Is(50)	*18.0*

Rock Type	Location	Depth (m)	Diametral Tests					Axial, Block, and Irregular Lump Tests							PSM Strength Class
			D (mm)	L (mm)	P (kN)	$I_{s(50)}$ (MPa)	Failure Mode	W (mm)	D (mm)	L (mm)	P (kN)	I_s (MPa)	$I_{s(50)}$ (MPa)	Failure Mode	
Dacite	***GT014***	***5.20***	*80*	*100*	*2.5*	***0.49***		*80*	*45*		*1.3*	*0.3*	***0.31***		***R2***
Dacite	***GT014***	***10.60***	*80*	*100*				*80*	*46*		*8*	*1.7*	***1.98***		***R4***
Dacite	***GT014***	***13.20***	*71*	*100*				*71*	*36*		*0.3*	*0.1*	***0.08***		***R0***
Dacite	***GT014***	***15.25***	*74*	*100*				*74*	*48*		*0.5*	*0.1*	***0.12***		***R1***
Dacite	***GT014***	***17.50***	*80*	*100*	*1.1*	***0.21***		*80*	*38*		*1.6*	*0.4*	***0.45***		***R2***
Dacite	***GT014***	***21.60***	*76*	*100*	*0.3*	***0.06***		*76*	*39*		*0.5*	*0.1*	***0.15***		***R0 / R1***
Breccia	***GT014***	***34.60***	*79*	*100*	*0.6*	***0.11***		*79*	*42*		*0.3*	*0.1*	***0.09***		***R1***
Breccia	***GT014***	***44.70***	*58*	*100*	*0.2*	***0.07***		*58*	*36*		*0.4*	*0.1*	***0.14***		***R0 / R1***
Andesite	***GT014***	***46.80***	*60*	*100*	*9.6*	***2.88***		*60*	*35*		*12.1*	*4.5*	***4.59***		***R4 / R5***
Andesite	***GT014***	***51.70***	*60*	*100*	*8.5*	***2.57***		*60*	*55*		*8.9*	*2.1*	***2.39***		***R4***
Andesite	***GT014***	***54.50***	*60*	*100*	*9.5*	***2.87***		*60*	*38*		*14.7*	*5.1*	***5.25***		***R4 / R5***
Andesite	***GT014***	***58.70***	*60*	*100*			*Break along incipient*	*60*	*39*		*3.9*	*1.3*	***1.35***	*Break along incipient*	***R3***
Andesite	***GT014***	***61.30***	*60*	*100*	*1.9*	***0.58***		*60*	*49*		*1.5*	*0.4*	***0.43***		***R2***
Andesite	***GT014***	***63.70***	*60*	*100*	*2*	***0.6***		*60*	*43*		*2.6*	*0.8*	***0.84***		***R3***
Andesite	***GT014***	***67.00***	*60*	*100*	*14.6*	***4.4***		*60*	*33*		*14.3*	*5.7*	***5.66***		***R4 / R5***
Andesite	***GT014***	***68.70***	*60*	*100*				*52*	*40*		*1*	*0.4*	***0.37***		***R2***
Andesite	***GT014***	***72.00***	*60*	*100*	*8*	***2.4***		*60*	*39*		*9.4*	*3.1*	***3.26***		***R4***
Andesite	***GT014***	***75.00***	*60*	*100*	*12.2*	***3.69***		*60*	*50*		*14.8*	*3.9*	***4.25***		***R4***
Andesite	***GT014***	***78.45***	*60*	*100*	*2.7*	***0.81***		*60*	*45*		*4.8*	*1.4*	***1.51***		***R3 / R4***
Andesite	***GT014***	***83.00***	*60*	*100*	*6.4*	***1.93***		*60*	*50*		*11.7*	*3.1*	***3.36***		***R4***
Andesite	***GT014***	***86.00***	*60*	*100*	*1.8*	***0.55***	*Break along incipient*	*60*	*40*		*2.9*	*0.9*	***0.98***		***R2 / R3***
Andesite	***GT014***	***90.00***	*60*	*100*	*16.5*	***4.98***		*50*	*40*		*15*	*5.9*	***5.91***		***R5***
Andesite	***GT014***	***95.00***	*60*	*100*			*Refusal*							*Refusal*	
Andesite	***GT014***	***100.00***	*60*	*100*			*Refusal*							*Refusal*	
Andesite	***GT014***	***104.50***	*60*	*100*			*Refusal*							*Refusal*	
Andesite	***GT014***	***110.00***	*60*	*100*			*Refusal*							*Refusal*	

By:	***AGI***	**Checked:**		**Date:**	***22/6/2017***

Pells Sullivan Meynink

POINT LOAD STRENGTH INDEX TEST RESULTS

Job No.	***PSM125***		**Sheet 1 of 2**
Project	***Project Pye***	***GT015***	**Core Shed**

Test Method	*AS 4133.4.1 - 1993 Methods of Testing Rocks for Engineering Purposes, Determination of Point Load Strength Index*	Sampling Technique	*Coring*	Sampling Date	
		Storage History	*Core Shed*	Testing Date	*28/06/2017*
Test Machine	*GSA 6500*	Moisture Condition	*Field Moisture*	Tested By	*AGI*
Calibration Date	*1/2/2012*	Loading Rate	*< 30 seconds*	UCS / Is(50)	*18.0*

Rock Type	Location	Depth (m)	Diametral Tests					Axial, Block, and Irregular Lump Tests							PSM Strength Class
			D (mm)	L (mm)	P (kN)	$I_{s(50)}$ (MPa)	Failure Mode	W (mm)	D (mm)	L (mm)	P (kN)	I_s (MPa)	$I_{s(50)}$ (MPa)	Failure Mode	
Ignimbrite	**GT015**	**6.30**	80	100	1.1	**0.21**		80	40		3.1	0.8	**0.85**		**R2 / R3**
Ignimbrite	**GT015**	**8.00**	80	100	2.5	**0.47**		80	36		1.2	0.3	**0.36**		**R2**
Ignimbrite	**GT015**	**19.00**	80	100			*Refusal*							*Refusal*	
Andesite	**GT015**	**30.30**	80	100			*Refusal*							*Refusal*	
Andesite	**GT015**	**34.00**	80	100	13.1	**2.53**		80	65		7.9	1.2	**1.49**		**R4**
Andesite	**GT015**	**36.50**	80	100	4.8	**0.93**		80	44		5.7	1.3	**1.45**		**R3 / R4**
Andesite	**GT015**	**39.30**	80	100	0.6	**0.11**		80	65		0.5	0.1	**0.09**		**R1**
Andesite	**GT015**	**41.90**	80	100	0.2	**0.03**	*Break along incipient*	80	50		0.2	0	**0.04**	*Break along incipient*	**R0**
Andesite	**GT015**	**42.40**	80	100	0.2	**0.03**	*Break along incipient*	80	36		0.2	0.1	**0.06**	*Break along incipient*	**R0**
Andesite	**GT015**	**42.00**	80	100	0.3	**0.05**	*Break along incipient*	80	40		0.3	0.1	**0.07**	*Break along incipient*	**R0**
Andesite	**GT015**	**44.36**	80	100	3.3	**0.63**		80	49		6	1.2	**1.41**		**R3 / R4**
Andesite	**GT015**	**46.50**	80	100	0.1	**0.03**	*Disintegrate along incipient*	80	50		2.2	0.4	**0.5**		**R2**
Andesite	**GT015**	**47.80**	80	100	0.9	**0.18**		62	40		0.8	0.2	**0.26**		**R2**
Andesite	**GT015**	**49.60**	80	100	5.5	**1.07**		80	44		2.2	0.5	**0.56**		**R3**
Andesite	**GT015**	**52.95**	80	100	5.4	**1.04**		80	59		4.9	0.8	**1**		**R3**
Andesite	**GT015**	**56.00**	80	100	1.1	**0.2**	*Break along incipient*	80	44		2.1	0.5	**0.54**		**R2**
Andesite	**GT015**	**59.60**	80	100	2.2	**0.43**		40	32		1	0.6	**0.56**		**R2 / R3**
Andesite	**GT015**	**61.20**	80	100	5.5	**1.07**		75	43		4.4	1.1	**1.21**		**R3**
Andesite	**GT015**	**65.10**	80	100	4.6	**0.89**		65	44		1.9	0.5	**0.57**		**R3**
Andesite	**GT015**	**69.00**	80	100	4.3	**0.83**		65	40		1.5	0.4	**0.47**		**R2 / R3**
Andesite	**GT015**	**73.75**	80	100	2	**0.39**		80	37		2.1	0.5	**0.6**		**R2 / R3**
Andesite	**GT015**	**78.33**	80	100	4.8	**0.93**		60	46		2.5	0.7	**0.76**		**R3**
Andesite	**GT015**	**81.50**	80	100	1.2	**0.24**	*Break along incipient*	80	40		1.5	0.4	**0.4**	*Break along incipient*	**R2**
Andesite	**GT015**	**84.90**	80	100	5.8	**1.12**		80	50		5.7	1.1	**1.31**		**R3**
Andesite	**GT015**	**89.80**	80	100	4	**0.77**	*Break along incipient*	80	48		8.7	1.8	**2.07**		**R3 / R4**
Andesite	**GT015**	**94.20**	80	100	5.4	**1.04**		60	30		2.1	0.9	**0.9**	*Break along incipient*	**R3**

By:	***AGI***	**Checked:**		**Date:**	***28/6/2017***

Pells Sullivan Meynink

POINT LOAD STRENGTH INDEX TEST RESULTS

Job No.	***PSM125***		**Sheet 2 of 2**
Project	***Project Pye***	***GT015***	**Core Shed**

Test Method	*AS 4133.4.1 - 1993 Methods of Testing Rocks for Engineering Purposes, Determination of Point Load Strength Index*	Sampling Technique	*Coring*	Sampling Date	
		Storage History	*Core Shed*	Testing Date	*28/06/2017*
Test Machine	*GSA 6500*	Moisture Condition	*Field Moisture*	Tested By	*AGI*
Calibration Date	*1/2/2012*	Loading Rate	*< 30 seconds*	UCS / Is(50)	*18.0*

Rock Type	Location	Depth (m)	Diametral Tests					Axial, Block, and Irregular Lump Tests							PSM Strength Class
			D (mm)	L (mm)	P (kN)	$I_{s(50)}$ (MPa)	Failure Mode	W (mm)	D (mm)	L (mm)	P (kN)	I_s (MPa)	$I_{s(50)}$ (MPa)	Failure Mode	
Andesite	***GT015***	***99.10***	*80*	*100*	*1.9*	***0.37***		*70*	*43*		*1.7*	*0.5*	***0.5***	*Break along incipient*	***R2***
Andesite	***GT015***	***102.10***	*80*	*100*	*3.8*	***0.74***		*73*	*46*		*2.7*	*0.6*	***0.7***		***R3***
Andesite	***GT015***	***105.40***	*80*	*100*	*5.9*	***1.14***		*80*	*43*		*6*	*1.4*	***1.56***		***R3 / R4***
Andesite	***GT015***	***111.00***	*80*	*100*	*2.3*	***0.44***		*80*	*44*		*2.1*	*0.5*	***0.53***		***R2***
Andesite	***GT015***	***114.80***	*80*	*100*	*1.4*	***0.27***	*Break along incipient*	*80*	*40*		*1.1*	*0.3*	***0.31***	*Break along incipient*	***R2***
Andesite	***GT015***	***116.05***	*80*	*100*	*5*	***0.97***		*80*	*45*		*3.8*	*0.8*	***0.95***		***R3***
Andesite	***GT015***	***120.30***	*80*	*100*	*4.8*	***0.93***		*80*	*76*		*3.8*	*0.5*	***0.62***		***R3***
Andesite	***GT015***	***124.20***	*80*	*100*	*3.7*	***0.71***		*80*	*47*		*8.1*	*1.7*	***1.95***		***R3 / R4***
Andesite	***GT015***	***127.50***	*80*	*100*	*7.8*	***1.51***		*80*	*50*		*7.2*	*1.4*	***1.66***		***R4***

By:	***AGI***	**Checked:**		**Date:**	***28/6/2017***

Pells Sullivan Meynink

POINT LOAD STRENGTH INDEX TEST RESULTS

Job No.	***PSM125***		**Sheet 1 of 2**
Project	***Project Pye***	***GT016***	**Core Shed**

Test Method	*AS 4133.4.1 - 1993 Methods of Testing Rocks for Engineering Purposes, Determination of Point Load Strength Index*	Sampling Technique	*Coring*	Sampling Date	
		Storage History	*Core Shed*	Testing Date	*25/06/2017*
Test Machine	*GSA 6500*	Moisture Condition	*Field Moisture*	Tested By	*AGI*
Calibration Date	*1/2/2012*	Loading Rate	*< 30 seconds*	UCS / Is(50)	*18.0*

Rock Type	Location	Depth (m)	Diametral Tests					Axial, Block, and Irregular Lump Tests							PSM Strength Class
			D (mm)	L (mm)	P (kN)	$I_{s(50)}$ (MPa)	Failure Mode	W (mm)	D (mm)	L (mm)	P (kN)	I_s (MPa)	$I_{s(50)}$ (MPa)	Failure Mode	
Ignimbrite	**GT016**	**16.60**	76	100	2.4	**0.5**		76	37		4.3	1.2	**1.31**		**R2 / R3**
Ignimbrite	**GT016**	**19.50**	80	100	1.4	**0.27**		80	53		3.7	0.7	**0.81**		**R2 / R3**
Ignimbrite	**GT016**	**22.90**	80	100	0.9	**0.18**		80	57		1.4	0.2	**0.28**		**R2**
Ignimbrite	**GT016**	**24.90**	80	100	0.8	**0.14**		80	47		0.4	0.1	**0.09**		**R1**
Andesite	**GT016**	**47.60**	69	100	0.2	**0.05**		69	40		0.3	0.1	**0.1**		**R0 / R1**
Andesite	**GT016**	**48.00**	80	100	0.7	**0.14**		80	60		1.3	0.2	**0.26**		**R1 / R2**
Andesite	**GT016**	**48.75**	80	100	2.5	**0.49**		80	60		1.7	0.3	**0.34**		**R2**
Andesite	**GT016**	**50.35**	80	100	0.6	**0.11**		64	55		0.1	0	**0.03**		**R1**
Andesite	**GT016**	**52.50**	80	100			*Break along incipient*	80	50		0.6	0.1	**0.13**		**R1**
Andesite	**GT016**	**55.50**	80	100	0.4	**0.08**		60	44		0.5	0.1	**0.15**		**R1**
Andesite	**GT016**	**59.60**	80	100	0.8	**0.15**		80	70		0.9	0.1	**0.16**		**R1**
Andesite	**GT016**	**62.05**	80	100	1.9	**0.37**		80	41		1	0.2	**0.26**		**R2**
Andesite	**GT016**	**64.80**	80	100	2.8	**0.55**		80	53		2.2	0.4	**0.49**		**R2**
Andesite	**GT016**	**69.00**	80	100	1.6	**0.31**		62	58		1.2	0.3	**0.31**		**R2**
Andesite	**GT016**	**72.80**	80	100	1.7	**0.34**		80	41		1	0.2	**0.27**		**R2**
Andesite	**GT016**	**76.20**	80	100	3.5	**0.67**		80	53		1.7	0.3	**0.38**		**R2 / R3**
Andesite	**GT016**	**79.50**	80	100	1.3	**0.25**		76	53		1.7	0.3	**0.4**		**R2**
Andesite	**GT016**	**83.00**	80	100	3.9	**0.74**		80	60		3.5	0.6	**0.7**		**R3**
Andesite	**GT016**	**84.50**	80	100	0.4	**0.07**		80	57		0.5	0.1	**0.11**		**R0 / R1**
Andesite	**GT016**	**86.08**	80	100	3	**0.57**		80	48		1.5	0.3	**0.36**		**R2 / R3**
Andesite	**GT016**	**89.00**	80	100	0.7	**0.14**		70	48		0.5	0.1	**0.13**		**R1**
Andesite	**GT016**	**94.80**	80	100	5.3	**1.02**		75	40		4.8	1.3	**1.38**		**R3**
Andesite	**GT016**	**97.40**	80	100	1.7	**0.33**	*Break along incipient*	80	43		1.5	0.3	**0.39**	*Break along incipient*	**R2**
Andesite	**GT016**	**100.00**	80	100	0.2	**0.03**	*Disaggregates at low loads*	80	50		0.5	0.1	**0.12**	*Break along incipient*	**R1**
Andesite	**GT016**	**101.00**	80	100	0.3	**0.05**	*Disaggregates at low loads*	61	58		0.1	0	**0.03**	*Disaggregates at low loads*	**R0**
Andesite	**GT016**	**105.10**	80	100	0.8	**0.16**	*Disaggregates at low loads*	80	57		0.5	0.1	**0.1**	*Disaggregates at low loads*	**R1**

By:	***AGI***	**Checked:**		**Date:**	***25/6/2017***

Pells Sullivan Meynink

POINT LOAD STRENGTH INDEX TEST RESULTS

Job No.	***PSM125***		**Sheet 2 of 2**
Project	***Project Pye***	***GT016***	**Core Shed**

Test Method	*AS 4133.4.1 - 1993 Methods of Testing Rocks for Engineering Purposes, Determination of Point Load Strength Index*	Sampling Technique	*Coring*	Sampling Date	
		Storage History	*Core Shed*	Testing Date	*25/06/2017*
Test Machine	*GSA 6500*	Moisture Condition	*Field Moisture*	Tested By	*AGI*
Calibration Date	*1/2/2012*	Loading Rate	*< 30 seconds*	UCS / Is(50)	*18.0*

Rock Type	Location	Depth (m)	Diametral Tests					Axial, Block, and Irregular Lump Tests							PSM Strength Class
			D (mm)	L (mm)	P (kN)	$I_{s(50)}$ (MPa)	Failure Mode	W (mm)	D (mm)	L (mm)	P (kN)	I_s (MPa)	$I_{s(50)}$ (MPa)	Failure Mode	
Andesite	***GT016***	***108.50***	*80*	*100*	*0.5*	***0.1***	*Disaggregates at low loads*	*80*	*44*		*0.2*	*0*	***0.04***	*Disaggregates at low loads*	***R1***
Andesite	***GT016***	***112.50***	*80*	*100*	*0.2*	***0.03***	*Break along incipient*	*50*	*38*		*0.3*	*0.1*	***0.13***	*Disaggregates at low loads*	***R1***
Andesite	***GT016***	***115.00***	*80*	*100*	*2.1*	***0.41***	*Break along incipient*	*80*	*45*		*3.7*	*0.8*	***0.93***		***R2 / R3***
Andesite	***GT016***	***118.80***	*80*	*100*	*1*	***0.19***		*80*	*66*		*0.5*	*0.1*	***0.1***	*Disaggregates at low loads*	***R1 / R2***
Andesite	***GT016***	***121.50***	*80*	*100*	*0.6*	***0.12***		*55*	*45*		*0.5*	*0.2*	***0.18***		***R1 / R2***
Andesite	***GT016***	***125.00***	*80*	*100*			*Refusal*							*Refusal*	
Andesite	***GT016***	***128.50***	*80*	*100*	*13.3*	***2.57***		*80*	*50*		*7.8*	*1.5*	***1.8***		***R4***

By:	***AGI***	**Checked:**		**Date:**	***25/6/2017***

Pells Sullivan Meynink

POINT LOAD STRENGTH INDEX TEST RESULTS

Job No.	***PSM125***		**Sheet 1 of 2**
Project	***Project Pye***	***GT017***	**Core Shed**

Test Method	*AS 4133.4.1 - 1993 Methods of Testing Rocks for Engineering Purposes, Determination of Point Load Strength Index*	Sampling Technique	*Coring*	Sampling Date	
		Storage History	*Core Shed*	Testing Date	*26/06/2017*
Test Machine	*GSA 6500*	Moisture Condition	*Field Moisture*	Tested By	*AGI*
Calibration Date	*1/2/2012*	Loading Rate	*< 30 seconds*	UCS / Is(50)	*18.0*

Rock Type	Location	Depth (m)	Diametral Tests					Axial, Block, and Irregular Lump Tests							PSM Strength Class
			D (mm)	L (mm)	P (kN)	$I_{s(50)}$ (MPa)	Failure Mode	W (mm)	D (mm)	L (mm)	P (kN)	I_s (MPa)	$I_{s(50)}$ (MPa)	Failure Mode	
Breccia	***GT017***	***30.35***	*80*	*100*	*3.1*	***0.6***	*Break along incipient*	*80*	*35*		*6.7*	*1.9*	***2.04***		***R3 / R4***
Breccia	***GT017***	***33.70***	*80*	*100*	*3.7*	***0.71***		*55*	*44*		*3*	*1*	***1.02***		***R3***
Breccia	***GT017***	***37.80***	*80*	*100*	*0.9*	***0.17***		*80*	*49*		*0.6*	*0.1*	***0.15***	*Break through matrix*	***R1 / R2***
Andesite	***GT017***	***40.50***	*80*	*100*			*Refusal*							*Refusal*	
Andesite	***GT017***	***41.30***	*80*	*100*	*0.6*	***0.12***		*80*	*38*		*0.5*	*0.1*	***0.13***		***R1***
Andesite	***GT017***	***44.65***	*80*	*100*	*0.3*	***0.06***		*70*	*37*		*0.3*	*0.1*	***0.1***		***R0 / R1***
Andesite	***GT017***	***48.90***	*80*	*100*	*0.2*	***0.03***	*Break along incipient*	*80*	*54*		*0.6*	*0.1*	***0.12***		***R1***
Andesite	***GT017***	***52.80***	*80*	*100*	*0.2*	***0.03***		*80*	*60*		*0.4*	*0.1*	***0.08***		***R0***
Andesite	***GT017***	***56.50***	*80*	*100*	*5.2*	***1***		*70*	*38*		*1.2*	*0.4*	***0.38***		***R2 / R3***
Andesite	***GT017***	***59.00***	*80*	*100*	*3.5*	***0.68***		*80*	*48*		*2.9*	*0.6*	***0.69***		***R3***
Andesite	***GT017***	***66.00***	*80*	*100*	*1.7*	***0.33***		*65*	*40*		*0.6*	*0.2*	***0.18***		***R2***
Andesite	***GT017***	***71.30***	*80*	*100*	*2*	***0.38***		*80*	*54*		*3.2*	*0.6*	***0.69***		***R2 / R3***
Andesite	***GT017***	***76.50***	*80*	*100*	*2.2*	***0.42***		*80*	*33*		*1.7*	*0.5*	***0.54***		***R2***
Andesite	***GT017***	***79.80***	*80*	*100*	*3*	***0.59***		*80*	*48*		*2.3*	*0.5*	***0.55***		***R2 / R3***
Andesite	***GT017***	***84.20***	*80*	*100*	*3.2*	***0.61***		*80*	*41*		*2.6*	*0.6*	***0.7***		***R3***
Andesite	***GT017***	***87.90***	*80*	*100*	*2.2*	***0.42***		*80*	*28*		*2*	*0.7*	***0.72***		***R2 / R3***
Andesite	***GT017***	***90.44***	*80*	*100*	*1.2*	***0.24***		*80*	*50*		*1.6*	*0.3*	***0.36***		***R2***
Andesite	***GT017***	***94.00***	*80*	*100*	*1.3*	***0.25***		*80*	*34*		*1.3*	*0.4*	***0.41***		***R2***
Andesite	***GT017***	***97.80***	*80*	*100*	*11.7*	***2.25***		*80*	*53*		*7*	*1.3*	***1.54***		***R4***
Andesite	***GT017***	***101.15***	*80*	*100*	*10.4*	***2***		*80*	*56*		*12.3*	*2.2*	***2.59***		***R4***
Andesite	***GT017***	***105.80***	*80*	*100*			*Refusal*							*Refusal*	
Andesite	***GT017***	***109.50***	*80*	*100*			*No adequate sample*	*80*	*46*		*2.1*	*0.4*	***0.5***		***R2***
Andesite	***GT017***	***113.65***	*80*	*100*	*3.5*	***0.68***		*60*	*51*		*2.4*	*0.6*	***0.68***		***R3***
Andesite	***GT017***	***116.00***	*80*	*100*	*1.4*	***0.27***		*80*	*78*		*2.3*	*0.3*	***0.38***		***R2***
Andesite	***GT017***	***119.00***	*80*	*100*	*1.5*	***0.29***		*80*	*53*		*0.9*	*0.2*	***0.2***		***R2***
Andesite	***GT017***	***121.35***	*80*	*100*			*No adequate sample*	*80*	*57*		*1.6*	*0.3*	***0.32***		***R2***

By:	***AGI***	**Checked:**		**Date:**	***26/6/2017***

Pells Sullivan Meynink

POINT LOAD STRENGTH INDEX TEST RESULTS

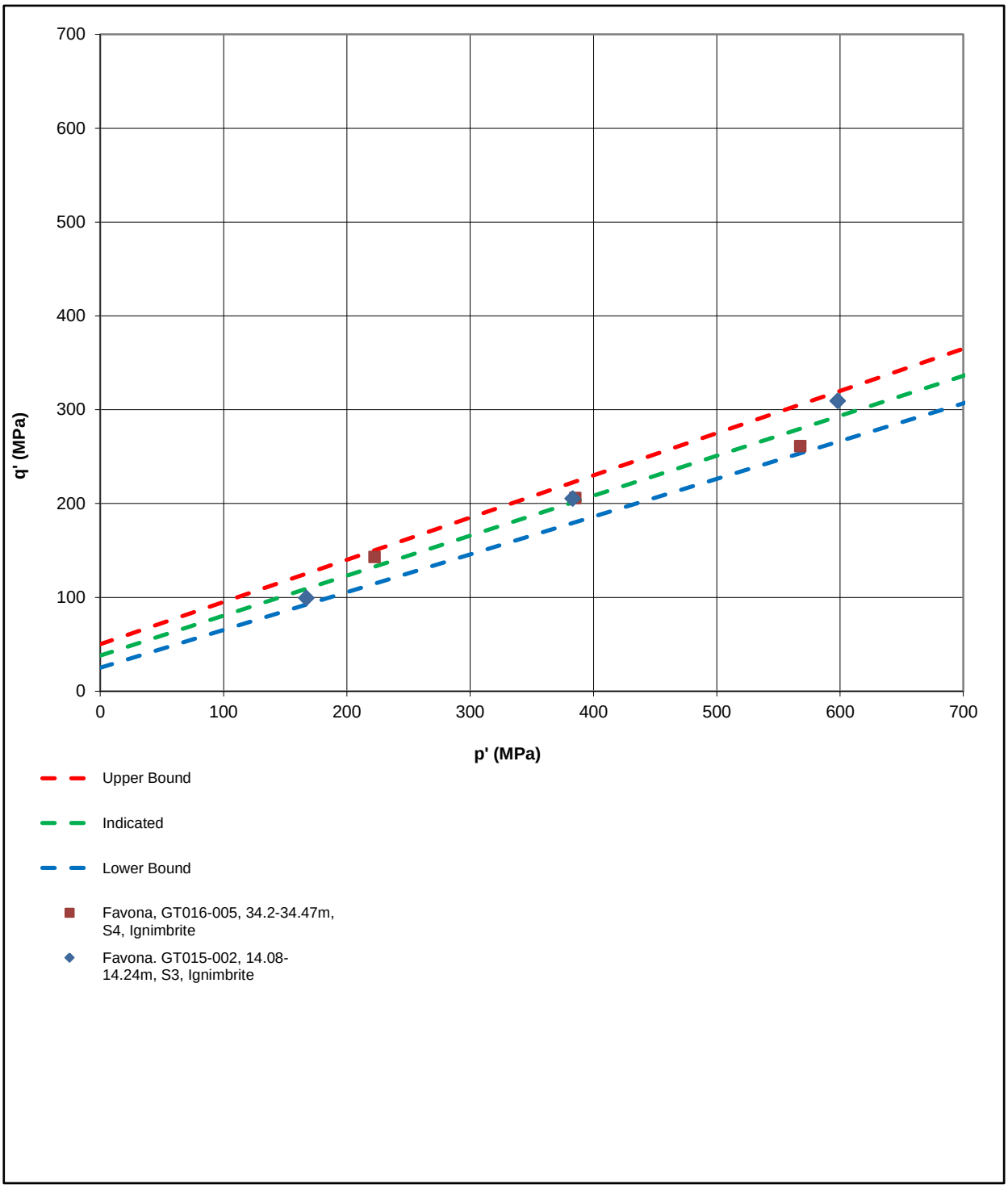
Job No.	***PSM125***		**Sheet 2 of 2**
Project	***Project Pye***	***GT017***	**Core Shed**

Test Method	*AS 4133.4.1 - 1993 Methods of Testing Rocks for Engineering Purposes, Determination of Point Load Strength Index*	Sampling Technique	*Coring*	Sampling Date	
		Storage History	*Core Shed*	Testing Date	*26/06/2017*
Test Machine	*GSA 6500*	Moisture Condition	*Field Moisture*	Tested By	*AGI*
Calibration Date	*1/2/2012*	Loading Rate	*< 30 seconds*	UCS / Is(50)	*18.0*

Rock Type	Location	Depth (m)	Diametral Tests					Axial, Block, and Irregular Lump Tests							PSM Strength Class
			D (mm)	L (mm)	P (kN)	$I_{s(50)}$ (MPa)	Failure Mode	W (mm)	D (mm)	L (mm)	P (kN)	I_s (MPa)	$I_{s(50)}$ (MPa)	Failure Mode	
Andesite	***GT017***	***124.80***	*80*	*100*	*3.3*	***0.64***	*Break along incipient*	*68*	*39*		*3.3*	*1*	***1.06***		***R3***
Andesite	***GT017***	***127.10***	*80*	*100*	*0.7*	***0.14***	*Break through matrix*	*80*	*50*		*2.2*	*0.4*	***0.51***		***R1 / R2***
Andesite	***GT017***	***128.05***	*80*	*100*	*0.4*	***0.07***	*Break through matrix*	*80*	*29*		*0.2*	*0.1*	***0.06***	*Break through matrix*	***R0***
Andesite	***GT017***	***132.00***	*80*	*100*	*2.1*	***0.41***		*80*	*36*		*1.2*	*0.3*	***0.35***		***R2***
Andesite	***GT017***	***135.10***	*80*	*100*	*0.8*	***0.15***		*80*	*34*		*0.5*	*0.1*	***0.15***		***R1***
Andesite	***GT017***	***138.50***	*80*	*100*	*1.1*	***0.21***		*55*	*40*		*0.7*	*0.3*	***0.27***		***R2***

By:	***AGI***	**Checked:**		**Date:**	***26/6/2017***

Appendix K
Triaxial Testing Interpretation



	Cohesion (kPa)	Friction Angle (deg)
Upper Bound	**56**	**27**
Lower Bound	**27**	**24**
Indicated Strength	**42**	**25**

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TRIAXIAL 'p' q' PLOT
IGNIMBRITE

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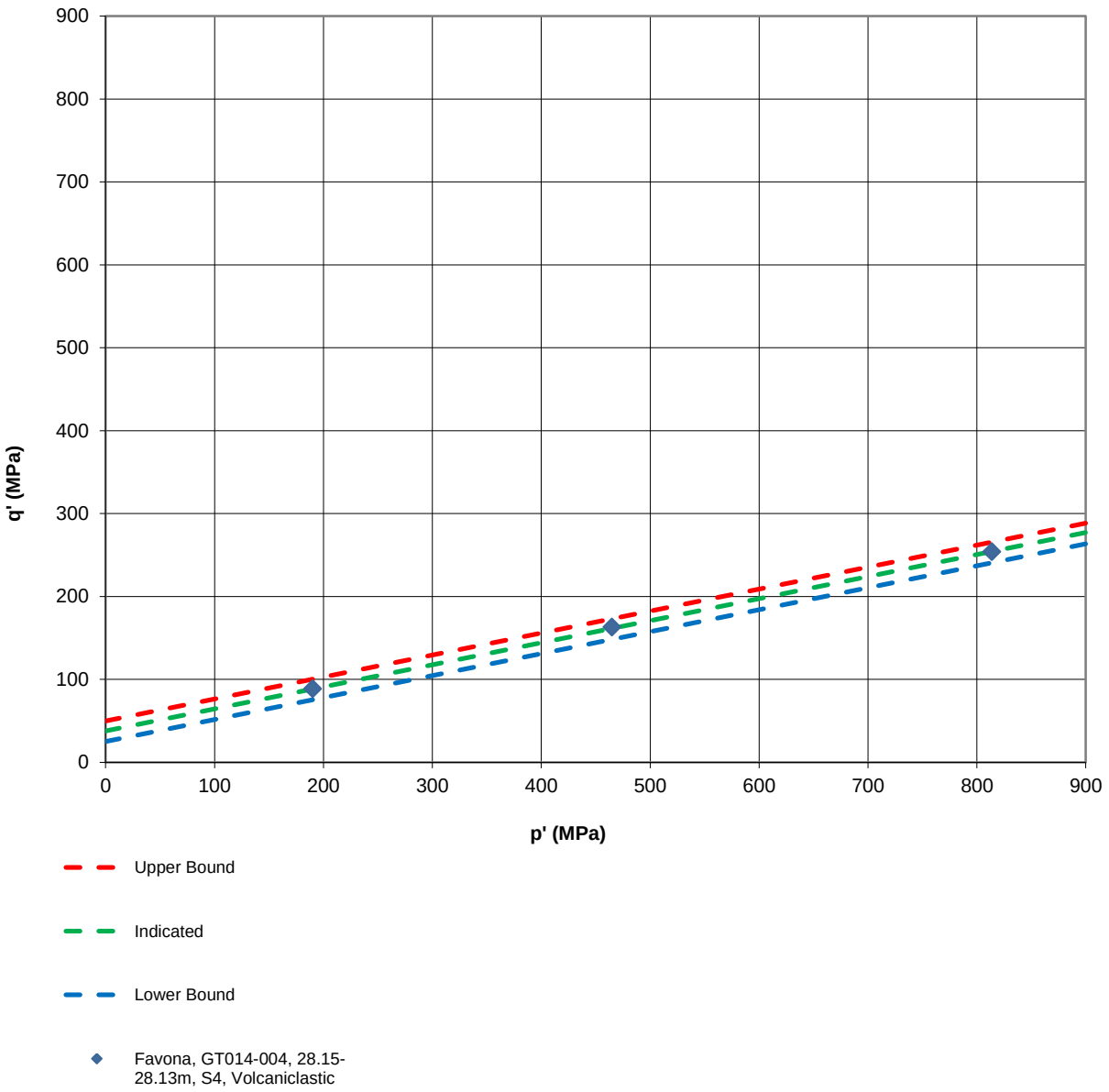
PSM125 | **Appendix K**



	Cohesion (kPa)	Friction Angle (deg)
Upper Bound	**52**	**15**
Lower Bound	**26**	**15**
Indicated Strength	**39**	**15**

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TRIAXIAL 'p' q' PLOT
VOLCANICLASTIC

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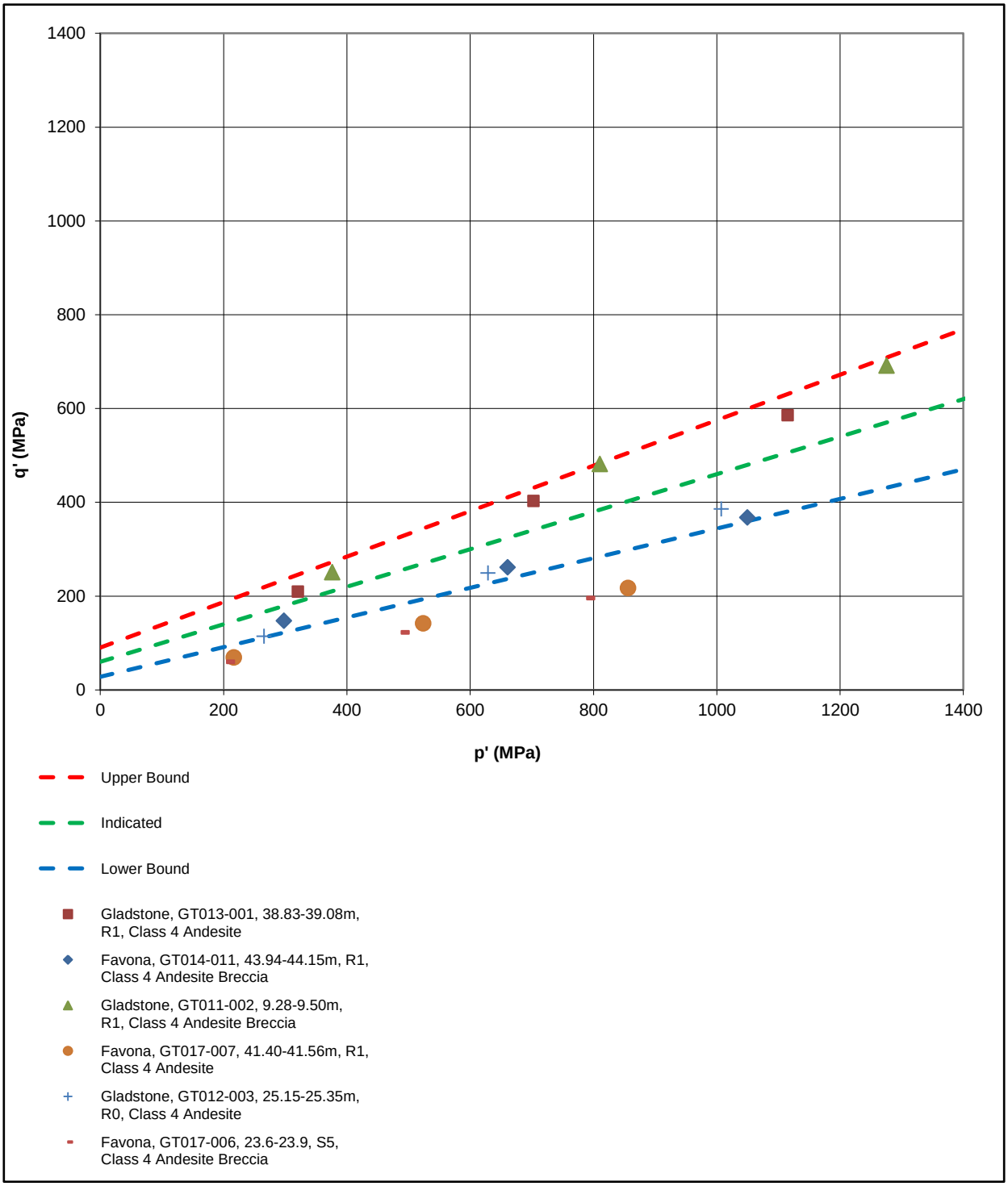
PSM125 | **Appendix K**



	Cohesion (kPa)	Friction Angle (deg)
Upper Bound	**103**	**29**
Lower Bound	**30**	**18**
Indicated Strength	**65**	**24**

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TRIAXIAL 'p' q' PLOT
CLASS 4 ANDESITE

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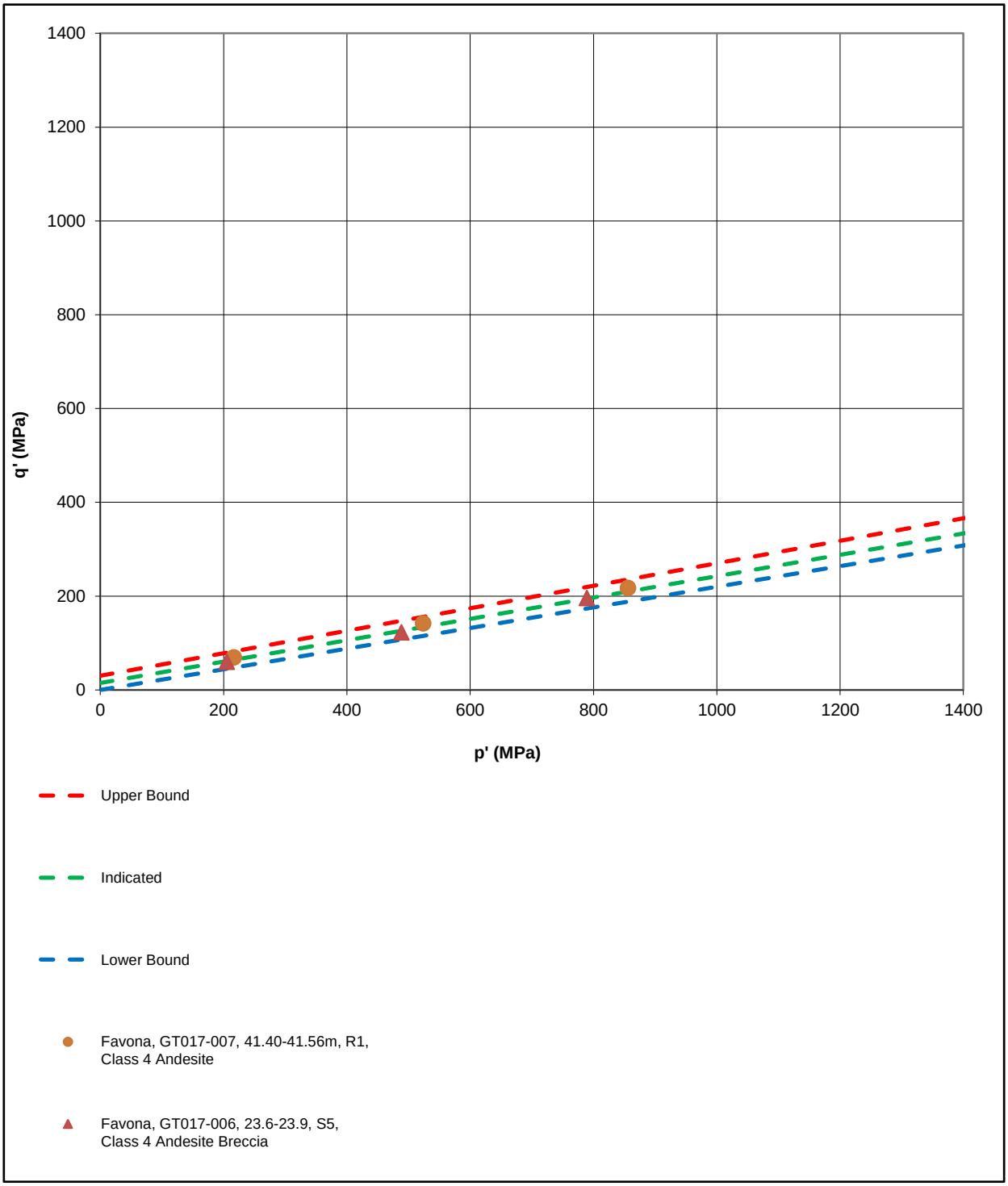
PSM125 | **Appendix K**



	Cohesion (kPa)	Friction Angle (deg)
Upper Bound	**31**	**14**
Lower Bound	**0**	**13**
Indicated Strength	**15**	**13**

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Waihi, New Zealand

TRIAXIAL 'p' q' PLOT
GT017 CLASS 4 ANDESITE

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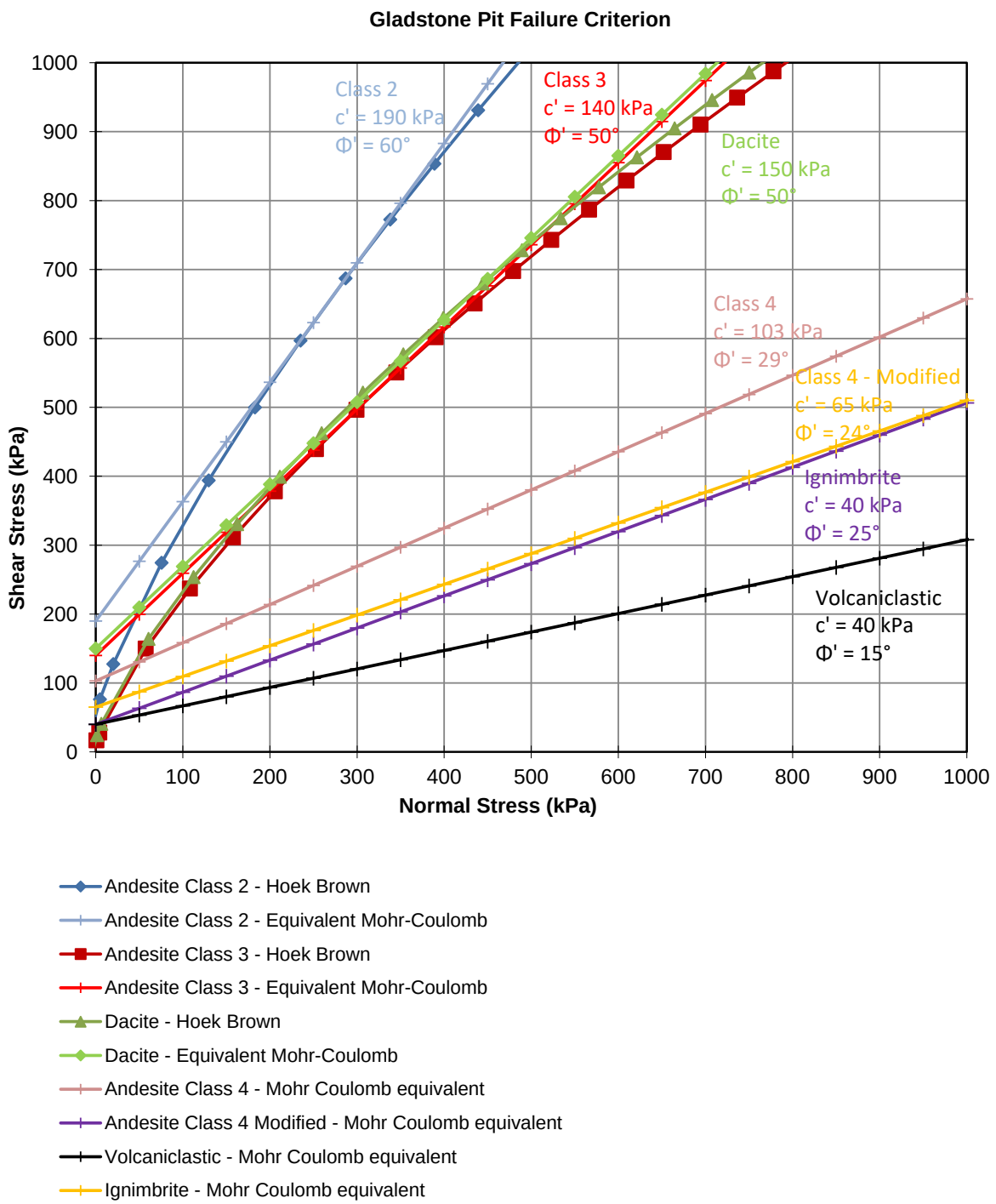
PSM125	**Appendix K**

Appendix L
RocLab



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Waihi, New Zealand
MOHR COLOUMB - HOEK BROWN
FAILURE CRITERION

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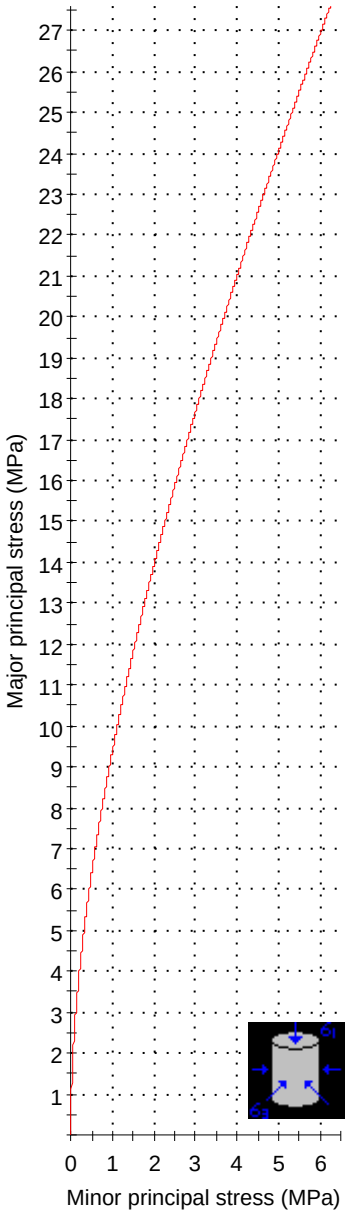
PSM125-260R	**Appendix L**

PSM125 Favona and Gladstone - Andesite Class 2

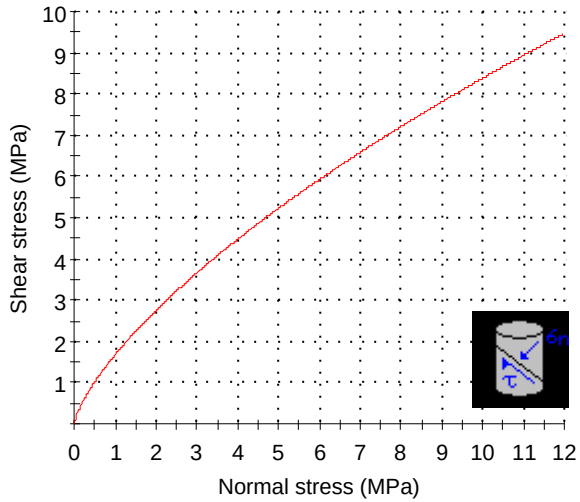


Hoek-Brown Classification
intact uniaxial comp. strength (sigci) = 25 MPa
GSI = 40 mi = 25 Disturbance factor (D) = 0
intact modulus (Ei) = 10000 MPa

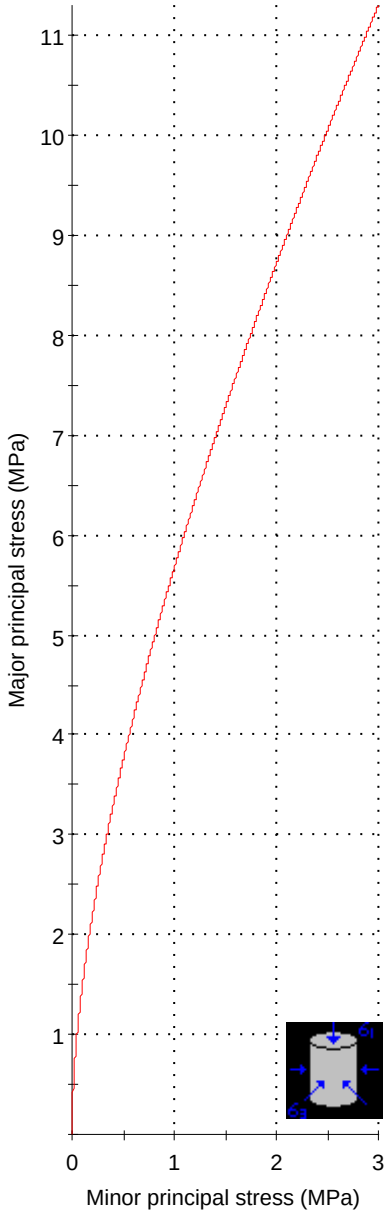
Hoek-Brown Criterion
mb = 2.933 s = 0.0013 a = 0.511

Mohr-Coulomb Fit
cohesion = 1.426 MPa friction angle = 35.42 deg

Rock Mass Parameters
tensile strength = -0.011 MPa
uniaxial compressive strength = 0.827 MPa
global strength = 5.527 MPa
deformation modulus = 1596.52 MPa



PSM125 Favona and Gladstone - Andesite Class 3



Hoek-Brown Classification

intact uniaxial comp. strength (sigci) = 12 MPa
GSI = 29 mi = 25 Disturbance factor (D) = 0
intact modulus (Ei) = 4800 MPa
modulus ratio (MR) = 400

Hoek-Brown Criterion

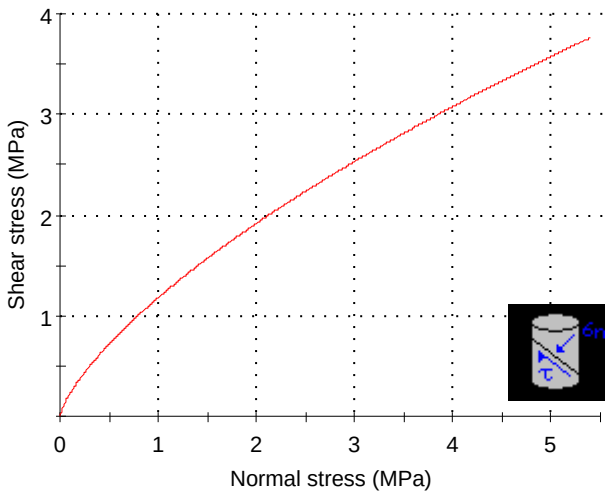
mb = 1.980 s = 0.0004 a = 0.524

Mohr-Coulomb Fit

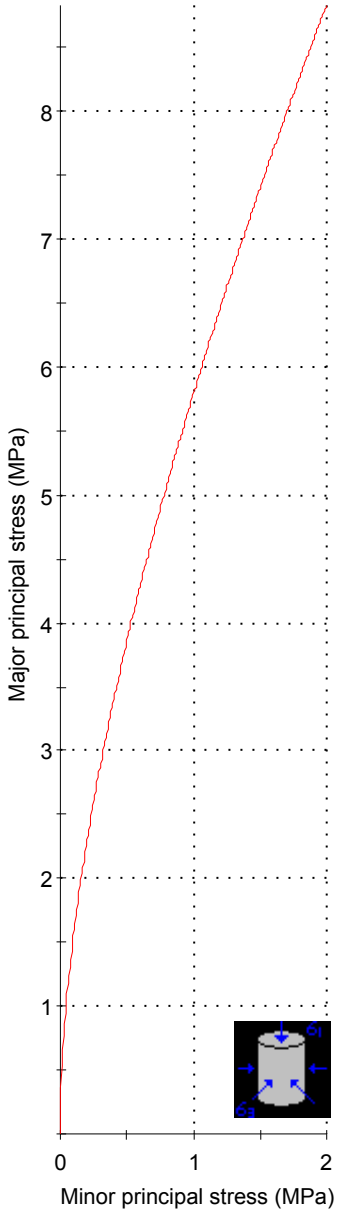
cohesion = 0.571 MPa friction angle = 32.05 deg

Rock Mass Parameters

tensile strength = -0.002 MPa
uniaxial compressive strength = 0.192 MPa
global strength = 2.061 MPa
deformation modulus = 366.48 MPa



PSM125 Favona and Gladstone - Dacite



Hoek-Brown Classification

intact uniaxial comp. strength (sigci) = 8 MPa
GSI = 40 mi = 25 Disturbance factor (D) = 0
intact modulus (Ei) = 3200 MPa
modulus ratio (MR) = 400

Hoek-Brown Criterion

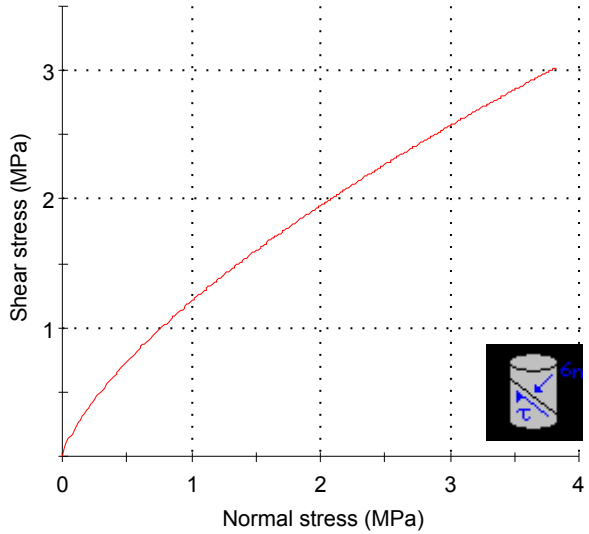
mb = 2.933 s = 0.0013 a = 0.511

Mohr-Coulomb Fit

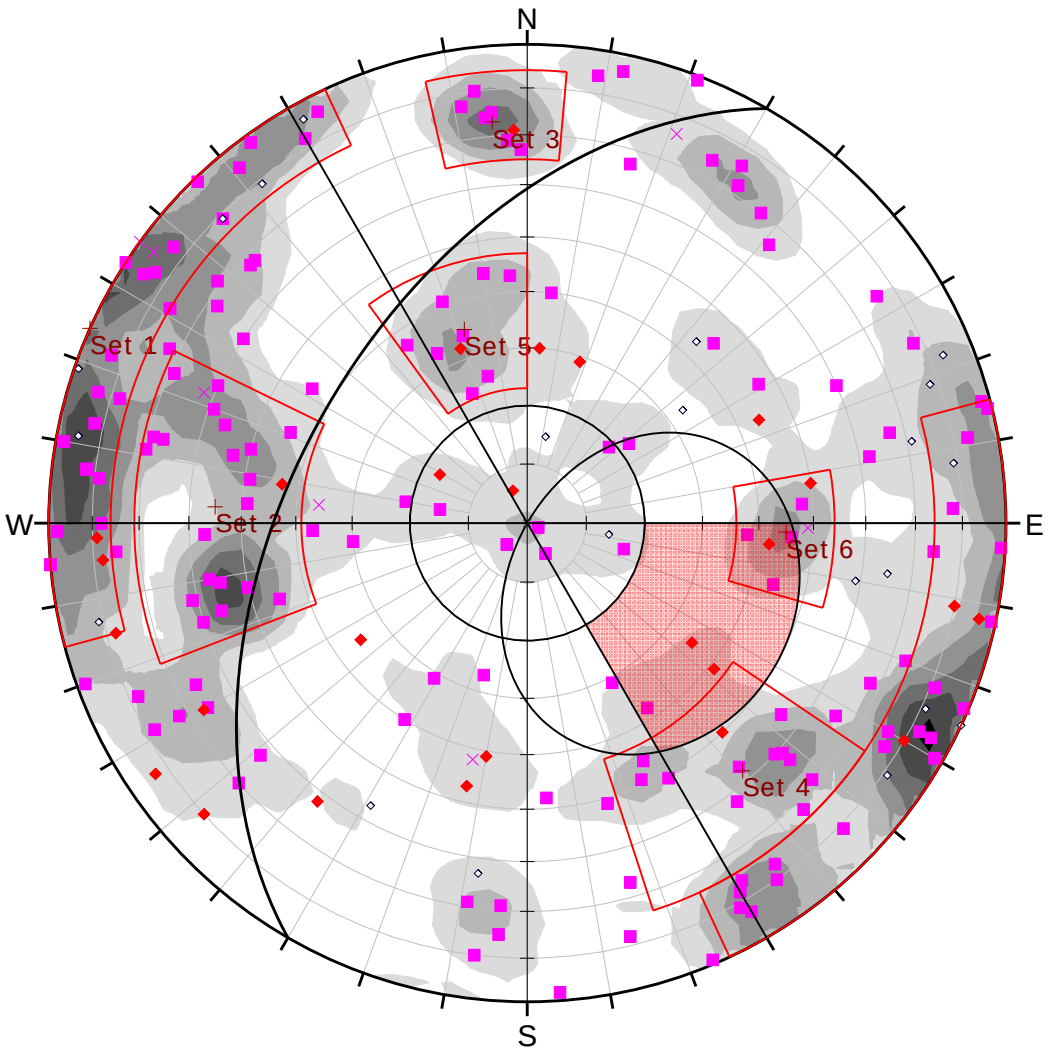
cohesion = 0.456 MPa friction angle = 35.42 deg

Rock Mass Parameters

tensile strength = -0.003 MPa
uniaxial compressive strength = 0.265 MPa
global strength = 1.769 MPa
deformation modulus = 510.89 MPa



Appendix M
Kinematic



Symbol	TYPE	Quantity
◇	Breccia	21
×	CZ	7
◆	FT	26
■	SH	165

Color	Density Concentrations
	0.00 - 0.70
	0.70 - 1.40
	1.40 - 2.10
	2.10 - 2.80
	2.80 - 3.50
	3.50 - 4.20
	4.20 - 4.90

Contour Data	Pole Vectors
Maximum Density	4.45%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	50
Slope Dip Direction	300
Friction Angle	20°
Lateral Limits	30°

	Critical	Total	%
Planar Sliding (All)	7	219	3.20%
Planar Sliding (Set 6: Set 6)	4	7	57.14%

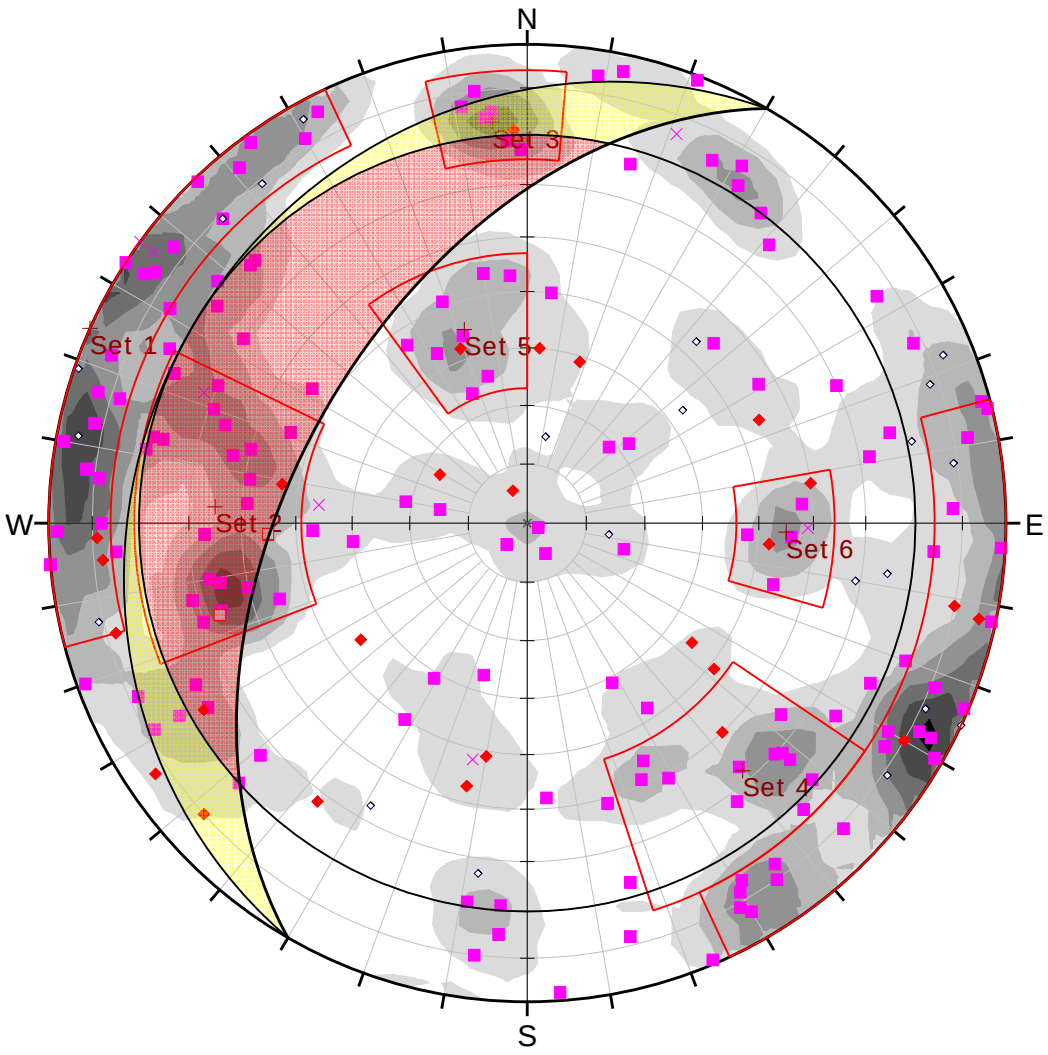
Plot Mode	Pole Vectors
Vector Count	219 (219 Entries)
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink
Engineering Consultants
Rock-Soil-Water

DIPS 8.008

Client:	**Anderson Lloyd**
Project:	**Project Quattro**
Location:	**Gladstone East Design Sector**
Analysis Description:	**Orientated Core - IRA Planar Sliding**

Job No:	By:	Date:	Scale:	Run:
PSM125	**TM**	**27/08/2021**	**Stereo Plot**	**Gladstone_rev5.dips8**



Symbol	TYPE	Quantity
◇	Breccia	21
×	CZ	7
◆	FT	26
■	SH	165
Symbol	**Feature**	
▢	Critical Intersection	

Color	Density Concentrations
	0.00 - 0.70
	0.70 - 1.40
	1.40 - 2.10
	2.10 - 2.80
	2.80 - 3.50
	3.50 - 4.20
	4.20 - 4.90

Contour Data	Pole Vectors
Maximum Density	4.45%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	50
Slope Dip Direction	300
Friction Angle	20°

	Critical	Total	%
Wedge Sliding	2	15	13.33%

Plot Mode	Pole Vectors
Vector Count	219 (219 Entries)
Intersection Mode	Mean Set Planes
Intersections Count	15
Hemisphere	Lower
Projection	Equal Area

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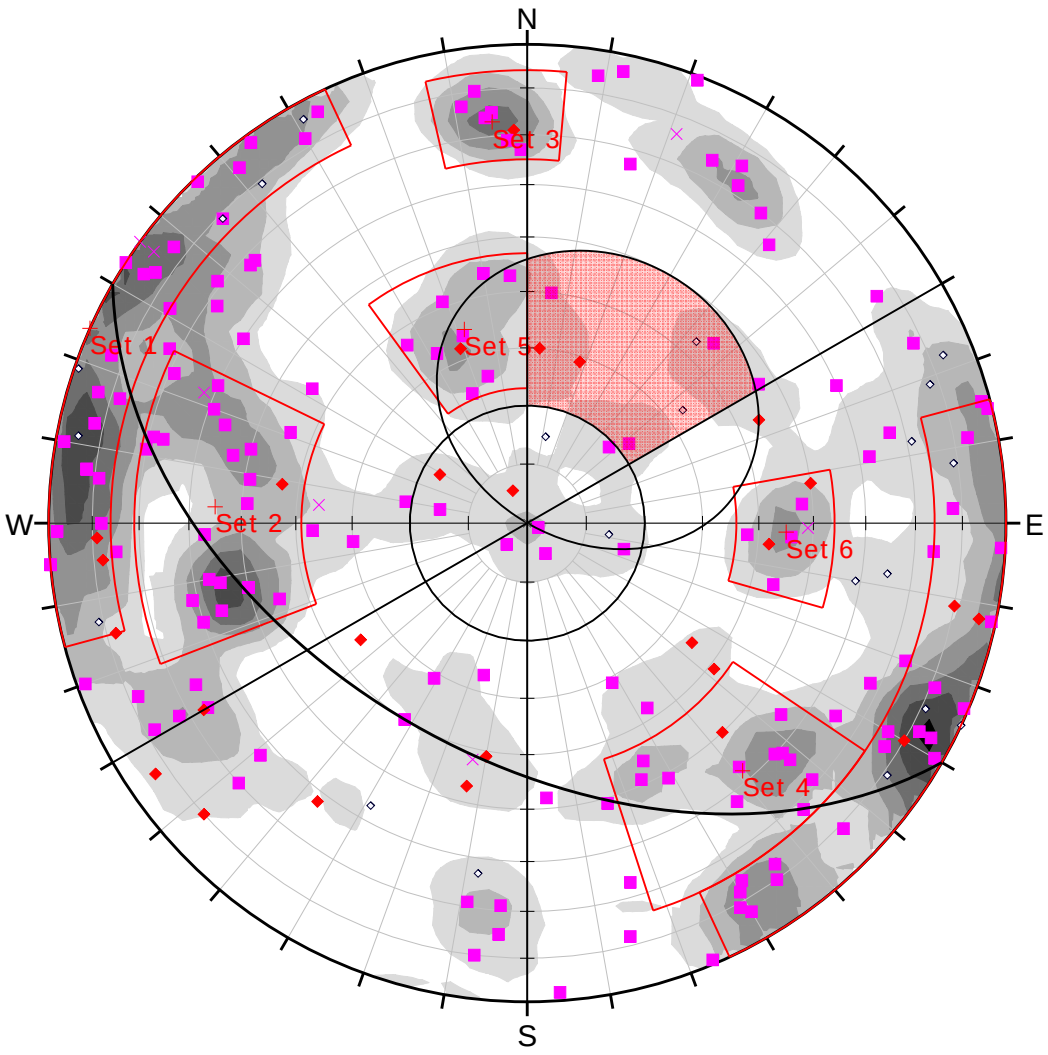
Rock-Soil-Water

DIPS 8.008

Client:	**Anderson Lloyd**
Project:	**Project Quattro**
Location:	**Gladstone East Design Sector**
Analysis Description:	**Orientated Core - IRA Planar Sliding**

Job No:	By:	Date:	Scale:	Run:
PSM125	**TM**	**27/08/2021**	**Stereo Plot**	**Gladstone_rev5.dips8**



Symbol	TYPE	Quantity
◇	Breccia	21
×	CZ	7
◆	FT	26
■	SH	165

Color	Density Concentrations
	0.00 - 0.70
	0.70 - 1.40
	1.40 - 2.10
	2.10 - 2.80
	2.80 - 3.50
	3.50 - 4.20
	4.20 - 4.90

Contour Data	Pole Vectors
Maximum Density	4.45%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	50
Slope Dip Direction	210
Friction Angle	20°
Lateral Limits	30°

	Critical	Total	%
Planar Sliding (All)	7	219	3.20%

Plot Mode	Pole Vectors
Vector Count	219 (219 Entries)
Hemisphere	Lower
Projection	Equal Area

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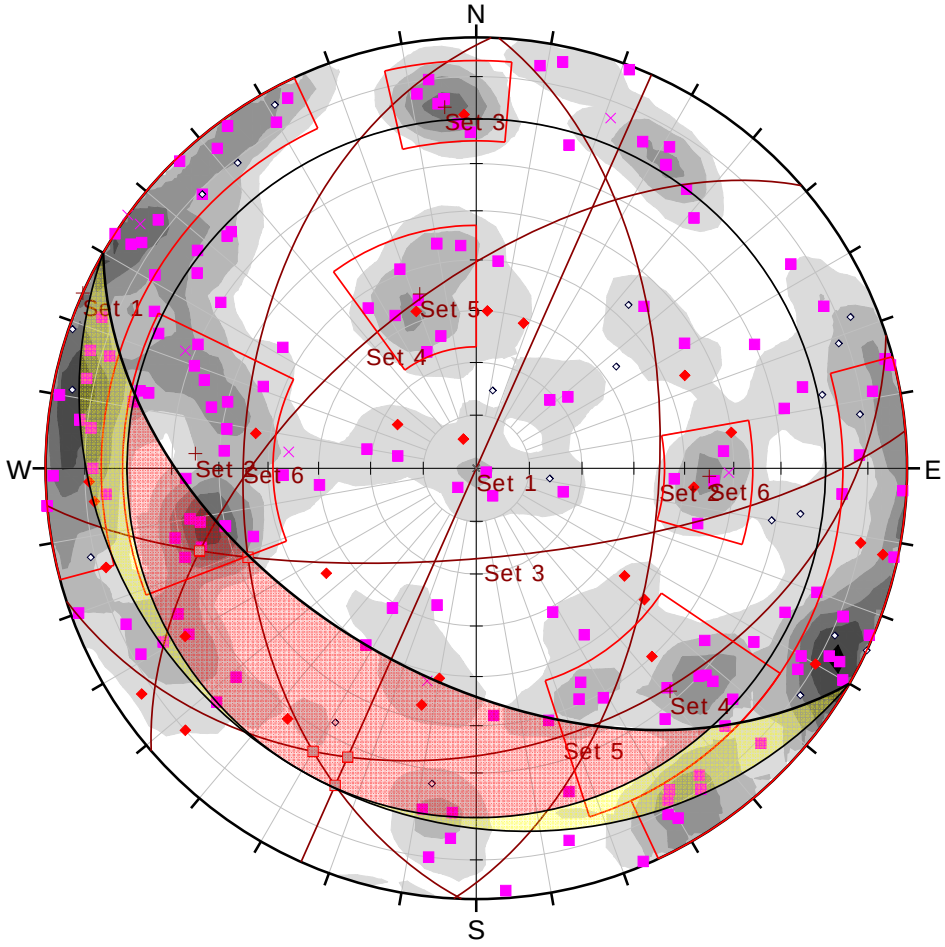
DIPS 8.008

Client:	**Anderson Lloyd**
Project:	**Project Quattro**
Location:	**Gladstone North Design Sector**
Analysis Description:	**Orientated Core - IRA Planar Sliding**

Job No:	By:	Date:	Scale:	Run:
PSM125	**TM**	**21/07/2021**	**Stereo Plot**	**Gladstone_rev5.dips8**



Symbol	TYPE	Quantity
◇	Breccia	21
×	CZ	7
◆	FT	26
■	SH	165
Symbol	**Feature**	
▢	Critical Intersection	

Color	Density Concentrations
	0.00 - 0.70
	0.70 - 1.40
	1.40 - 2.10
	2.10 - 2.80
	2.80 - 3.50
	3.50 - 4.20
	4.20 - 4.90

Contour Data	Pole Vectors
Maximum Density	4.45%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	50
Slope Dip Direction	210
Friction Angle	20°

	Critical	Total	%
Wedge Sliding	5	15	33.33%

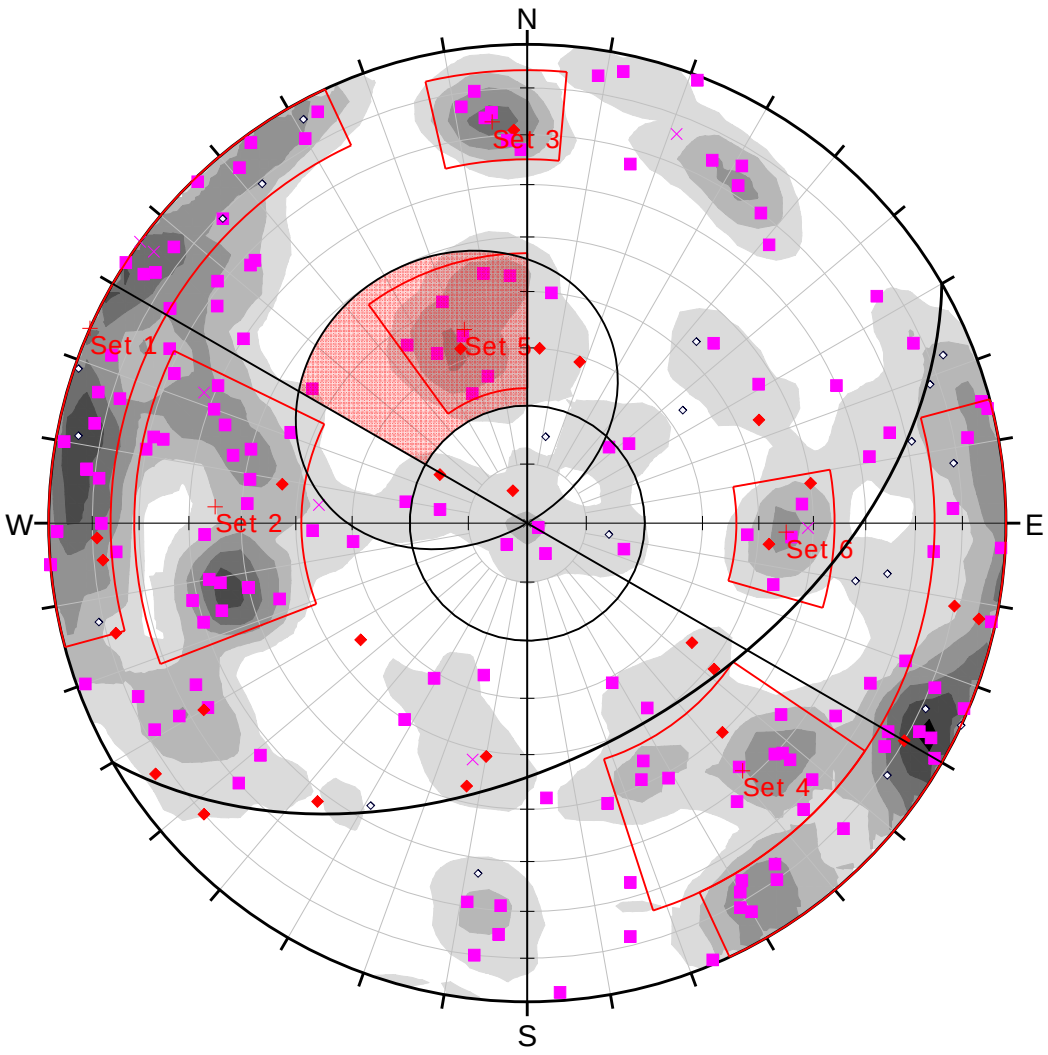
Plot Mode	Pole Vectors
Vector Count	219 (219 Entries)
Intersection Mode	Mean Set Planes
Intersections Count	15
Hemisphere	Lower
Projection	Equal Area

Pells Sullivan Meynink
Engineering Consultants
Rock-Soil-Water

DIPS 8.008

Client:	**Anderson Lloyd**
Project:	**Project Quattro**
Location:	**Gladstone North Design Sector**
Analysis Description:	**Orientated Core - IRA Planar Sliding**

Job No:	By:	Date:	Scale:	Run:
PSM125	**TM**	**21/07/2021**	**Stereo Plot**	**Gladstone_rev5.dips8**



Symbol	TYPE	Quantity
◇	Breccia	21
×	CZ	7
◆	FT	26
■	SH	165

Color	Density Concentrations
	0.00 - 0.70
	0.70 - 1.40
	1.40 - 2.10
	2.10 - 2.80
	2.80 - 3.50
	3.50 - 4.20
	4.20 - 4.90

Contour Data	Pole Vectors
Maximum Density	4.45%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	50
Slope Dip Direction	150
Friction Angle	20°
Lateral Limits	30°

	Critical	Total	%
Planar Sliding (All)	11	219	5.02%
Planar Sliding (Set 5: Set 5)	10	10	100.00%

Plot Mode	Pole Vectors
Vector Count	219 (219 Entries)
Hemisphere	Lower
Projection	Equal Area

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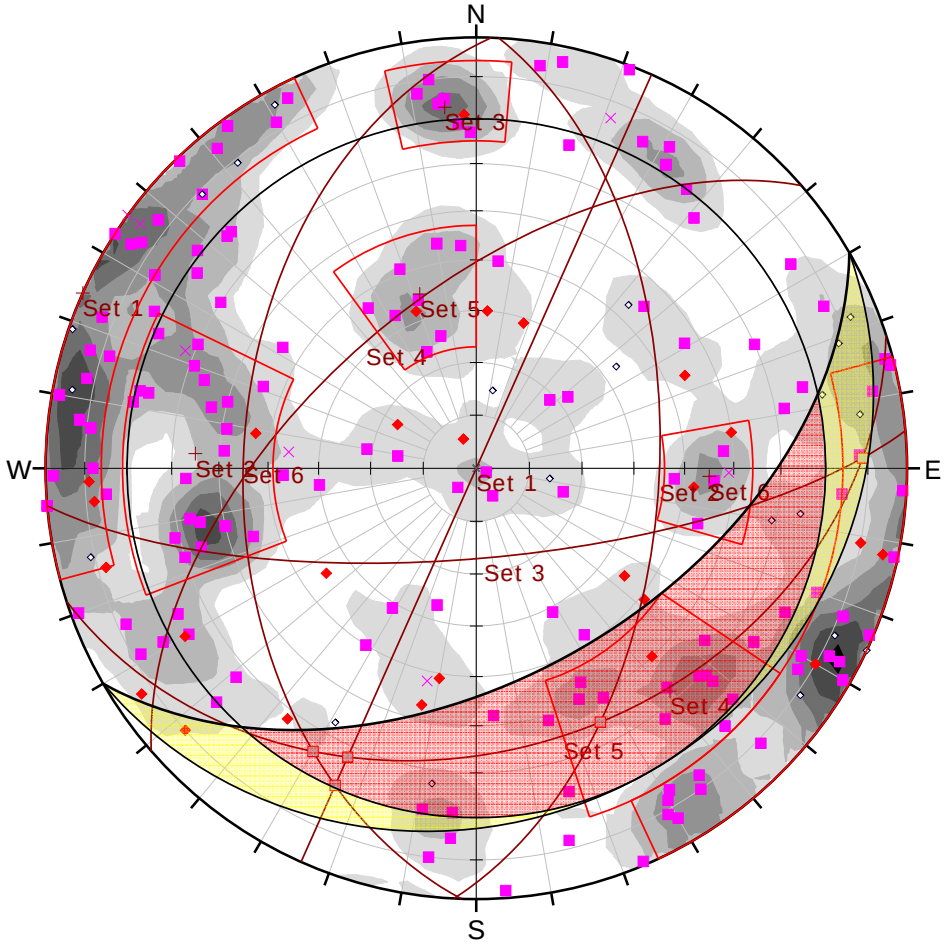
Rock-Soil-Water

DIPS 8.008

Client:	**Anderson Lloyd**
Project:	**Project Quattro**
Location:	**Gladstone Northwest Design Sector**
Analysis Description:	**Orientated Core - IRA Planar Sliding**

Job No:	By:	Date:	Scale:	Run:
PSM125	**TM**	**21/07/2021**	**Stereo Plot**	**Gladstone_rev5.dips8**



Symbol	TYPE	Quantity
◇	Breccia	21
×	CZ	7
◆	FT	26
■	SH	165
Symbol	**Feature**	
▢	Critical Intersection	

Color	Density Concentrations
	0.00 - 0.70
	0.70 - 1.40
	1.40 - 2.10
	2.10 - 2.80
	2.80 - 3.50
	3.50 - 4.20
	4.20 - 4.90

Contour Data	Pole Vectors
Maximum Density	4.45%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	50
Slope Dip Direction	150
Friction Angle	20°

	Critical	Total	%
Wedge Sliding	5	15	33.33%

Plot Mode	Pole Vectors
Vector Count	219 (219 Entries)
Intersection Mode	Mean Set Planes
Intersections Count	15
Hemisphere	Lower
Projection	Equal Area

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DIPS 8.008

Client:	**Anderson Lloyd**
Project:	**Project Quattro**
Location:	**Gladstone Northwest Design Sector**
Analysis Description:	**Orientated Core - IRA Planar Sliding**

Job No:	By:	Date:	Scale:	Run:
PSM125	**TM**	**21/07/2021**	**Stereo Plot**	**Gladstone_rev5.dips8**