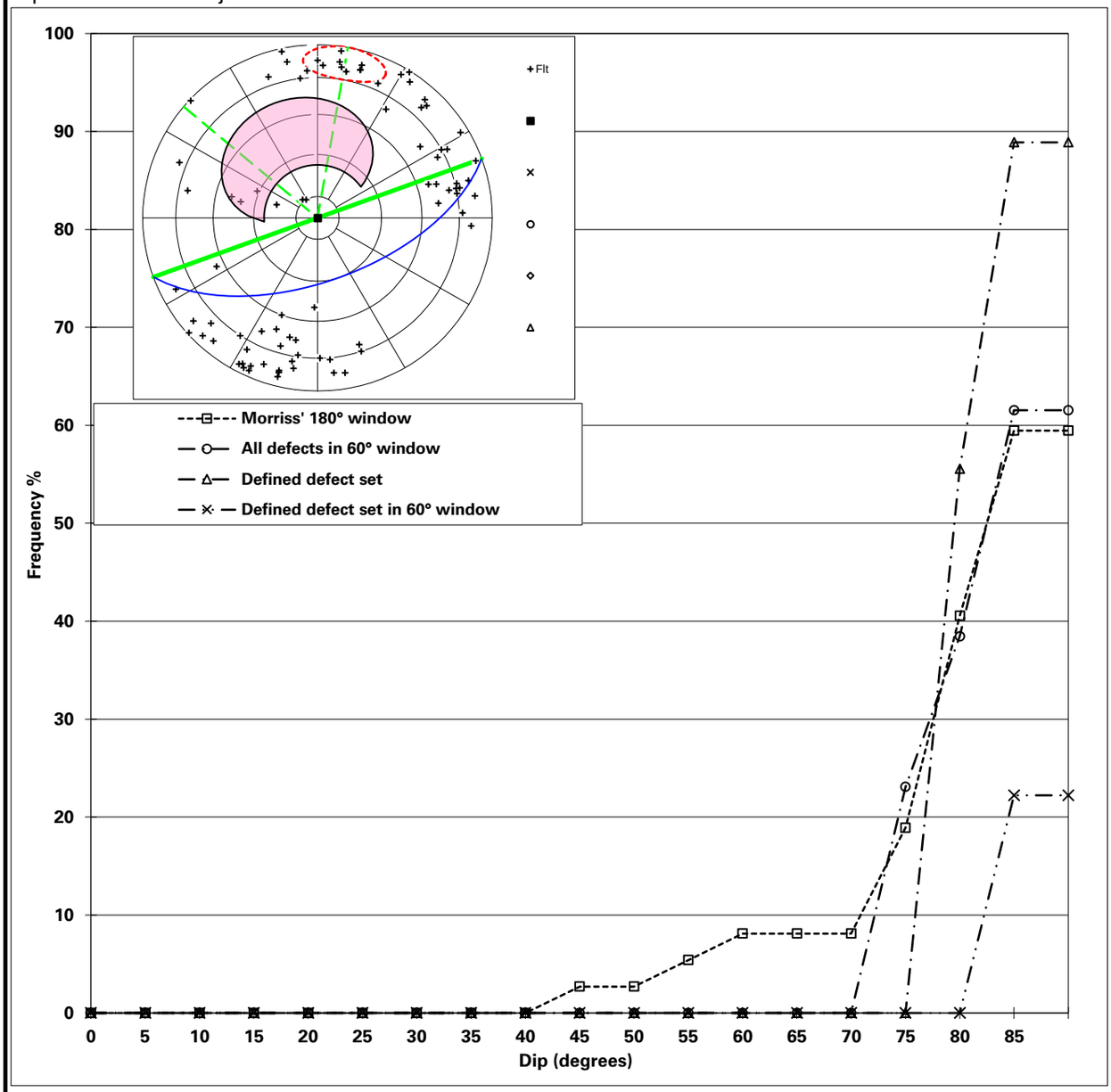
PLANAR SLIDING

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction	160
Kinematic Window ±	30

DEFECT SHEAR STRENGTHS

Cohesion	=	0 kPa
Friction Angle	=	25°

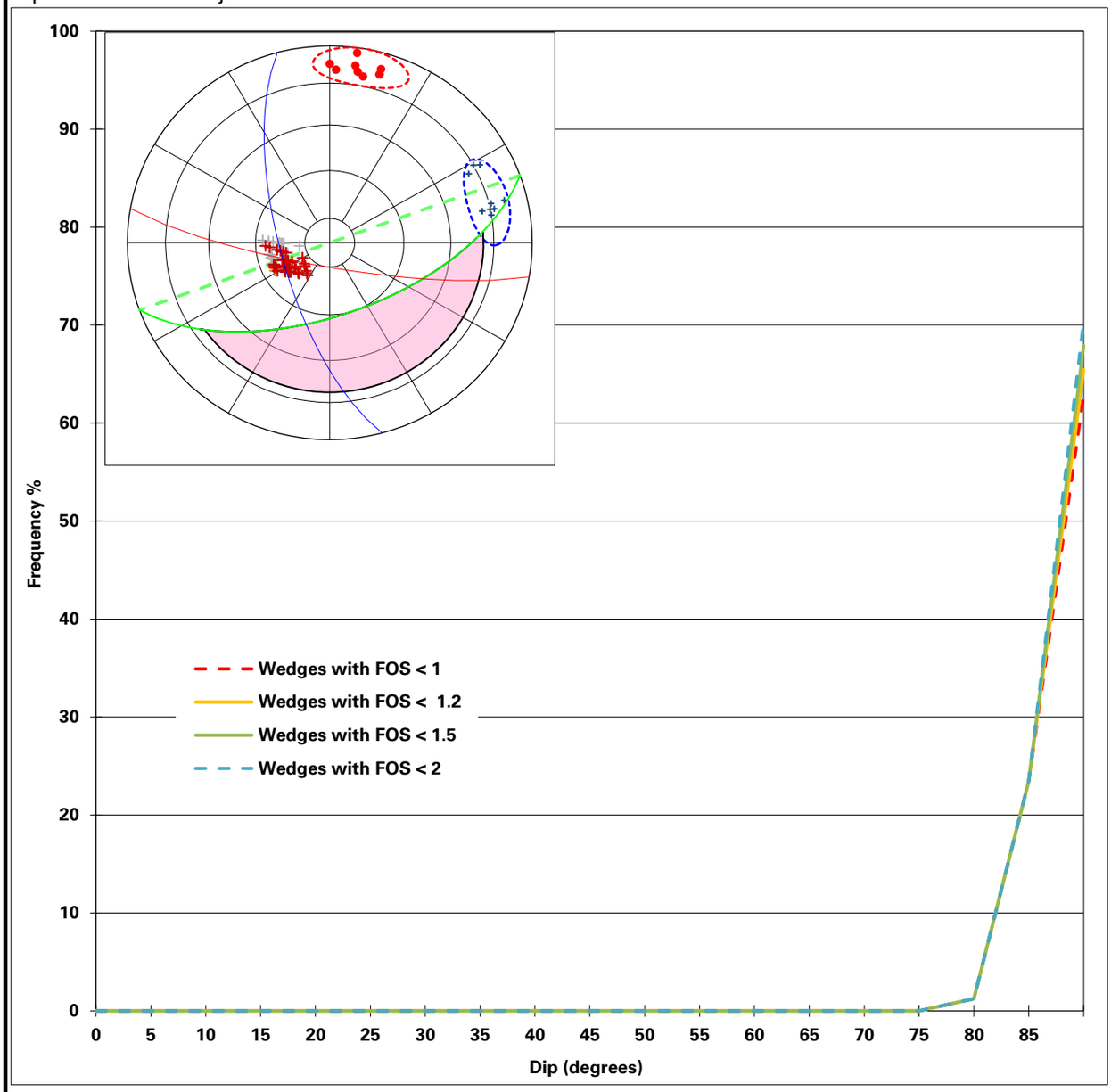
DEFECT SET

FT7	Mean	±
Dip	80	10
Dip Direction	190	15

Defects in kinematic window	11
Defects in set FT7	9
Defect in set & window	5
Defects Dipping out of Slope	34

WEDGE FAILURE

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction 160

DEFECT SHEAR STRENGTHS

Cohesion = 0 kPa

Friction Angle = 25°

FIRST SET - RED

FT7	Mean	±
Dip	80	10
Dip Direction	190	15

Defects in set FT7 9

SECOND SET - BLUE

FT6	Mean	±
Dip	70	10
Dip Direction	255	15

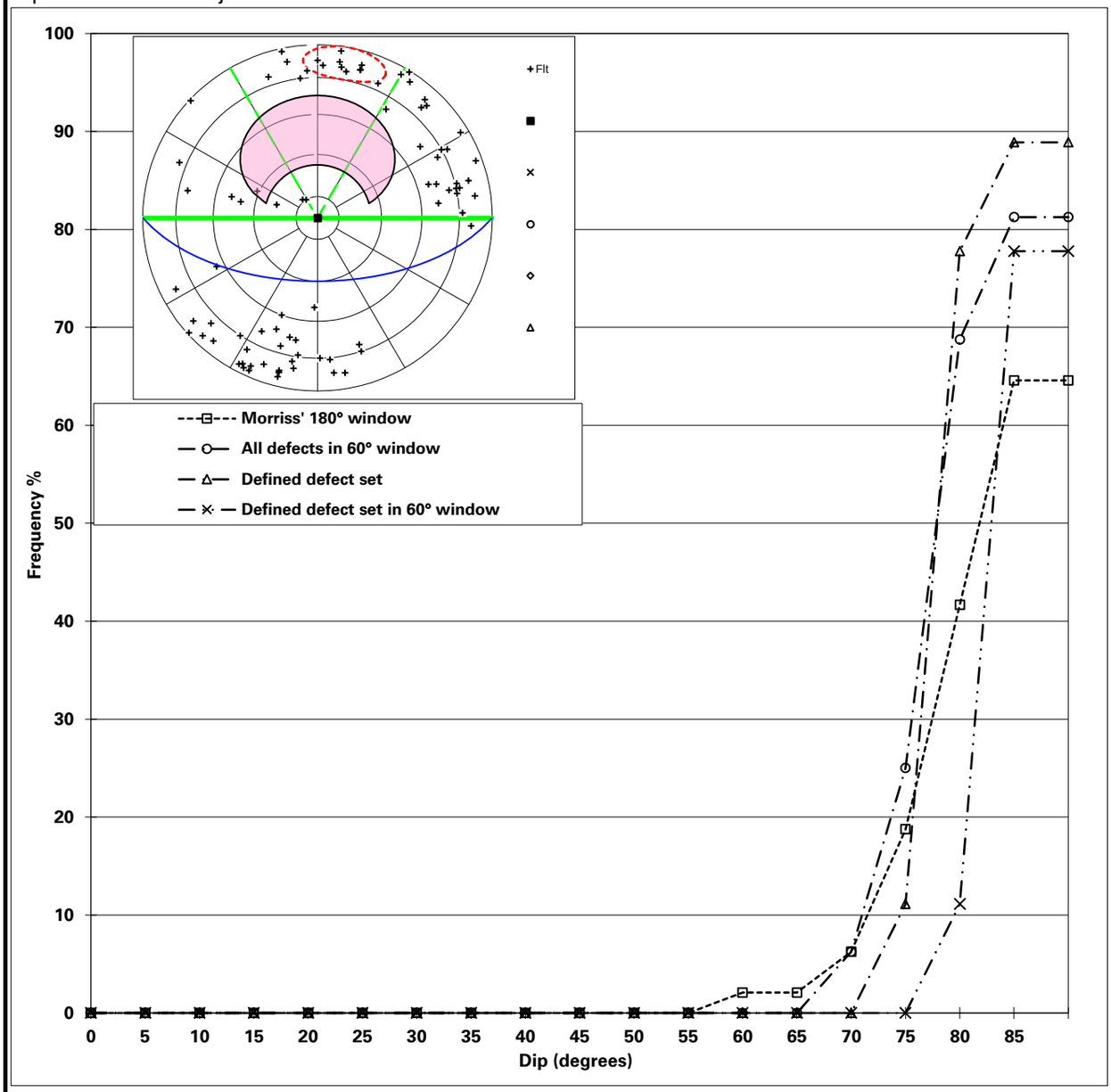
Defects in set FT6 9

Number of Unstable Wedges 52

Number of Wedges Analysed 81 From a possible Total Number of 81

PLANAR SLIDING

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction	180
Kinematic Window ±	30

DEFECT SET

FT7	Mean	±
Dip	80	10
Dip Direction	190	15

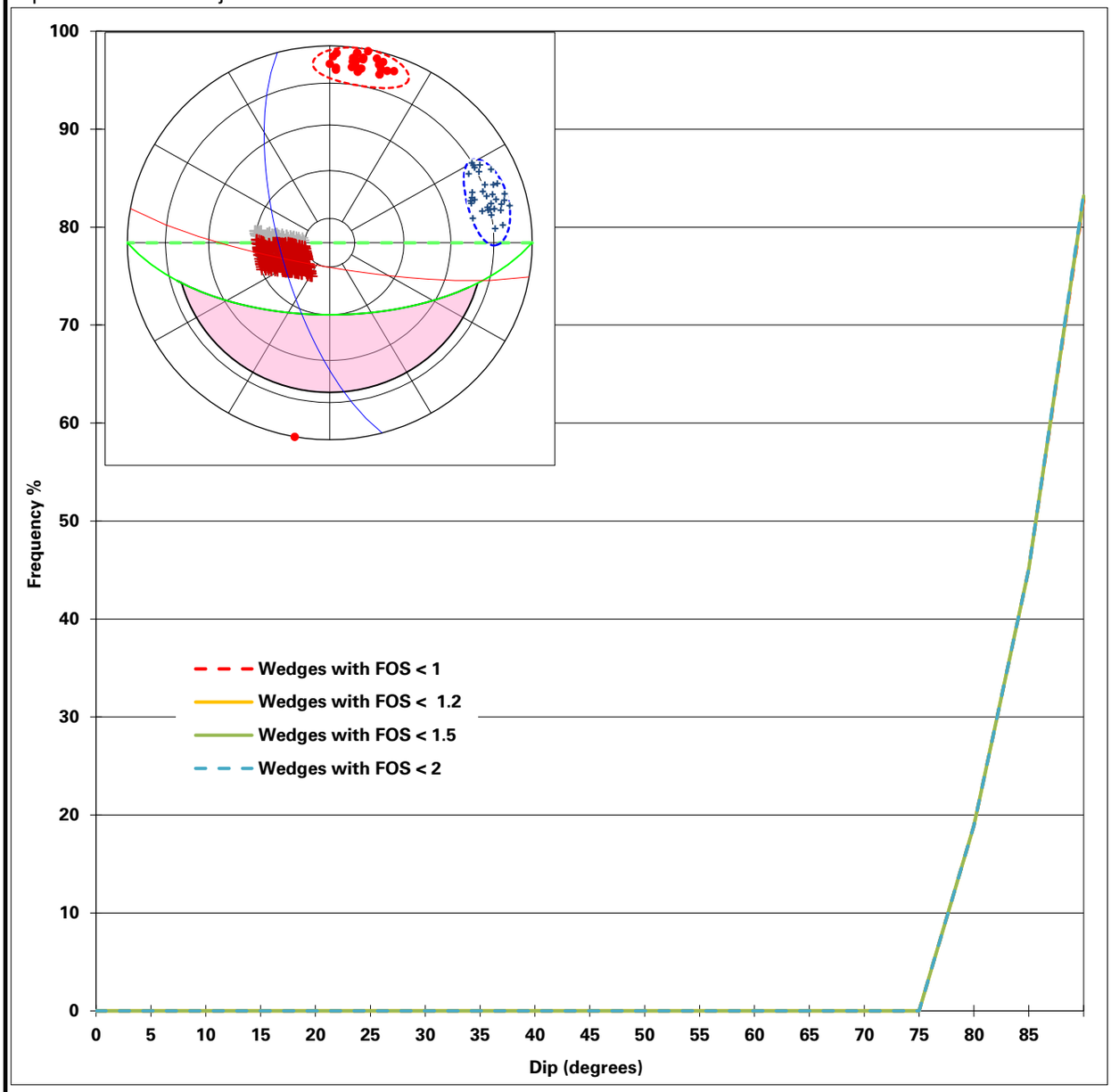
DEFECT SHEAR STRENGTHS

Cohesion	=	0 kPa
Friction Angle	=	25°

Defects in kinematic window	16
Defects in set FT7	9
Defect in set & window	9
Defects Dipping out of Slope	45

WEDGE FAILURE

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction 180

DEFECT SHEAR STRENGTHS

Cohesion = 0 kPa

Friction Angle = 25°

FIRST SET - RED

TV7	Mean	±
Dip	80	10
Dip Direction	190	15

Defects in set FT7 28

SECOND SET - BLUE

TV6	Mean	±
Dip	70	10
Dip Direction	255	15

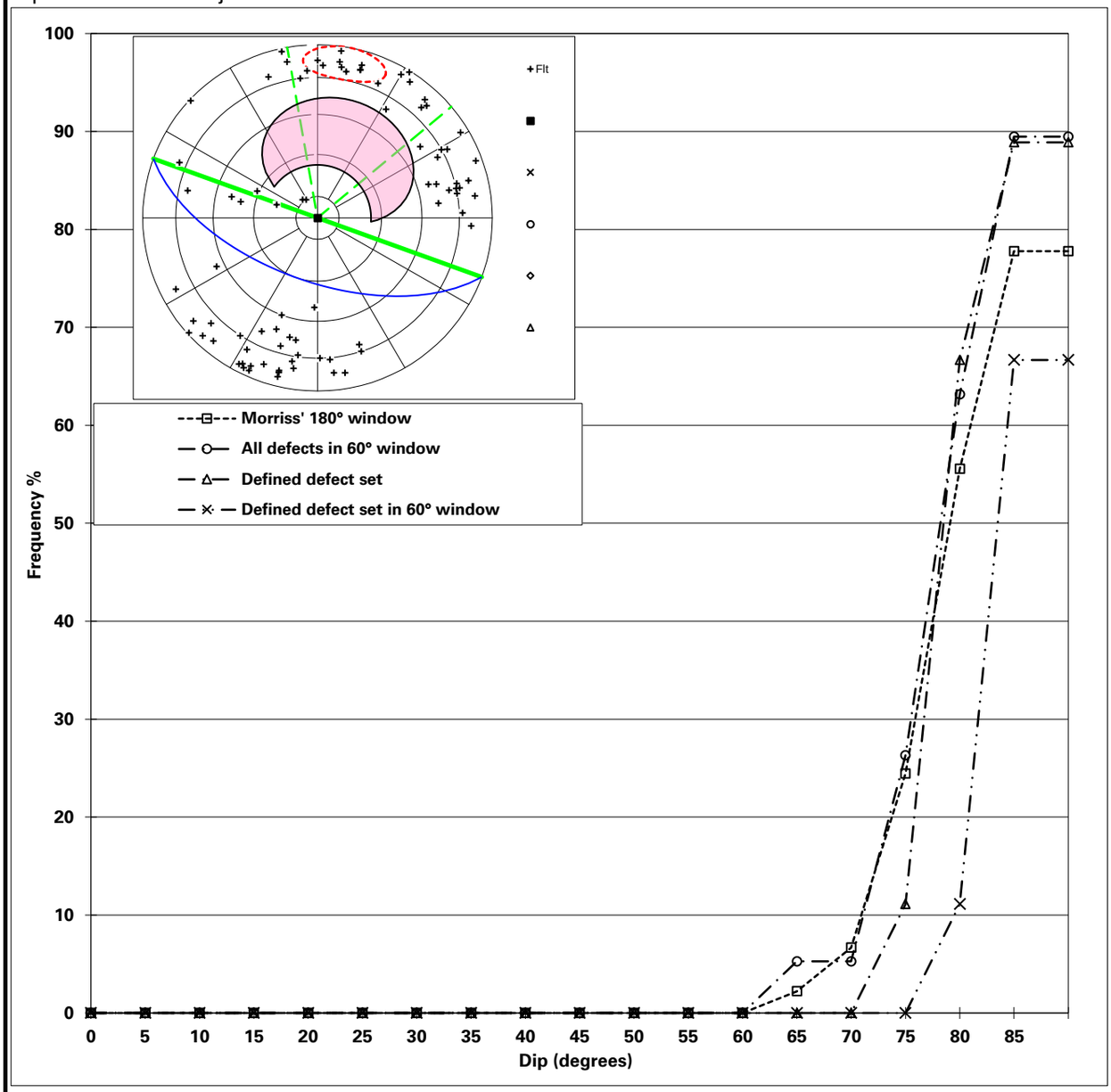
Defects in set FT6 34

Number of Unstable Wedges 789

Number of Wedges Analysed 952 From a possible Total Number of 952

PLANAR SLIDING

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction	200
Kinematic Window ±	30

DEFECT SHEAR STRENGTHS

Cohesion	=	0 kPa
Friction Angle	=	25°

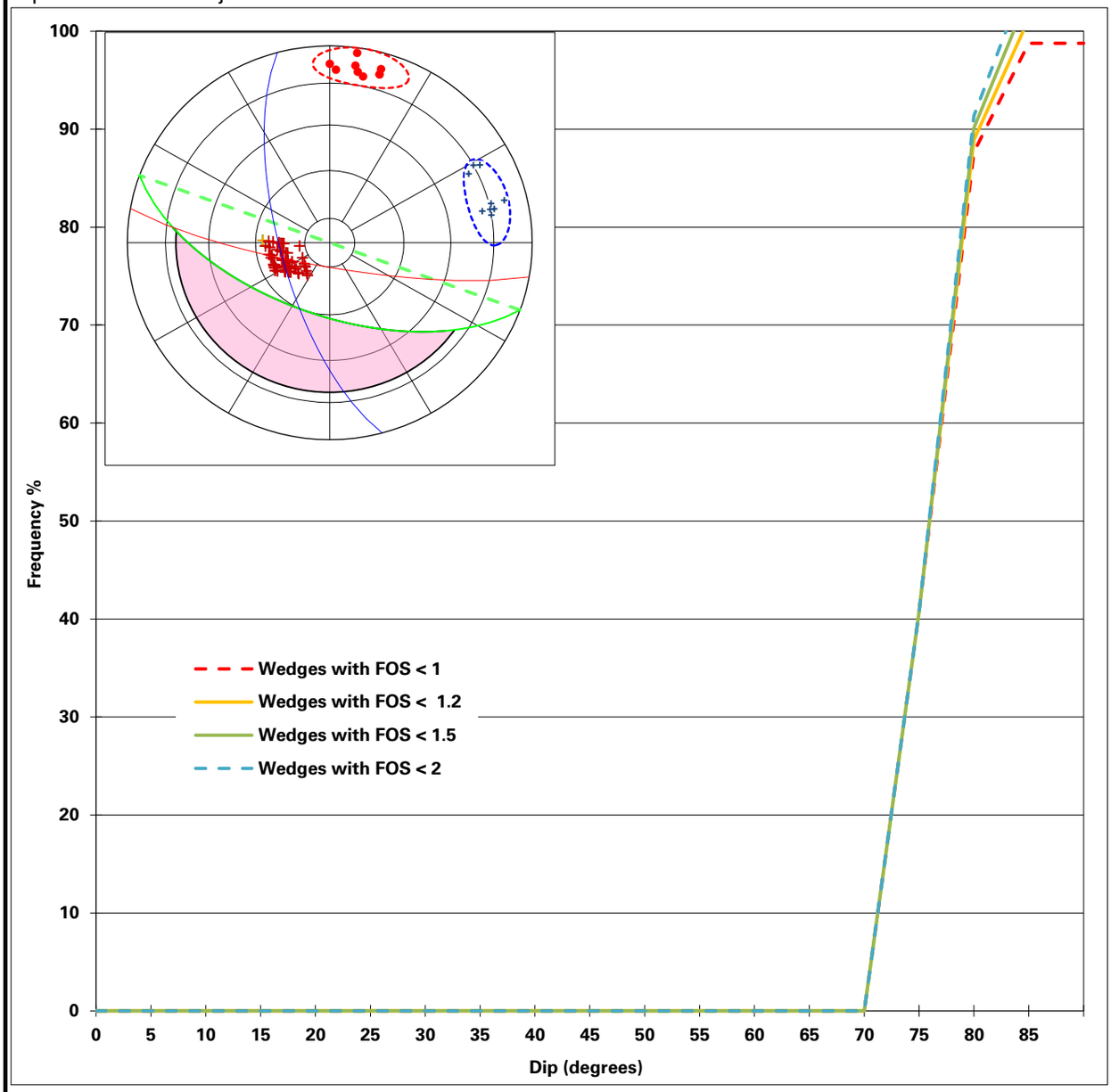
DEFECT SET

FT7	Mean	±
Dip	80	10
Dip Direction	190	15

Defects in kinematic window	19
Defects in set FT7	9
Defect in set & window	9
Defects Dipping out of Slope	43

WEDGE FAILURE

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction 200

DEFECT SHEAR STRENGTHS

Cohesion = 0 kPa

Friction Angle = 25°

FIRST SET - RED

FT7	Mean	±
Dip	80	10
Dip Direction	190	15

Defects in set FT7 9

SECOND SET - BLUE

FT6	Mean	±
Dip	70	10
Dip Direction	255	15

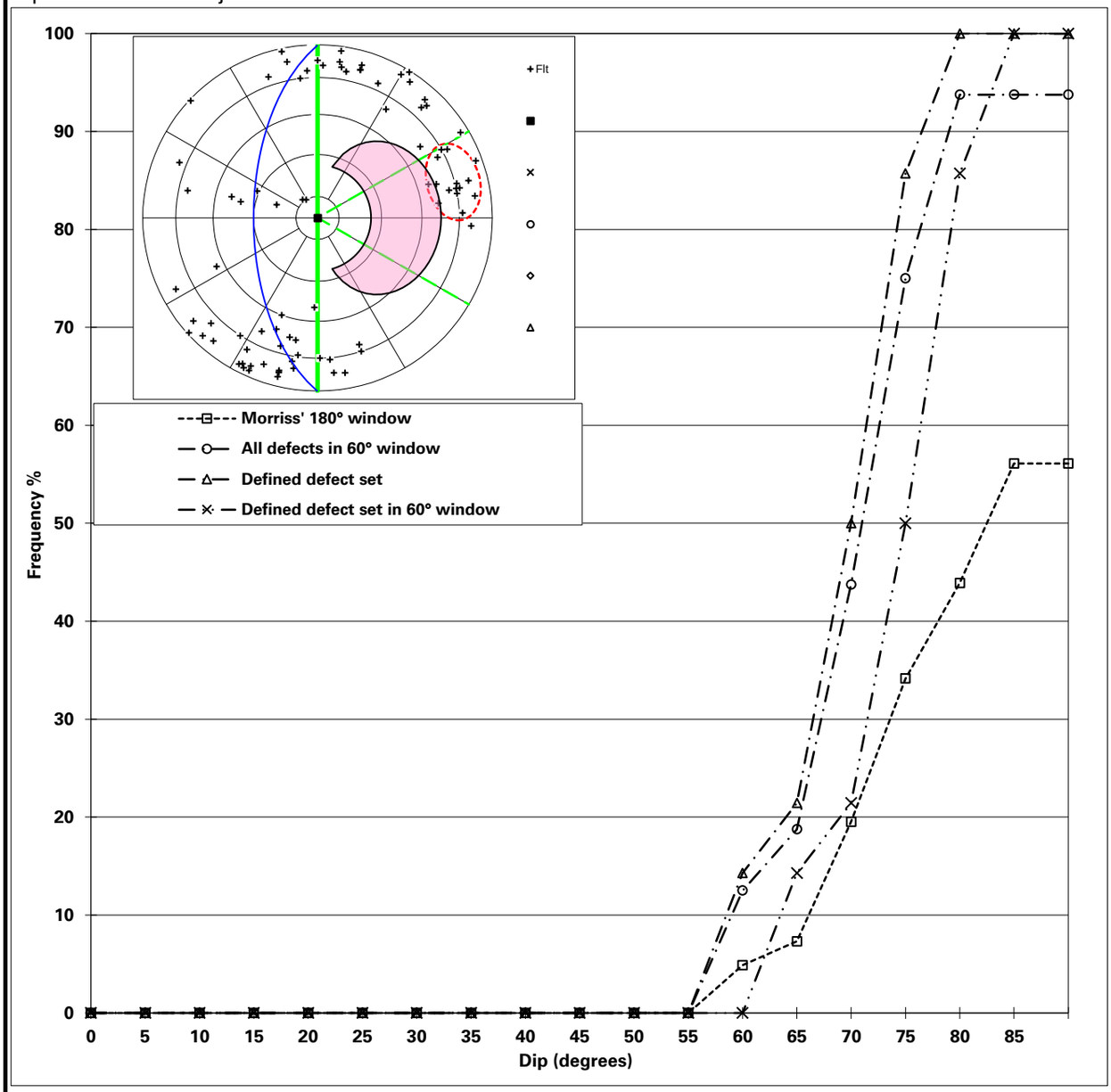
Defects in set FT6 9

Number of Unstable Wedges 81

Number of Wedges Analysed 81 From a possible Total Number of 81

PLANAR SLIDING

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction	270
Kinematic Window ±	30

DEFECT SET

FT6	Mean	±
Dip	70	15
Dip Direction	255	15

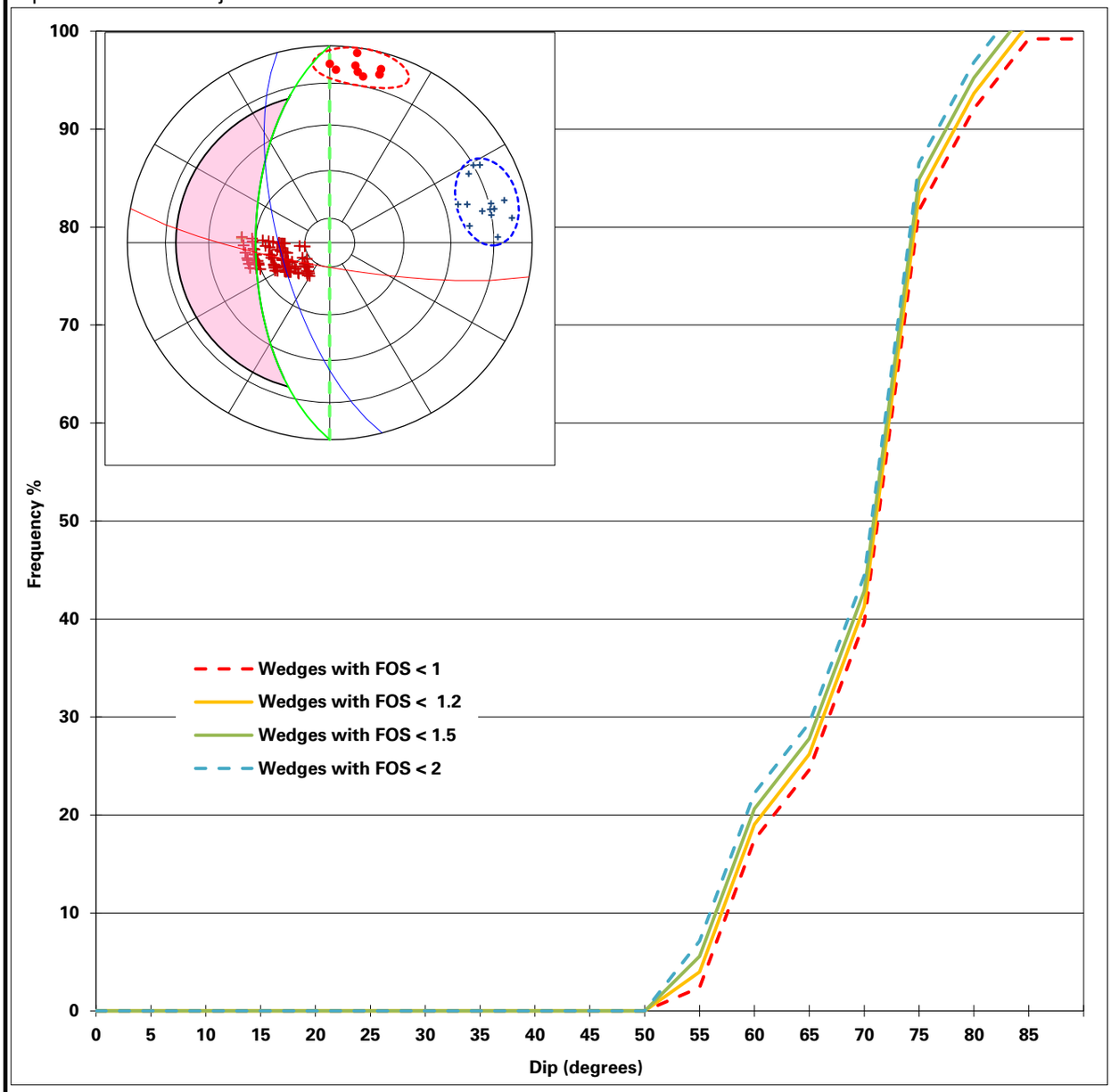
DEFECT SHEAR STRENGTHS

Cohesion	=	0 kPa
Friction Angle	=	25°

Defects in kinematic window	16
Defects in set FT6	14
Defect in set & window	14
Defects Dipping out of Slope	41

WEDGE FAILURE

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction 270

DEFECT SHEAR STRENGTHS

Cohesion = 0 kPa

Friction Angle = 25°

FIRST SET - RED

FT7	Mean	±
Dip	80	10
Dip Direction	190	15

Defects in set FT7 9

SECOND SET - BLUE

FT6	Mean	±
Dip	70	15
Dip Direction	255	15

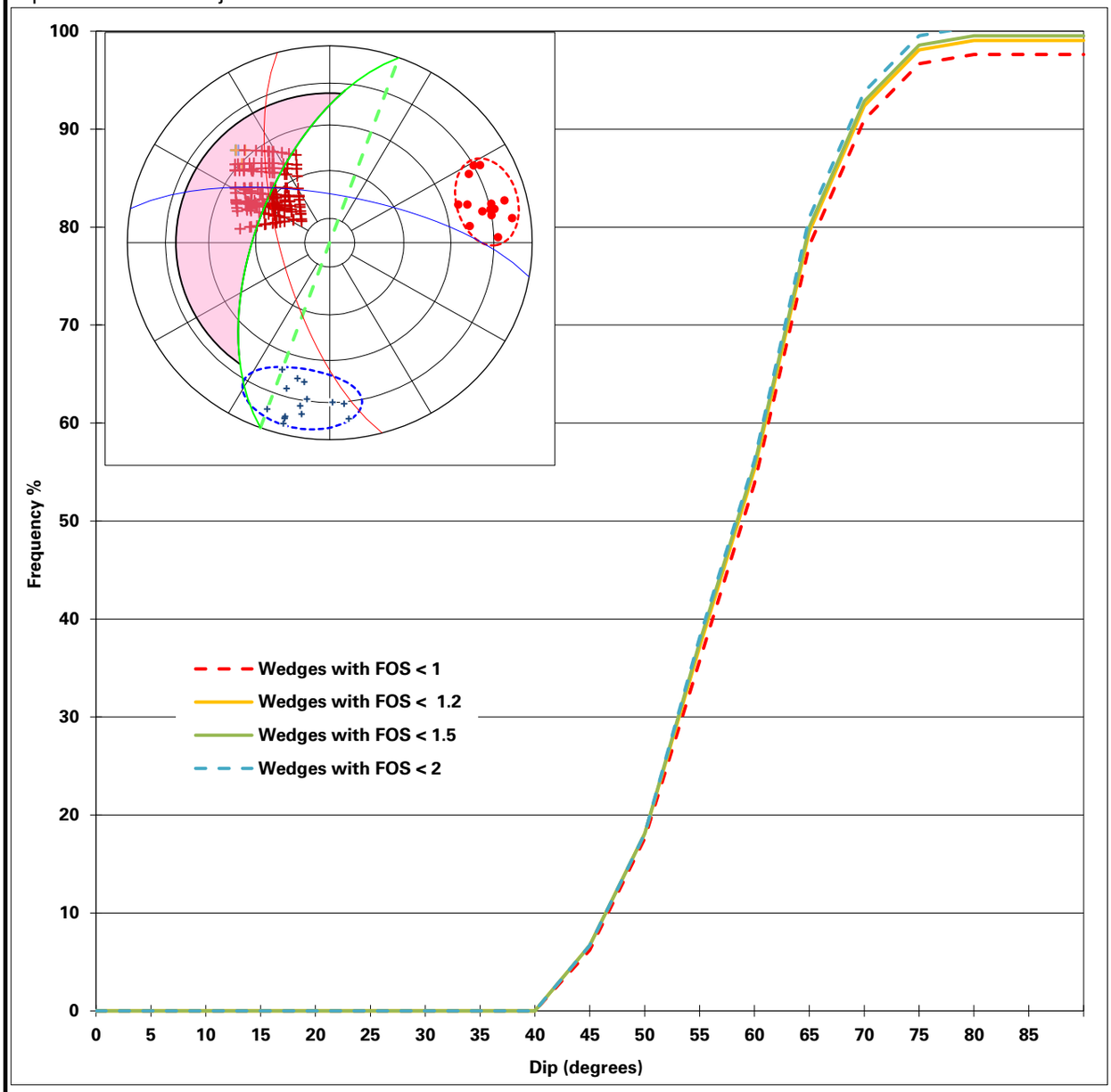
Defects in set FT6 14

Number of Unstable Wedges 126

Number of Wedges Analysed 126 From a possible Total Number of 126

WEDGE FAILURE

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction 290

DEFECT SHEAR STRENGTHS

Cohesion = 0 kPa

Friction Angle = 25°

FIRST SET - RED

FT6	Mean	±
Dip	70	15
Dip Direction	255	15

Defects in set FT6 14

SECOND SET - BLUE

FT8	Mean	±
Dip	70	15
Dip Direction	10	20

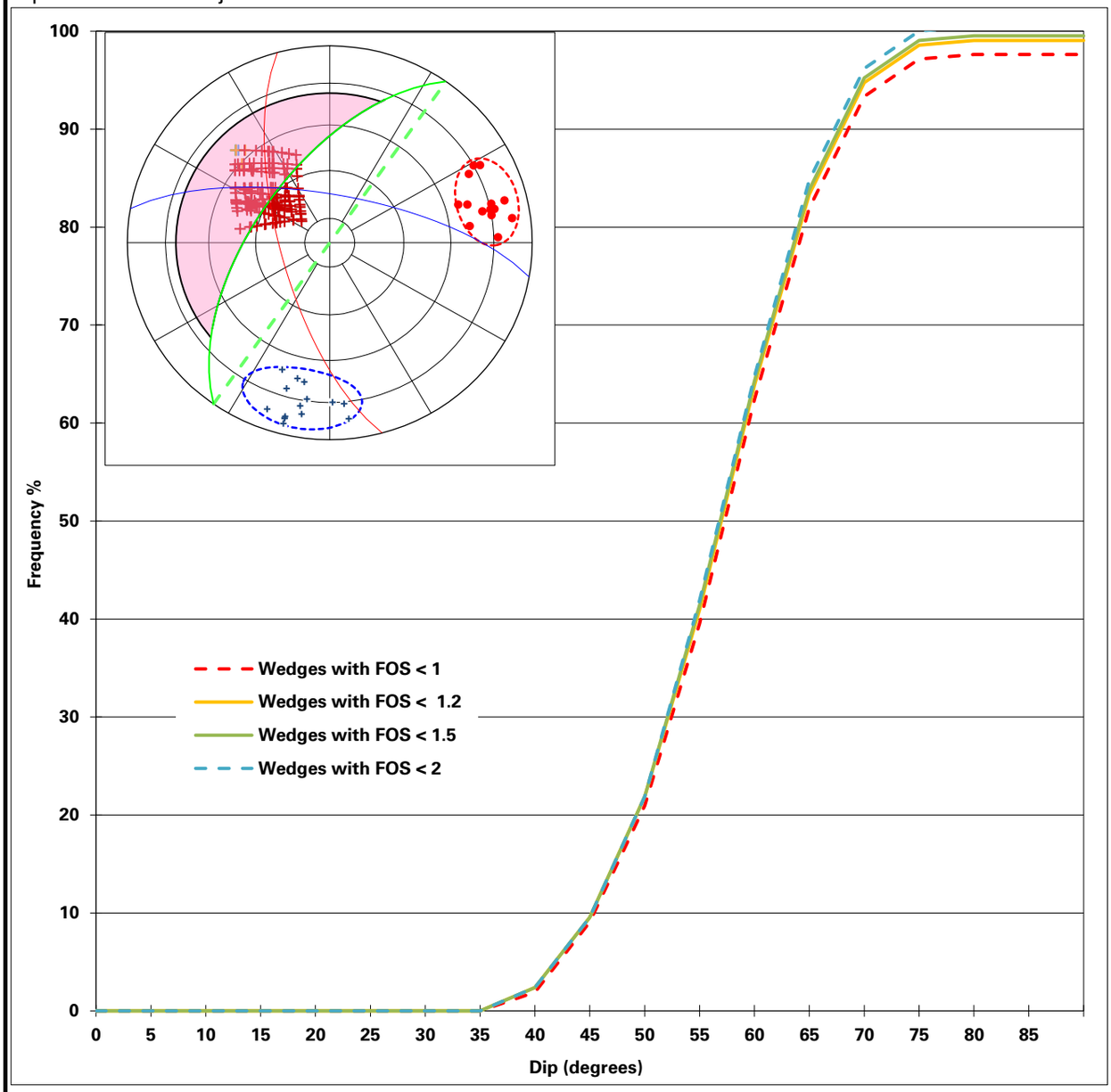
Defects in set FT8 15

Number of Unstable Wedges 206

Number of Wedges Analysed 210 From a possible Total Number of 210

WEDGE FAILURE

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction 305

DEFECT SHEAR STRENGTHS

Cohesion = 0 kPa
Friction Angle = 25°

FIRST SET - RED

FT6	Mean	±
Dip	70	15
Dip Direction	255	15

Defects in set FT6 14

SECOND SET - BLUE

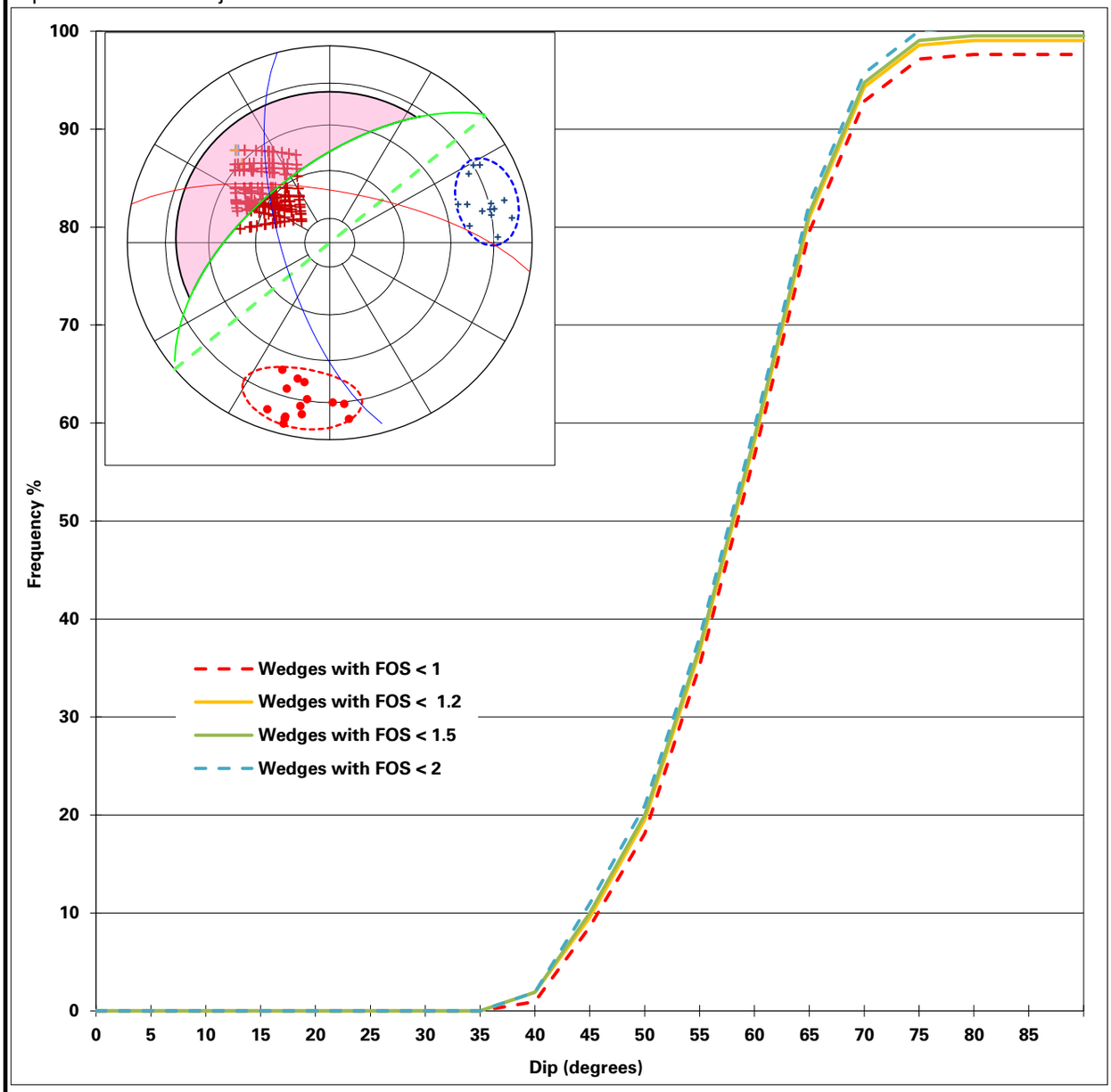
FT8	Mean	±
Dip	70	15
Dip Direction	10	20

Defects in set FT8 15

Number of Unstable Wedges 206
Number of Wedges Analysed 210 From a possible Total Number of 210

WEDGE FAILURE

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction 320

DEFECT SHEAR STRENGTHS

Cohesion = 0 kPa
Friction Angle = 25°

FIRST SET - RED

TV8	Mean	±
Dip	70	15
Dip Direction	10	20

Defects in set FT8 15

SECOND SET - BLUE

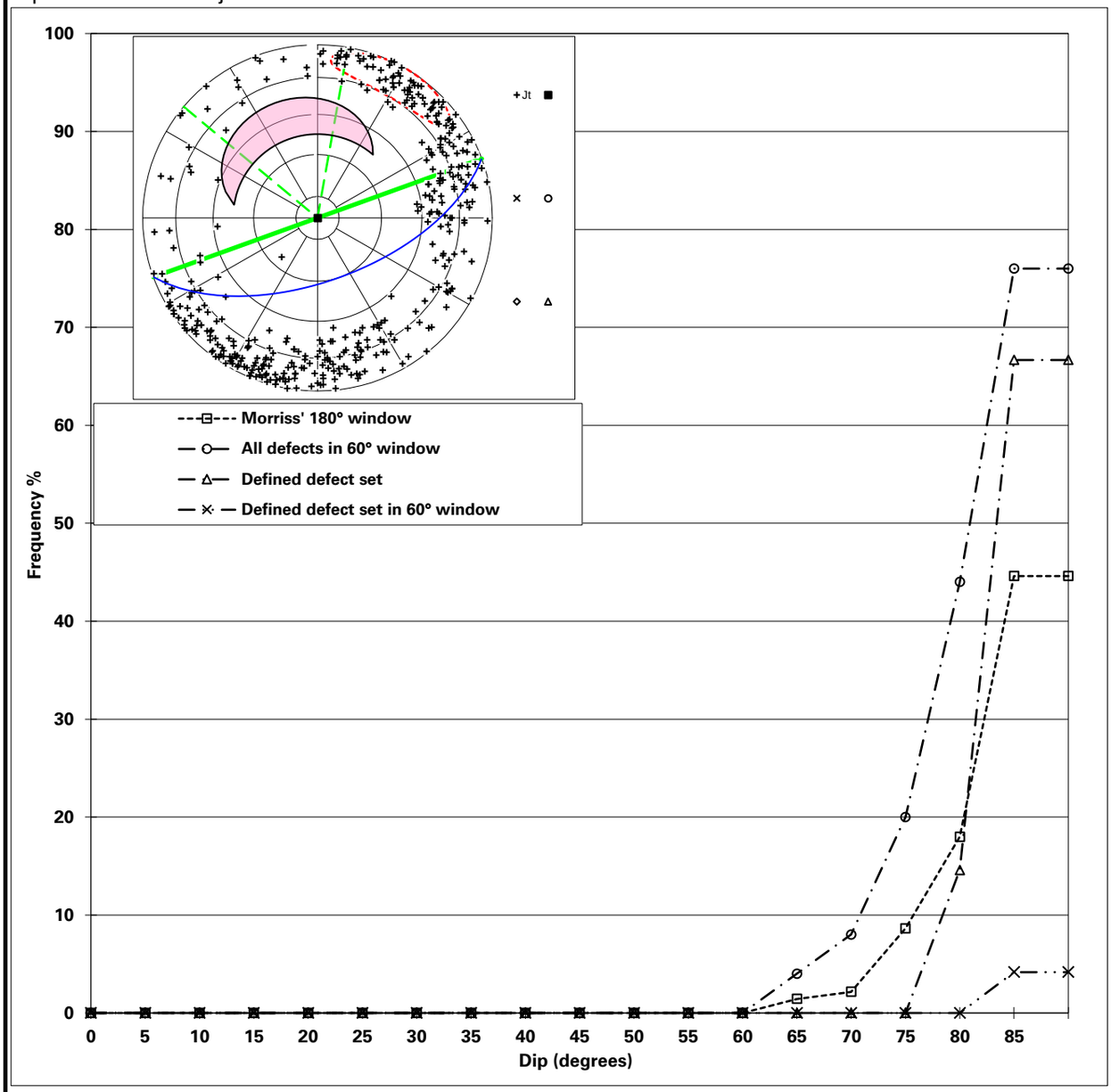
TV6	Mean	±
Dip	70	15
Dip Direction	255	15

Defects in set FT6 14

Number of Unstable Wedges 206
Number of Wedges Analysed 210 From a possible Total Number of 210

PLANAR SLIDING

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction	160
Kinematic Window ±	30

DEFECT SHEAR STRENGTHS

Cohesion	=	0 kPa
Friction Angle	=	40°

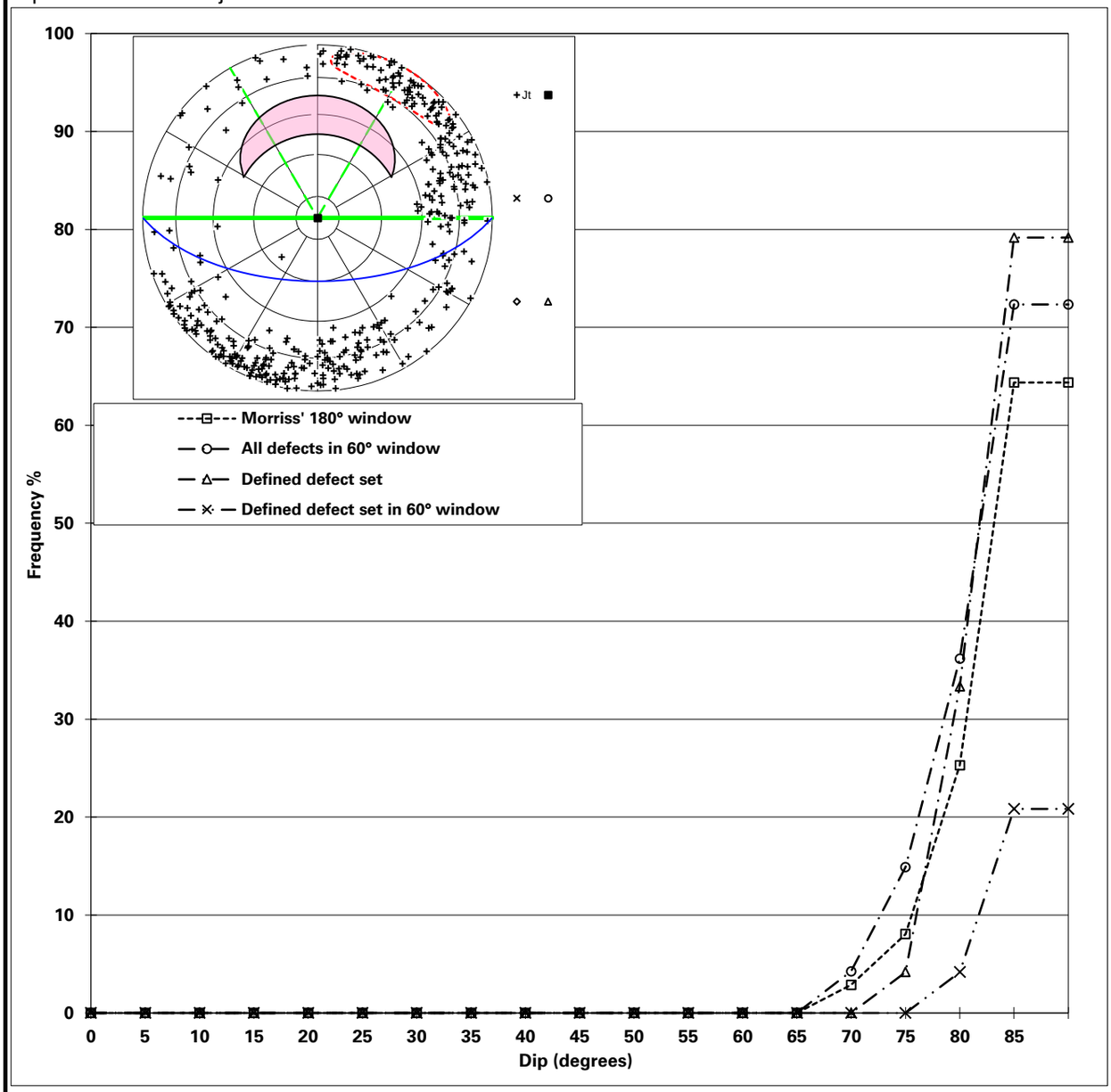
DEFECT SET

JT3	Mean	±
Dip	80	10
Dip Direction	210	25

Defects in kinematic window	25
Defects in set JT3	48
Defect in set & window	8
Defects Dipping out of Slope	139

PLANAR SLIDING

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction	180
Kinematic Window ±	30

DEFECT SHEAR STRENGTHS

Cohesion	=	0 kPa
Friction Angle	=	40°

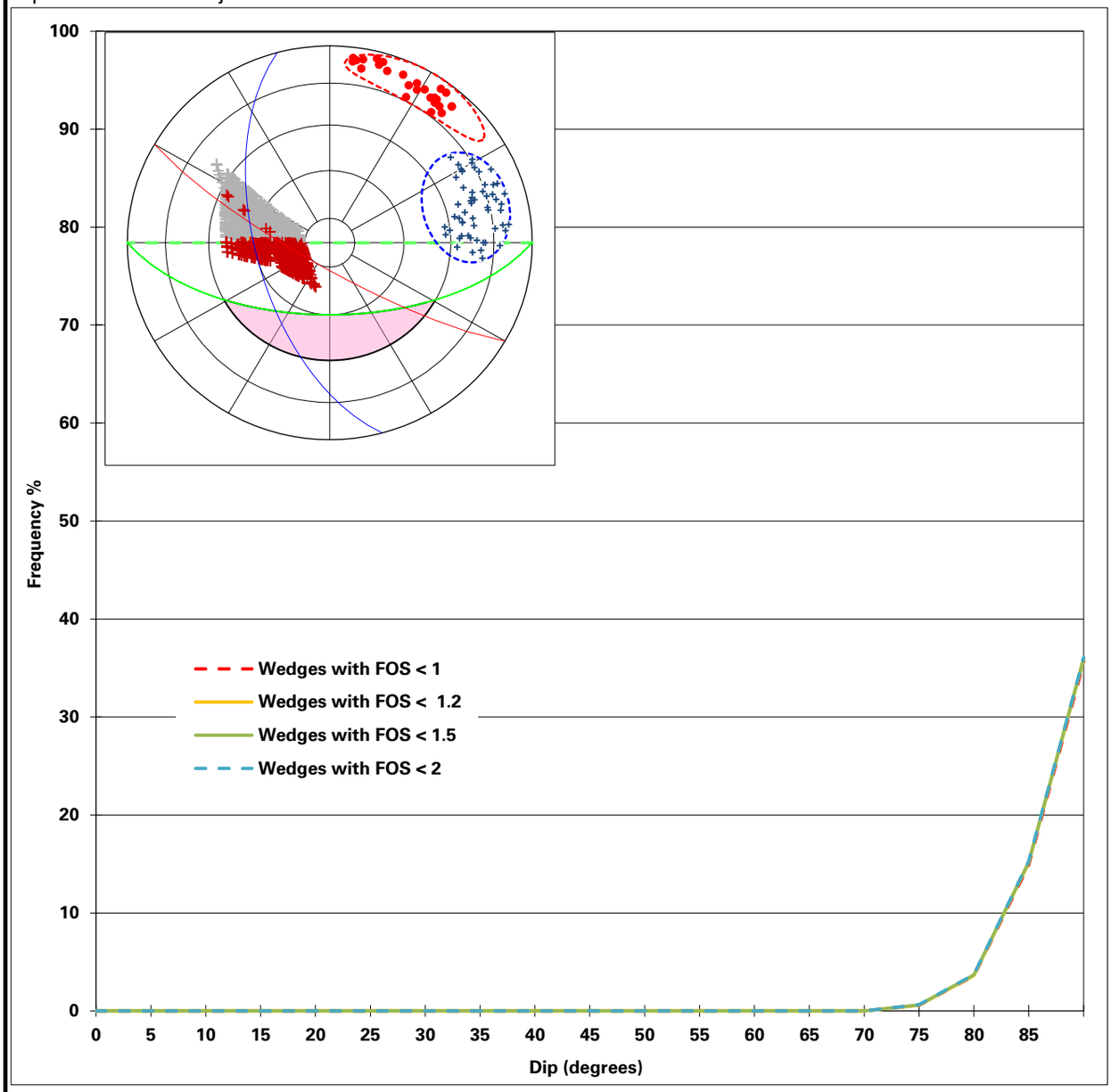
DEFECT SET

JT3	Mean	±
Dip	80	10
Dip Direction	210	25

Defects in kinematic window	47
Defects in set JT3	48
Defect in set & window	30
Defects Dipping out of Slope	174

WEDGE FAILURE

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction 180

DEFECT SHEAR STRENGTHS

Cohesion = 0 kPa

Friction Angle = 40°

FIRST SET - RED

JT3	Mean	±
Dip	80	10
Dip Direction	210	25

Defects in set JT3 48

SECOND SET - BLUE

JT4	Mean	±
Dip	60	20
Dip Direction	255	20

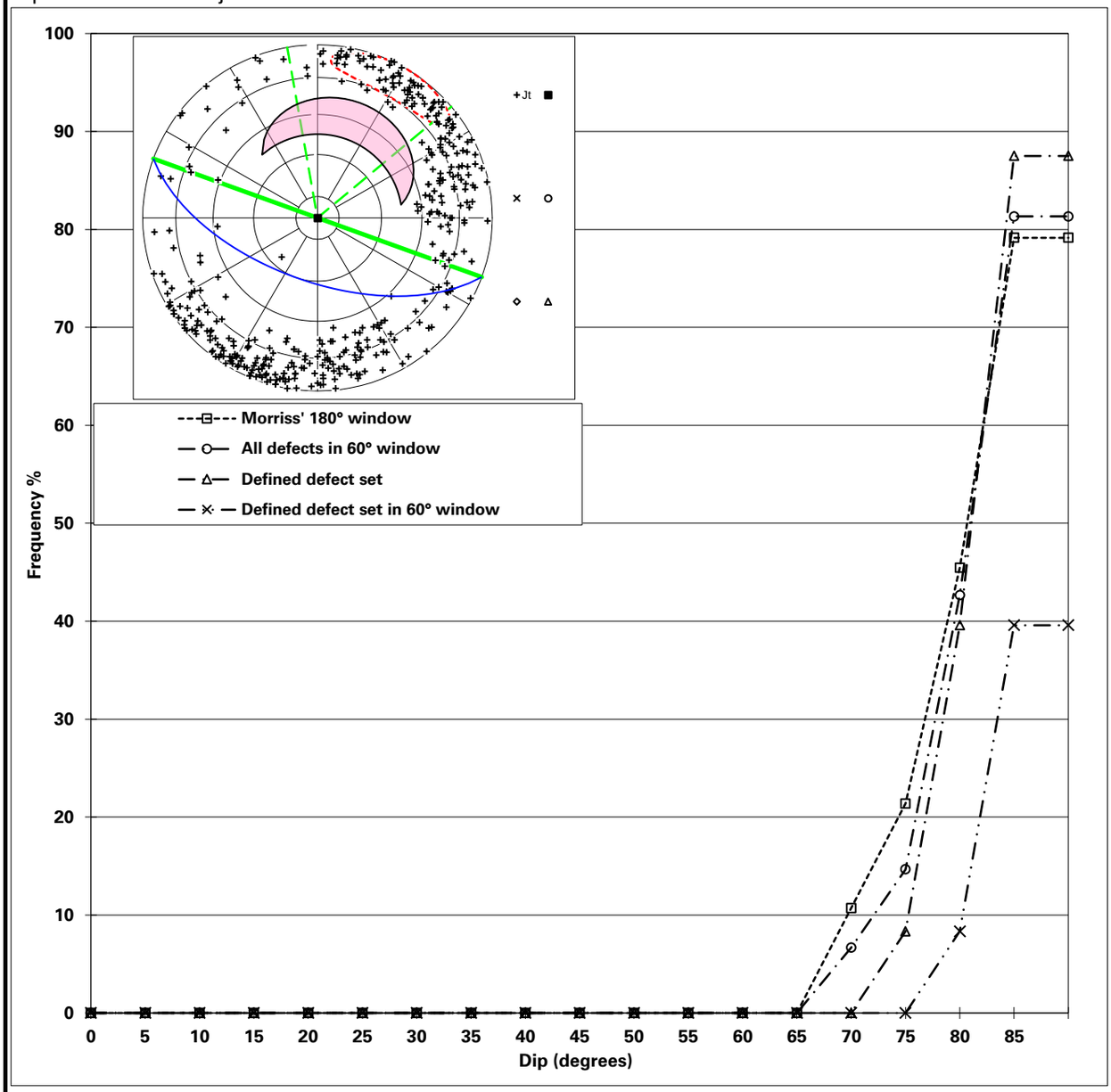
Defects in set JT4 58

Number of Unstable Wedges 993

Number of Wedges Analysed 2784 From a possible Total Number of 2784

PLANAR SLIDING

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction	200
Kinematic Window ±	30

DEFECT SET

JT3	Mean	±
Dip	80	10
Dip Direction	210	25

DEFECT SHEAR STRENGTHS

Cohesion	=	0 kPa
Friction Angle	=	40°

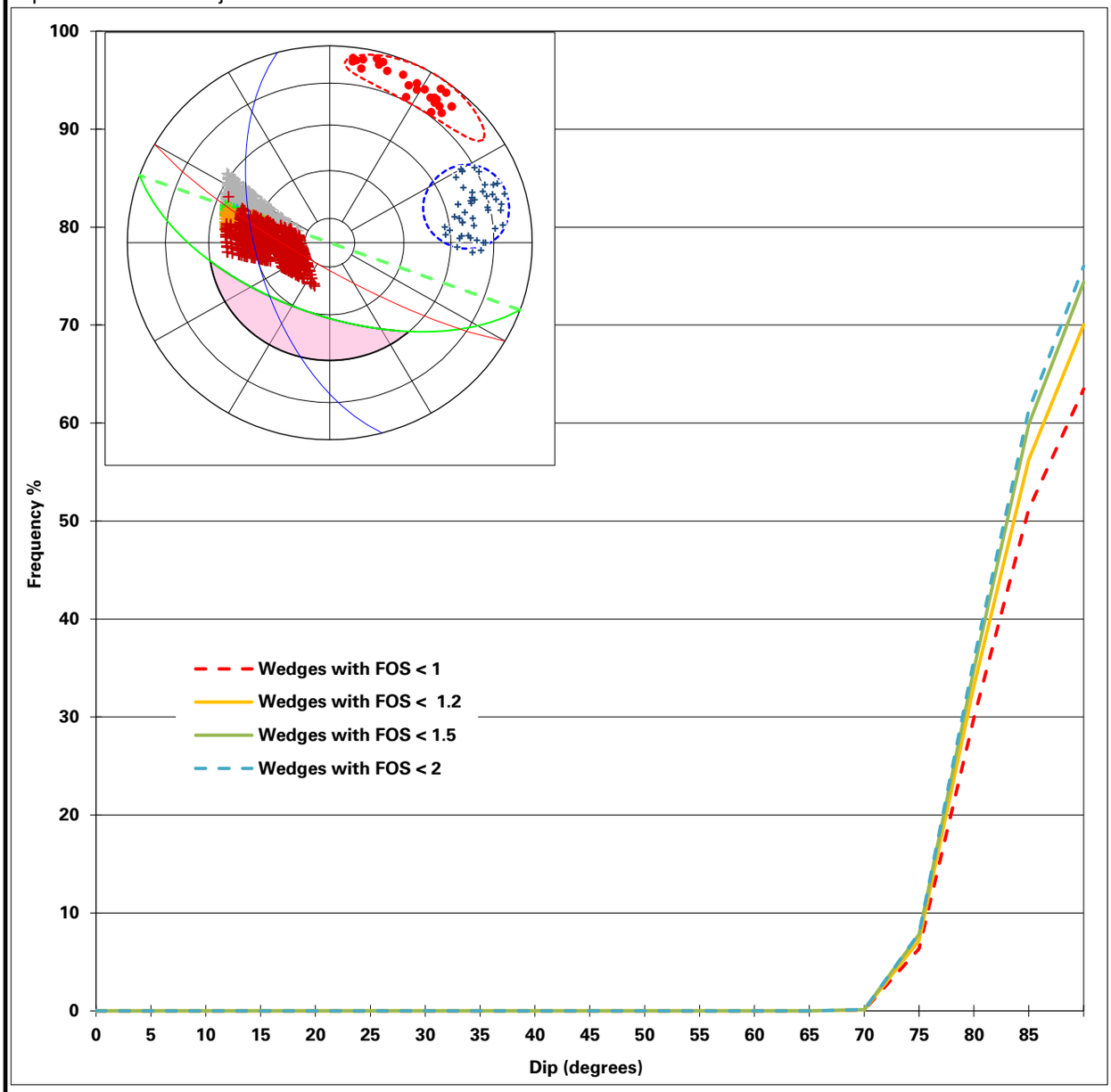
Defects in kinematic window	75
Defects in set JT3	48
Defect in set & window	48
Defects Dipping out of Slope	187

OceanaGold
MP4 LOM 2022

GB Trench Data
Joints

WEDGE FAILURE

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction 200

DEFECT SHEAR STRENGTHS

Cohesion = 0 kPa
Friction Angle = 40°

FIRST SET - RED

JT3	Mean	±
Dip	80	10
Dip Direction	210	25

Defects in set JT3 48

SECOND SET - BLUE

JT4	Mean	±
Dip	60	20
Dip Direction	255	15

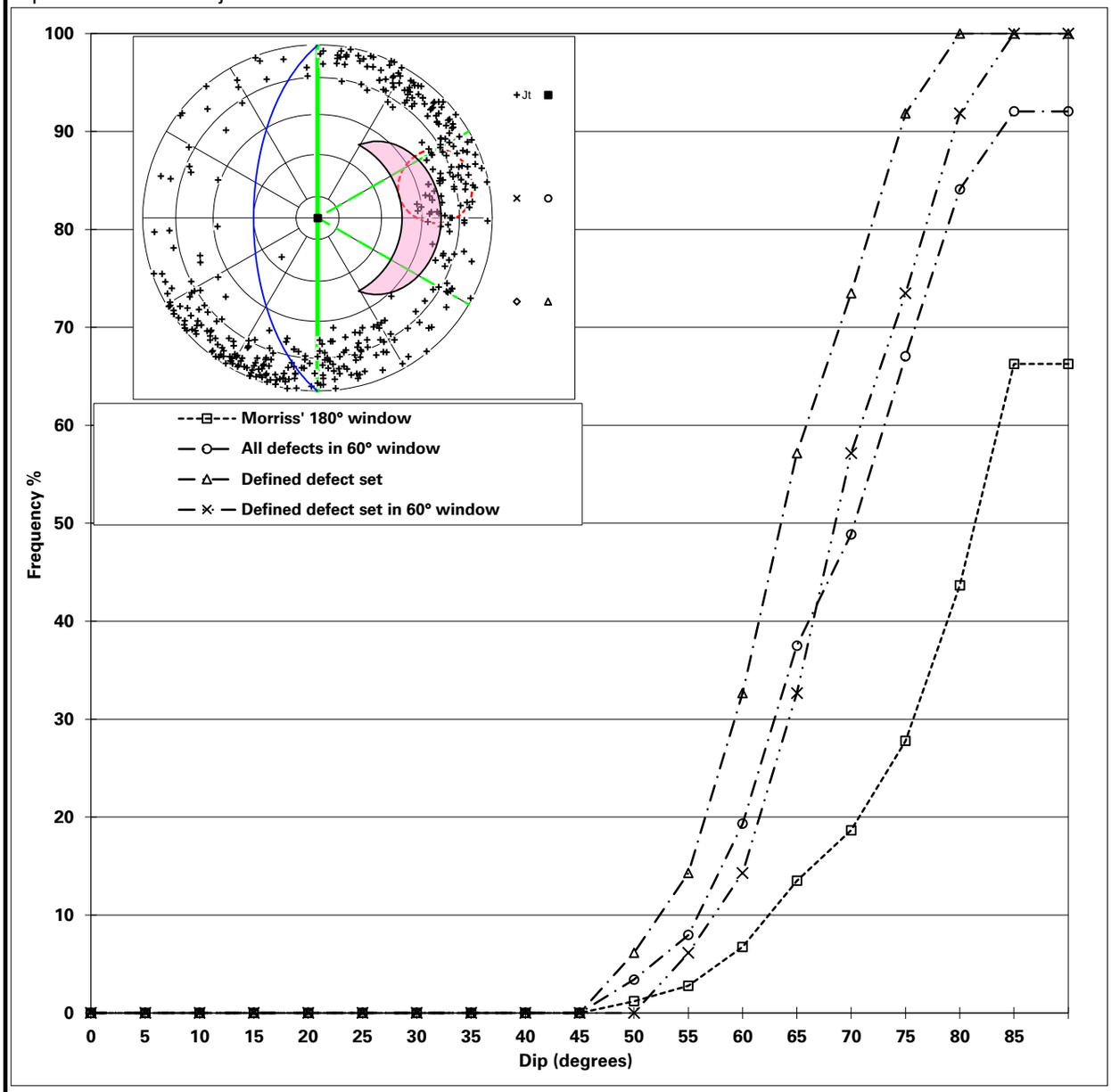
Defects in set JT4 49

Number of Unstable Wedges 1494
Number of Wedges Analysed 2352

From a possible Total Number of 2352

PLANAR SLIDING

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction	270
Kinematic Window ±	30

DEFECT SHEAR STRENGTHS

Cohesion	=	0 kPa
Friction Angle	=	40°

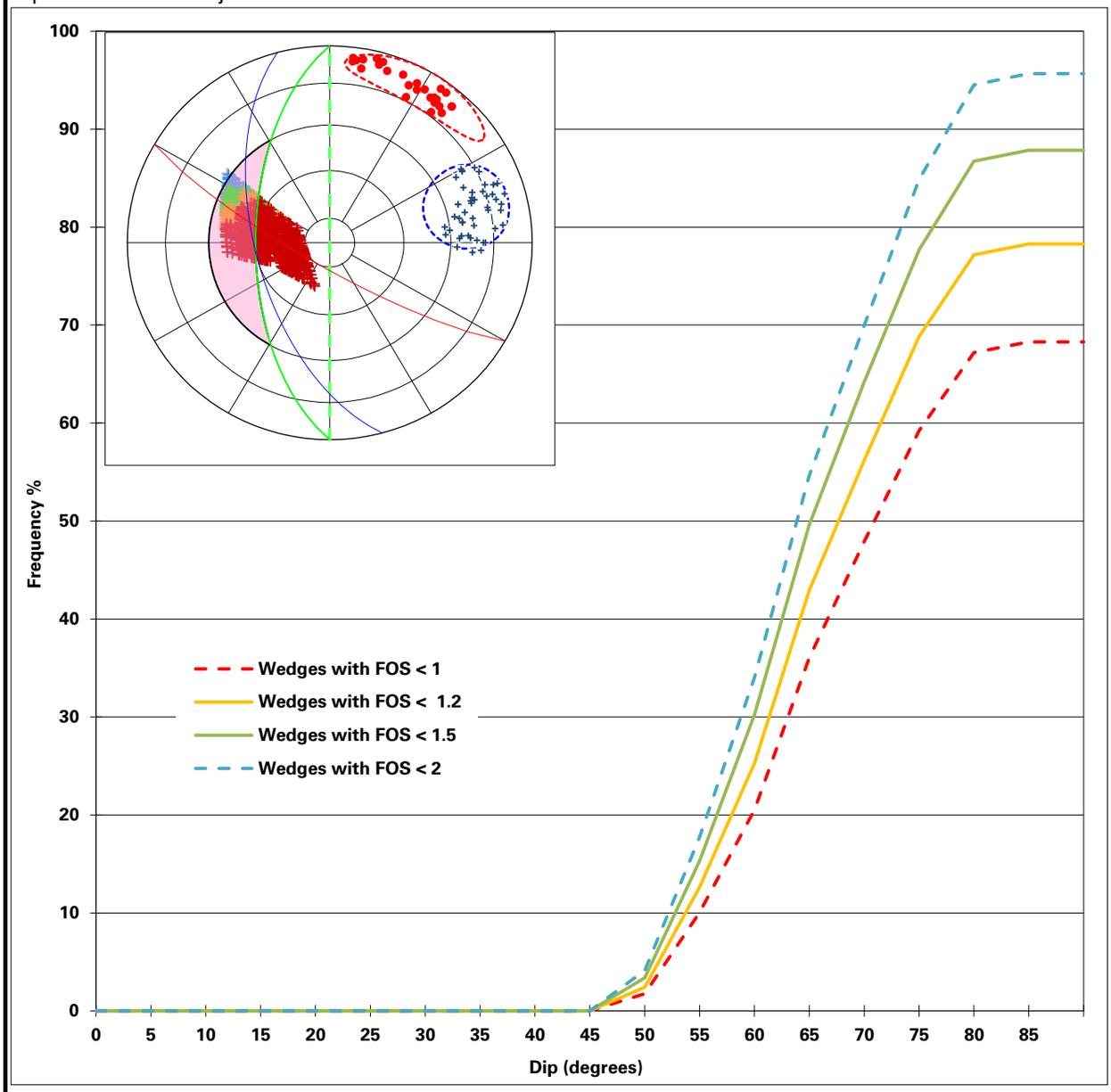
DEFECT SET

JT4	Mean	±
Dip	60	20
Dip Direction	255	15

Defects in kinematic window	88
Defects in set JT4	49
Defect in set & window	49
Defects Dipping out of Slope	252

WEDGE FAILURE

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction 270

DEFECT SHEAR STRENGTHS

Cohesion = 0 kPa

Friction Angle = 40°

FIRST SET - RED

JT3	Mean	±
Dip	80	10
Dip Direction	210	25

Defects in set JT3 48

SECOND SET - BLUE

JT4	Mean	±
Dip	60	20
Dip Direction	255	15

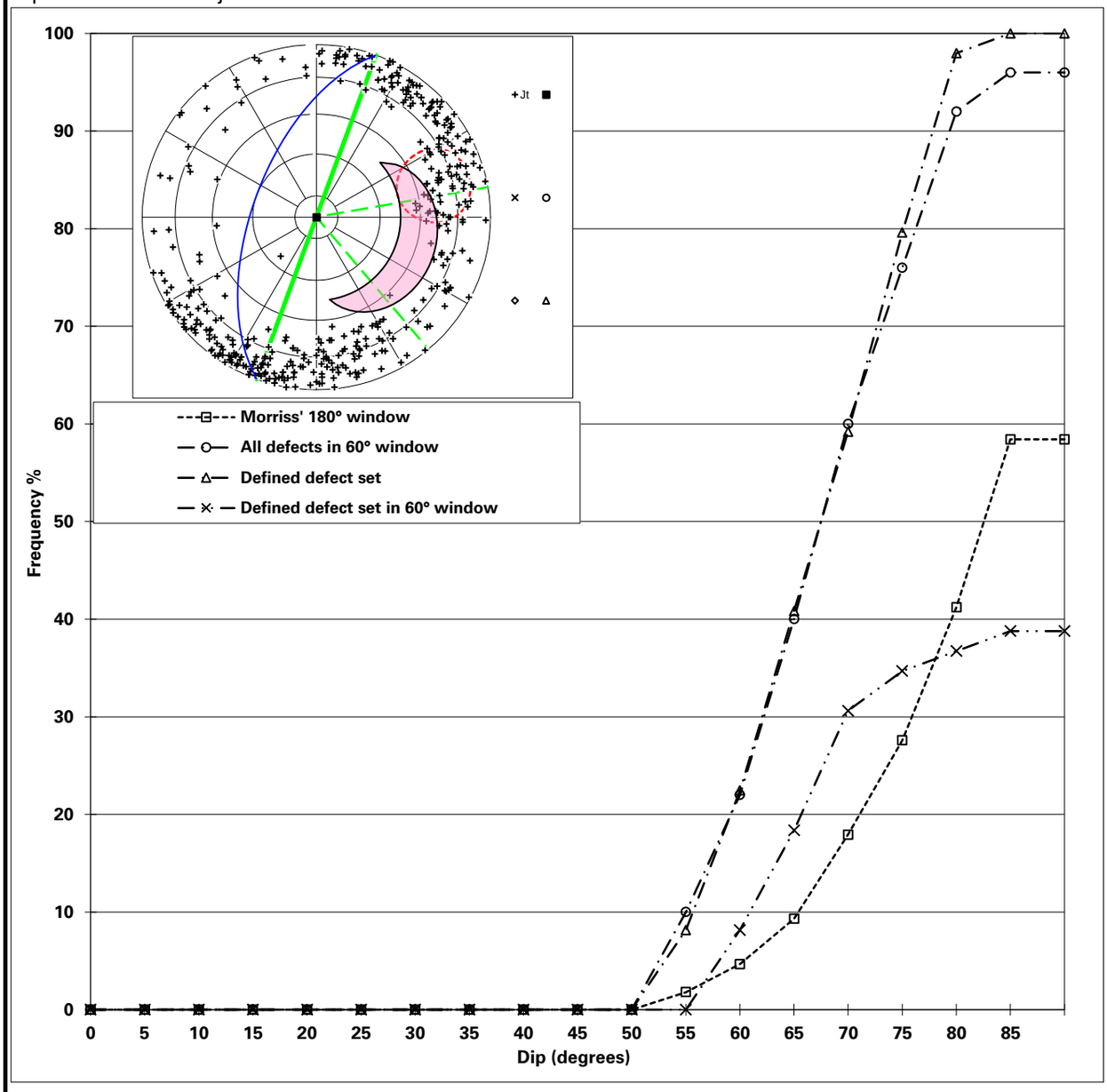
Defects in set JT4 49

Number of Unstable Wedges 1607

Number of Wedges Analysed 2352 From a possible Total Number of 2352

PLANAR SLIDING

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction	290
Kinematic Window ±	30

DEFECT SHEAR STRENGTHS

Cohesion	=	0 kPa
Friction Angle	=	40°

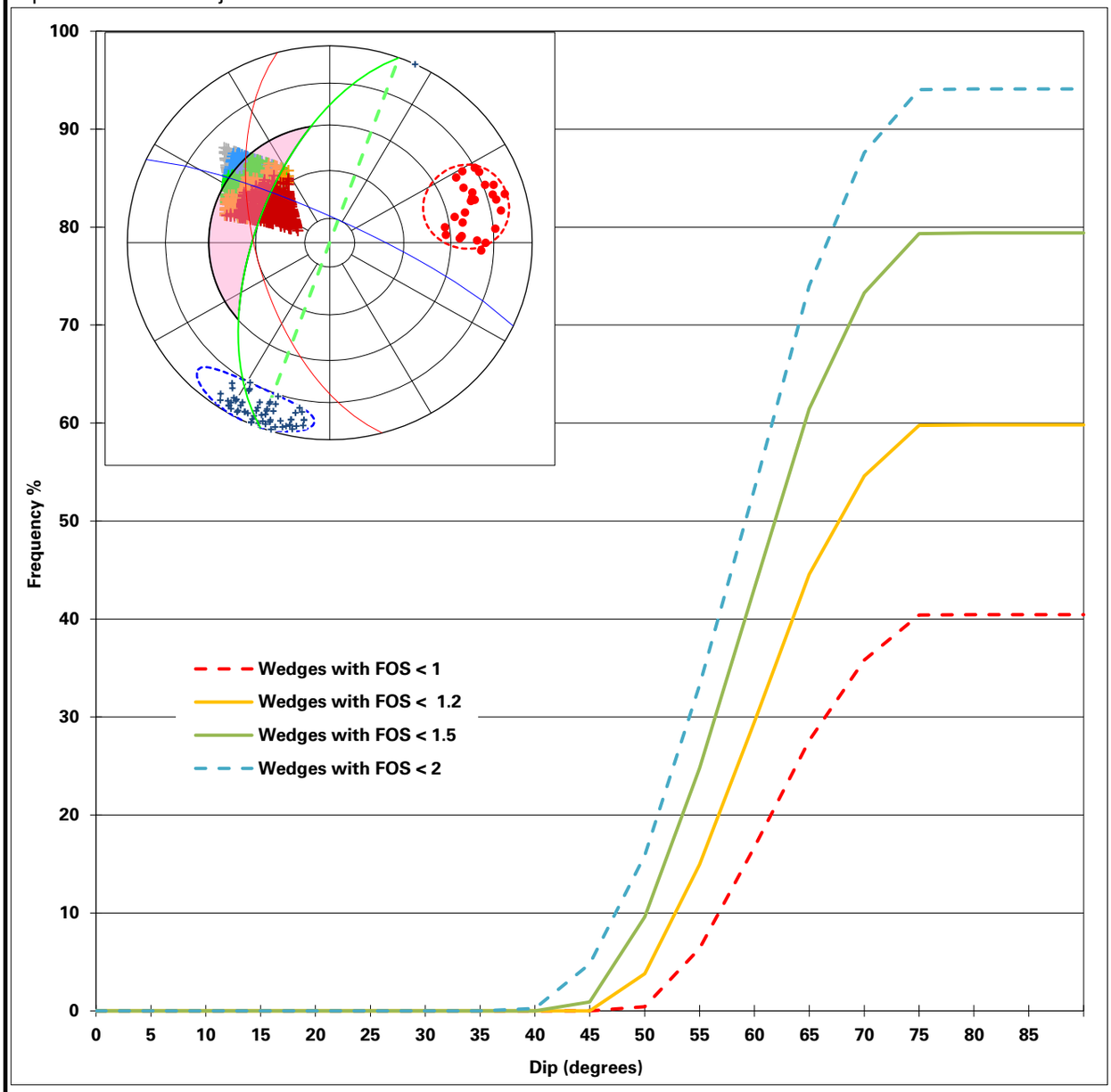
DEFECT SET

JT4	Mean	±
Dip	60	20
Dip Direction	255	15

Defects in kinematic window	50
Defects in set JT4	49
Defect in set & window	19
Defects Dipping out of Slope	279

WEDGE FAILURE

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction 290

DEFECT SHEAR STRENGTHS

Cohesion = 0 kPa

Friction Angle = 40°

FIRST SET - RED

JT4	Mean	±
Dip	60	20
Dip Direction	255	15

Defects in set JT4 49

SECOND SET - BLUE

JT2	Mean	±
Dip	80	10
Dip Direction	25	20

Defects in set JT2 65

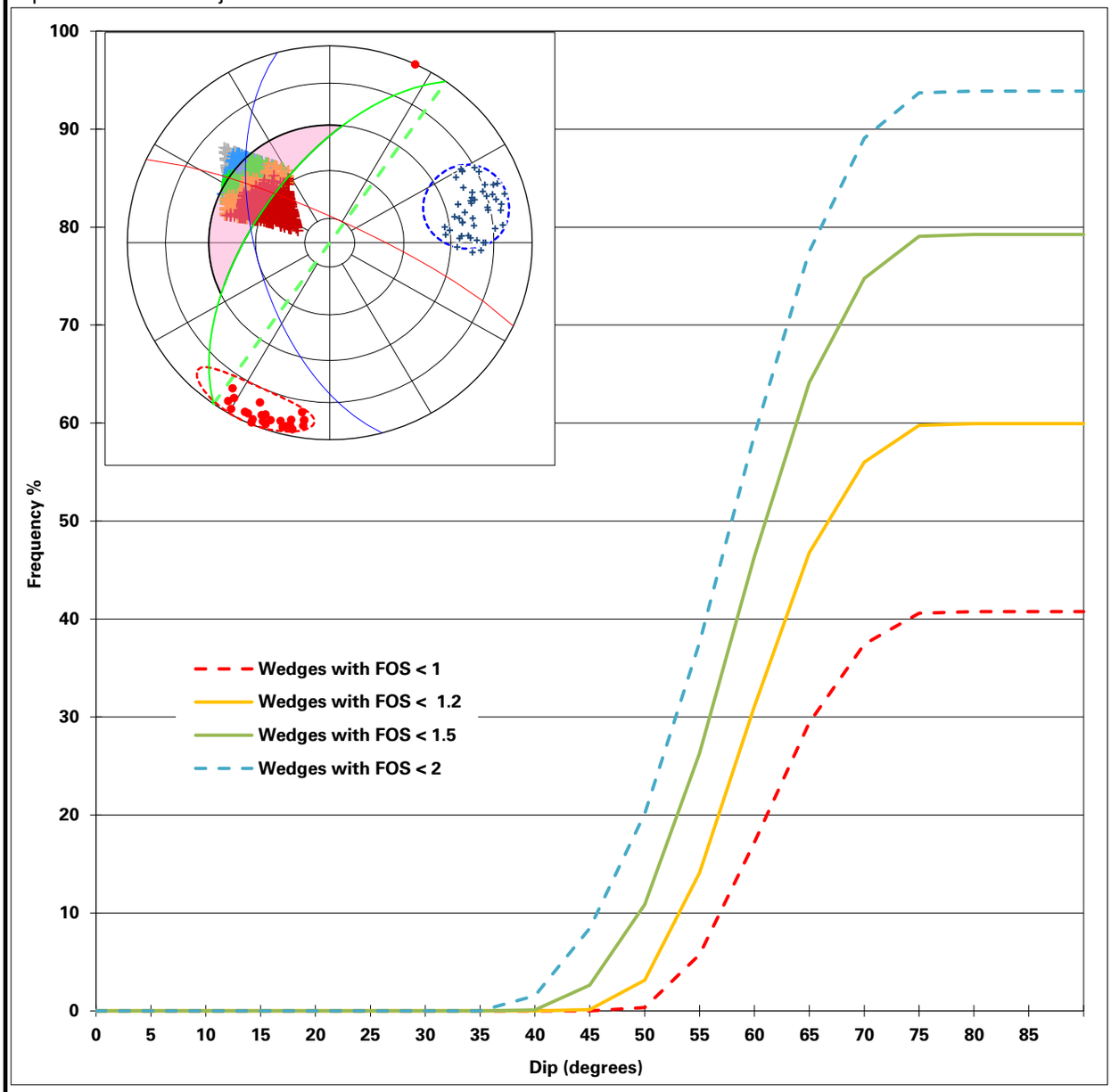
Number of Unstable Wedges 1289

Number of Wedges Analysed 3185

From a possible Total Number of 3185

WEDGE FAILURE

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction 305

DEFECT SHEAR STRENGTHS

Cohesion = 0 kPa

Friction Angle = 40°

FIRST SET - RED

JT2	Mean	±
Dip	80	10
Dip Direction	25	20

Defects in set JT2 65

SECOND SET - BLUE

JT4	Mean	±
Dip	60	20
Dip Direction	255	15

Defects in set JT4 49

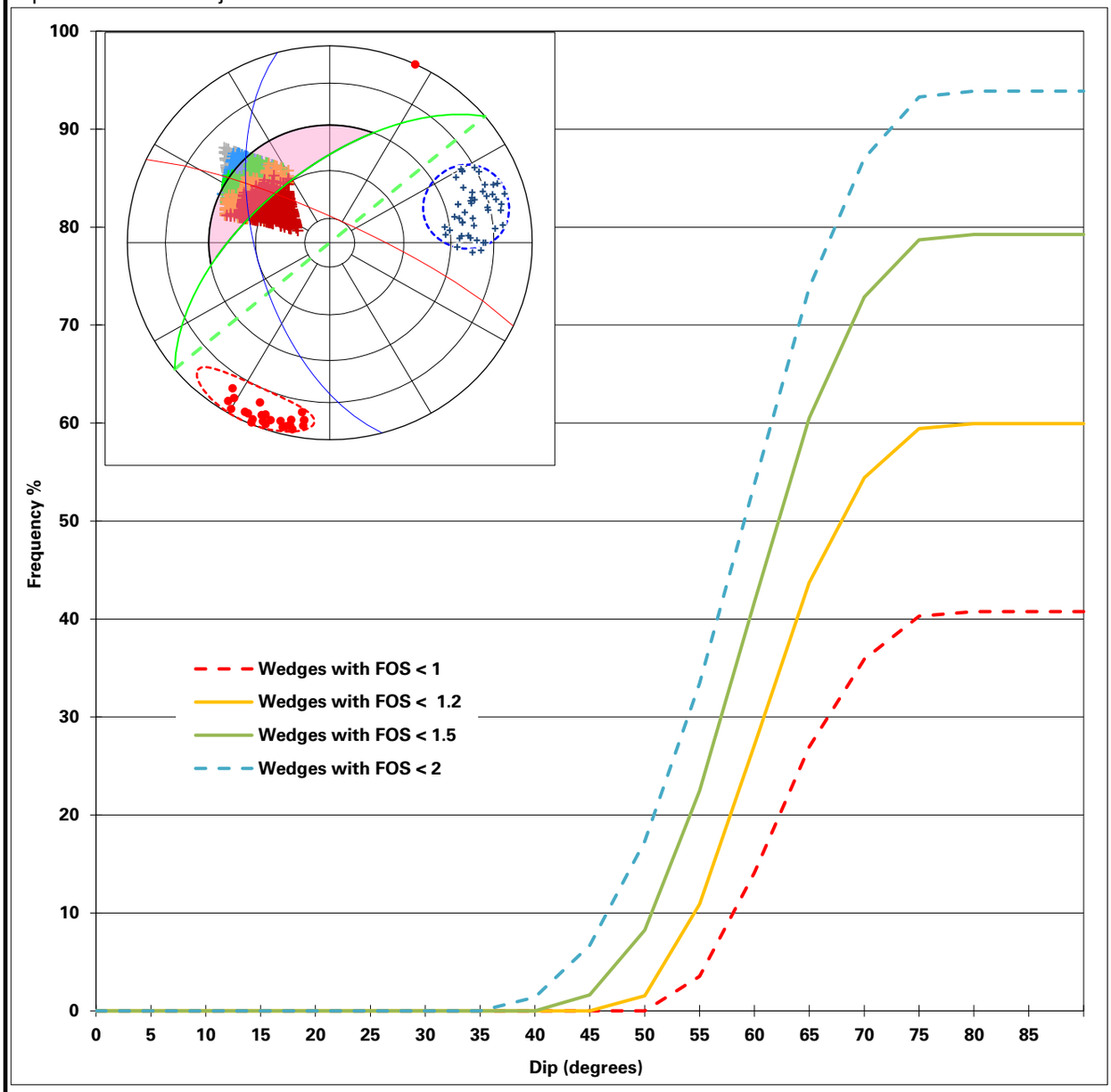
Number of Unstable Wedges 1299

Number of Wedges Analysed 3185

From a possible Total Number of 3185

WEDGE FAILURE

Equal Area Polar Projection



PARAMETERS OF THE PIT WALL

Slope Direction 320

DEFECT SHEAR STRENGTHS

Cohesion = 0 kPa
Friction Angle = 40°

FIRST SET - RED

JT2	Mean	±
Dip	80	10
Dip Direction	25	20

Defects in set JT2 65

SECOND SET - BLUE

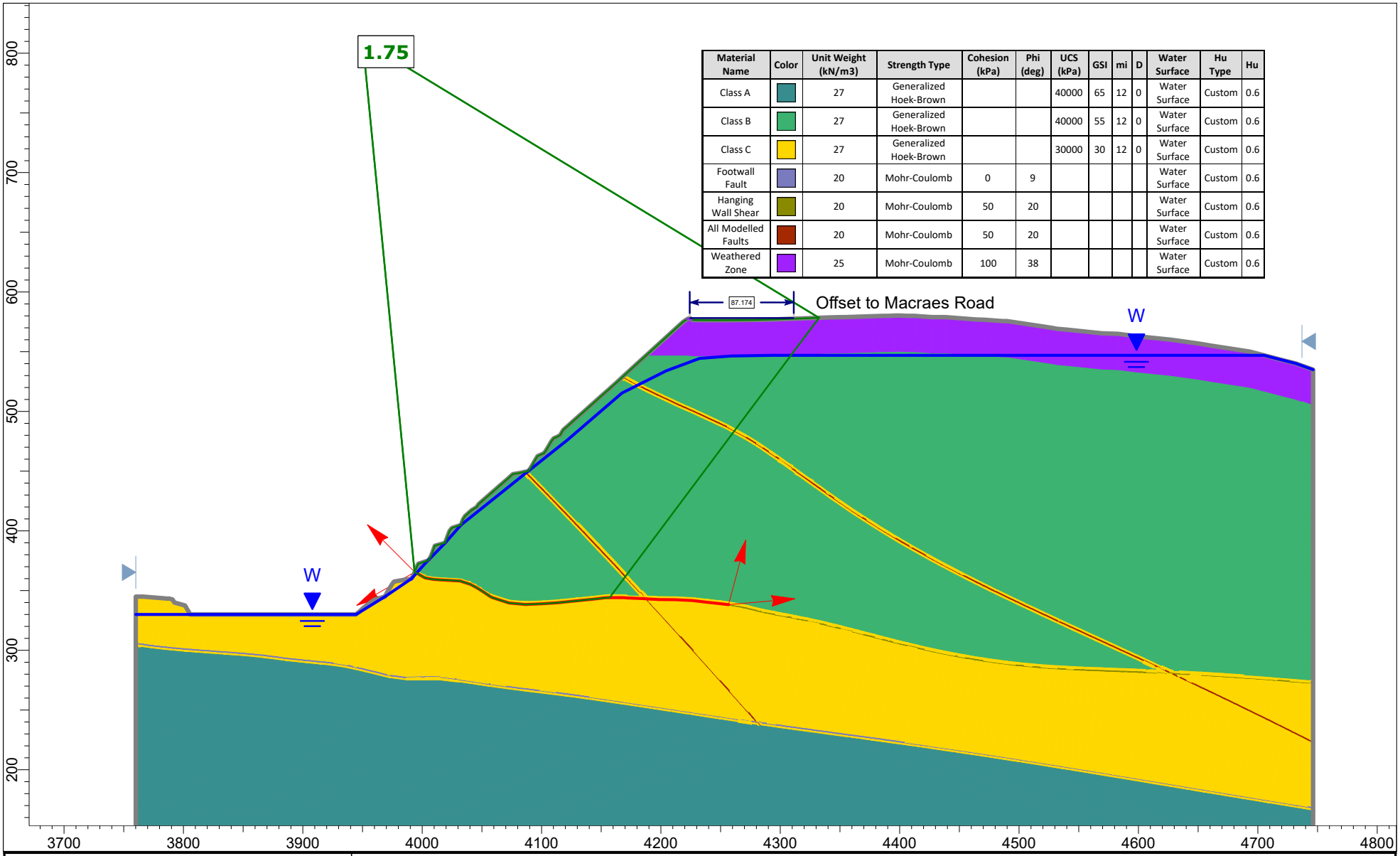
JT4	Mean	±
Dip	60	20
Dip Direction	255	15

Defects in set JT4 49

Number of Unstable Wedges 1299
Number of Wedges Analysed 3185

From a possible Total Number of 3185

Appendix D
Innes Mills 2D Stability Analyses



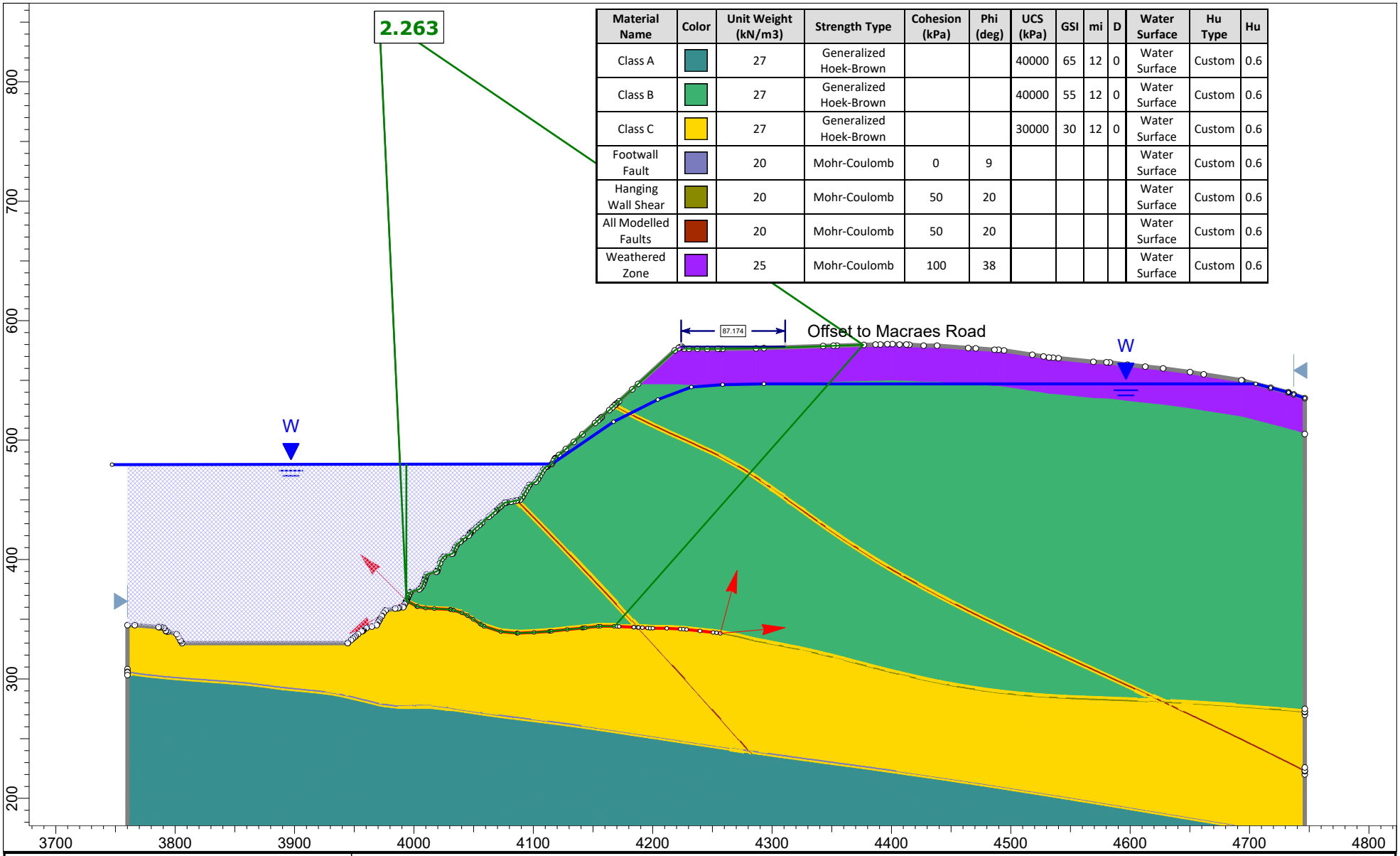
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	0.6
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	0.6
Class C		27	Generalized Hoek-Brown			30000	30	12	0	Water Surface	Custom	0.6
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	0.6
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6

P S M

SLIDEINTERPRET 9.027

Client:	PSM71 - Macraes
Project:	MP4 Consenting
Location:	Innes Mills Stage 9 - Section 1
Analysis description:	Partially saturated - Hu = 0.6

Job No:	By:	Date:	Scale:	Run ID:
PSM0071	KH	10/10/2023	1:4500	Block Search



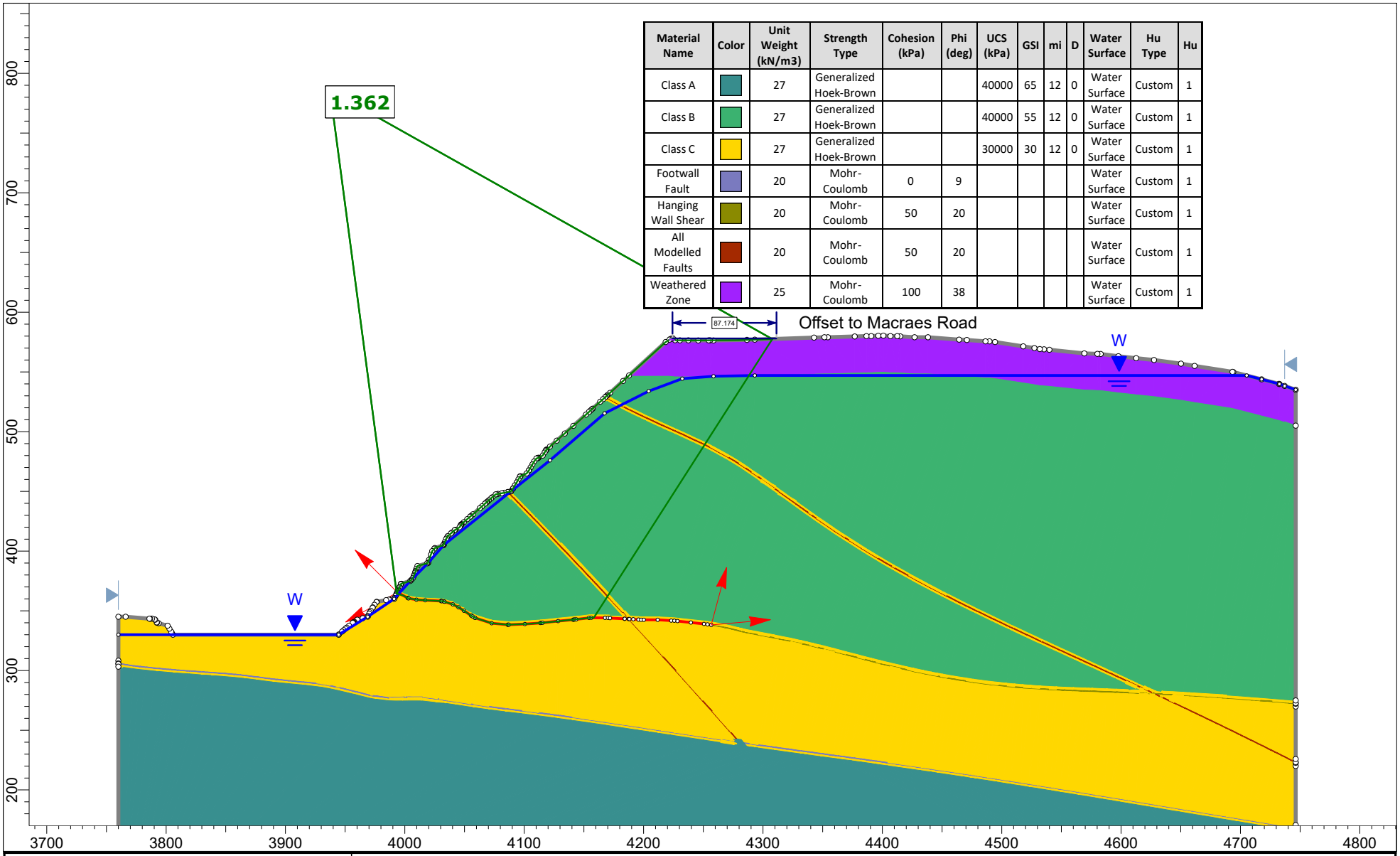
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	0.6
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	0.6
Class C		27	Generalized Hoek-Brown			30000	30	12	0	Water Surface	Custom	0.6
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	0.6
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6

P S M

SLIDEINTERPRET 9.027

Client:	PSM71 - Macraes
Project:	MP4 Consenting
Location:	Innes Mills Stage 9 - Section 1
Analysis description:	Partially saturated - Hu = 0.6 - Pit Lake

Job No:	By:	Date:	Scale:	Run ID:
PSM0071	KH	10/10/2023	1:4500	Pit lake



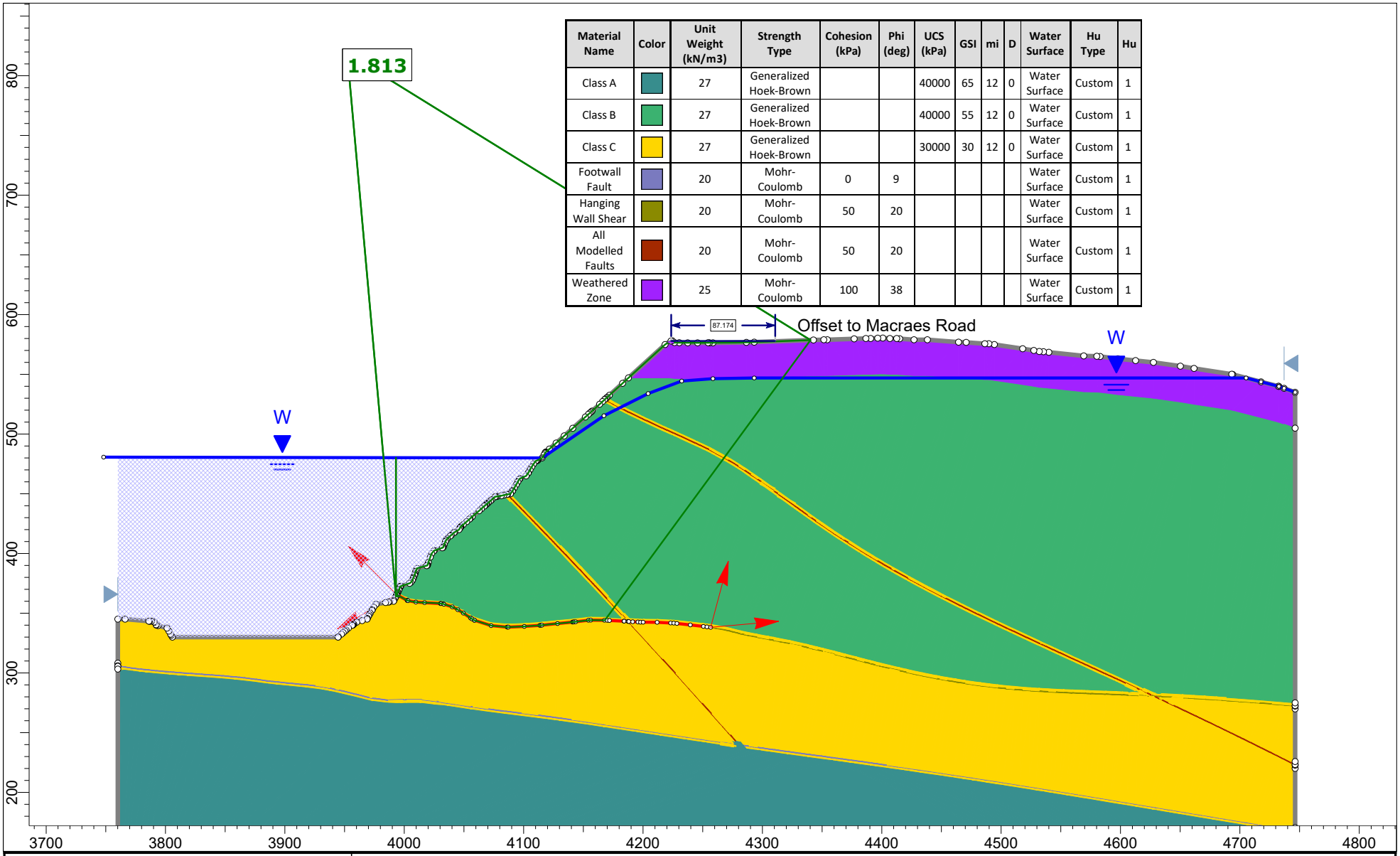
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	1
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	1
Class C		27	Generalized Hoek-Brown			30000	30	12	0	Water Surface	Custom	1
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	1
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	1

P S M

SLIDEINTERPRET 9.027

Client:	PSM71 - Macraes
Project:	MP4 Consenting
Location:	Innes Mills Stage 9 - Section 1
Analysis description:	Saturated - Hu = 1

Job No:	By:	Date:	Scale:	Run ID:
PSM0071	KH	10/10/2023	1:4500	Block Search



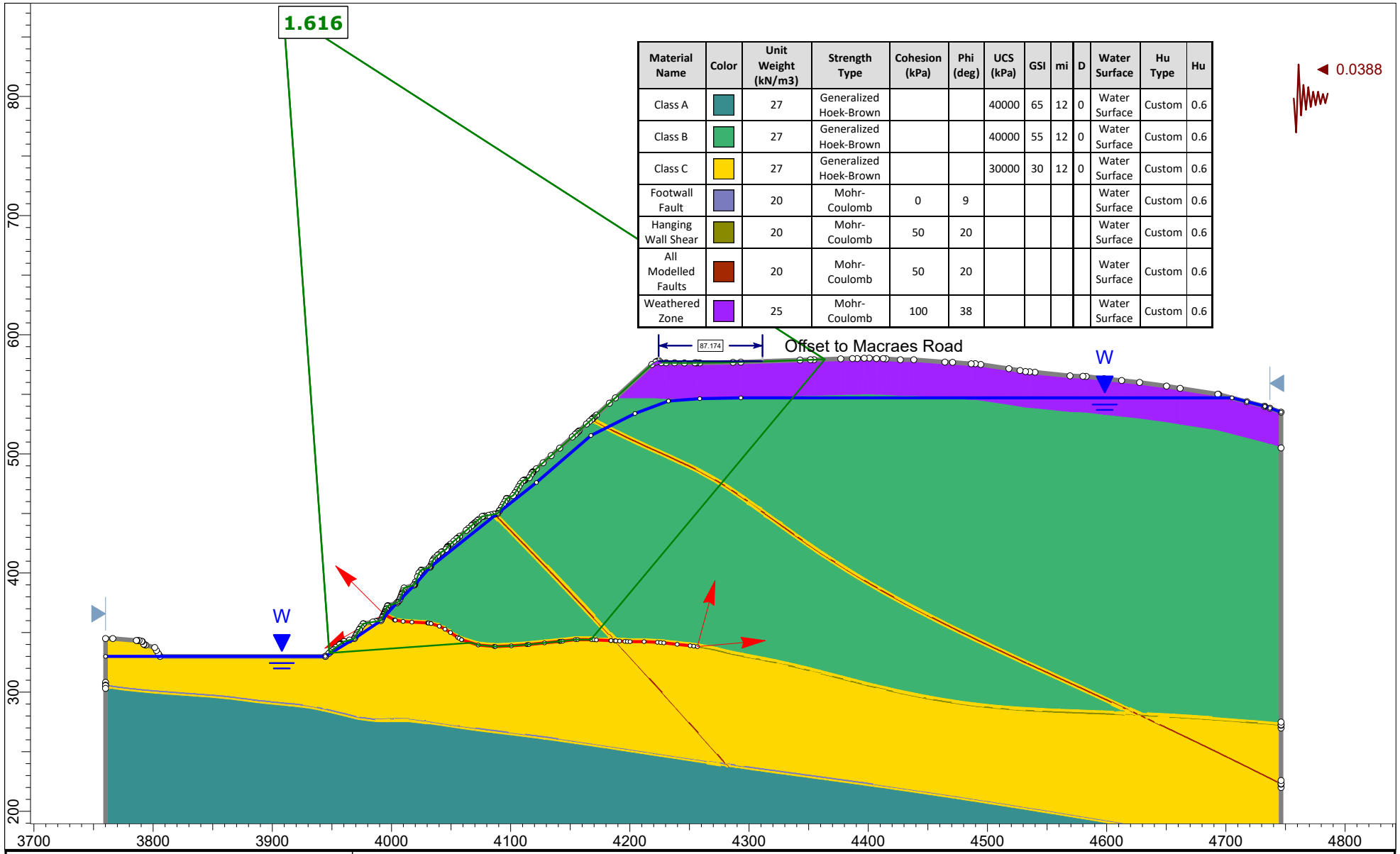
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	1
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	1
Class C		27	Generalized Hoek-Brown			30000	30	12	0	Water Surface	Custom	1
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	1
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	1

P S M

SLIDEINTERPRET 9.027

Client:	PSM71 - Macraes
Project:	MP4 Consenting
Location:	Innes Mills Stage 9 - Section 1
Analysis description:	Saturated - Hu = 1 - Pit Lake

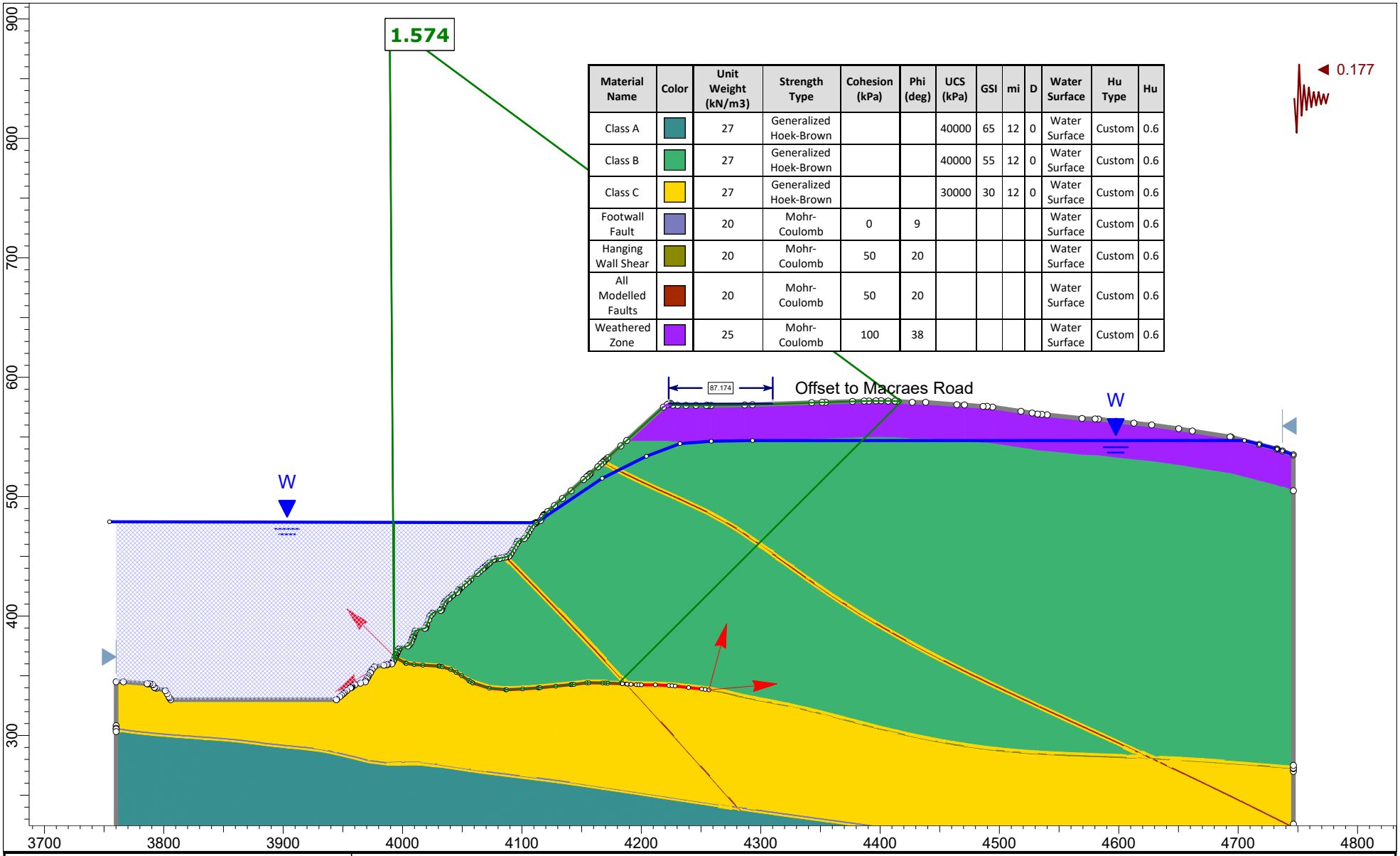
Job No:	By:	Date:	Scale:	Run ID:
PSM0071	KH	10/10/2023	1:4500	Pit Lake



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	0.6
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	0.6
Class C		27	Generalized Hoek-Brown			30000	30	12	0	Water Surface	Custom	0.6
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	0.6
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6

Client:	PSM71 - Macraes				
Project:	MP4 Consenting				
Location:	Innes Mills Stage 9 - Section 1				
Analysis description:	NSHM Seismic OBE				
Job No: PSM0071	By: KH	Date: 10/10/2023	Scale: 1:4500	Run ID: Block Search	

SLIDEINTERPRET 9.027

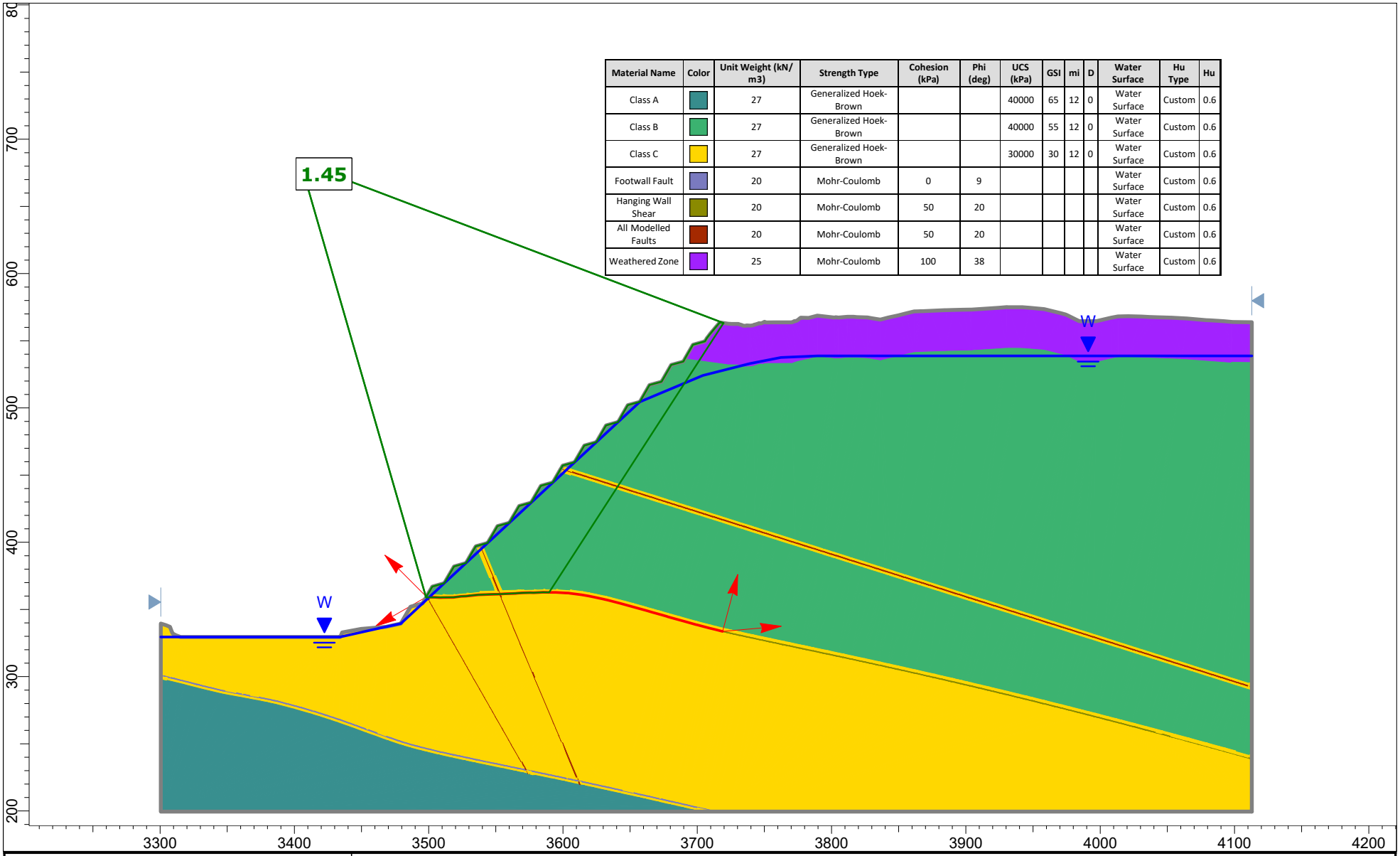


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	0.6
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	0.6
Class C		27	Generalized Hoek-Brown			30000	30	12	0	Water Surface	Custom	0.6
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	0.6
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6

Client:	PSM71 - Macraes				
Project:	MP4 Consenting				
Location:	Innes Mills Stage 9 - Section 1				
Analysis description:	NSHM Seismic MDE - Post Closure				
Job No: PSM0071	By: KH	Date: 10/10/2023	Scale: 1:4500	Run ID: Pit lake	

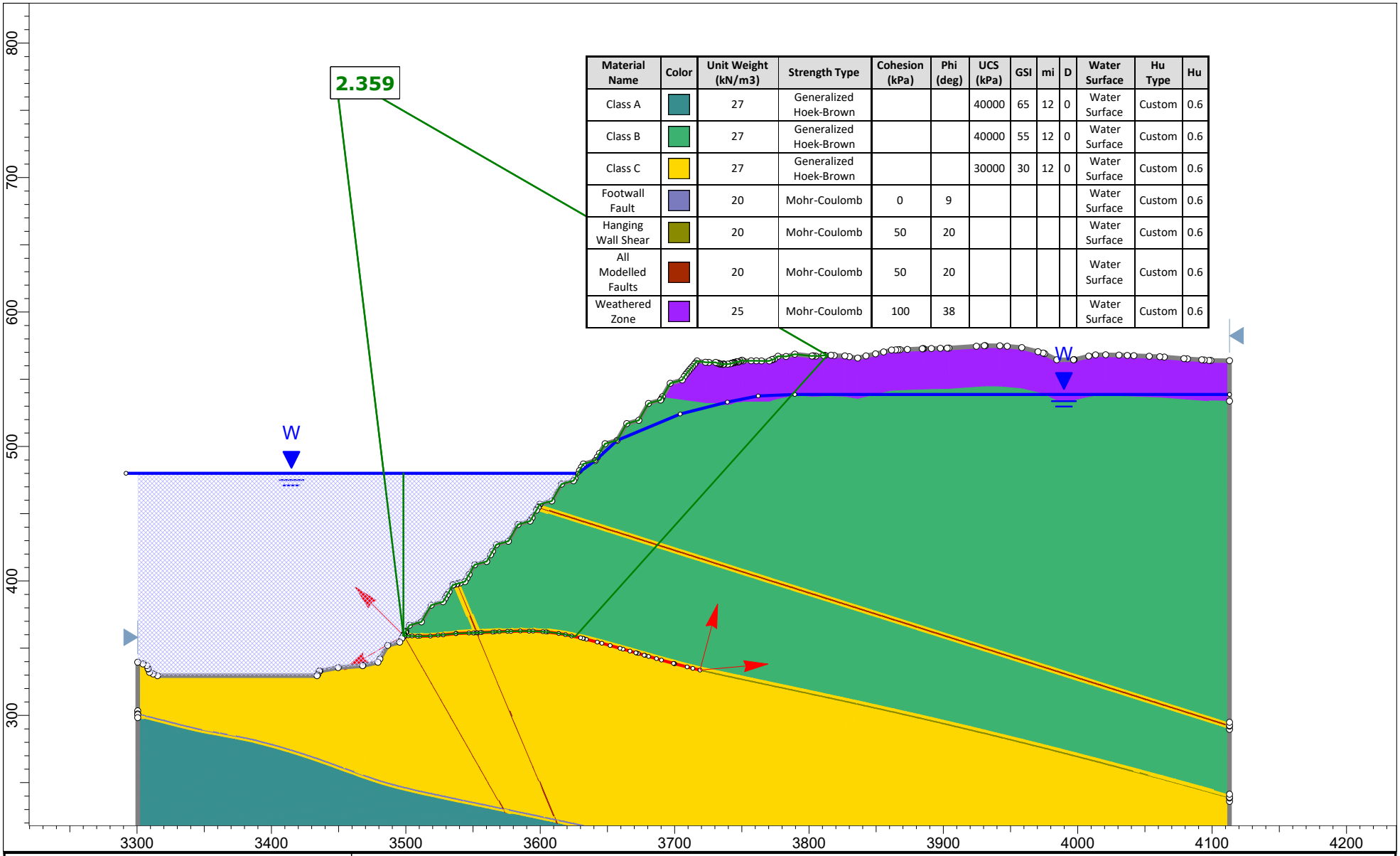
SLIDEINTERPRET 9.027

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	0.6
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	0.6
Class C		27	Generalized Hoek-Brown			30000	30	12	0	Water Surface	Custom	0.6
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	0.6
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6



Client:	PSM71 - Macraes				
Project:	MP4 Consenting				
Location:	Innes Mills Stage 9 - Section 2				
Analysis description:	Partially saturated - Hu = 0.6				
Job No: PSM0071	By: KH	Date: 10/10/2023	Scale: 1:4000	Run ID: Block Search	

SLIDEINTERPRET 9.027



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	0.6
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	0.6
Class C		27	Generalized Hoek-Brown			30000	30	12	0	Water Surface	Custom	0.6
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	0.6
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6

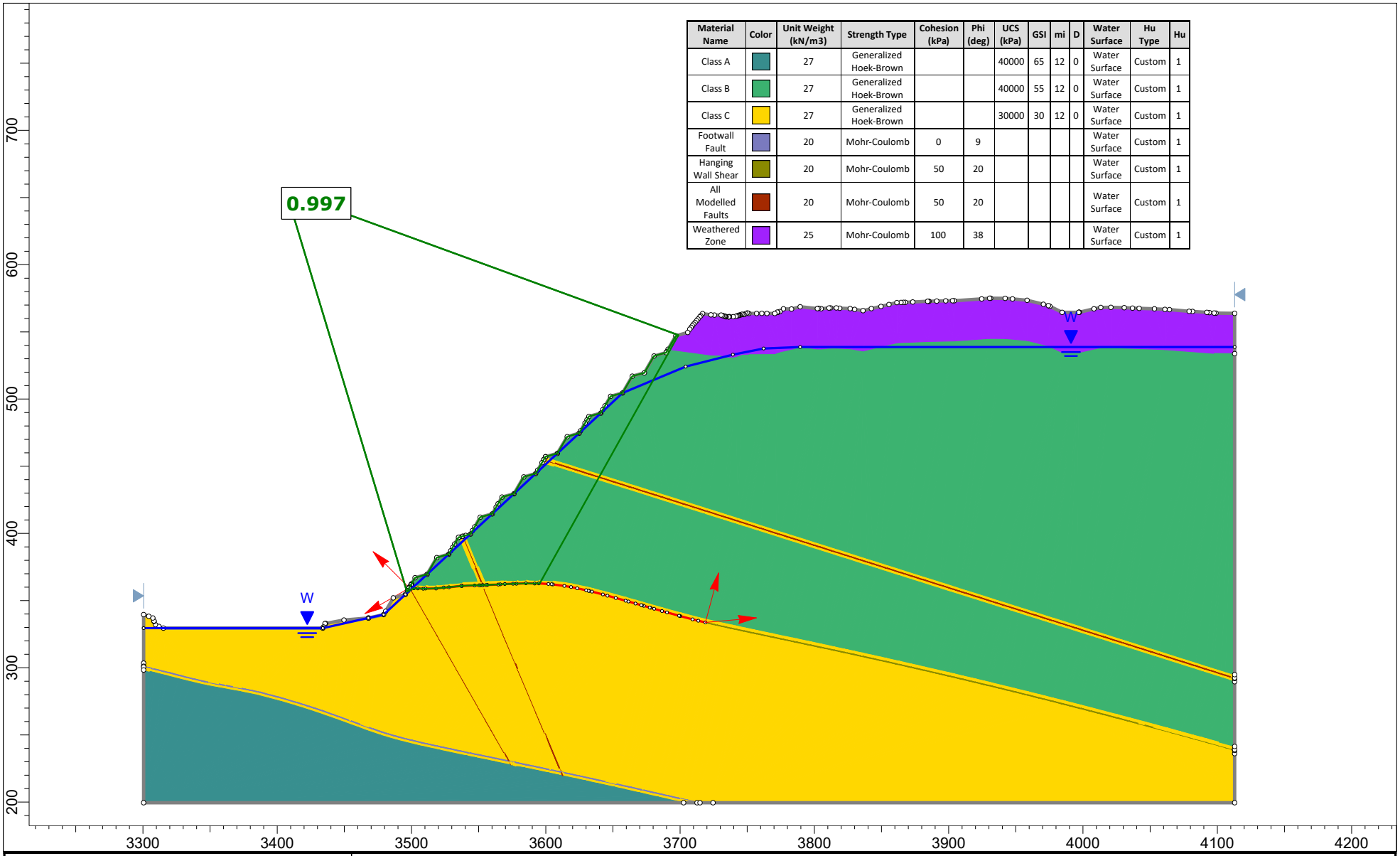
P S M

SLIDEINTERPRET 9.027

Client:	PSM71 - Macraes
Project:	MP4 Consenting
Location:	Innes Mills Stage 9 - Section 2
Analysis description:	Partially saturated - Hu = 0.6 - Pit Lake

Job No:	By:	Date:	Scale:	Run ID:
PSM0071	KH	27/09/2023	1:3997	Pit lake

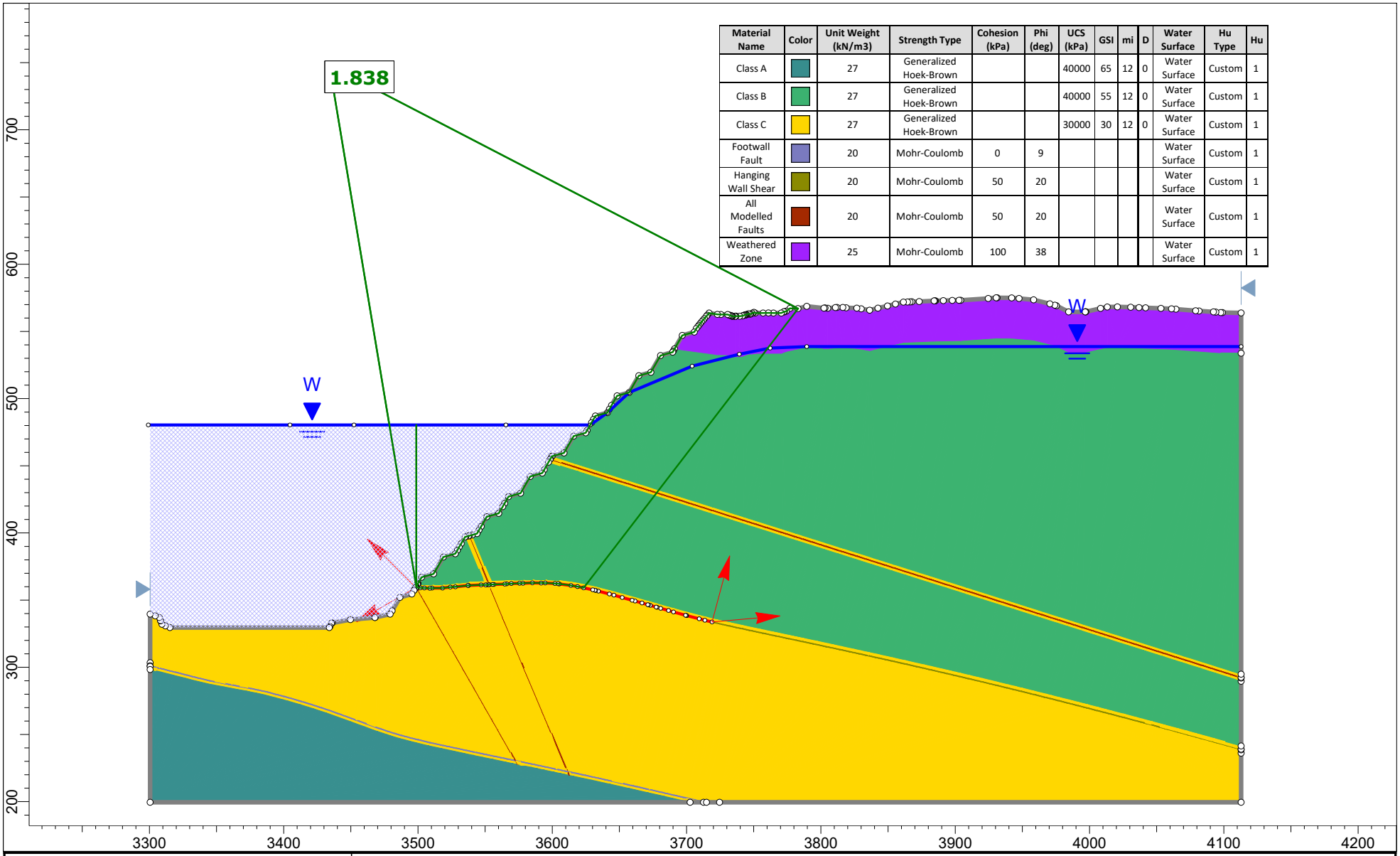
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	1
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	1
Class C		27	Generalized Hoek-Brown			30000	30	12	0	Water Surface	Custom	1
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	1
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	1



Client:	PSM71 - Macraes
Project:	MP4 Consenting
Location:	Innes Mills Stage 9 - Section 2
Analysis description:	Saturated - Hu = 1

Job No:	By:	Date:	Scale:	Run ID:
PSM0071	KH	10/10/2023	1:4000	Block Search

SLIDEINTERPRET 9.027



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	1
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	1
Class C		27	Generalized Hoek-Brown			30000	30	12	0	Water Surface	Custom	1
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	1
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	1

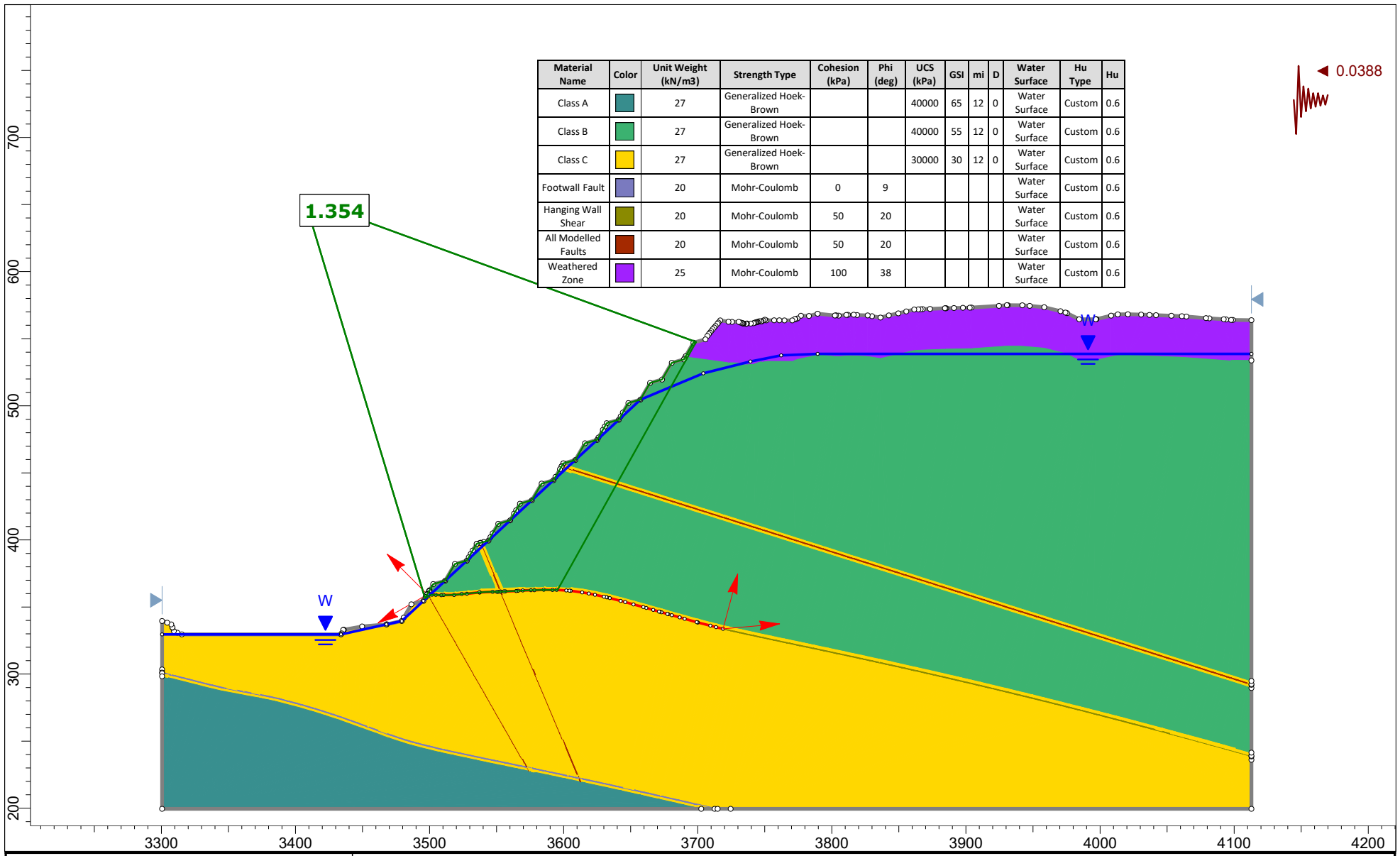
P S M

SLIDEINTERPRET 9.027

Client:	PSM71 - Macraes
Project:	MP4 Consenting
Location:	Innes Mills Stage 9 - Section 2
Analysis description:	Saturated - Hu = 1 - Pit Lake

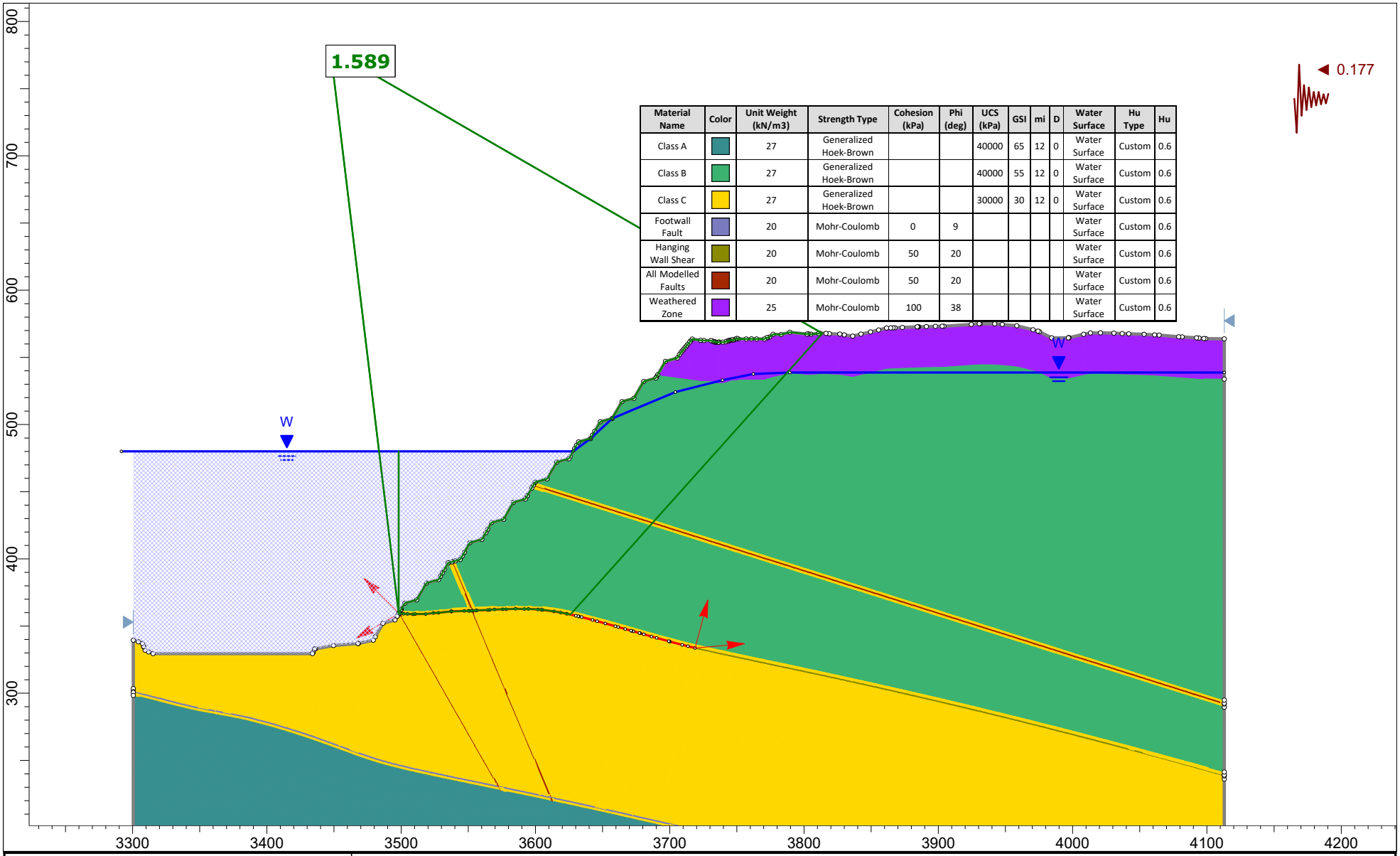
Job No:	By:	Date:	Scale:	Run ID:
PSM0071	KH	10/10/2023	1:4000	Pit lake

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	0.6
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	0.6
Class C		27	Generalized Hoek-Brown			30000	30	12	0	Water Surface	Custom	0.6
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	0.6
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6



Client:	PSM71 - Macraes				
Project:	MP4 Consenting				
Location:	Innes Mills Stage 9 - Section 2				
Analysis description:	NSHM Seismic OBE				
Job No: PSM0071	By: KH	Date: 10/10/2023	Scale: 1:4000	Run ID: Block Search - OBE	

SLIDEINTERPRET 9.027



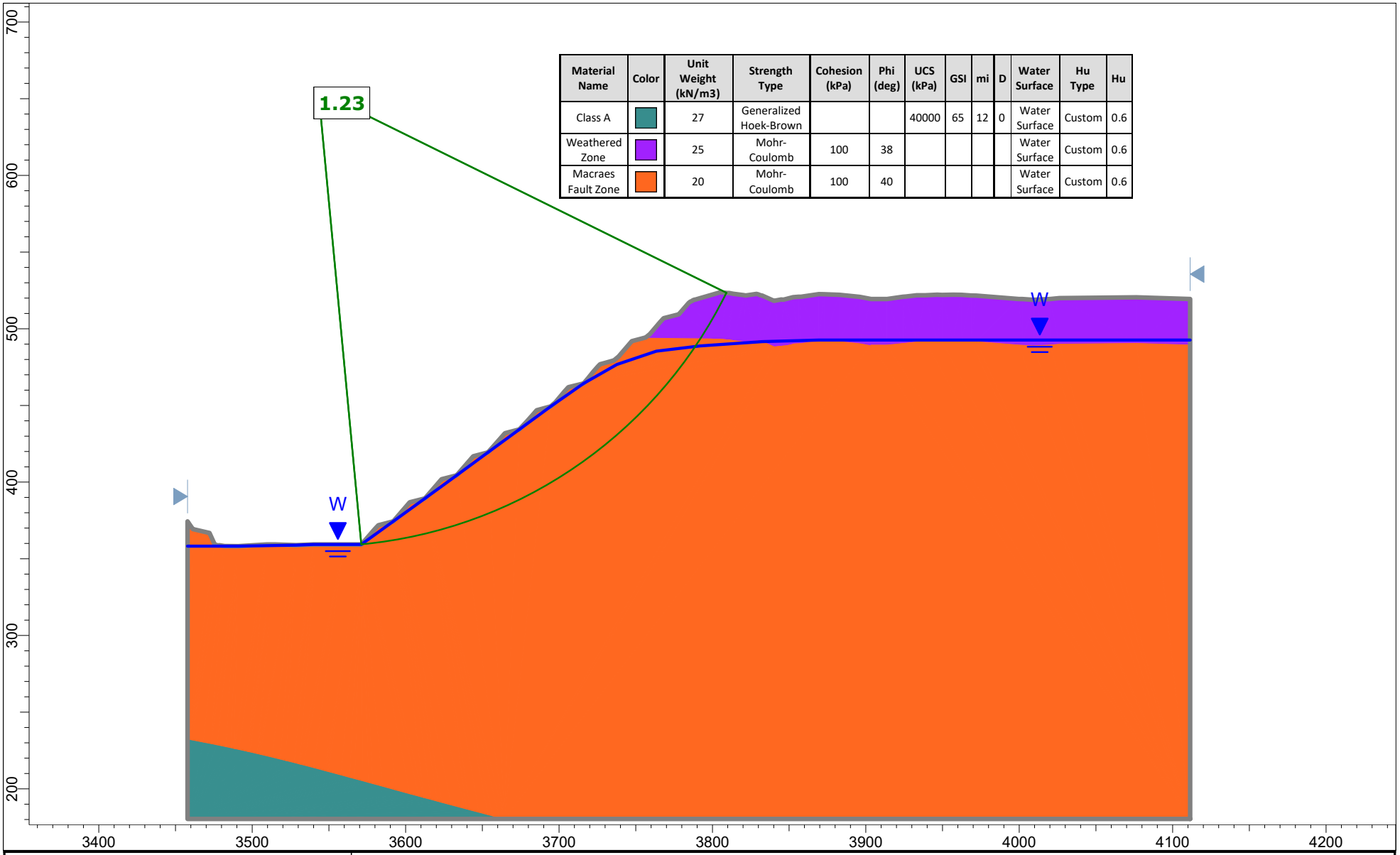
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	0.6
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	0.6
Class C		27	Generalized Hoek-Brown			30000	30	12	0	Water Surface	Custom	0.6
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	0.6
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6

SLIDEINTERPRET 9.027

Client:	PSM71 - Macraes
Project:	MP4 Consenting
Location:	Innes Mills Stage 9 - Section 2
Analysis description:	NSHM Seismic MDE - Post Closure

Job No:	By:	Date:	Scale:	Run ID:
PSM0071	KH	10/10/2023	1:4000	Pit lake- MDE

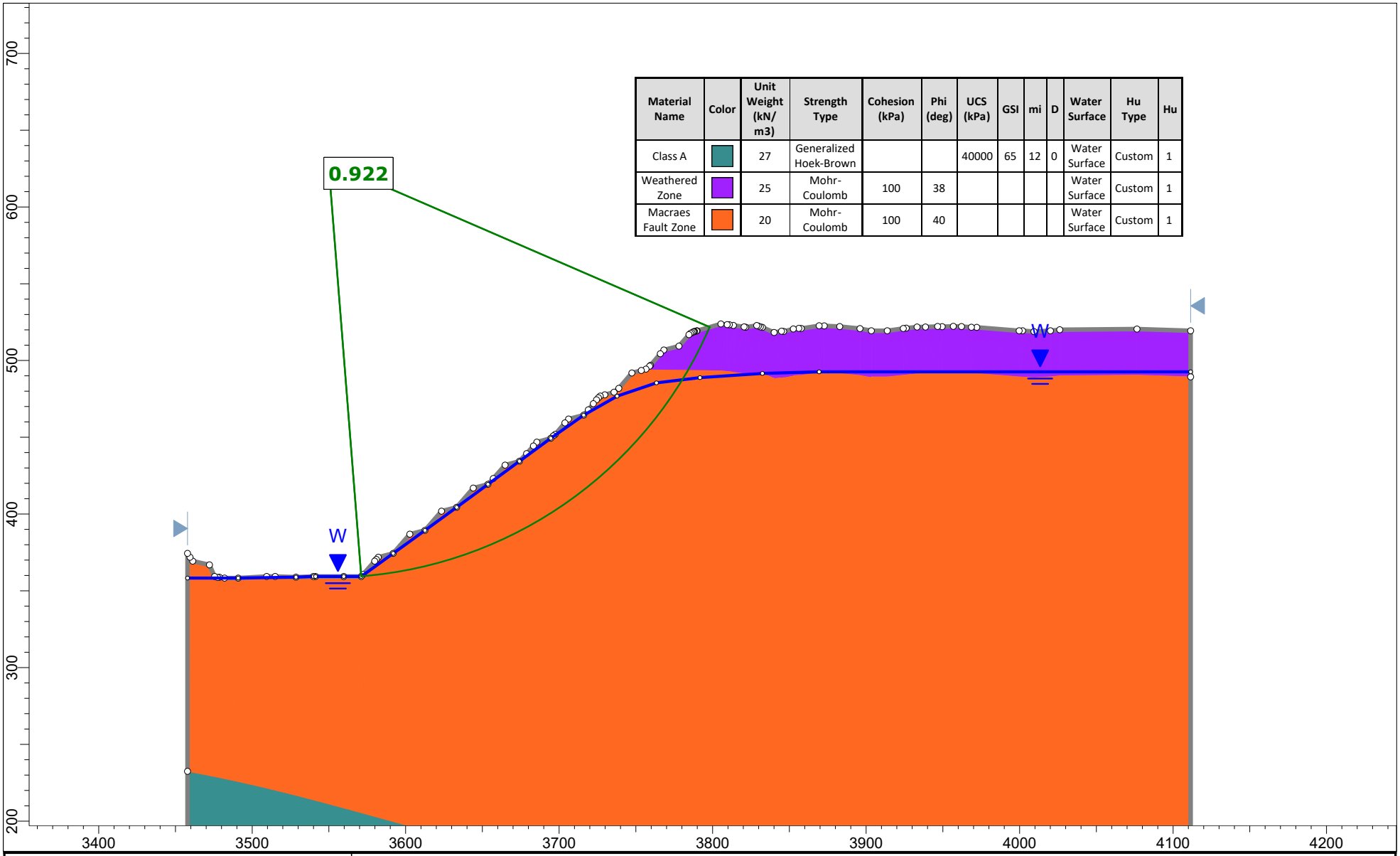
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6
Macraes Fault Zone		20	Mohr-Coulomb	100	40					Water Surface	Custom	0.6



SLIDEINTERPRET 9.027

Client:	PSM71 - Macraes
Project:	MP4 Consenting
Location:	Innes Mills Stage 9 - Section 3
Analysis description:	Partially saturated - Hu = 0.6

Job No:	By:	Date:	Scale:	Run ID:
PSM71 - Macraes	KH	10/10/2023	1:3500	Circular Search



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	1
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	1
Macraes Fault Zone		20	Mohr-Coulomb	100	40					Water Surface	Custom	1

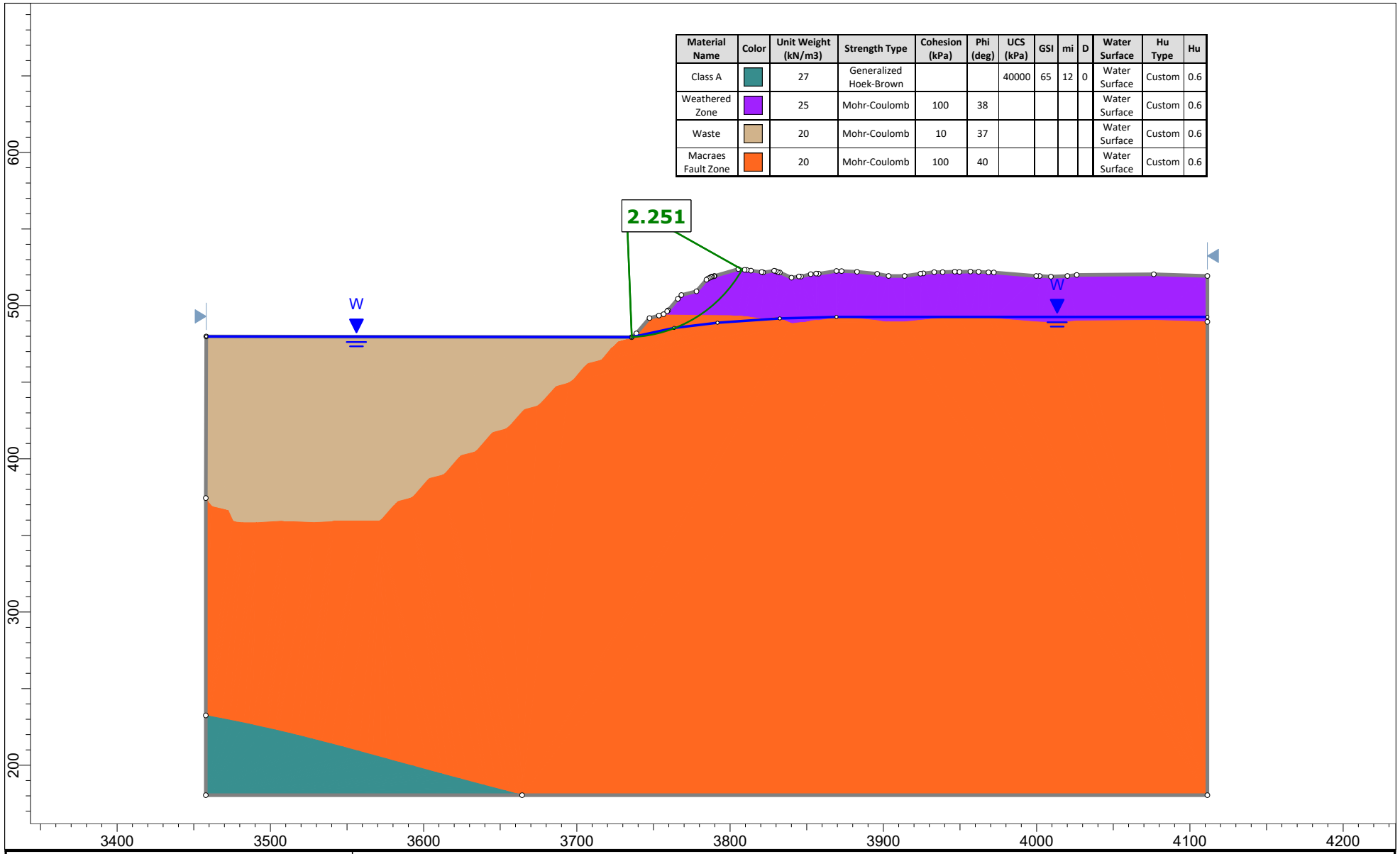
P S M

SLIDEINTERPRET 9.027

Client:	PSM71 - Macraes
Project:	MP4 Consenting
Location:	Innes Mills Stage 9 - Section 3
Analysis description:	Saturated - Hu = 1

Job No:	By:	Date:	Scale:	Run ID:
PSM71 - Macraes	KH	10/10/2023	1:3500	Circular Search

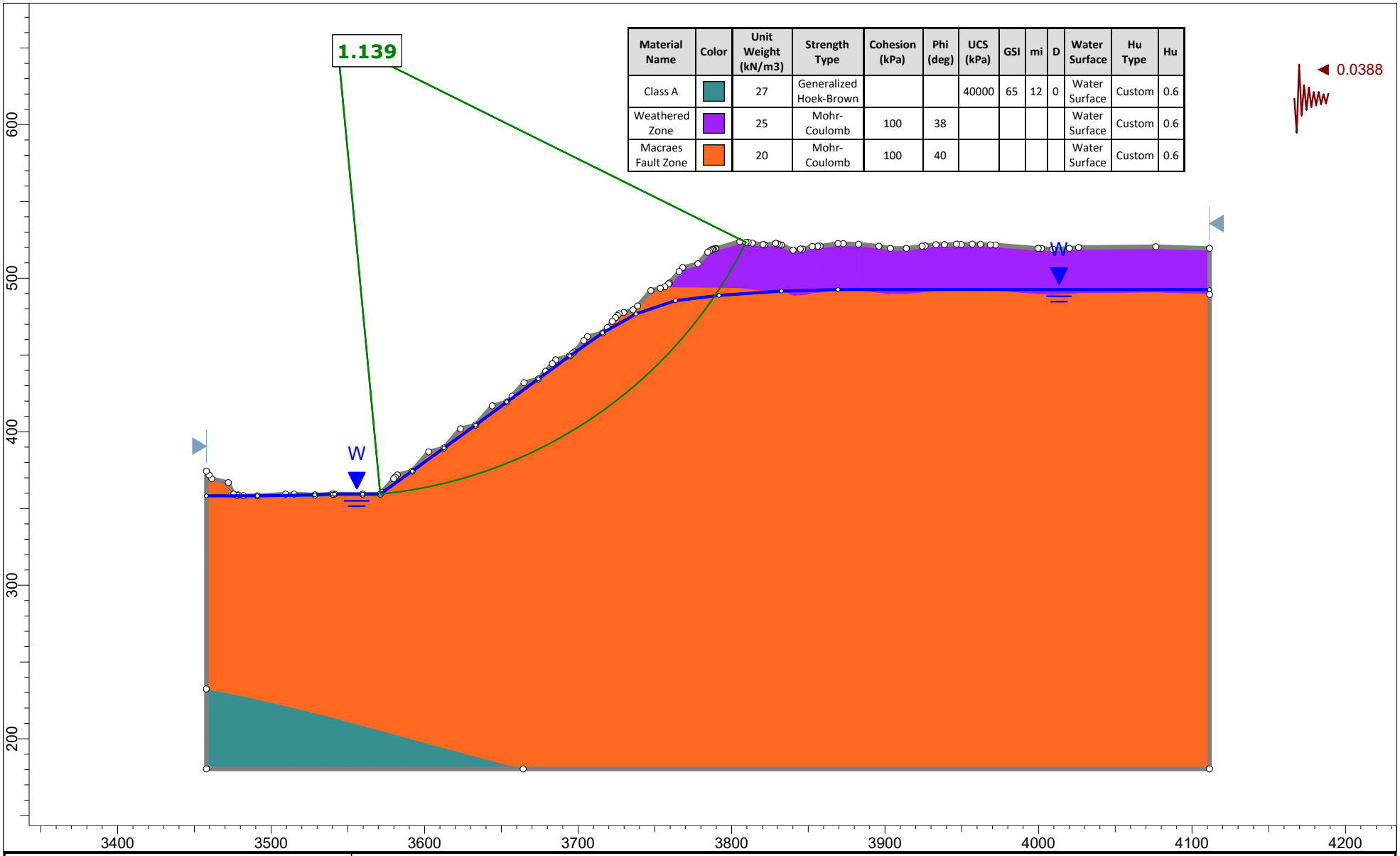
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6
Waste		20	Mohr-Coulomb	10	37					Water Surface	Custom	0.6
Macraes Fault Zone		20	Mohr-Coulomb	100	40					Water Surface	Custom	0.6



SLIDEINTERPRET 9.027

Client:	PSM71 - Macraes
Project:	MP4 Consenting
Location:	Innes Mills Stage 9 - Section 3
Analysis description:	Partially saturated - Hu = 0.6 - Backfilled

Job No:	By:	Date:	Scale:	Run ID:
PSM71 - Macraes	KH	10/10/2023	1:3500	Circular Search

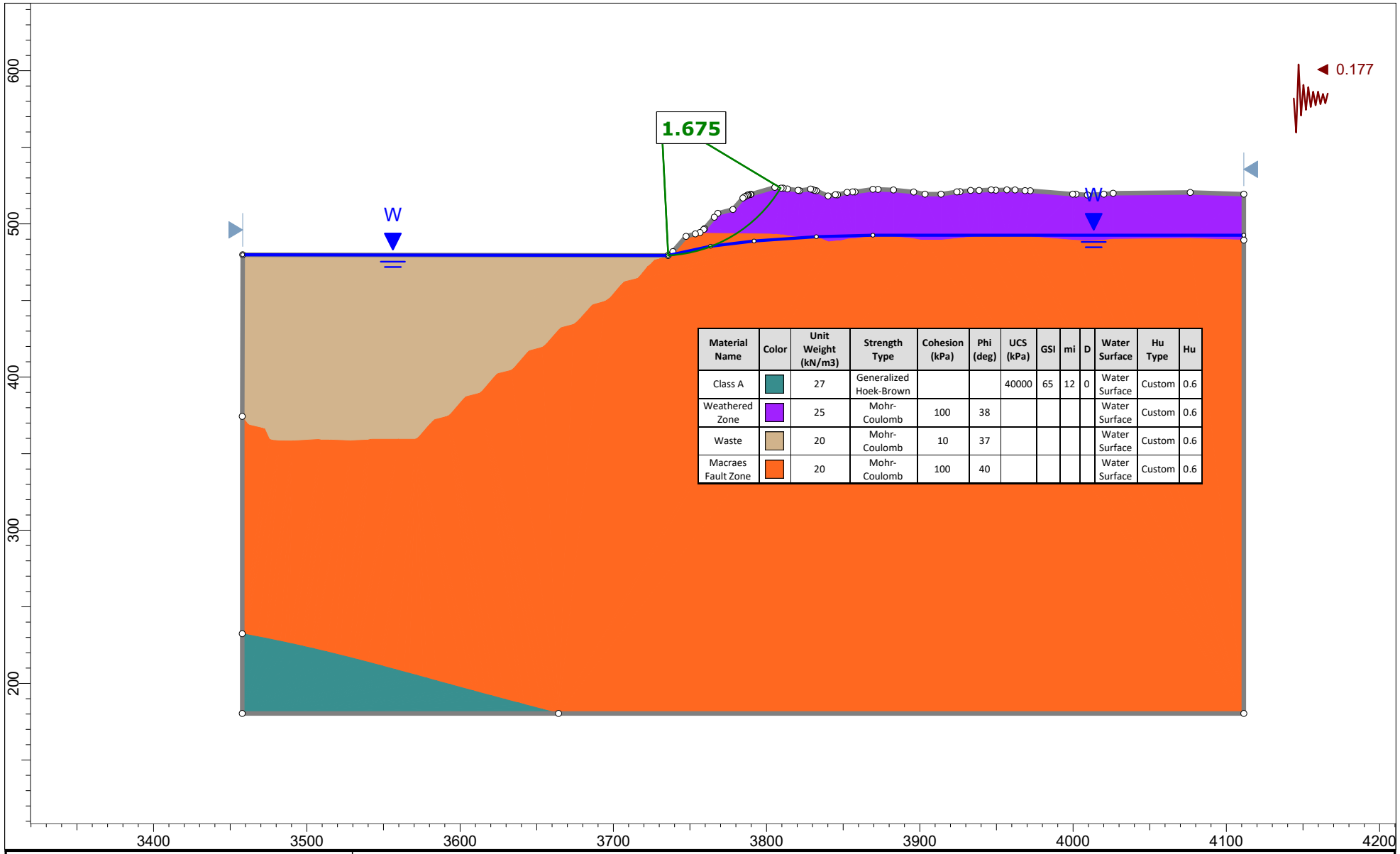


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6
Macraes Fault Zone		20	Mohr-Coulomb	100	40					Water Surface	Custom	0.6

Client:	PSM71 - Macraes
Project:	MP4 Consenting
Location:	Innes Mills Stage 9 - Section 3
Analysis description:	NSHM Seismic OBE

Job No:	By:	Date:	Scale:	Run ID:
PSM71 - Macraes	KH	10/10/2023	1:3500	Circular Search

SLIDEINTERPRET 9.027



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6
Waste		20	Mohr-Coulomb	10	37					Water Surface	Custom	0.6
Macraes Fault Zone		20	Mohr-Coulomb	100	40					Water Surface	Custom	0.6

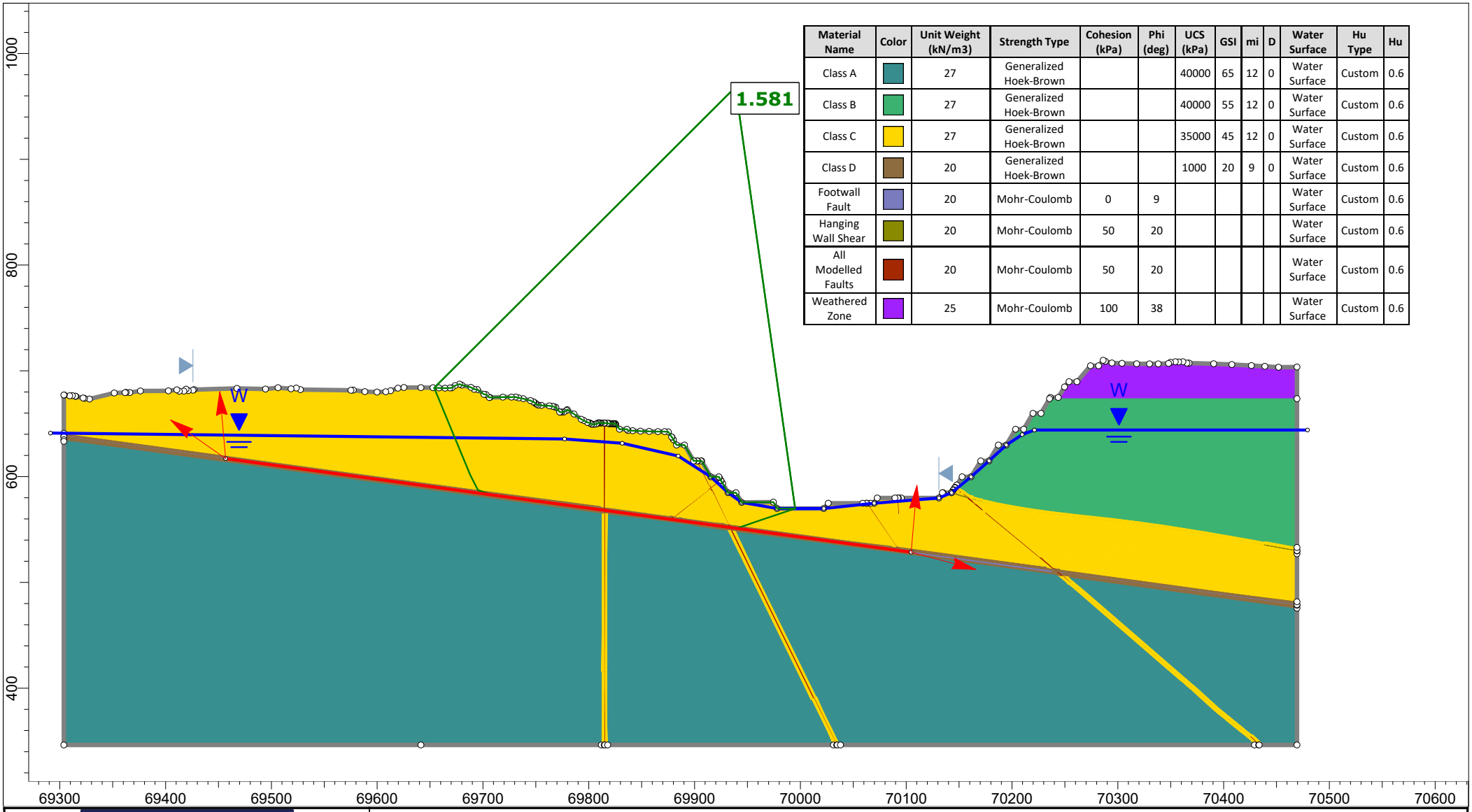
P S M

SLIDEINTERPRET 9.027

Client:	PSM71 - Macraes
Project:	MP4 Consenting
Location:	Innes Mills Stage 9 - Section 3
Analysis description:	NSHM Seismic MDE - Post Closure

Job No:	By:	Date:	Scale:	Run ID:
PSM71 - Macraes	KH	10/10/2023	1:3500	Seismic

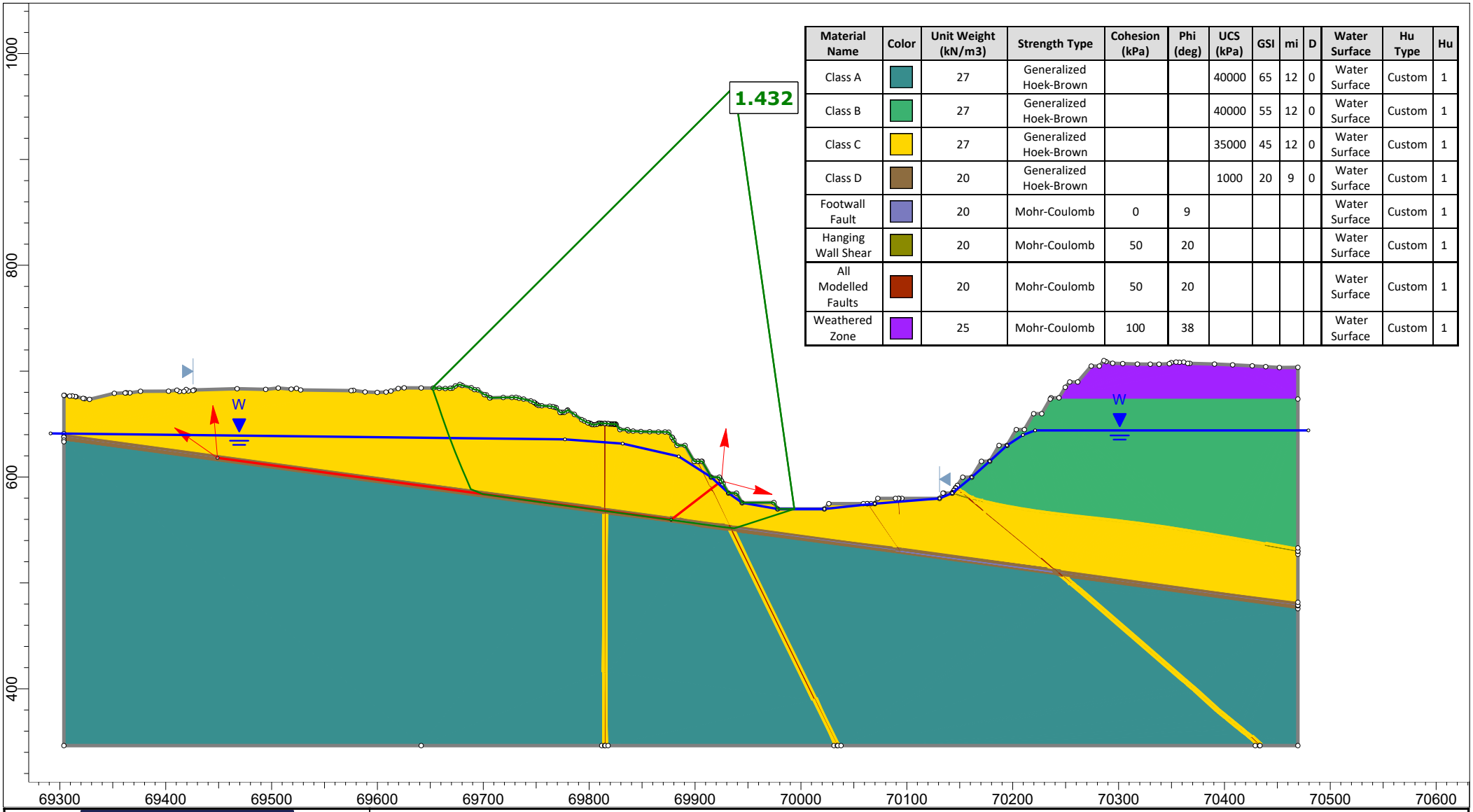
Appendix E
Coronation Stage 6 2D Stability Analyses



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	0.6
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	0.6
Class C		27	Generalized Hoek-Brown			35000	45	12	0	Water Surface	Custom	0.6
Class D		20	Generalized Hoek-Brown			1000	20	9	0	Water Surface	Custom	0.6
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	0.6
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6

SLIDEINTERPRET 9.014

Project	PSM0071 - Macraes		
Analysis Description	Hu=0.6 FWF		
Drawn By DW	*Scale* 1:5000	*Company* PSM	
Date 5/07/2022		*File Name* Coronation Stage6 Section1_Run1.slmd	

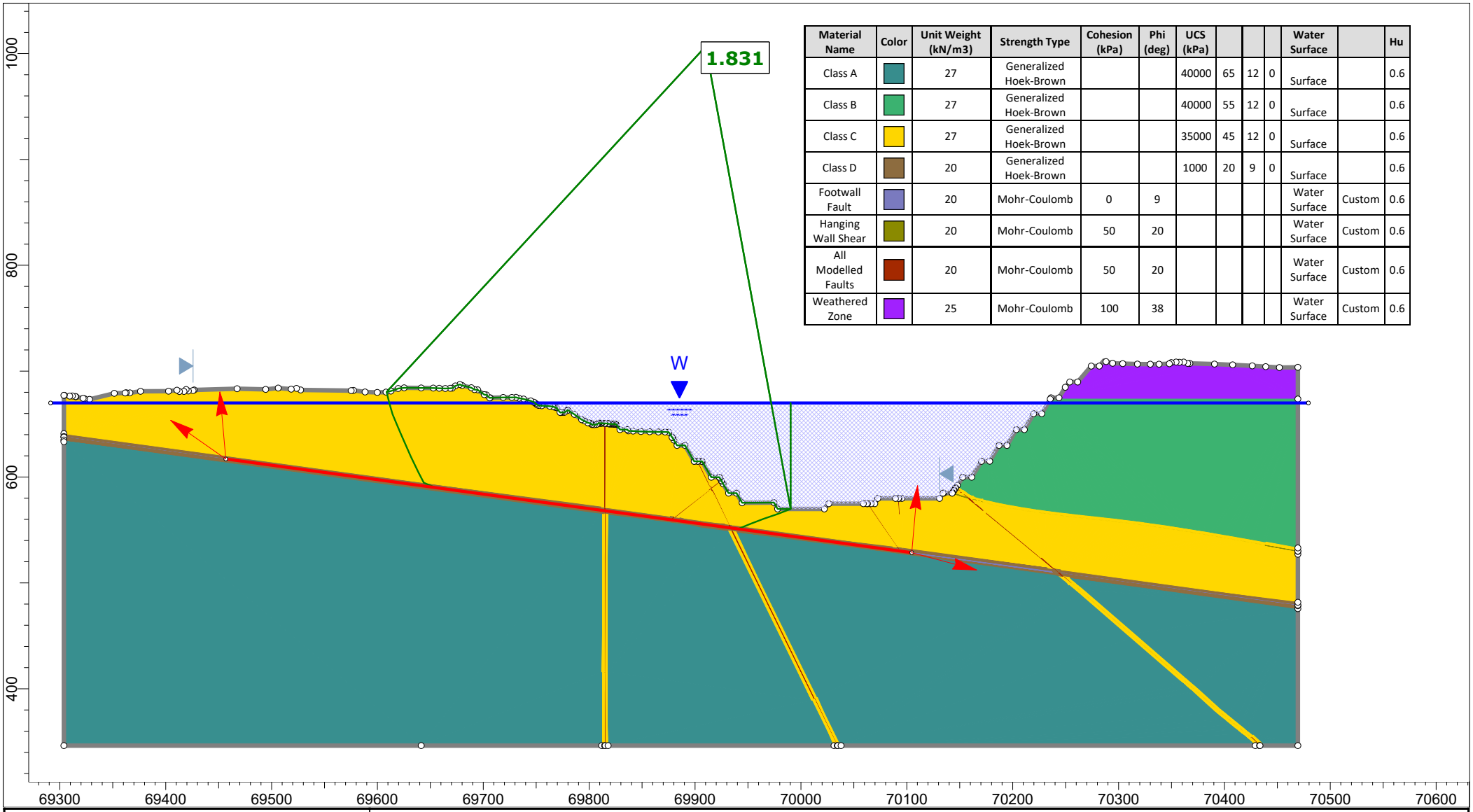


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	1
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	1
Class C		27	Generalized Hoek-Brown			35000	45	12	0	Water Surface	Custom	1
Class D		20	Generalized Hoek-Brown			1000	20	9	0	Water Surface	Custom	1
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	1
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	1

P S M

SLIDEINTERPRET 9.014

Project	PSM0071 - Macraes		
Analysis Description	Hu=1 FWF		
Drawn By	DW	*Scale*	1:5000
Company	PSM		
Date	27/06/2022	*File Name*	Coronation Stage6 Section1_Run1.slmd

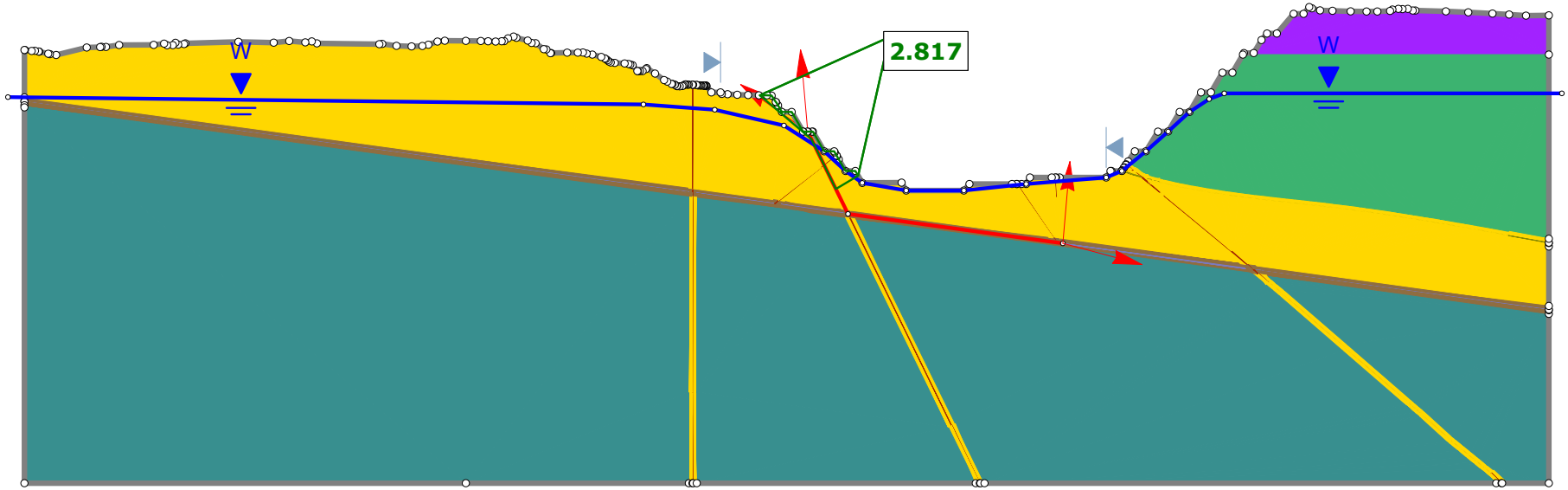


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)				Water Surface		Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Surface		0.6
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Surface		0.6
Class C		27	Generalized Hoek-Brown			35000	45	12	0	Surface		0.6
Class D		20	Generalized Hoek-Brown			1000	20	9	0	Surface		0.6
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	0.6
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6

SLIDEINTERPRET 9.022

Project	PSM0071 - Macraes		
Analysis Description	Pit lake - FWF		
Drawn By	HG	*Scale* 1:5000	*Company* PSM
Date		*File Name*	Coronation Stage6 Section1_Run1_HG.slmd

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	0.6
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	0.6
Class C		27	Generalized Hoek-Brown			35000	45	12	0	Water Surface	Custom	0.6
Class D		20	Generalized Hoek-Brown			1000	20	9	0	Water Surface	Custom	0.6
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	0.6
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6



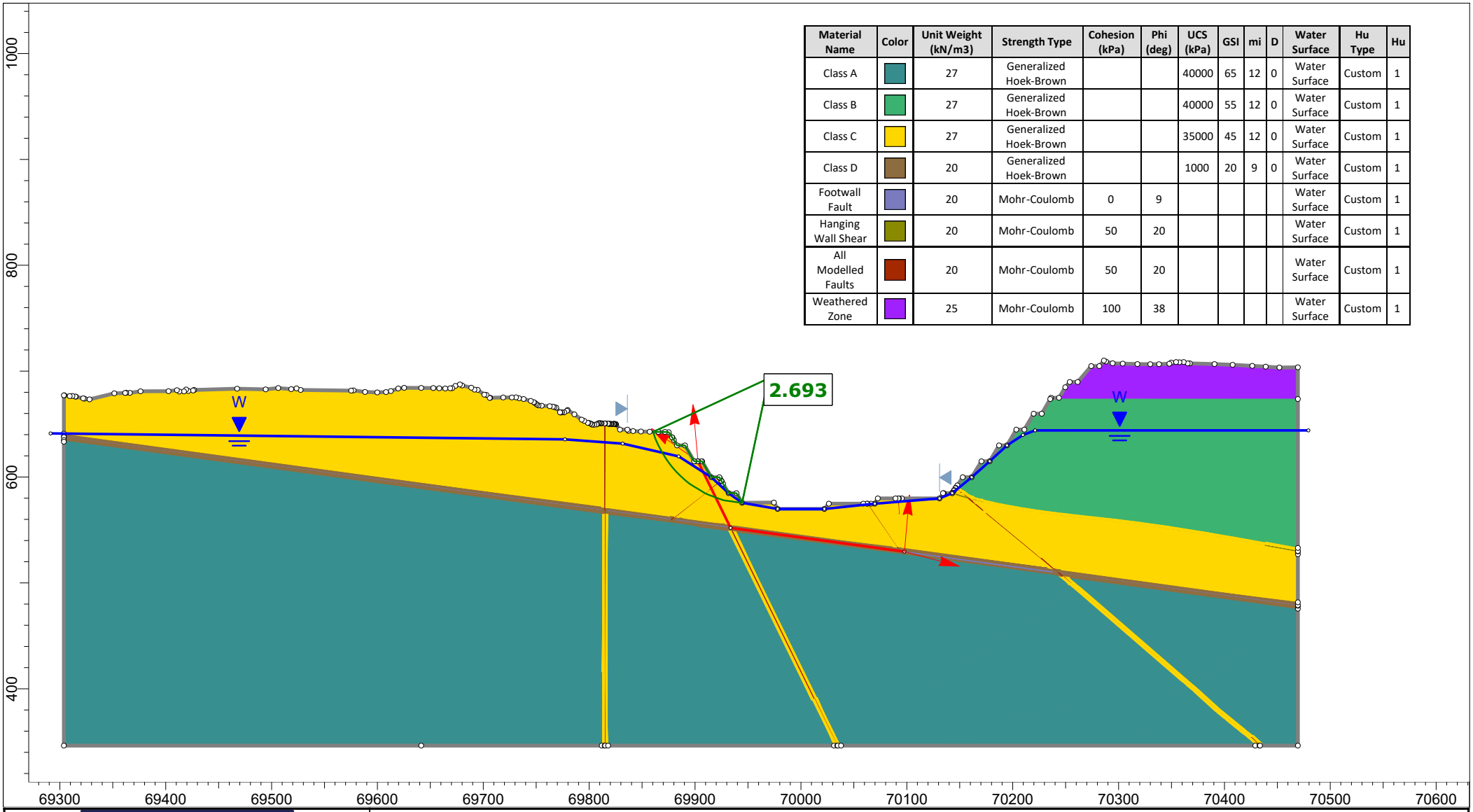
1000
800
600
400

69300 69400 69500 69600 69700 69800 69900 70000 70100 70200 70300 70400 70500 70600

SLIDEINTERPRET 9.014

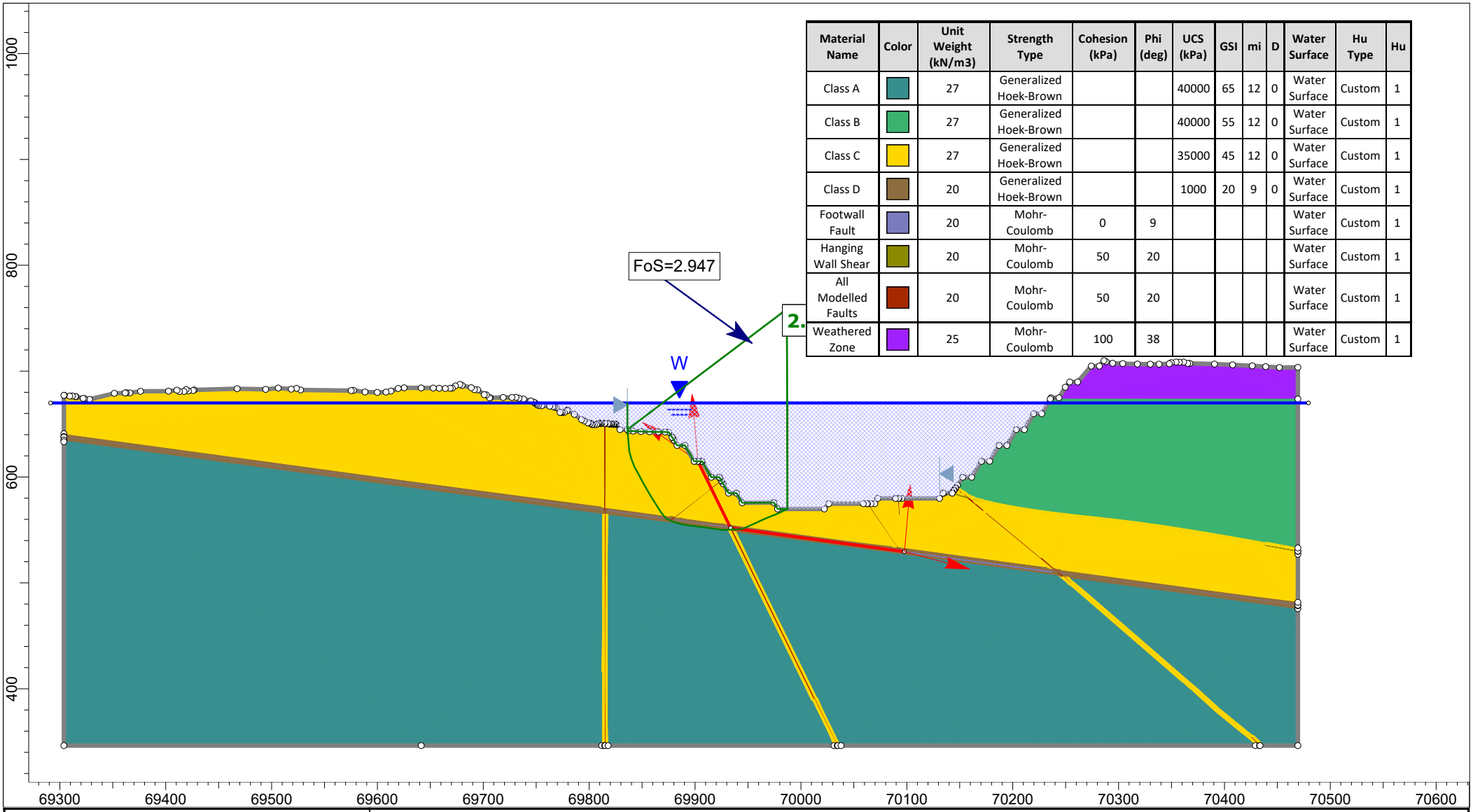
Project	PSM0071 - Macraes		
Analysis Description	Hu=0.6 wedge		
Drawn By DW	*Scale* 1:5000	*Company* PSM	
Date 5/07/2022		*File Name* Coronation Stage6 Section1_Run1.slmd	

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	1
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	1
Class C		27	Generalized Hoek-Brown			35000	45	12	0	Water Surface	Custom	1
Class D		20	Generalized Hoek-Brown			1000	20	9	0	Water Surface	Custom	1
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	1
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	1



Project	PSM0071 - Macraes		
Analysis Description	Hu=1.0 wedge		
Drawn By	DW	Scale 1:5000	Company PSM
Date	5/07/2022		File Name Coronation Stage6 Section1_Run1.slmd

SLIDEINTERPRET 9.014

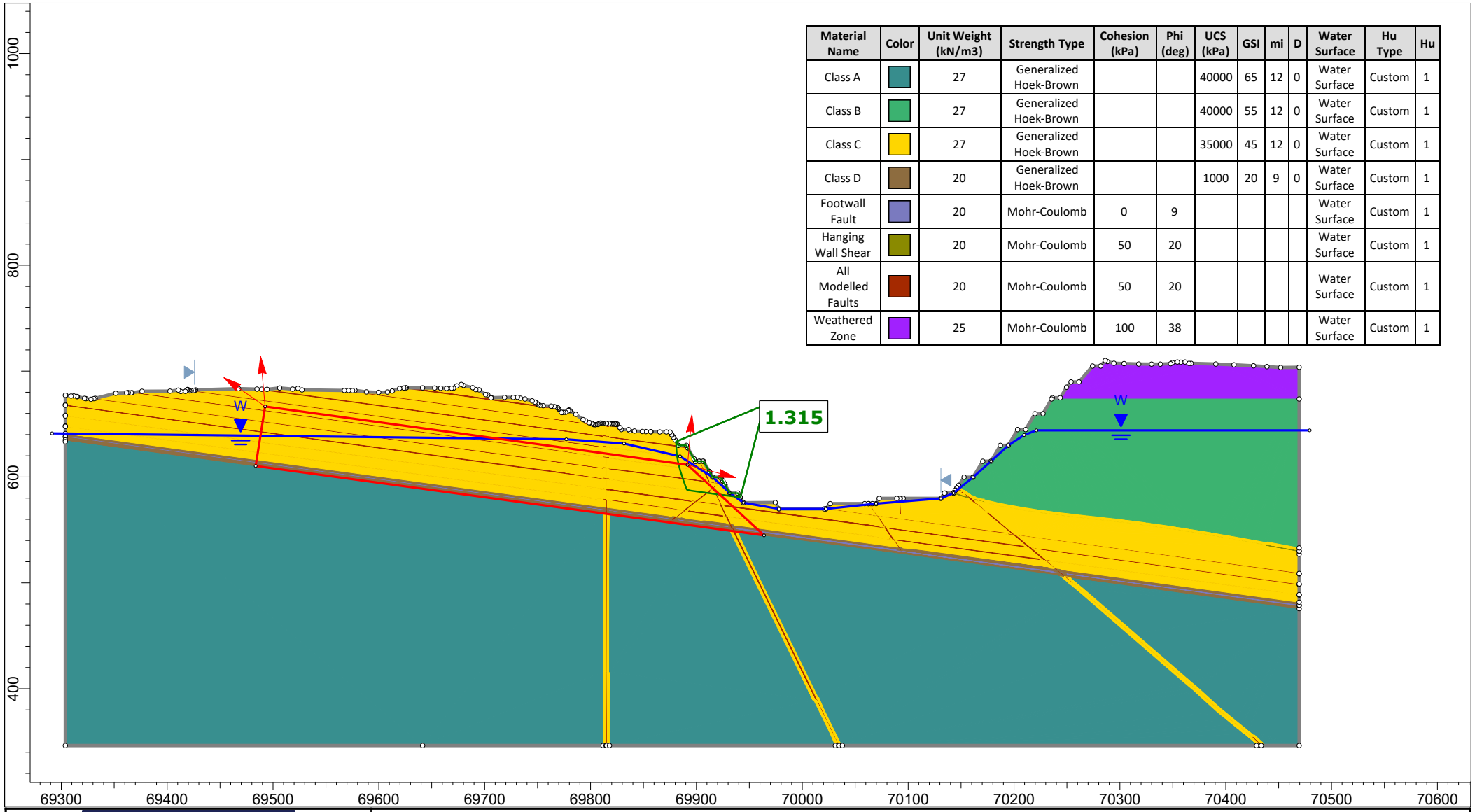


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	1
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	1
Class C		27	Generalized Hoek-Brown			35000	45	12	0	Water Surface	Custom	1
Class D		20	Generalized Hoek-Brown			1000	20	9	0	Water Surface	Custom	1
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	1
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	1

SLIDEINTERPRET 9.022

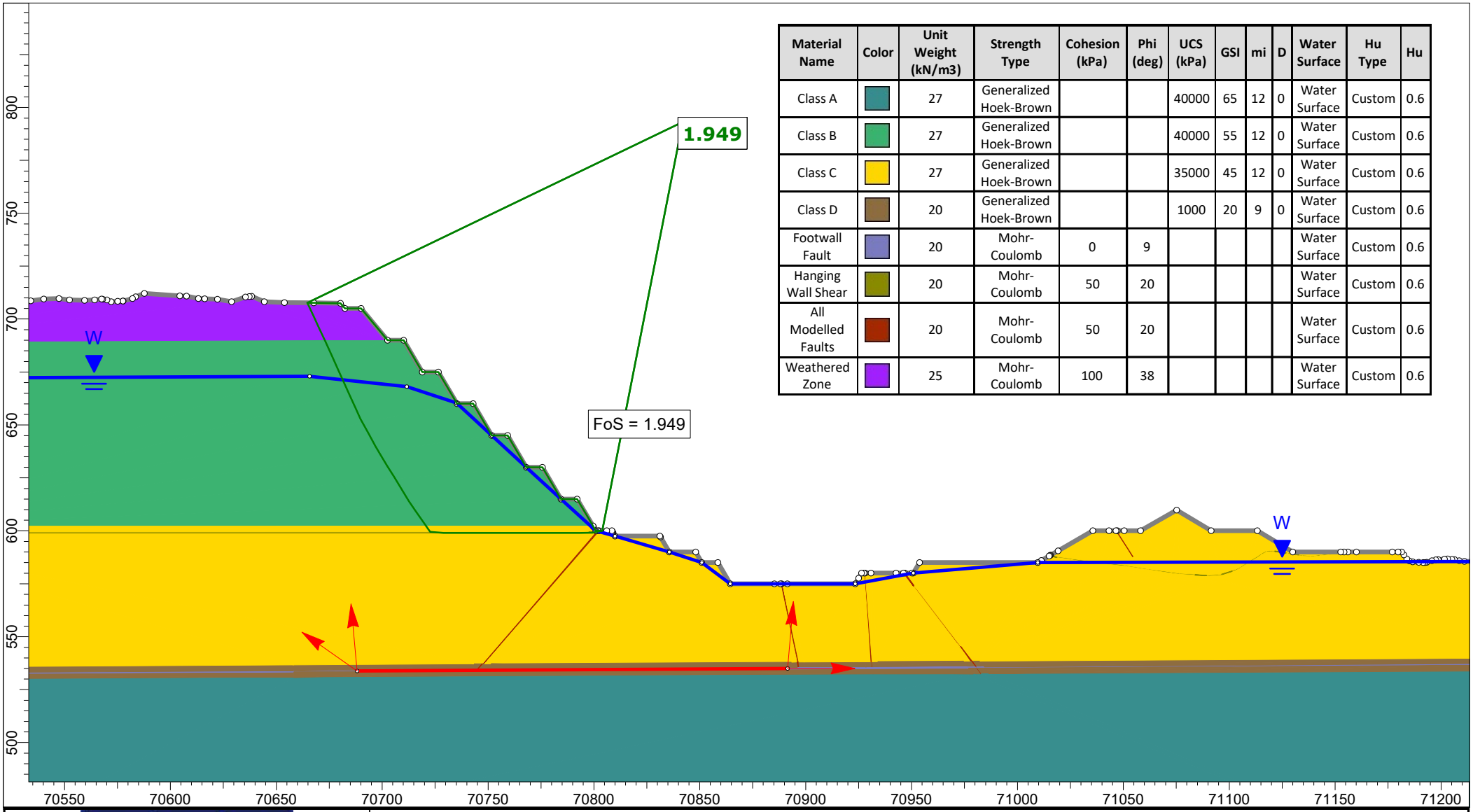
Project	PSM0071 - Macraes		
Analysis Description	Pit Water wedge		
Drawn By	HG	*Scale* 1:5000	*Company* PSM
Date		*File Name*	Coronation Stage6 Section1_Run1_HG.slmd

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	1
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	1
Class C		27	Generalized Hoek-Brown			35000	45	12	0	Water Surface	Custom	1
Class D		20	Generalized Hoek-Brown			1000	20	9	0	Water Surface	Custom	1
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	1
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	1



Project	PSM0071 - Macraes		
Analysis Description	Wet - adding foliation		
Drawn By	DW	Scale	1:5000
Company	PSM		
Date	27/06/2022	File Name	Coronation Stage6 Section1_Run1.slmd

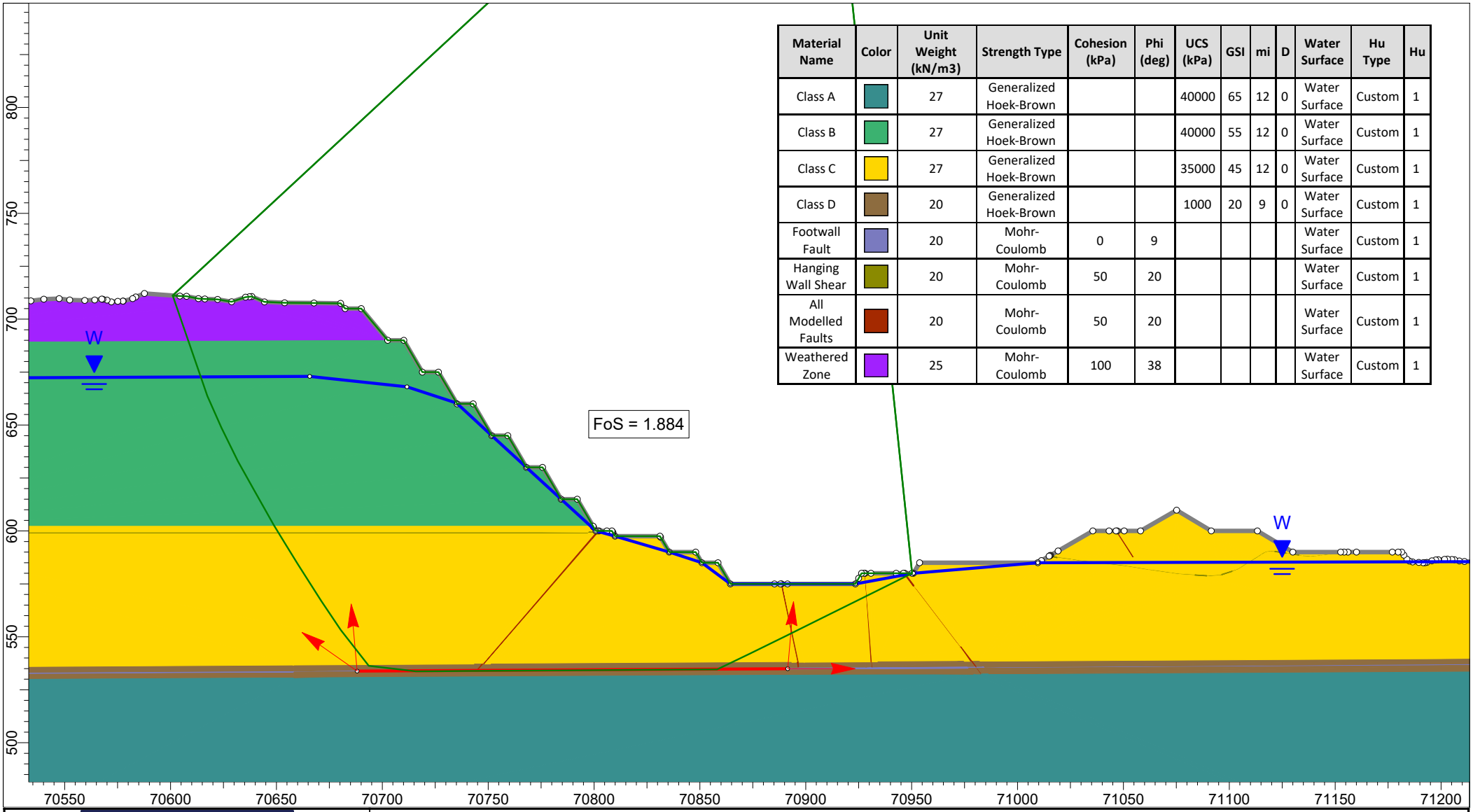
SLIDEINTERPRET 9.014



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	0.6
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	0.6
Class C		27	Generalized Hoek-Brown			35000	45	12	0	Water Surface	Custom	0.6
Class D		20	Generalized Hoek-Brown			1000	20	9	0	Water Surface	Custom	0.6
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	0.6
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6

SLIDEINTERPRET 9.019

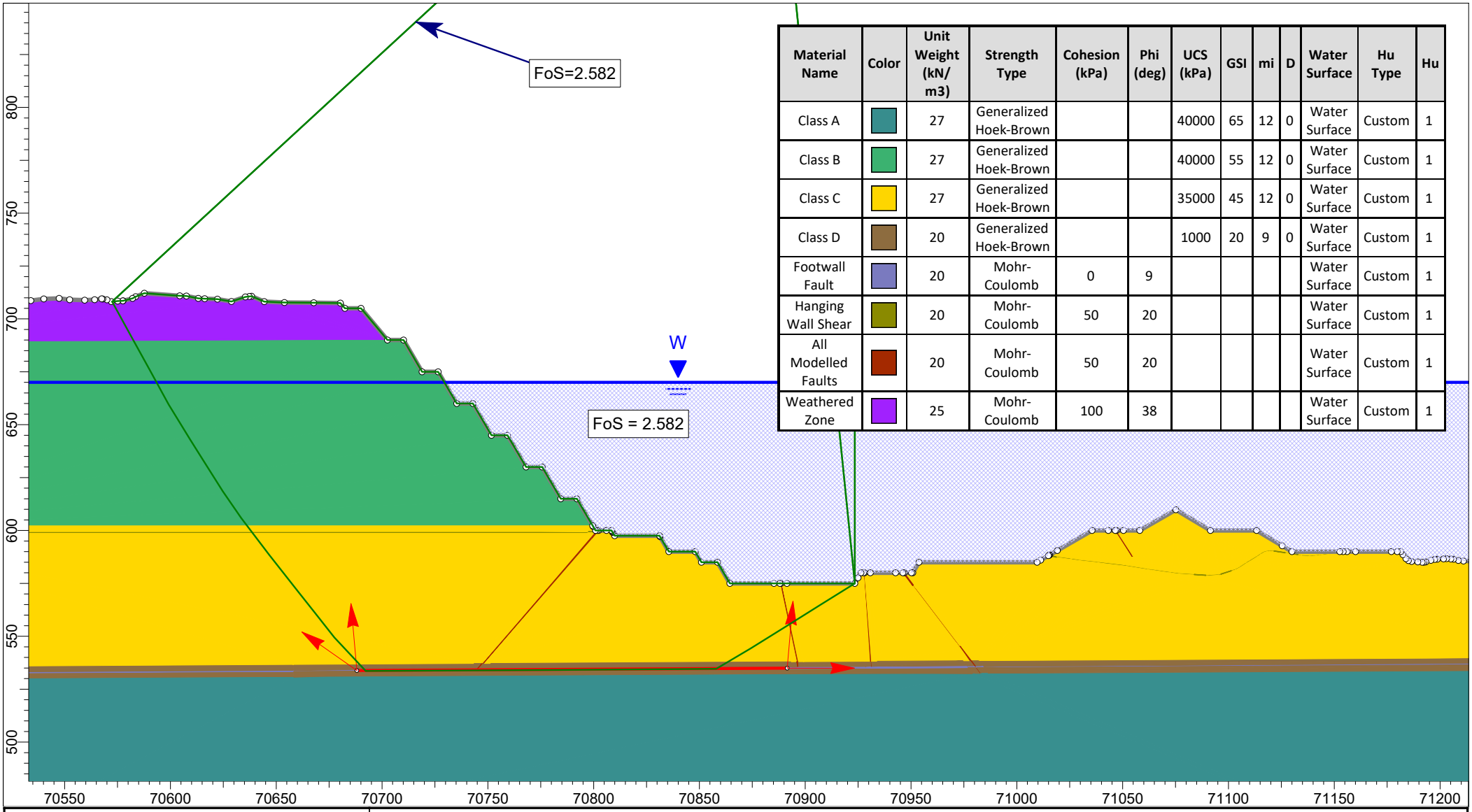
Project	PSM0071 - Macraes		
Analysis Description	Hu=0.6 FWF		
Drawn By	DW	*Scale* 1:2500	*Company* PSM
Date	1/07/2022	*File Name*	Coronation Stage6 Section2_Run1.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	1
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	1
Class C		27	Generalized Hoek-Brown			35000	45	12	0	Water Surface	Custom	1
Class D		20	Generalized Hoek-Brown			1000	20	9	0	Water Surface	Custom	1
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	1
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	1

SLIDEINTERPRET 9.014

Project	PSM0071 - Macraes		
Analysis Description	Hu=1 - FWF		
Drawn By	DW	*Scale* 1:2500	*Company* PSM
Date	27/06/2022	*File Name*	Coronation Stage6 Section2_Run1.slmd

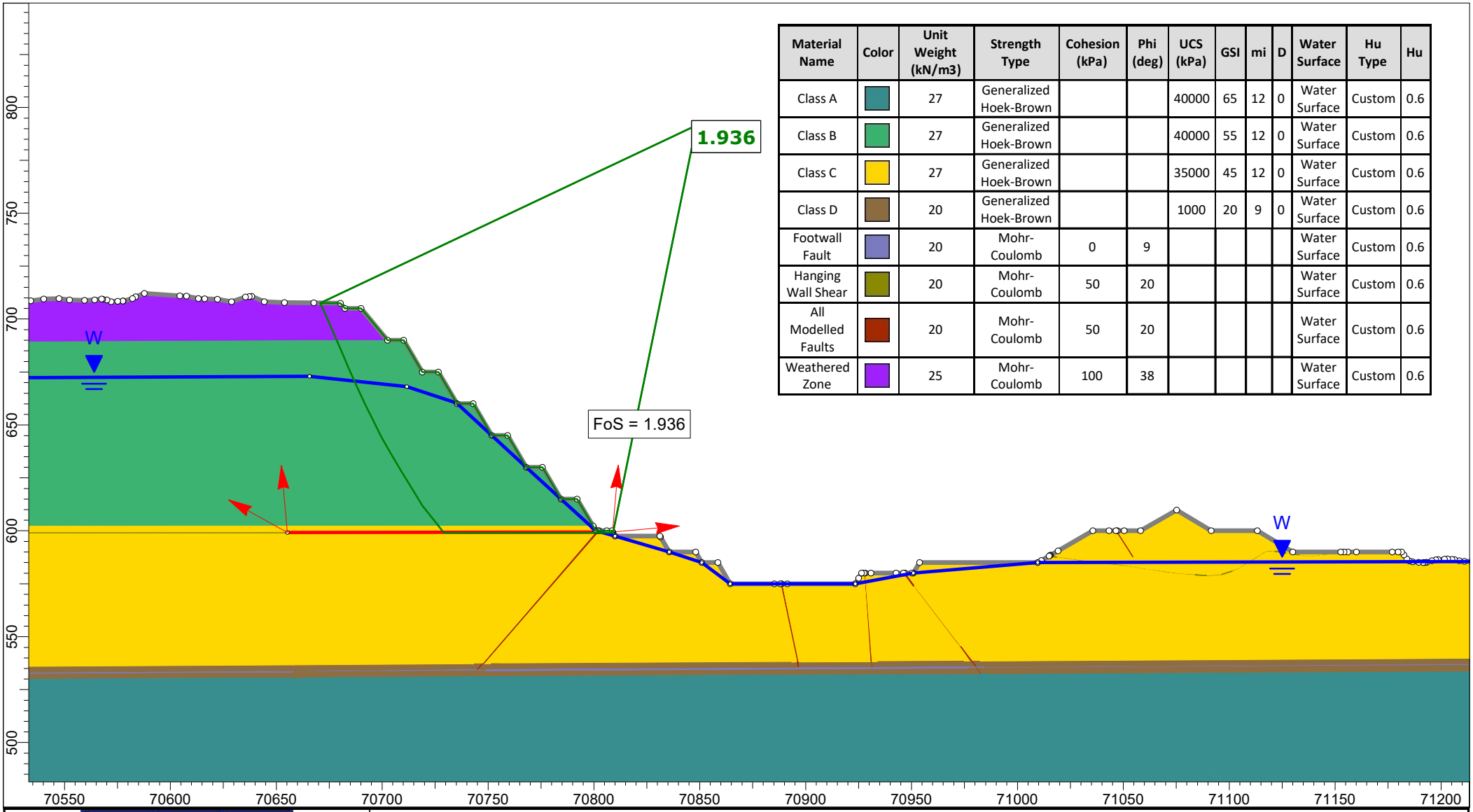


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	1
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	1
Class C		27	Generalized Hoek-Brown			35000	45	12	0	Water Surface	Custom	1
Class D		20	Generalized Hoek-Brown			1000	20	9	0	Water Surface	Custom	1
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	1
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	1
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	1

P S M

SLIDEINTERPRET 9.022

Project	PSM0071 - Macraes		
Analysis Description	Pit Water FWF		
Drawn By HG	*Scale* 1:2500	*Company* PSM	
Date		*File Name* Coronation Stage6 Section2_Run1_HG.slmd	



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Class A		27	Generalized Hoek-Brown			40000	65	12	0	Water Surface	Custom	0.6
Class B		27	Generalized Hoek-Brown			40000	55	12	0	Water Surface	Custom	0.6
Class C		27	Generalized Hoek-Brown			35000	45	12	0	Water Surface	Custom	0.6
Class D		20	Generalized Hoek-Brown			1000	20	9	0	Water Surface	Custom	0.6
Footwall Fault		20	Mohr-Coulomb	0	9					Water Surface	Custom	0.6
Hanging Wall Shear		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
All Modelled Faults		20	Mohr-Coulomb	50	20					Water Surface	Custom	0.6
Weathered Zone		25	Mohr-Coulomb	100	38					Water Surface	Custom	0.6

SLIDEINTERPRET 9.019

Project	PSM0071 - Macraes		
Analysis Description	Hu=0.6 HWS		
Drawn By DW	*Scale* 1:2500	*Company* PSM	
Date 1/07/2022		*File Name* Coronation Stage6 Section2_Run1.slmd	