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TABLE 5.1

AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION
WHALE TAIL PIT

UPDATED SCOPING LEVEL OPEN PIT SLOPE DESIGN (REVISED)
SUMMARY OF OPEN PIT SLOPE RECOMMENDATIONS

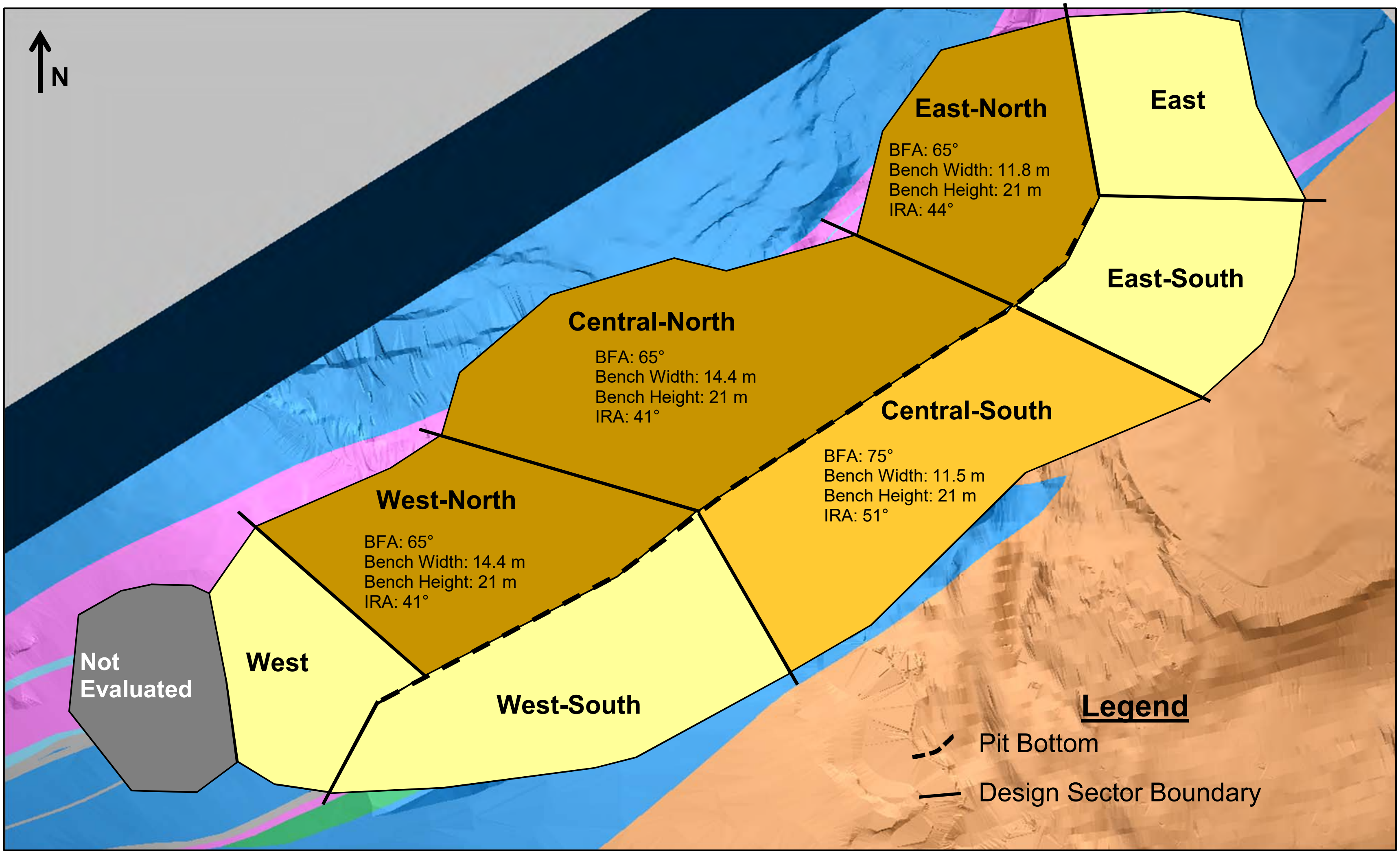
Print Apr/29/16 10:29:46

Pit Design Sector	Dominant Domain (See Note 1 & 2)	Nominal Pit Wall Dip Direction (See Note 3) (°)	Total Slope Height (See Note 3) (m)	Dominant Potential Failure Mode	Bench Configurations: Design Bench Face Angle (BFA) (°)	Bench Configurations: Potential Kinematic Back-Break Angle (See Note 4) (°)	Bench Configurations: Design Bench Width (m)	Bench Configurations: Base Bench Width (See Note 5) (m)	Bench Configurations: Potential Kinematic Back-Break (m)	Bench Configurations: Bench Height (m)	Inter-Ramp Slope Configurations: Inter-Ramp Angle (IRA) From Design Bench Configuration (°)	Inter-Ramp Slope Configurations: IRA Achievable Based on Kinematics	Inter-Ramp Slope Configurations: IRA Achievable Based on LE (See Note 6)	Inter-Ramp Slope Configurations: Max. Inter-Ramp Slope Height (m)	Overall Slope Angle: Expected OSA Performance Based on Precedent Practice	Comments
East-South	Greywacke & Ultramafics (SL)	300	135	Toppling	**75**	N/A	**10**	10	0	**21**	**53**	Yes	Yes (10 m Depressurized)	**100**	FoS > 1.3	- Toppling failure on Joint Set A may locally limit the achievable bench and inter-ramp geometry. - Several faults are expected to intersect the pit wall in this sector. The reduced rock mass quality associated with the faults may result in local bench-scale failures.
East	Greywacke, Altered Ultramafics, Ultramafics (SL)	240	135	None	**75**	N/A	**10**	10	0	**21**	**53**	Yes	Yes (10 m Depressurized)	**100**	FoS > 1.3	- The RQD corridor faults are expected to intersect the pit wall in this sector. The reduced rock mass quality associated with the fault may result in local bench-scale failures.
East-North	Altered Ultramafics & Ultramafics (NL)	110	125	Planar (Wedge)	**65**	60	**11.8**	9.5	2.3	**21**	**44**	Yes	Yes	**100**	FoS > 1.3	- Planar failures on Joint Set A are expected to limit the achievable bench face angle. Benches designed to maintain a 9.5 m effective bench width based on the expected back-break angle. - The Ultramafics compose the majority of the pit slope in this sector and a fault is believed to exist within this unit. The reduced rock mass quality associated with the Ultramafics and the fault may result in local bench-scale failures. -The RQD Corridor faults are expected to run sub-parallel and just behind the pit wall in this sector. The faults may result in local bench-scale failures.
Central-North	Ultramafics (NL), Altered Ultramafics & Greywacke	155	155	Planar (Wedge)	**65**	55	**14.4**	9.5	4.9	**21**	**41**	Yes	Yes	**100**	FoS > 1.3	- Planar failures on Joint Set A are expected to limit the achievable bench face angle. Benches designed to maintain a 9.5 m effective bench width based on the expected back-break angle. - The Ultramafics compose the majority of the pit slope in this sector and a fault is believed to exist within this unit. The reduced rock mass quality associated with the Ultramafics and the fault may result in local bench-scale failures. - The RQD Corridor faults are expected to run sub-parallel and just behind the pit wall in this sector. The faults may result in local bench-scale failures.
Central-South	Greywacke, Ultramafics (SL) & Chert	315	155	Planar (Wedge) & Toppling	**75**	70	**11.5**	9.5	2.0	**21**	**51**	Yes	Yes (10 m Depressurized)	**100**	FoS > 1.3	- Planar failures on Joint Set B are expected to limit the achievable bench face angle. Benches designed to maintain a 9.5 m effective bench width based on the expected back-break angle. - Toppling failure on Joint Set B' may locally limit the achievable bench geometry. - Several faults are expected to intersect the pit wall in this sector. The reduced rock mass quality associated with the faults may result in local bench-scale failures.
West-North	Altered Ultramafics, Ultramafics (NL) & Greywacke	145	120	Planar (Wedge)	**65**	55	**14.4**	9.5	4.9	**21**	**41**	Yes	Yes	**100**	FoS > 1.3	- Planar failures on Joint Set A are expected to limit the achievable bench face angle. Benches designed to maintain a 9.5 m effective bench width based on the expected back-break angle. - The Ultramafics compose the majority of the pit slope in this sector. The reduced rock mass quality associated with the Ultramafics may result in local bench-scale failures. - The RQD Corridor faults are expected to intersect or run sub-parallel and just behind the pit wall in this sector. The faults may result in local bench-scale failures.
West	Greywacke, Altered Ultramafics, Ultramafics (NL)	85	120	None	**75**	N/A	**10**	10	0	**21**	**53**	Yes	Yes (10 m Depressurized)	**100**	FoS > 1.3	- The Ultramafics compose a large portion of the pit slope in this sector. The reduced rock mass quality associated with the Ultramafics may result in local bench-scale failures.
West-South	Greywacke, Ultramafics (SL), Chert	335	130	Toppling	**75**	N/A	**10**	10	0	**21**	**53**	Yes	Yes (10 m Depressurized)	**100**	FoS > 1.3	- Toppling failure on Joint Set A may locally limit the achievable bench face angle. - The RQD Corridor faults are expected to intersect the pit wall in this sector. The faults may result in local bench-scale failures.

I:\1\01\00622\03\A\Report\Report 3 Rev 0 Updated Open Pit Scoping Study\Tables\[Table 5.1 and Figure 5.2 - Pit Slope Recommendations (Oct 30).xlsx]Table 5.1 - Pit Recommendations

NOTES:
1. THE ULTRAMAFICS (NORTH LIMB (NL) AND SOUTH LIMB (SL)) IS A WEAKER UNIT OF VARIABLE ROCK MASS QUALITY AND IS EXPECTED TO BE SUSCEPTIBLE TO RAVELLING. FOR EXPOSURES OF 40 m OR MORE OF THIS DOMAIN, ADDITIONAL BENCH WIDTH MAY BE REQUIRED.
2. DOMINANT PIT WALL DOMAINS BASED ON LITHOLOGY MODEL PROVIDED BY AEM (SEPT 29, 2015). GREYWACKE DOMAIN INCLUDES THE GREYWACKE, MUDSTONE AND MAFIC VOLCANIC LITHOLOGIES.
3. TOTAL SLOPE HEIGHT AND WALL ORIENTATIONS BASED ON PIT DESIGN PROVIDED BY AEM (SEPT 30, 2015). SLOPE HEIGHT MEASURED FROM THE TOE OF THE SLOPE IN THE DEEPEST PORTION OF THE SECTOR TO THE CREST WHERE INTERSECTED BY THE TOPOGRAPHY.
4. BENCH FACE ANGLE RECOMMENDATIONS BASED ON THE RESULTS OF KINEMATIC ANALYSES. THE POTENTIAL KINEMATIC BACK-BREAK ANGLE FOR THE WEST-NORTH SECTOR IS BASED ON HIGH-LEVEL PLANAR FAILURE ANALYSES USING ROCPLANE (ROCSCIENCE, 2014).
5. THE BASE BENCH WIDTH IS 9.5 m. FOR SECTORS WITH NO KINEMATIC CONTROLS, THE MAXIMUM ACHIEVABLE INTER-RAMP ANGLE HAS BEEN LIMITED TO 53°. IN ORDER TO ACHIEVE THIS, THE BASE BENCH WIDTH HAS BEEN INCREASED TO 10 m FOR SELECT DESIGN SECTORS.
6. WHERE NOTED, TO ACHIEVE THE INTER-RAMP CONFIGURATION, 10 m OF SLOPE DEPRESSURIZATION (MEASURED PERPENDICULAR TO THE PIT FACE) IS REQUIRED WHEN THE ULTRAMAFICS ARE EXPOSED IN THE PIT WALL AND ARE WITHIN UNFROZEN GROUND.
7. ACHIEVABLE OVERALL SLOPE ANGLE EVALUATED USING LIMIT-EQUILIBRIUM METHODS FOR THE DEEPEST SECTORS AS WELL AS LIMITING CASES (I.E. LARGE EXPOSURES OF ULTRAMAFICS, POTENTIAL OPEN TALIKS). ALL MODELS EXCEEDED THE TARGET FACTOR OF SAFETY OF 1.3; THE STABILITY OF THE REMAINING SECTORS HAS BEEN INFERRED FROM THESE ANALYSES.
8. OVERBURDEN TO BE SET BACK 10 m FROM PIT SLOPE CREST TO ALLOW SUFFICIENT SPACE FOR THE INSTALLMENT OF SEDIMENT CONTROL BERM AND THE COLLECTION OF ANY MOBILIZED MATERIAL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29APR'16	ISSUED WITH REPORT NB101-622/3-3	ATJ	BDP



Base Bench Geometry

BFA: 75°
Bench Width: 10 m
Bench Height: 21 m
IRA: 53°

Bench Geometry Controlled by Bench-Scale Failures

AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION

WHALE TAIL PIT

SUMMARY OF OPEN PIT SLOPE RECOMMENDATIONS

Knight Piésold CONSULTING

P/A NO. NB101-622/3

REF. NO. 3

FIGURE 5.1

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29APR'16	ISSUED WITH REPORT	ATJ	BDP

The achievable slope geometry varies from sector to sector. Some of the issues that are expected to influence the open pit wall performance for the Whale Tail Pit include:

- Planar failures involving the foliation (Joint Set A) are expected to limit the achievable bench face angle in the East-North, Central-North and West-North sectors. The design BFA has been reduced and the design bench width increased to manage these failures. In the Central-North and West-North sectors, where the foliation is relatively shallow dipping, this has resulted in an IRA of 41°.
- Planar failures involving a dominant structural orientation (Joint Set B) are expected to limit the achievable bench face angle in the Central-South sector. The design BFA has been reduced and the design bench width increased to manage these failures.
- Toppling failure involving the foliation may locally limit the achievable slope geometry in the East-South and West-South sectors.
- The Ultramafics are of variable and locally reduced rock mass quality. The Ultramafics are expected to be susceptible to ravelling and the bench width may need to be increased within significant exposures of this unit (e.g. exposures of greater than 40 m, or more than two benches in height).
- Limited depressurization may be necessary to achieve the recommended inter-ramp slope configuration in the Central-South sector. The slope in this sector is likely within talik and increased groundwater recharge is expected. Limited depressurisation may also be necessary in other sectors with significant exposures of Ultramafics (i.e. the East-South, East, West and West-South sectors) if this unit is within unfrozen ground. Depressurisation of the slope in these sectors is expected to be less important than depressurisation of the slope in the Central-South sector.
- The achievable slope geometry is sensitive to the strength of the foliation (Joint Set A) and the strike of the slope.

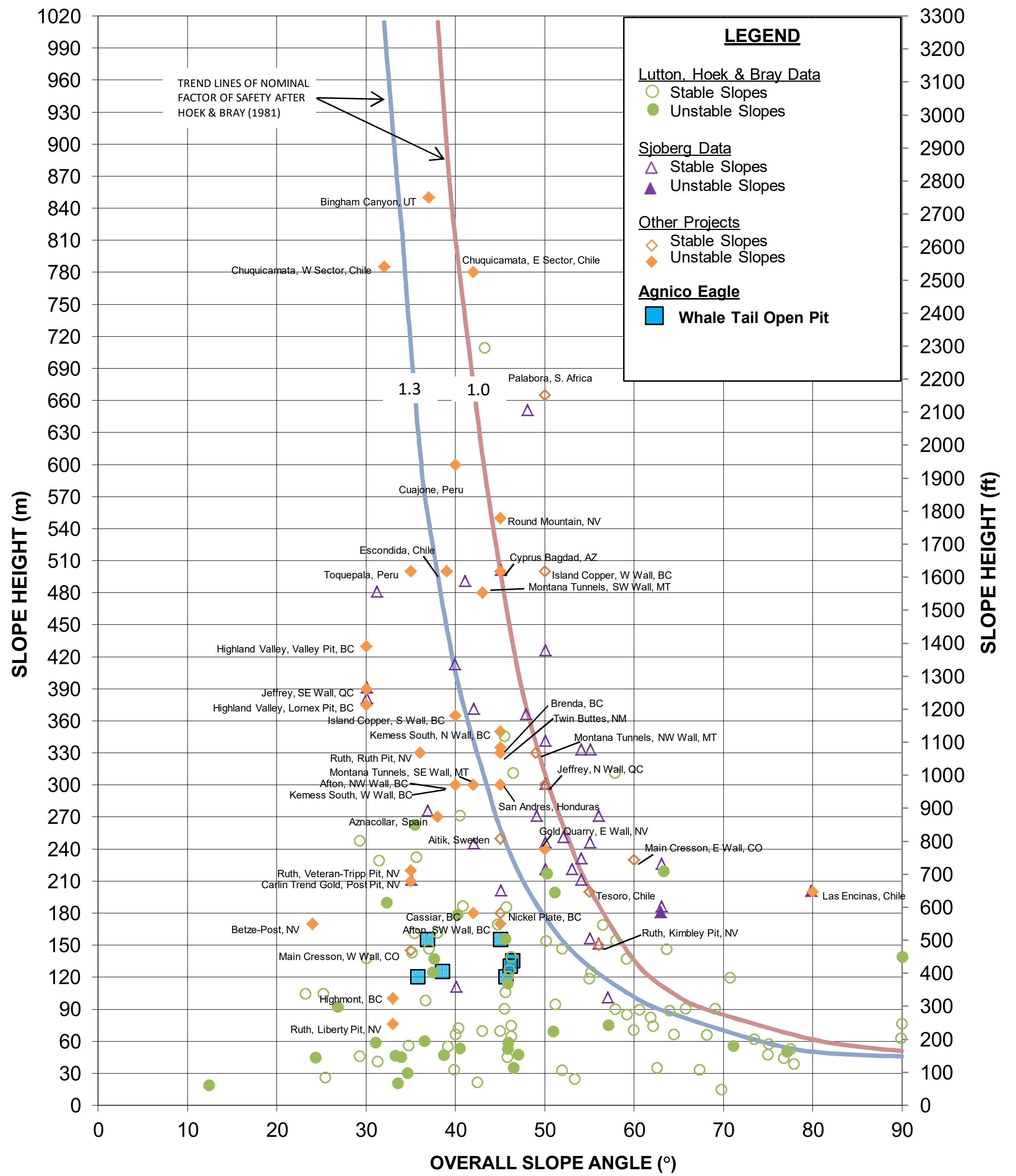
The above considerations underscore the importance of maintaining flexibility in the mine plan to ensure that production delays and/or adjustments to the slope geometry can be accommodated. This is expected to be particularly true for the East-North, Central-North, West-North and Central-South sectors.

5.5 PRECEDENT PRACTICE

Pit slope stability and performance depends on a variety of site-specific factors (geological structure, alteration rock strength, groundwater conditions, discontinuity characteristics and orientation, pit geometry, blasting practices, stress conditions, climatic conditions and time), which makes it difficult to provide direct comparisons with other operations. However, it is still valuable to review both the successes and wall performance issues encountered at other open pit operations in order to recognize opportunities and potential constraints for the proposed open pit development.

A summary plot of pit depth vs. slope angles achieved in various operations is illustrated on Figure 5.2. The plot includes the inferred extension to the Lutton, Hoek & Bray Stability Line up to a slope height of 1000 m (Lutton, 1970; Hoek and Bray, 1981; Sjoberg, 1996; Read and Stacey, 2009). This plot is most relevant for deep open pits (e.g. depths > 400 m) but is still a useful point of comparison for shallower open pits, such as the proposed Whale Tail Pit. The proposed slope geometries for all sectors plot on or below the FoS 1.3 curve. This result suggests that the recommended slopes are reasonable and achievable from a precedent practice perspective.

It is important to note that most open pit operations have encountered some form of slope instability and that it is likely that some areas of the pit slopes in the Whale Tail Pit will require modifications to the slope geometry in response to instabilities. As such, mine plans should remain flexible.



NOTES:

1. ORIGINAL DATA POINTS AFTER LUTTON (1970), HOEK AND BRAY (1981), AND SJOBERG (1996).
2. ADDITIONAL DATA FROM KNIGHT PIÉSOLD PROJECTS AND OTHERS ALSO INCLUDED.

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AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION

WHALE TAIL PIT

SLOPE HEIGHT VERSUS SLOPE ANGLE PRECEDENTS FOR HARD ROCK SLOPES

Knight Piésold CONSULTING

P/A NO. NB101-622/3

REF. NO. 3

FIGURE 5.2

REV 0

6 – OPERATIONAL CONSIDERATIONS

6.1 GENERAL

The proposed pit slope design is influenced by several operational considerations including those discussed below.

6.2 OPERATIONAL CONSIDERATIONS

6.2.1 Blasting Practices

Slope instabilities at open pit mines are often triggered by the progressive deterioration of the bench face. Such deterioration starts with the detachment of small rock blocks (key blocks), which are defined by rock mass discontinuities. Under these circumstances, the preservation of rock mass integrity during mining is important for the development of the steepest possible pit slopes. Low damage controlled blasting methods will facilitate steeper final pit slopes.

The application of good controlled blasting practices is recommended for the development of all inter-ramp slopes and will be important within zones of reduced rock mass quality. Blasting practices that employ smaller diameter blast holes and closer spacing is recommended, especially along the final pit walls. Trial blasts are recommended wherever there is a substantial change in rock mass conditions.

Bench crest and face scaling should be conducted after blasting when equipment access is available to these areas. Rock fall cleanup should be performed as much as possible throughout the mine life.

6.2.2 Pit Dewatering and Slope Depressurization

A portion of the proposed Whale Tail open pit is expected to be located within talik (Figure 4.3). The phreatic surface that will develop behind the pit walls should be monitored over the course of the mine life and depressurization implemented on an as-needed basis. Any depressurisation activities are expected to focus on the Central-South sector but may be required in other areas on a case-by-case basis.

Surface water diversion measures should be implemented to limit inflows to the open pits, especially during the spring thaw.

6.2.3 Permafrost

Excavation of the open pits will result in the local thawing of the permafrost in the vicinity of the pit slopes. Subsequent freezing and thawing within this active layer can be expected to result in damage to the near-surface rock mass and will likely result in ravelling and/or bench-scale failures. The catch benches should be cleaned in the fall to accommodate increased ravelling during the spring thaw.

AEM's experience at the Meadowbank Mine suggests that ravelling and/or bench-scale failures associated with freezing and thawing will primarily be a concern for slopes excavated within talik.

6.2.4 Slope Monitoring Program

A proactive slope monitoring program is recommended for all stages of pit development. The monitoring program should include geotechnical and tension crack mapping, as well as a suitable surface displacement monitoring program.

The slope monitoring program should also consider critical structural features, recognized instabilities, cracks along haul ramps etc.

Sufficient staffing resources should be allocated to collect, process and interpret the geotechnical monitoring data on a regular basis. The timely identification of accelerated movements from surface displacement monitoring and tension cracks will be important to managing any instability. The status of highwall stability should be compiled and discussed regularly with operations personnel. These reports will also help mine engineering staff to optimize final pit slopes and improve the effectiveness of the controlled blasting program.

7 – SUMMARY

7.1 CONCLUSIONS

Pit slope design recommendations for the proposed Whale Tail Pit have been provided in terms of achievable bench face, inter-ramp and overall slope angles.

The provided pit slope design recommendations are based upon the geological, structural, geomechanical and hydrogeological data available as of September 2015, as well as the September 30, 2015 open pit design provided by AEM. The completed stability analyses and a review of practices at other operations suggest that the recommended geometries are reasonable and appropriate. To achieve these slope angles, the design assumes that controlled blasting and geotechnical monitoring will be undertaken, along with an on-going commitment to geomechanical data collection and analysis. Maintaining flexibility in the mine plan will be important to accommodate any slope stability issues.

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9 – CERTIFICATION

This report was prepared and reviewed by the undersigned.

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Geological Engineering

Reviewed: ______________________

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REGISTERED PROFESSIONAL ENGINEER
R.A. MERCER
LICENSEE
NWT/NU

Reviewed: ______________________

Robert A. Mercer, Ph.D., P.Eng.
Managing Principal, North Bay

ISSUED FOR PERMITTING

AGNICO EAGLE

DATE : April 29, 2016

PERMIT TO PRACTICE
KNIGHT PIESOLD LTD.

Signature ______________________

Date April 29/2016

PERMIT NUMBER: P 547

The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

Approval that this document adheres to Knight Piésold Quality Systems: ______

The following appendices were previously issued with the KP Report NB101-622/3-2 Rev 1 entitled “6108-MEM-001_R0 Updated Scoping Level Open Pit Slope Design”, dated December 11, 2015.

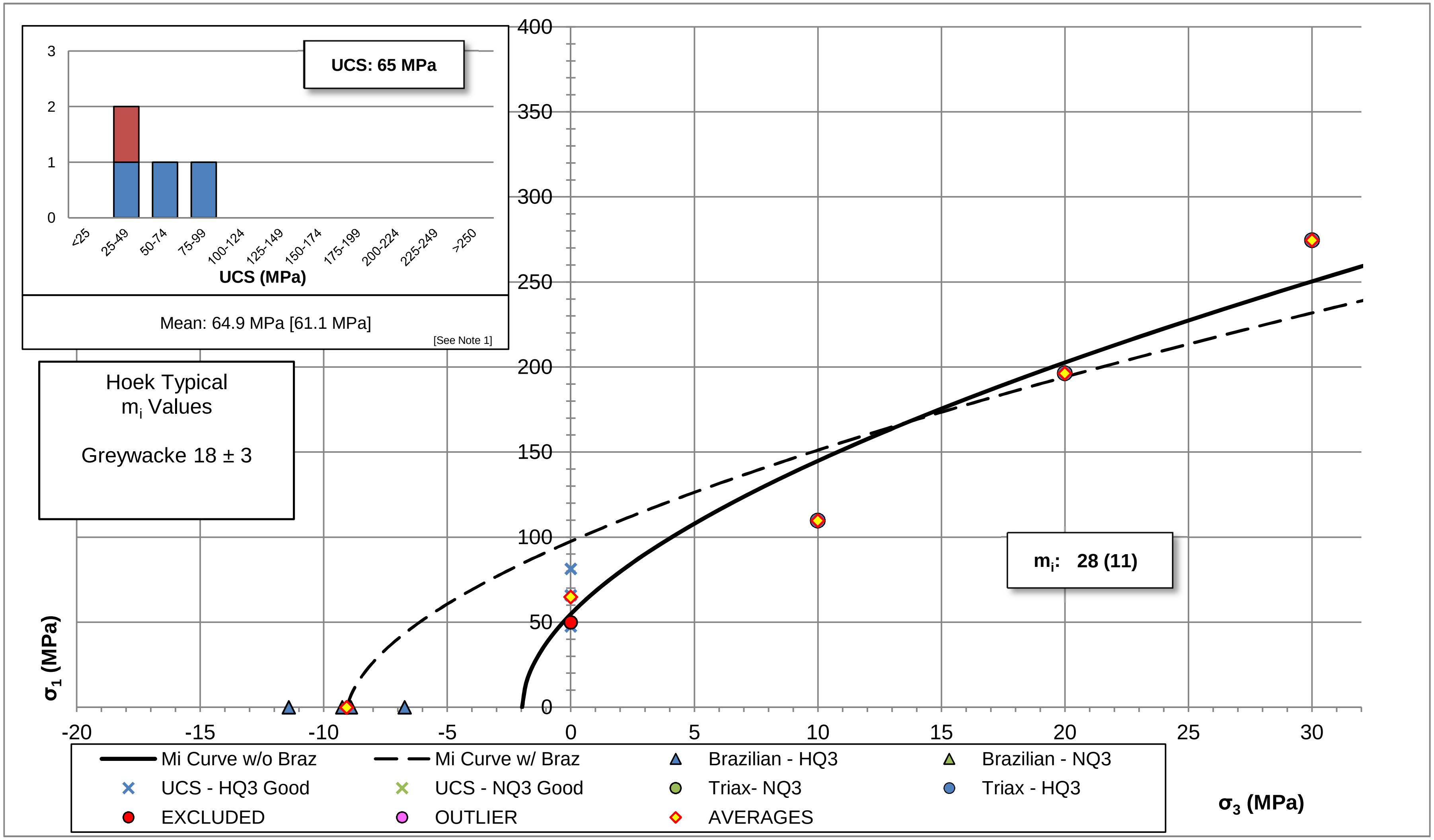
APPENDIX A

LAB TESTING RESULTS

APPENDIX A1

UCS AND TRIAXIAL RESULTS BY ROCK TYPE

(Pages A1-1 to A1-4)



NOTES:

1. MEAN UCS EXCLUDES POOR (RED) RESULTS. MEAN UCS IN SQUARE BRACKETS INCLUDES ALL DATA.
2. m_i DETERMINED USING AVERAGE RESULTS (EX. BRAZILIANS) EXCLUDING OUTLYING RESULTS.
3. m_i INSIDE BRACKETS INCLUDES BRAZILIAN AVERAGE.
4. LAB TESTING COMPLETED BY AMEC (OCT 1, 2015).
5. THE RESULTS OF THE BRAZILIAN TESTS HAVE BEEN REDUCED TO 70% OF THEIR ORIGINAL VALUE (BEWICK ET. AL., 2011).

AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION

WHALE TAIL PIT

TRIAXIAL AND UCS RESULTS FOR GREYWACKE

Knight Piésold CONSULTING

P/A NO.	REF. NO.
NB101-622/3	2

FIGURE A1.1 REV 0

0	27NOV'15	ISSUED WITH REPORT	ATJ	BDP
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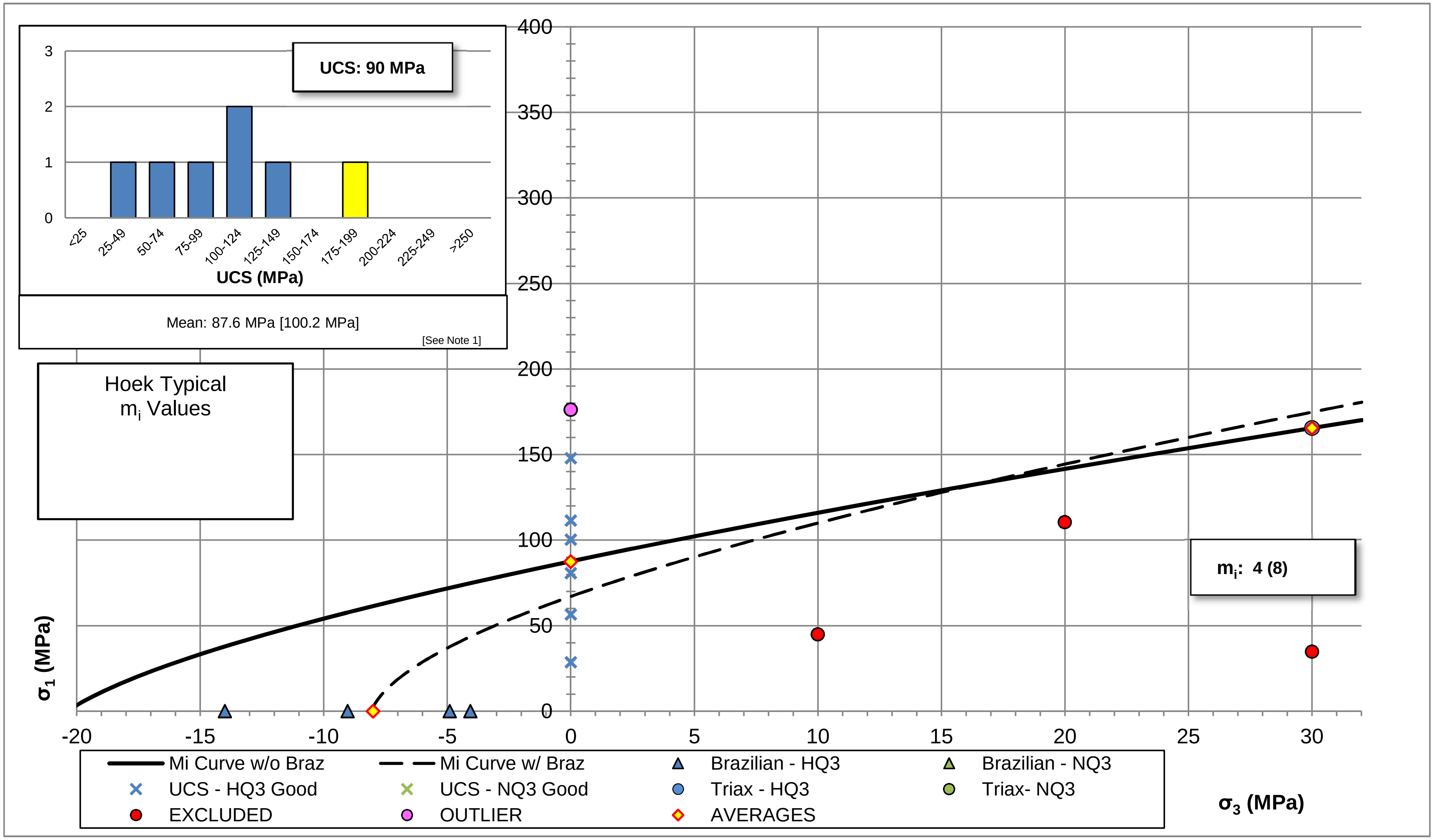


NOTES:

1. MEAN UCS EXCLUDES OUTLYING (YELLOW) RESULTS AND POOR (RED) RESULTS. MEAN UCS IN SQUARE BRACKETS INCLUDES ALL DATA.
2. m_i DETERMINED USING AVERAGE RESULTS (EX. BRAZILIANS) EXCLUDING OUTLYING RESULTS.
3. m_i INSIDE BRACKETS INCLUDES BRAZILIAN AVERAGE.
4. LAB TESTING COMPLETED BY AMEC (OCT 1, 2015).
5. THE RESULTS OF THE BRAZILIAN TESTS HAVE BEEN REDUCED TO 70% OF THEIR ORIGINAL VALUE (BEWICK ET. AL., 2011).

0	27NOV'15	ISSUED WITH REPORT	ATJ	BDP
REV	DATE	DESCRIPTION	PREP'D	RVW'D

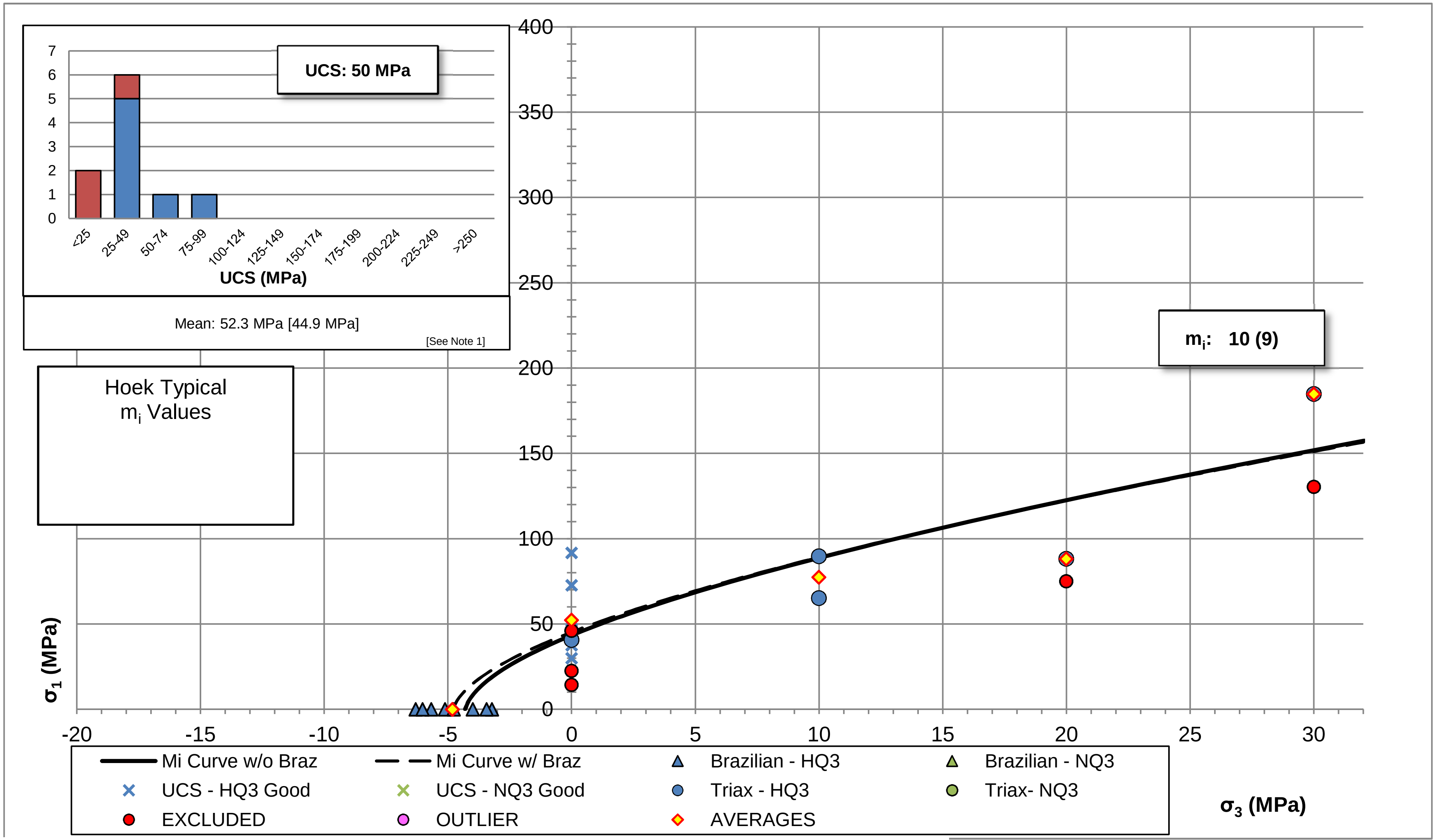
AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION

WHALE TAIL PIT

TRIAXIAL AND UCS RESULTS FOR ALTERED ULTRAMAFICS

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
NB101-622/3	2	
FIGURE A1.2		REV 0



NOTES:

1. MEAN UCS EXCLUDES POOR (RED) RESULTS. MEAN UCS IN SQUARE BRACKETS INCLUDES ALL DATA.
2. m_i DETERMINED USING AVERAGE RESULTS (EX. BRAZILIANS) EXCLUDING OUTLYING RESULTS.
3. m_i INSIDE BRACKETS INCLUDES BRAZILIAN AVERAGE.
4. LAB TESTING COMPLETED BY AMEC (OCT 1, 2015).
5. THE RESULTS OF THE BRAZILIAN TESTS HAVE BEEN REDUCED TO 70% OF THEIR ORIGINAL VALUE (BEWICK ET. AL., 2011).

AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION

WHALE TAIL PIT

TRIAXIAL AND UCS RESULTS FOR ULTRAMAFICS

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P/A NO. NB101-622/3

REF. NO. 2

FIGURE A1.3

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REV	DATE	DESCRIPTION	PREP'D	RVW'D
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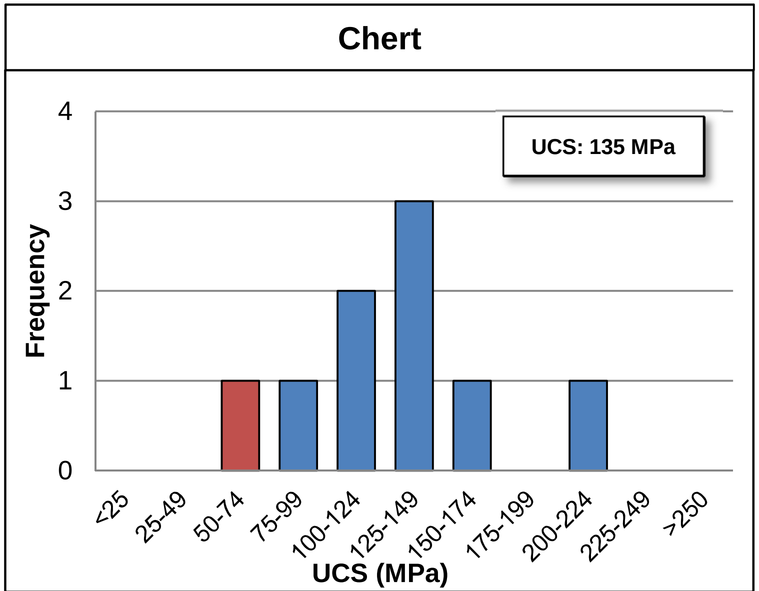
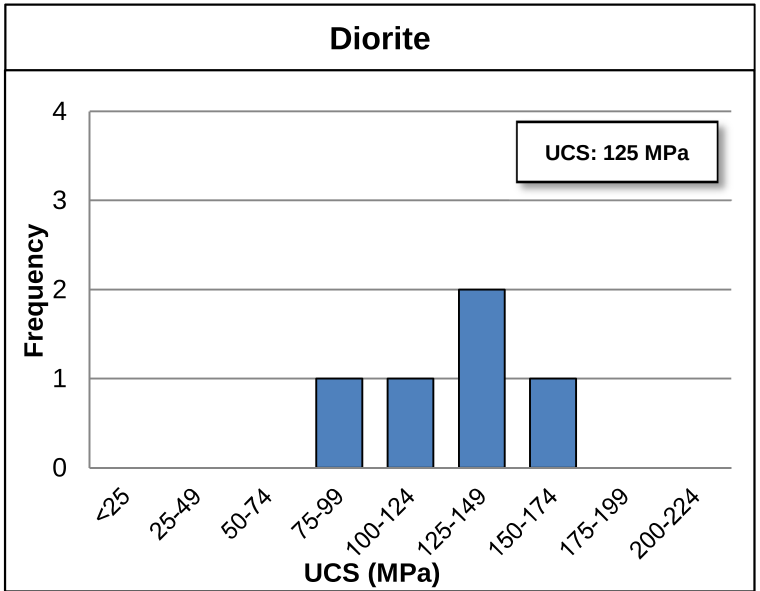


Mean: 135.6 MPa [126.1 MPa]



Mean: 126.4 MPa

NOTES:
1. MEAN UCS EXCLUDES POOR (RED) RESULTS. MEAN UCS IN SQUARE BRACKETS INCLUDES ALL DATA.
2. LAB TESTING COMPLETED BY AMEC (OCT 1, 2015).

0	27NOV'15	ISSUED WITH REPORT	ATJ	BDP
REV	DATE	DESCRIPTION	PREP'D	RVW'D

AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION

WHALE TAIL PIT

UCS RESULTS FOR CHERT AND DIORITE

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
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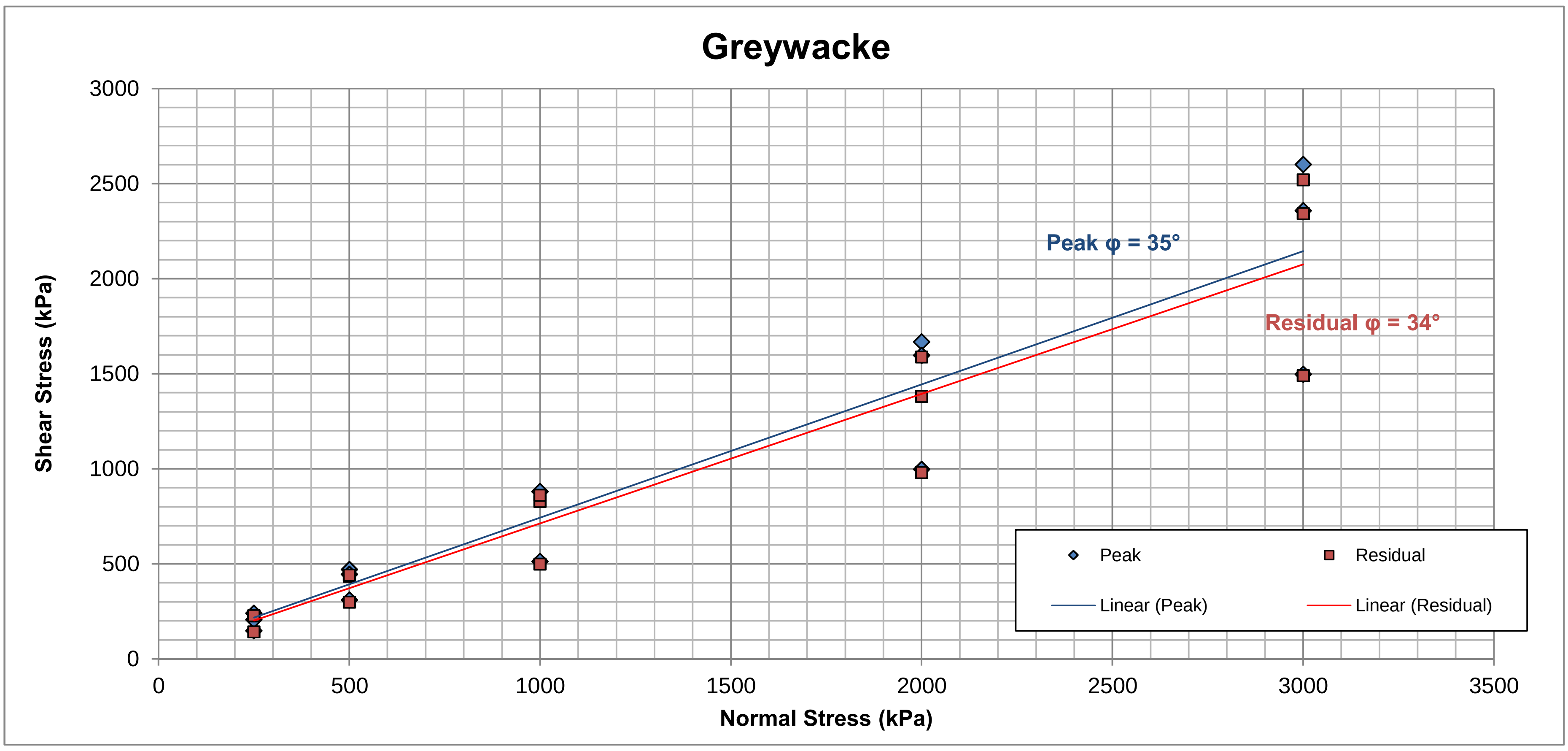
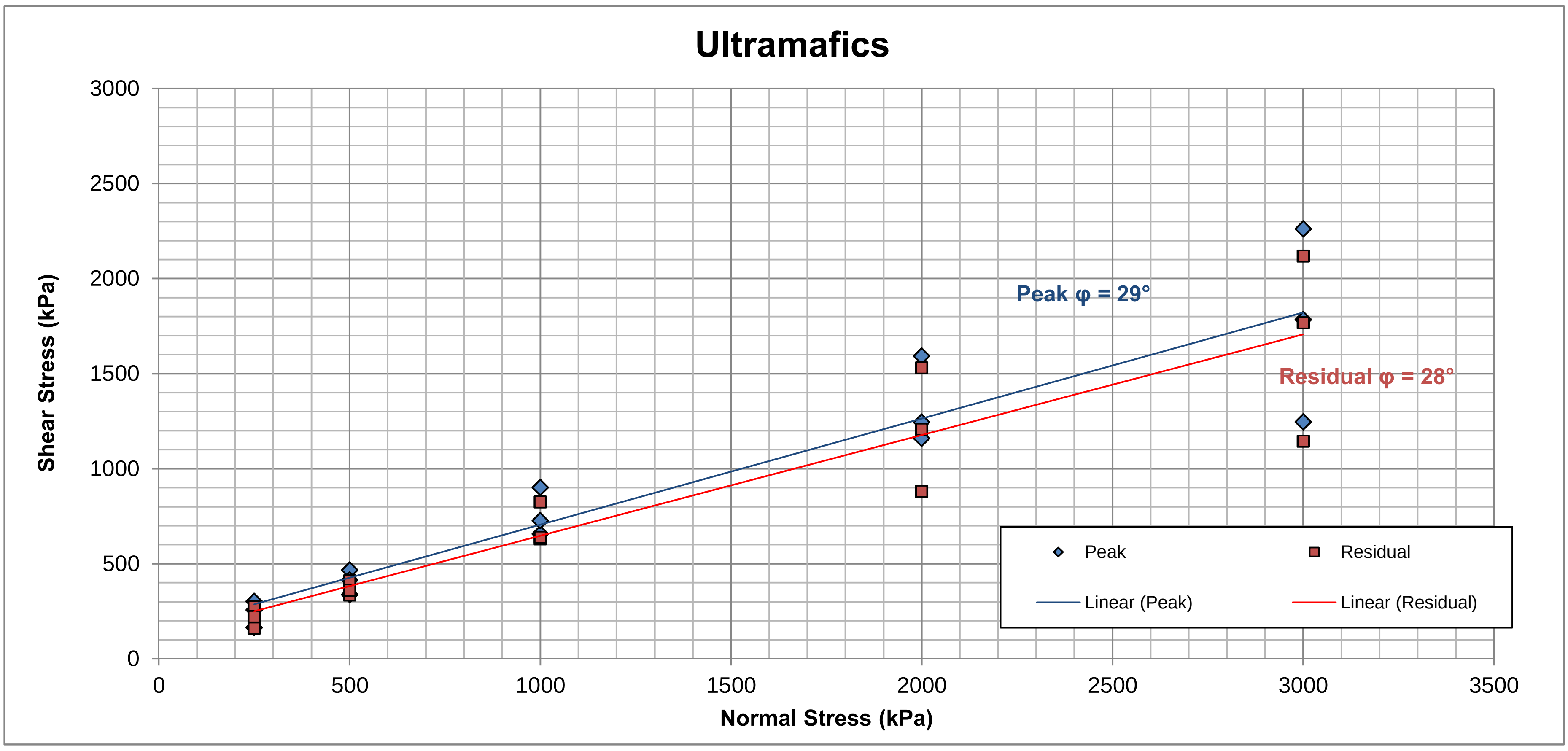
FIGURE A1.4		REV 0

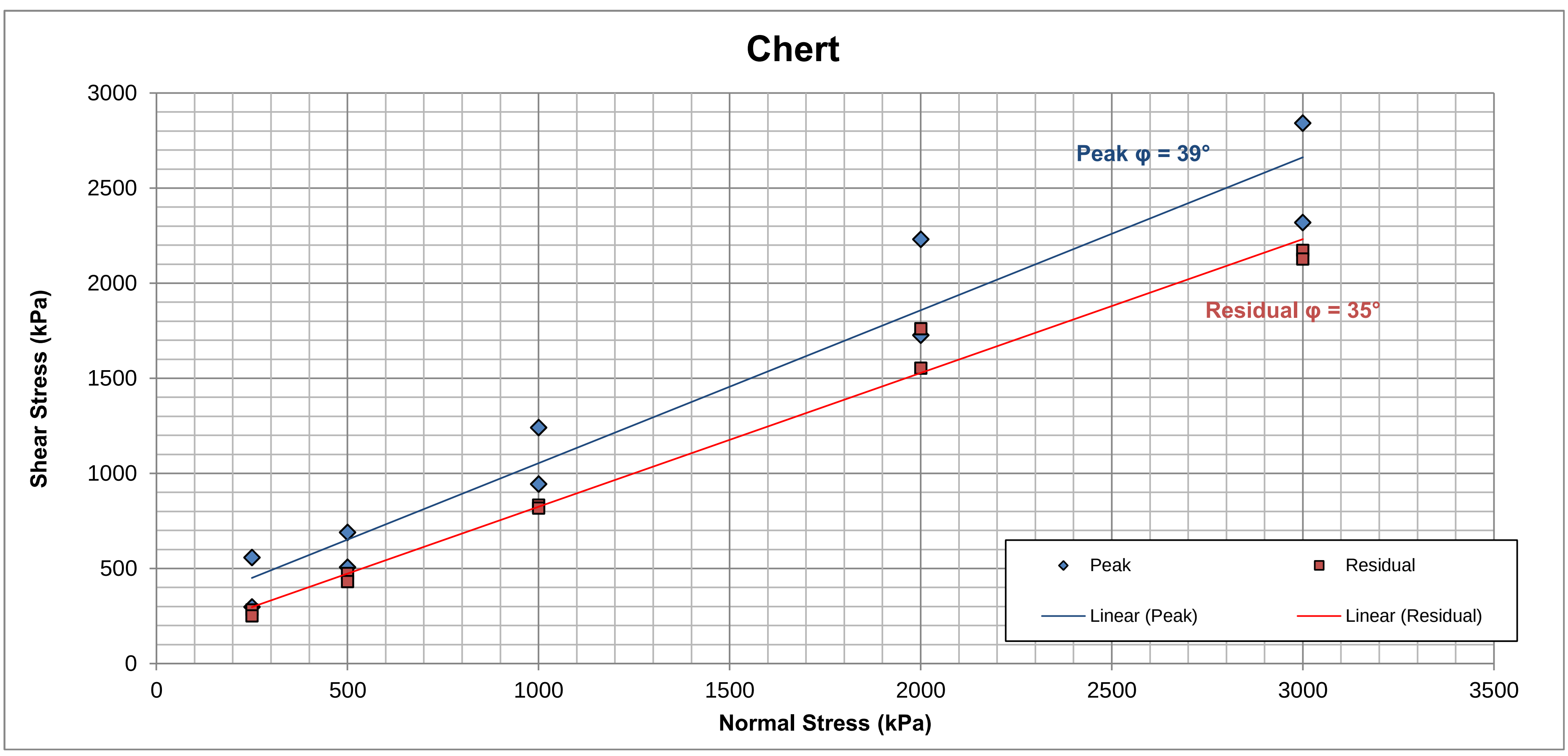
APPENDIX A2

DIRECT SHEAR RESULTS BY ROCK TYPE

(Page A2-1)







NOTES:
1. LAB TESTING COMPLETED BY AMEC (OCT 1, 2015).

AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION

WHALE TAIL PIT

DIRECT SHEAR RESULTS BY ROCK TYPE

Knight Piésold CONSULTING

P/A NO. NB101-622/3 | REF. NO. 2

FIGURE A2.1 REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	27NOV'15	ISSUED WITH REPORT	ATJ	BDP

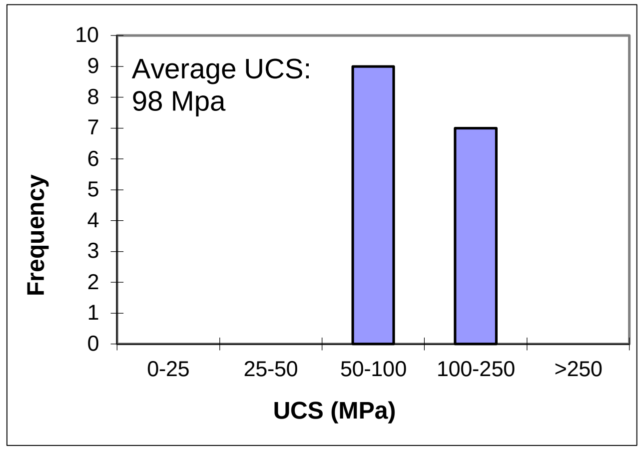
APPENDIX B

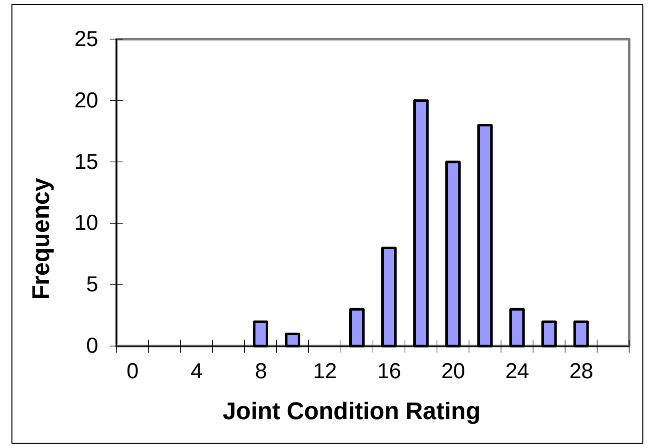
RMR HISTOGRAMS BY ROCK TYPE

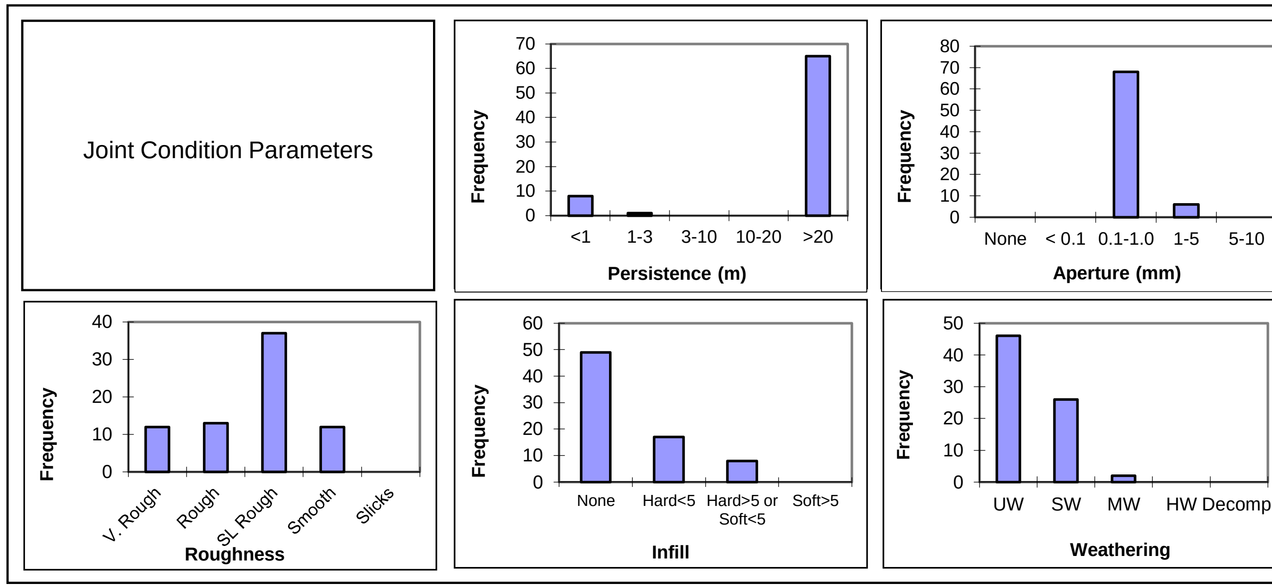
APPENDIX B1

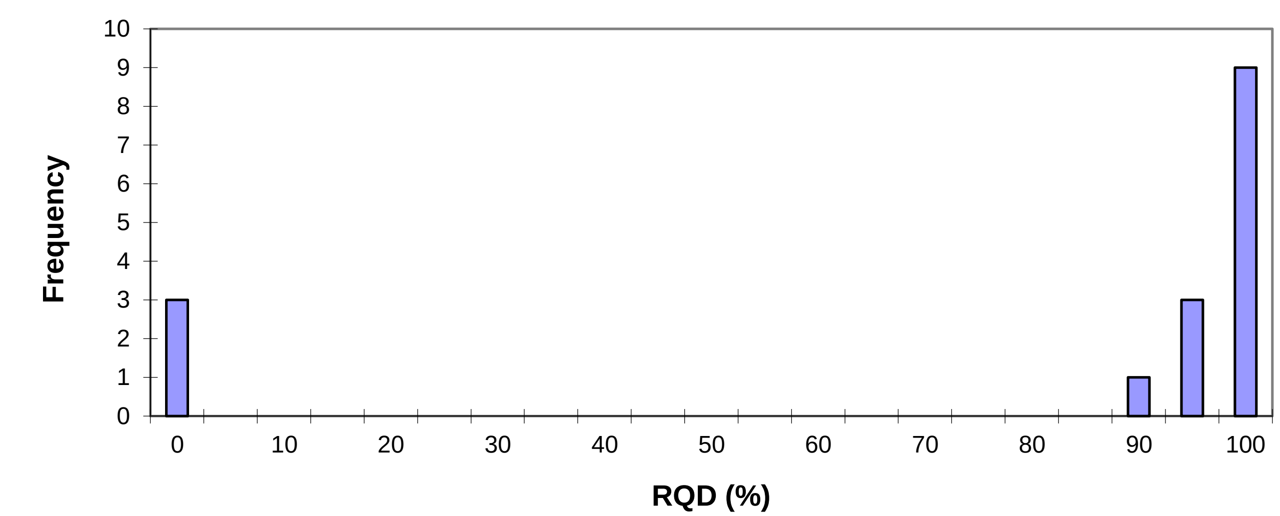
RMR HISTOGRAMS BY ROCK TYPE

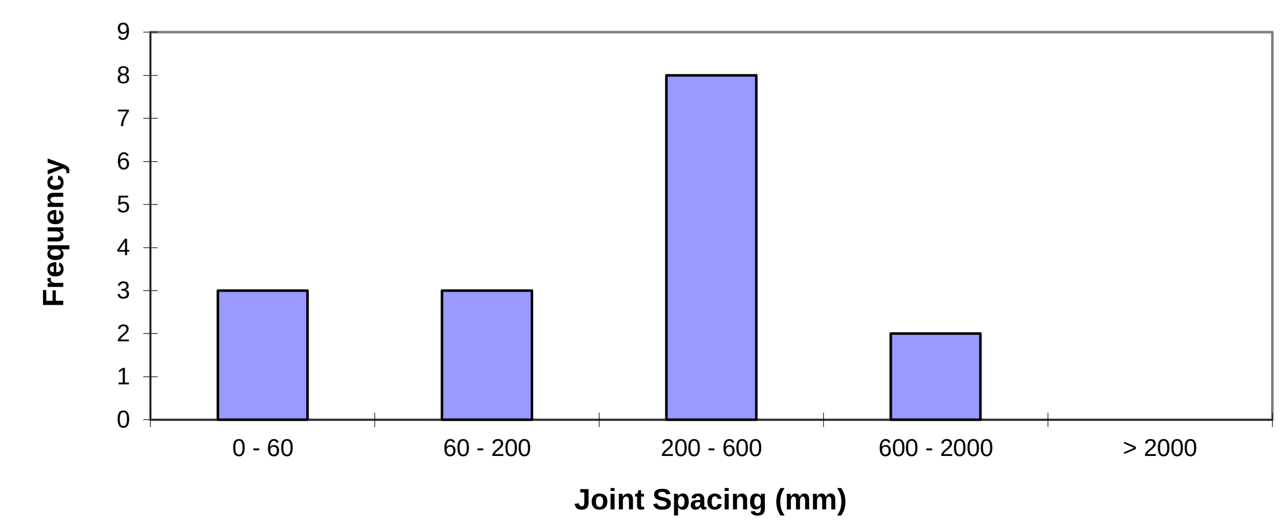
(Pages B1-1 to B1-6)

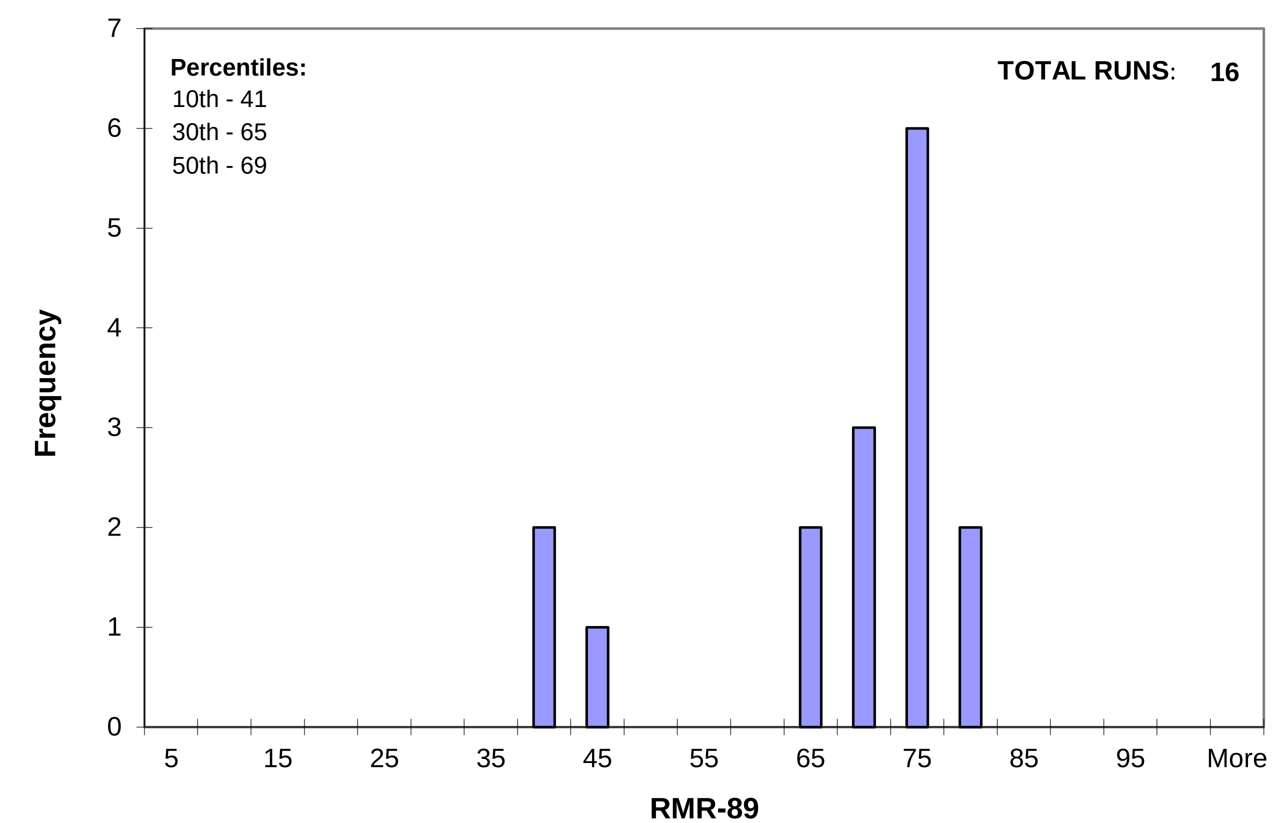












NOTES:
1. BINS INCLUDE PREVIOUS RANGE (I.E., BIN 60 INCLUDES VALUES FROM 55-60).
2. RQD, RMR89, JOINT SPACING, AND UCS ARE RUN BASED PARAMETERS WHILE JOINT CONDITION RATING AND PARAMETERS ARE BASED ON INDIVIDUAL DISCONTINUITIES WITHIN A LOGGING RUN.
3. MINIMUM RMR VALUE OF EACH RUN DISPLAYED.

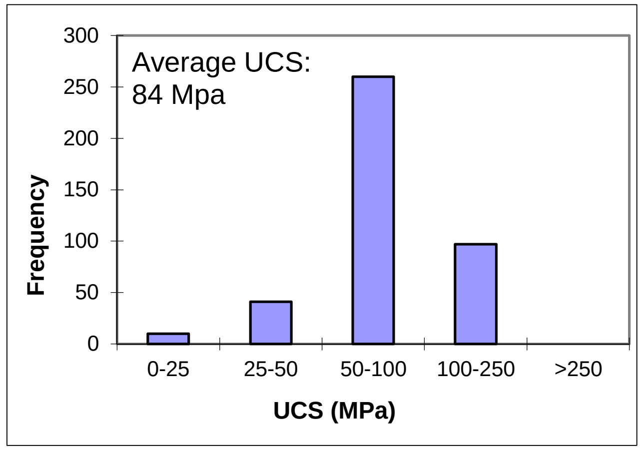
AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION
WHALE TAIL PIT

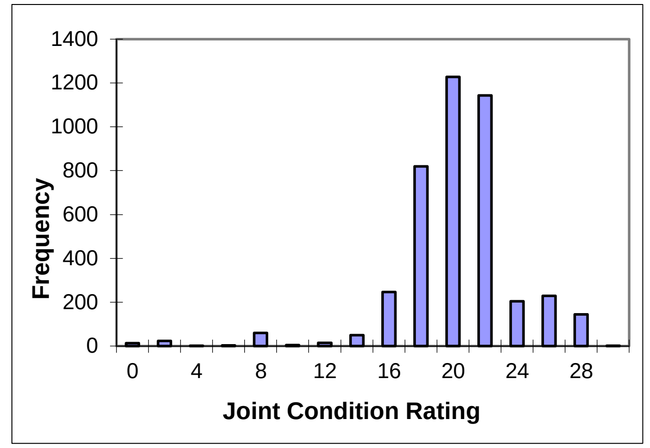
RMR89 PARAMETER HISTOGRAMS FOR DIORITE (I2)

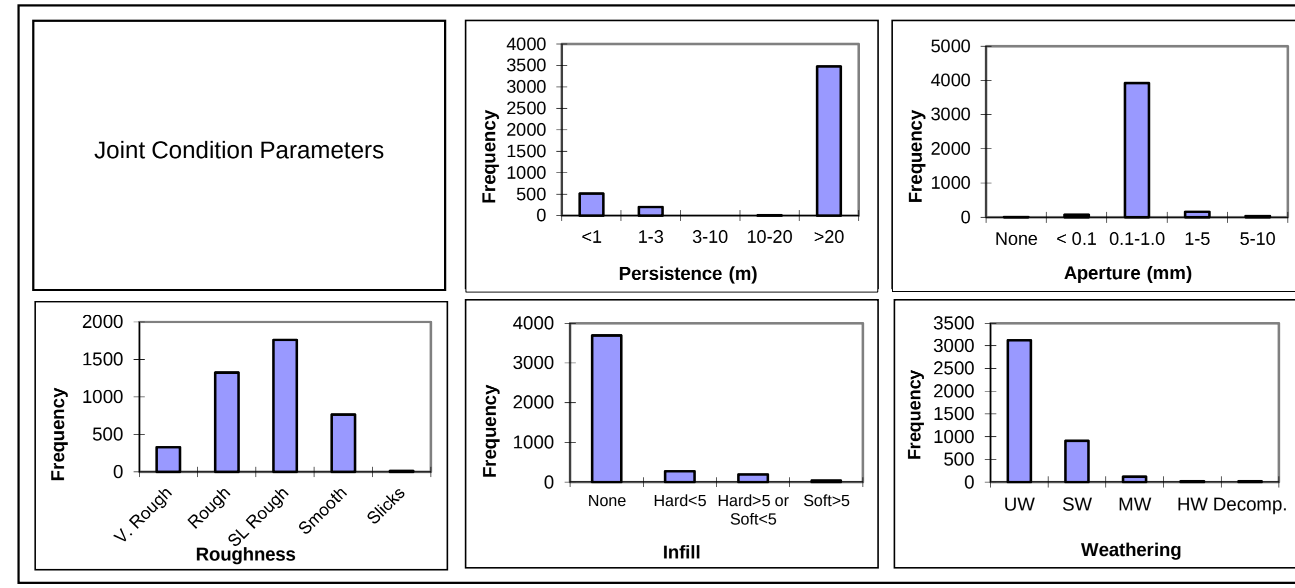
Knight Piésold CONSULTING

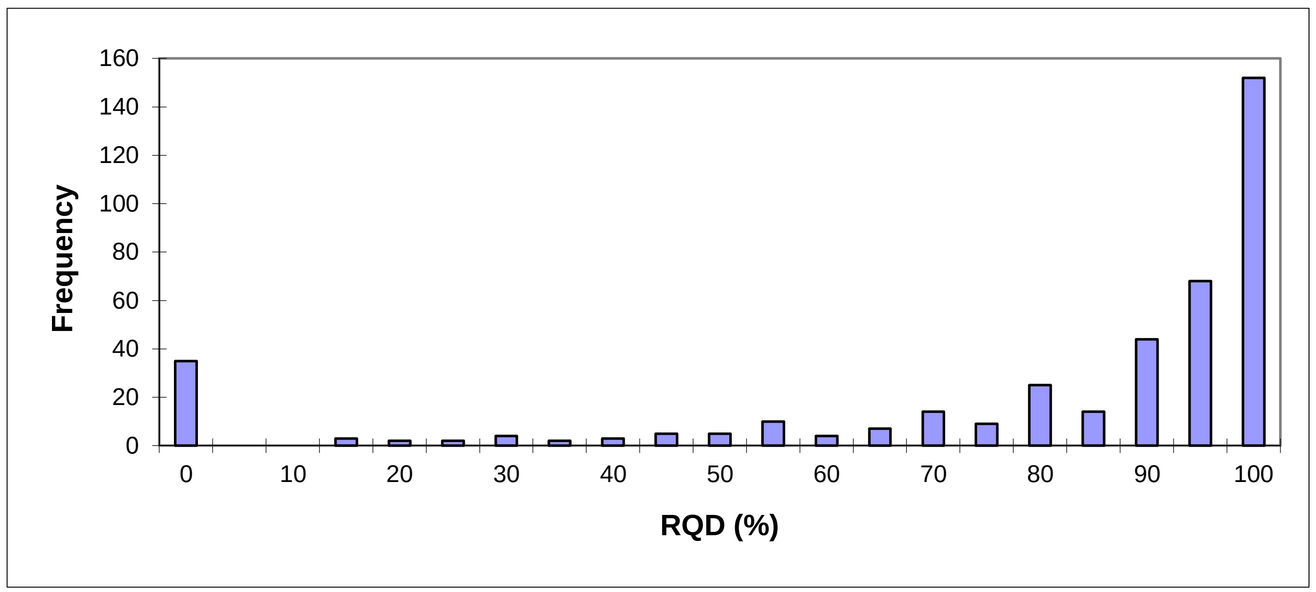
P/A NO.	REF. NO.	
NB101-622/3	2	
FIGURE B1.1		REV 0

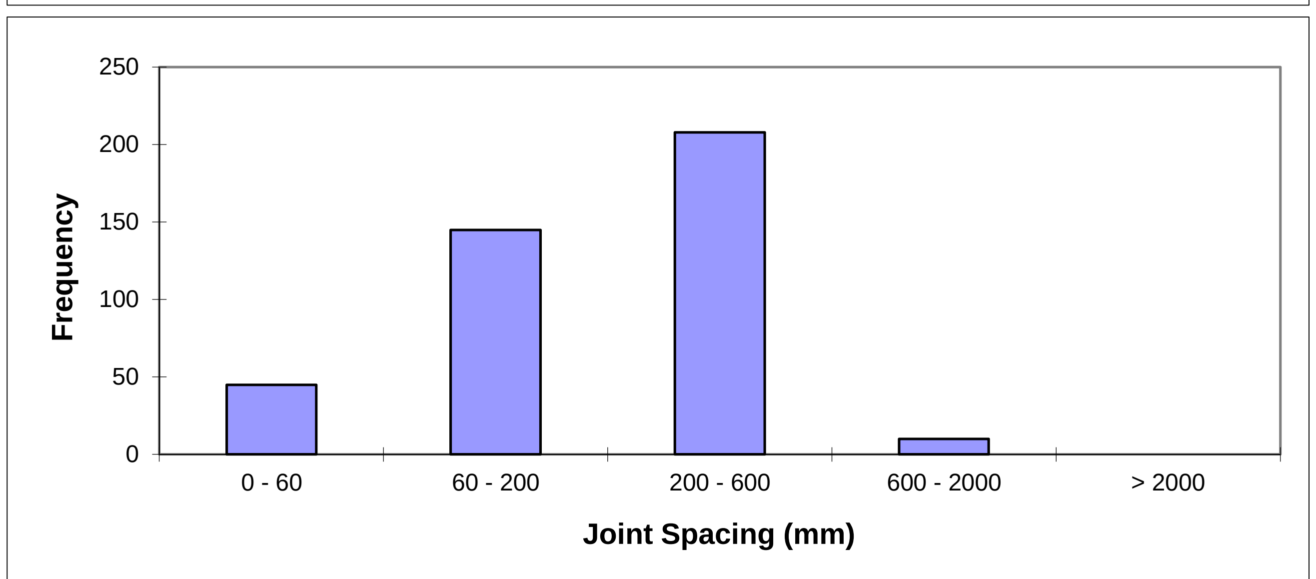
0	27NOV'15	ISSUED WITH REPORT	MJR	BDP
REV	DATE	DESCRIPTION	PREP'D	RVW'D

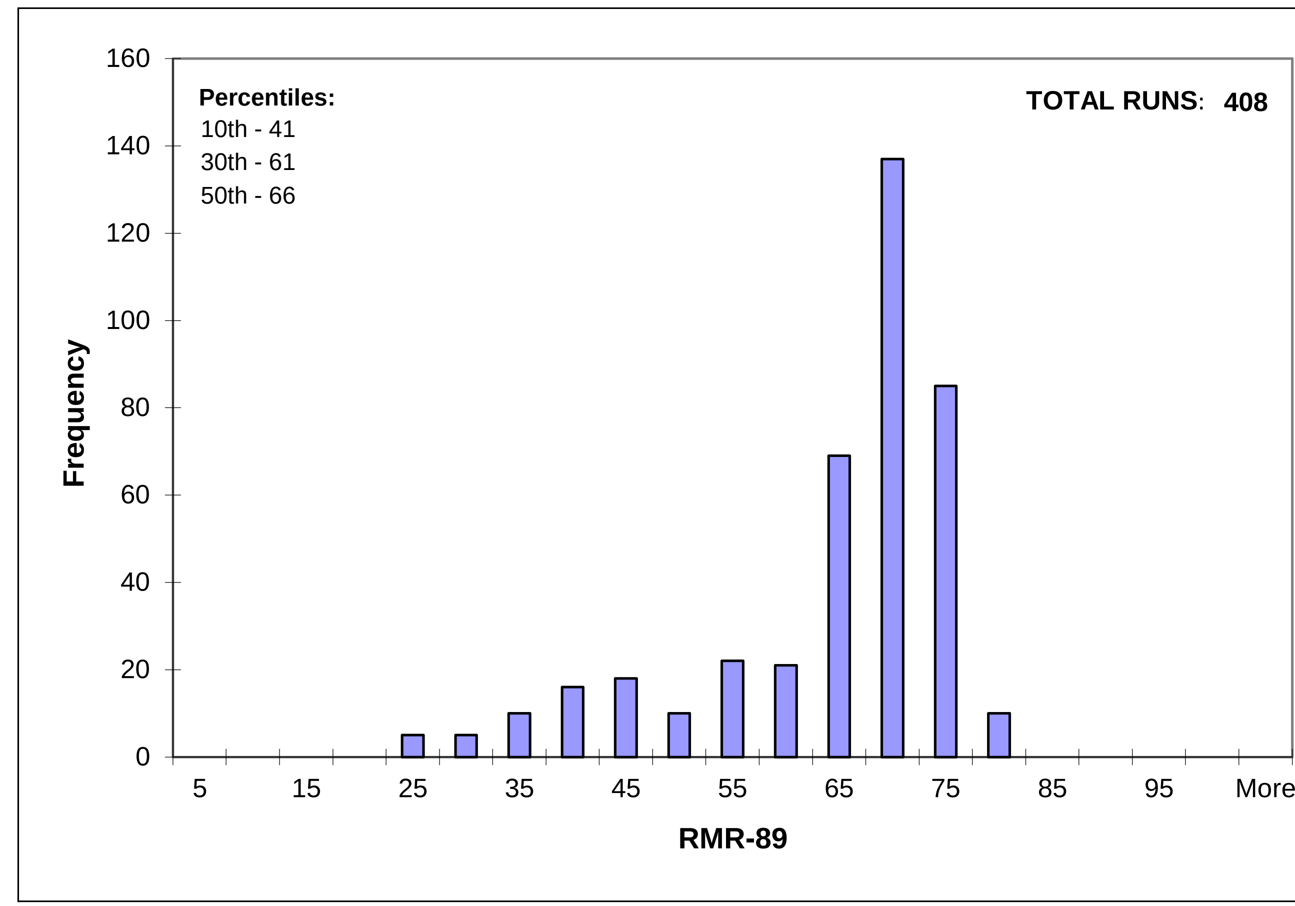












NOTES:
1. BINS INCLUDE PREVIOUS RANGE (I.E., BIN 60 INCLUDES VALUES FROM 55-60).
2. RQD, RMR89, JOINT SPACING, AND UCS ARE RUN BASED PARAMETERS WHILE JOINT CONDITION RATING AND PARAMETERS ARE BASED ON INDIVIDUAL DISCONTINUITIES WITHIN A LOGGING RUN.
3. MINIMUM RMR VALUE OF EACH RUN DISPLAYED.

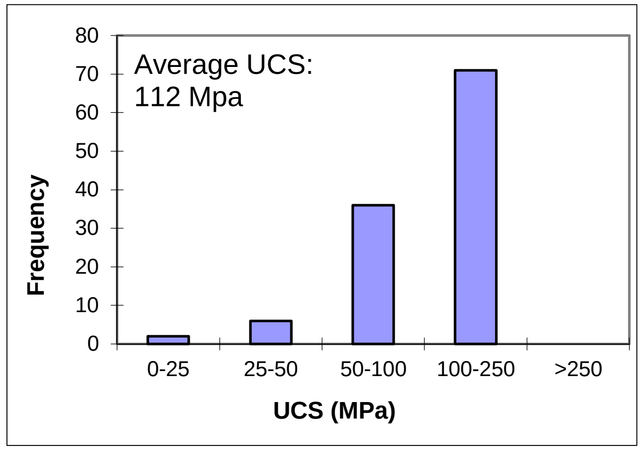
REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	27NOV'15	ISSUED WITH REPORT	MJR	BDP

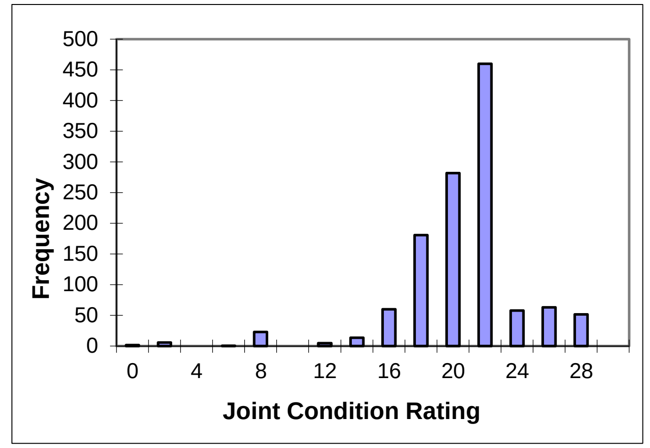
AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION
WHALE TAIL PIT

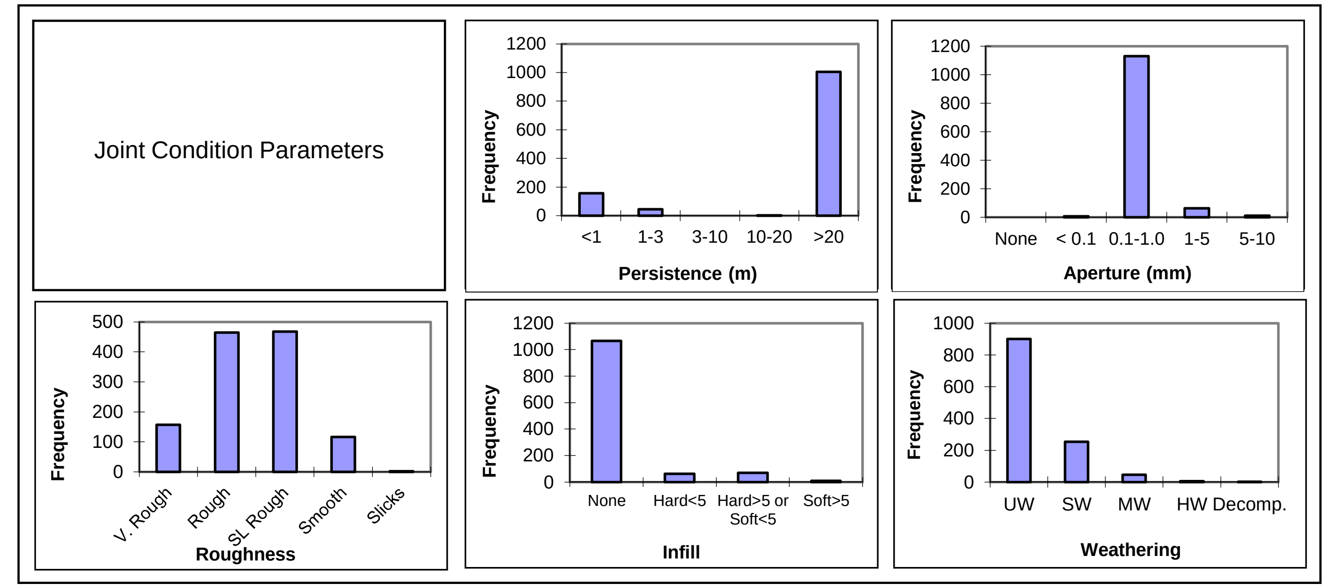
RMR89 PARAMETER HISTOGRAMS FOR GREYWACKE (S3, S6 & V3)

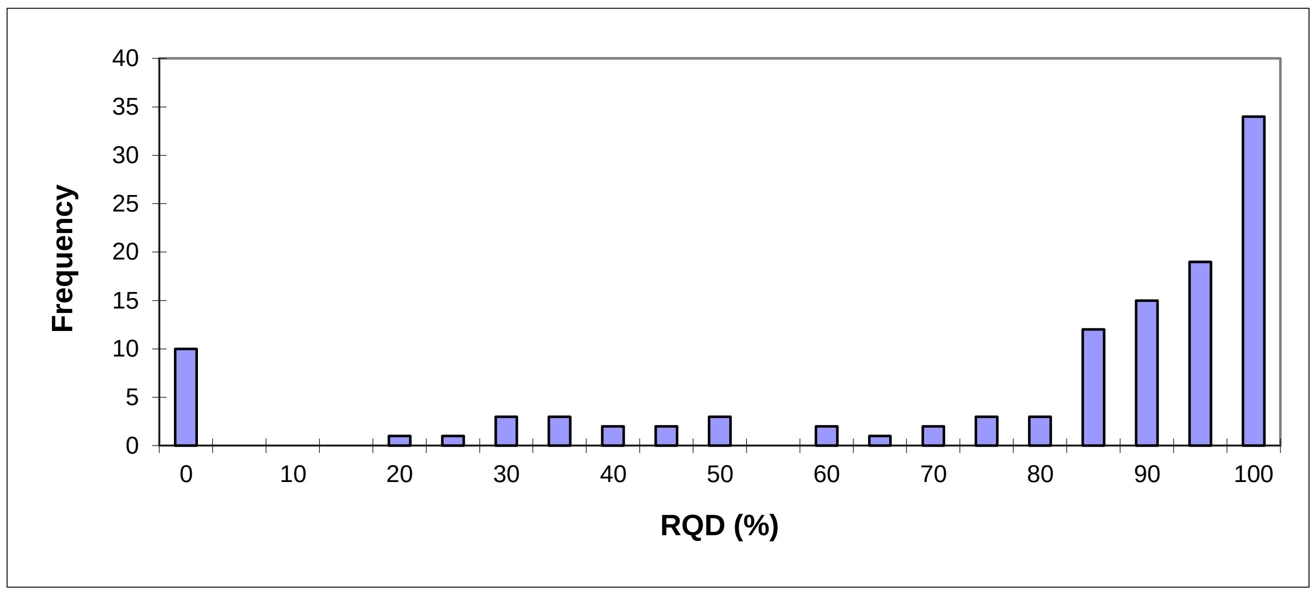
Knight Piésold CONSULTING

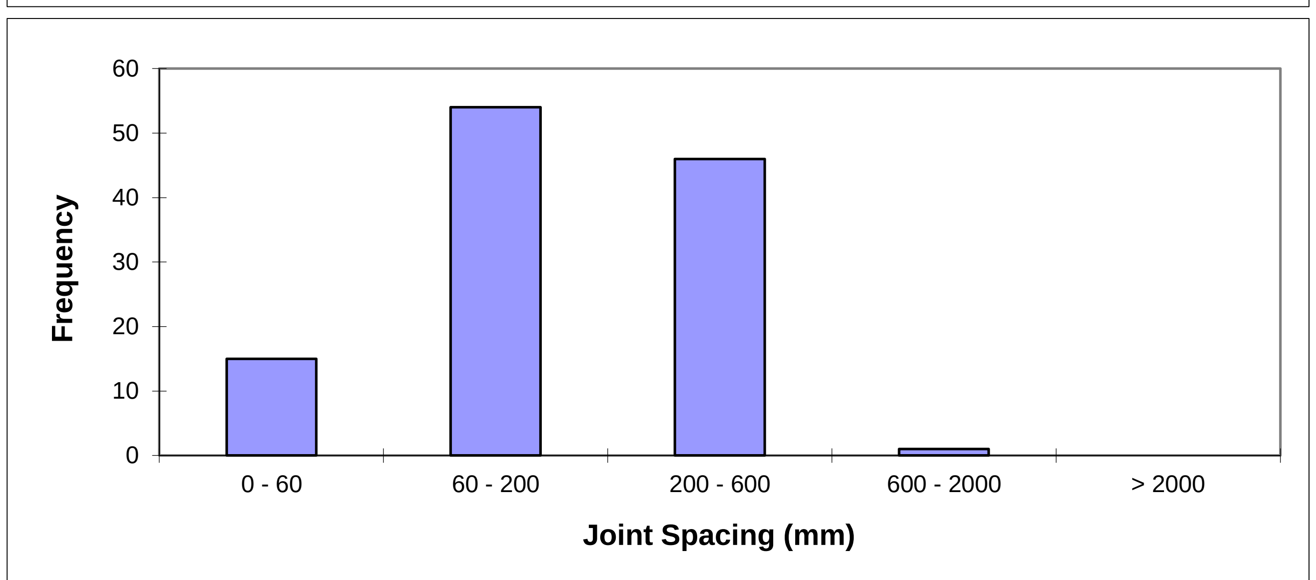
P/A NO.	REF. NO.	
NB101-622/3	2	
FIGURE B1.2		REV 0

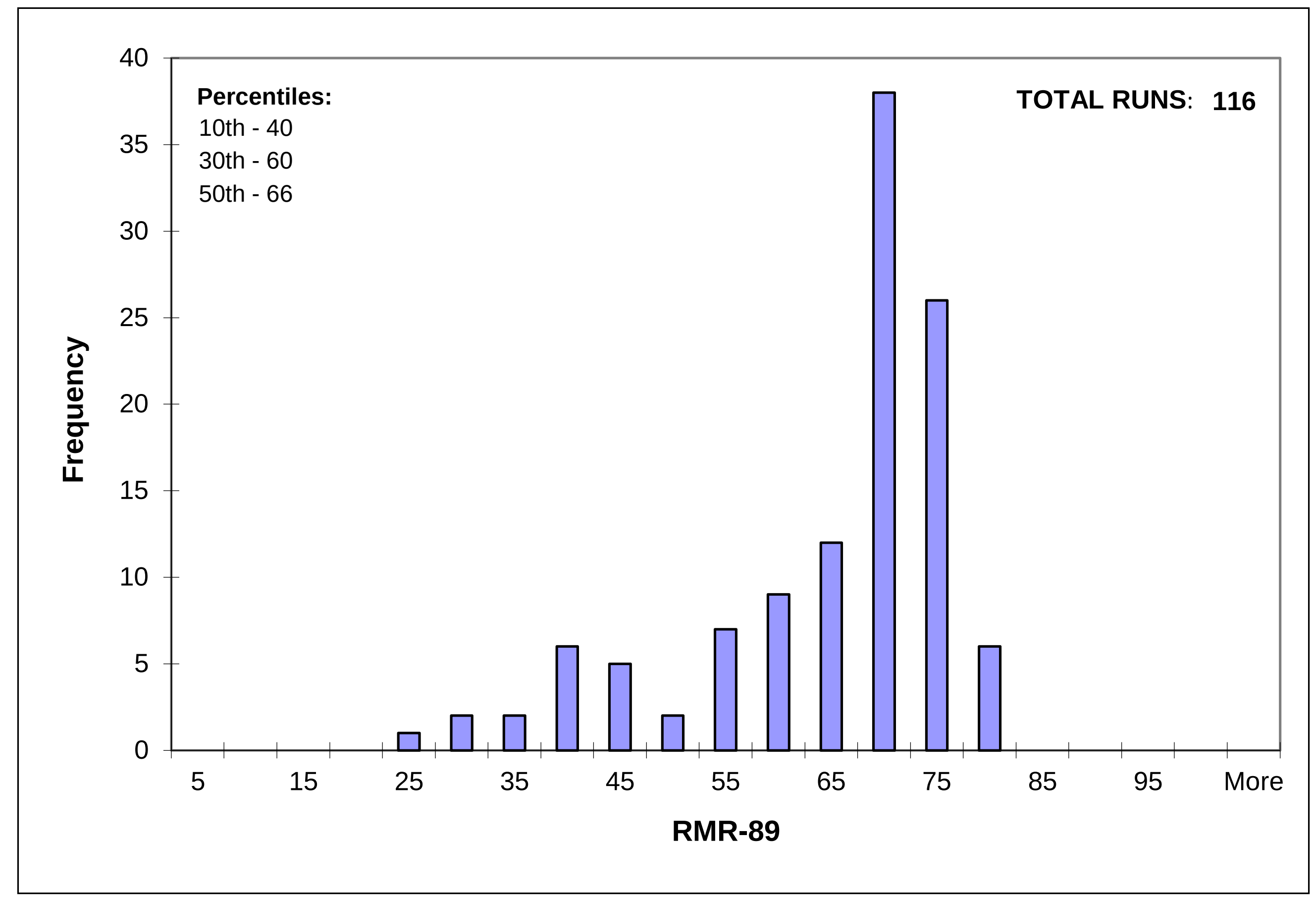












NOTES:
1. BINS INCLUDE PREVIOUS RANGE (I.E., BIN 60 INCLUDES VALUES FROM 55-60).
2. RQD, RMR89, JOINT SPACING, AND UCS ARE RUN BASED PARAMETERS WHILE JOINT CONDITION RATING AND PARAMETERS ARE BASED ON INDIVIDUAL DISCONTINUITIES WITHIN A LOGGING RUN.
3. MINIMUM RMR VALUE OF EACH RUN DISPLAYED.

AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION
WHALE TAIL PIT

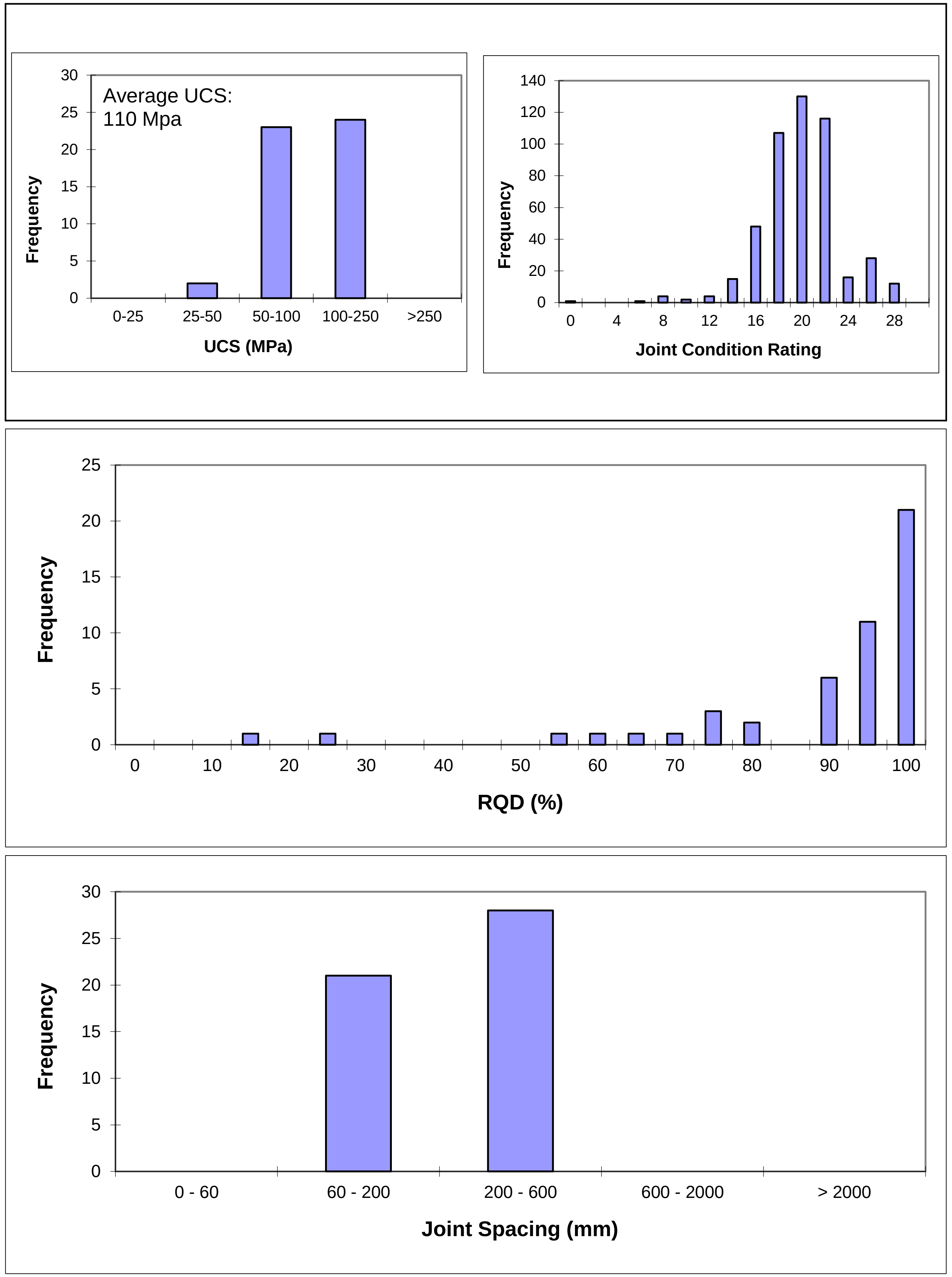
RMR89 PARAMETER HISTOGRAMS FOR CHERT (S10, S10E, S10mSi & S10sSi)

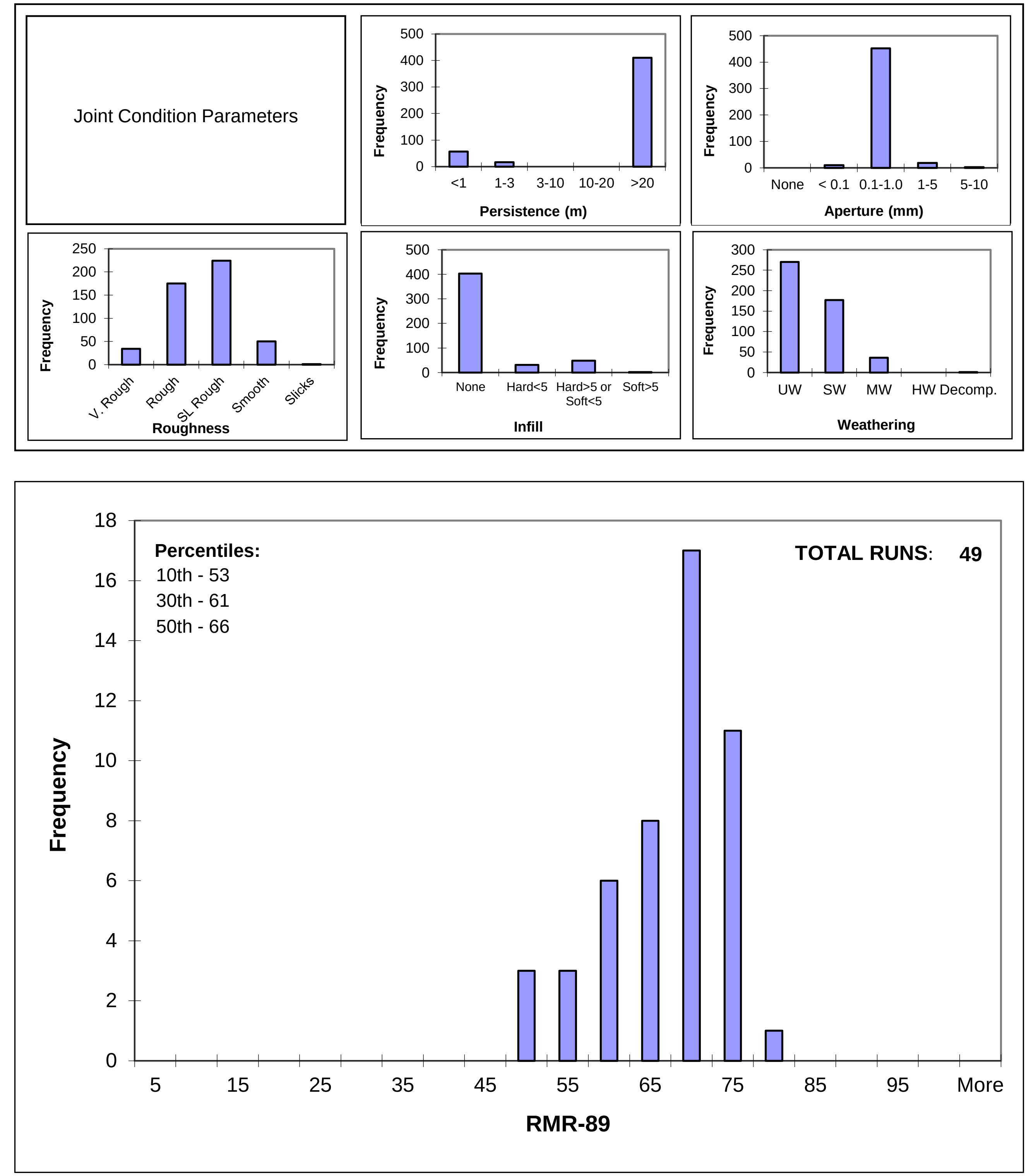
Knight Piésold CONSULTING

P/A NO.	REF. NO.
NB101-622/3	2

FIGURE B1.3 REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	27NOV'15	ISSUED WITH REPORT	MJR	BDP





NOTES:

1. BINS INCLUDE PREVIOUS RANGE (I.E., BIN 60 INCLUDES VALUES FROM 55-60).
2. RQD, RMR89, JOINT SPACING, AND UCS ARE RUN BASED PARAMETERS WHILE JOINT CONDITION RATING AND PARAMETERS ARE BASED ON INDIVIDUAL DISCONTINUITIES WITHIN A LOGGING RUN.
3. MINIMUM RMR VALUE OF EACH RUN DISPLAYED.

AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION

WHALE TAIL PIT

RMR89 PARAMETER HISTOGRAMS FOR ALTERED ULTRAMAFICS (V3F & V4Amph)

Knight Piésold CONSULTING

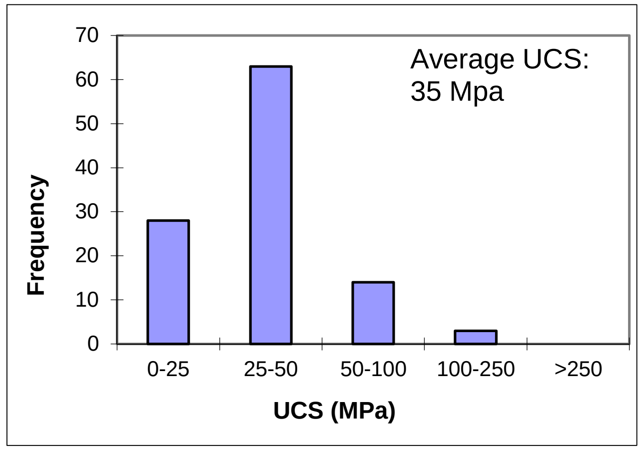
P/A NO. NB101-622/3

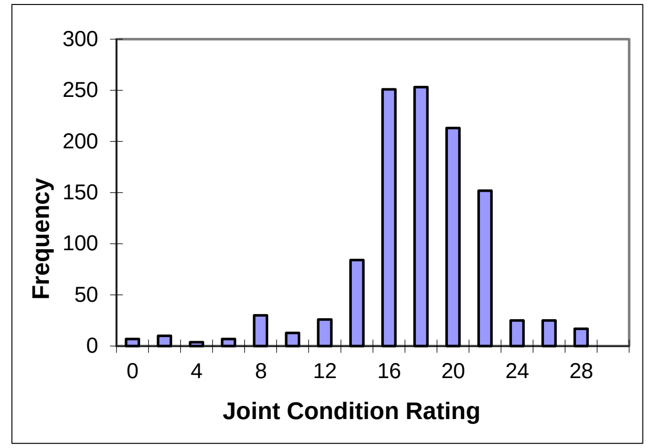
REF. NO. 2

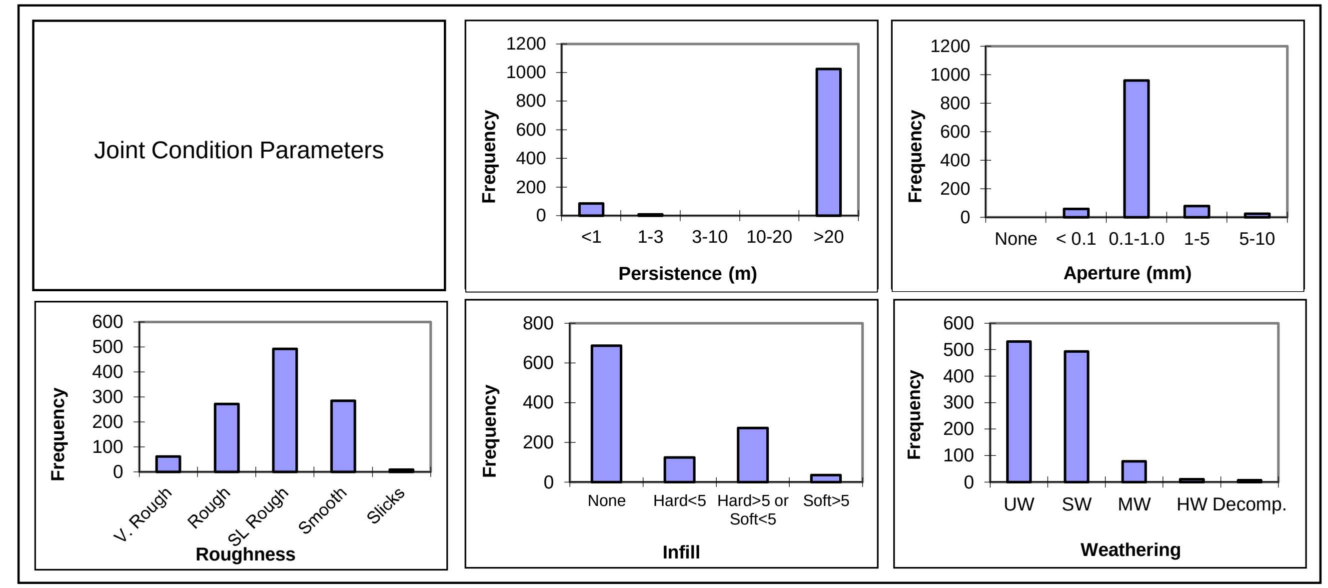
FIGURE B1.4

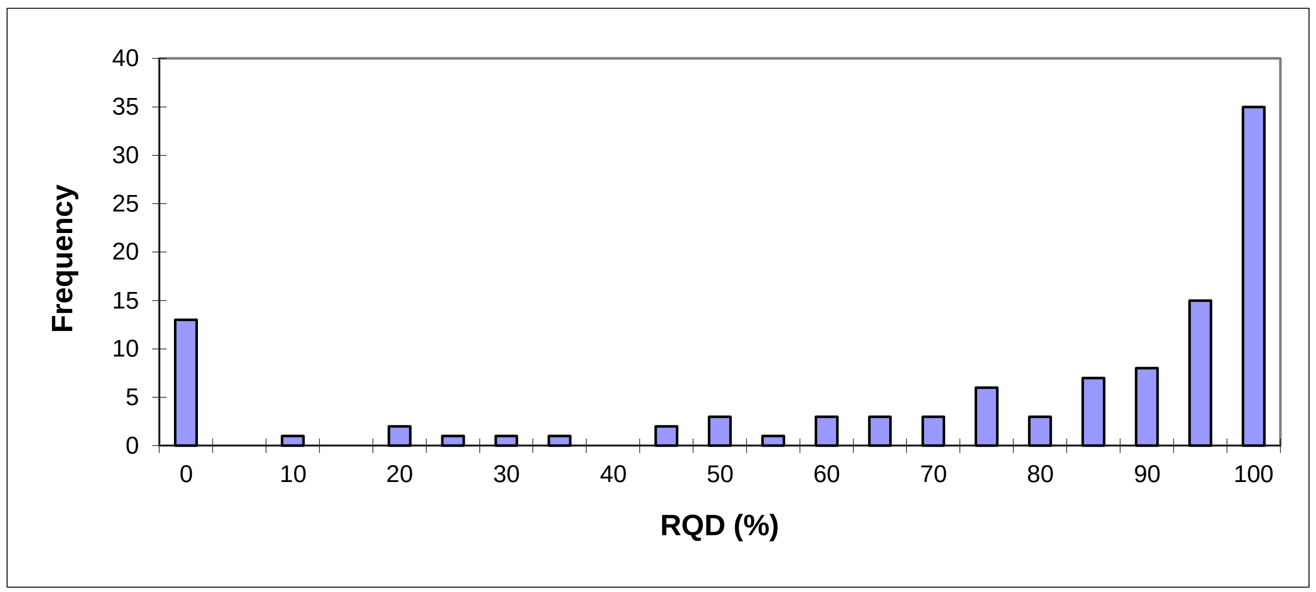
REV 0

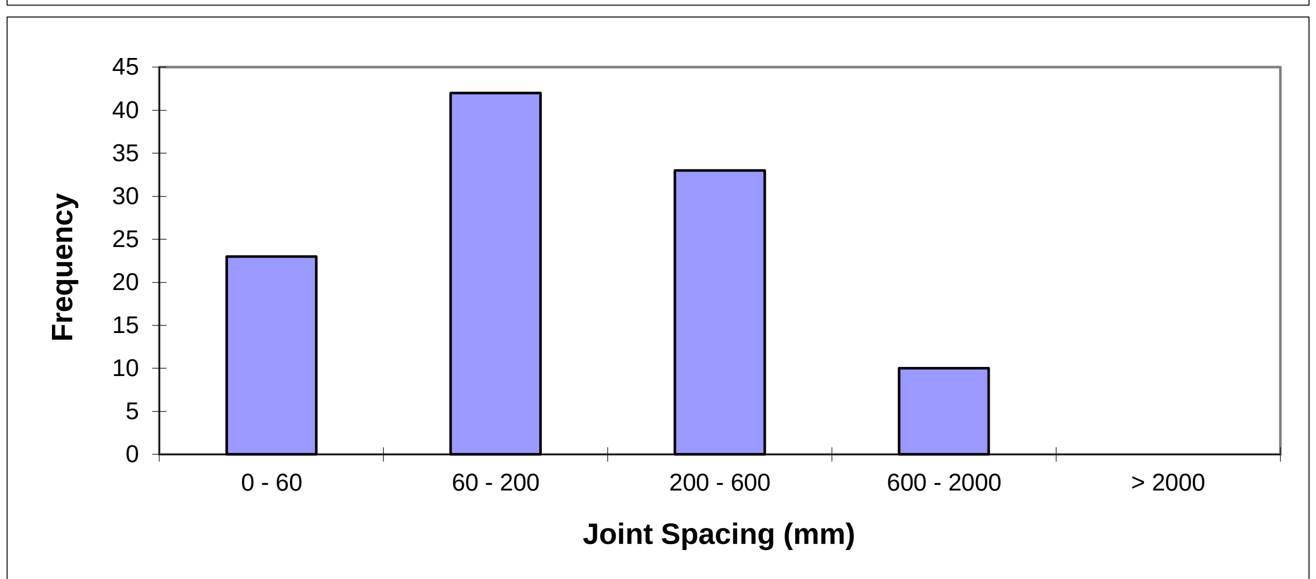
0	27NOV'15	ISSUED WITH REPORT	MJR	BDP
REV	DATE	DESCRIPTION	PREP'D	RVW'D

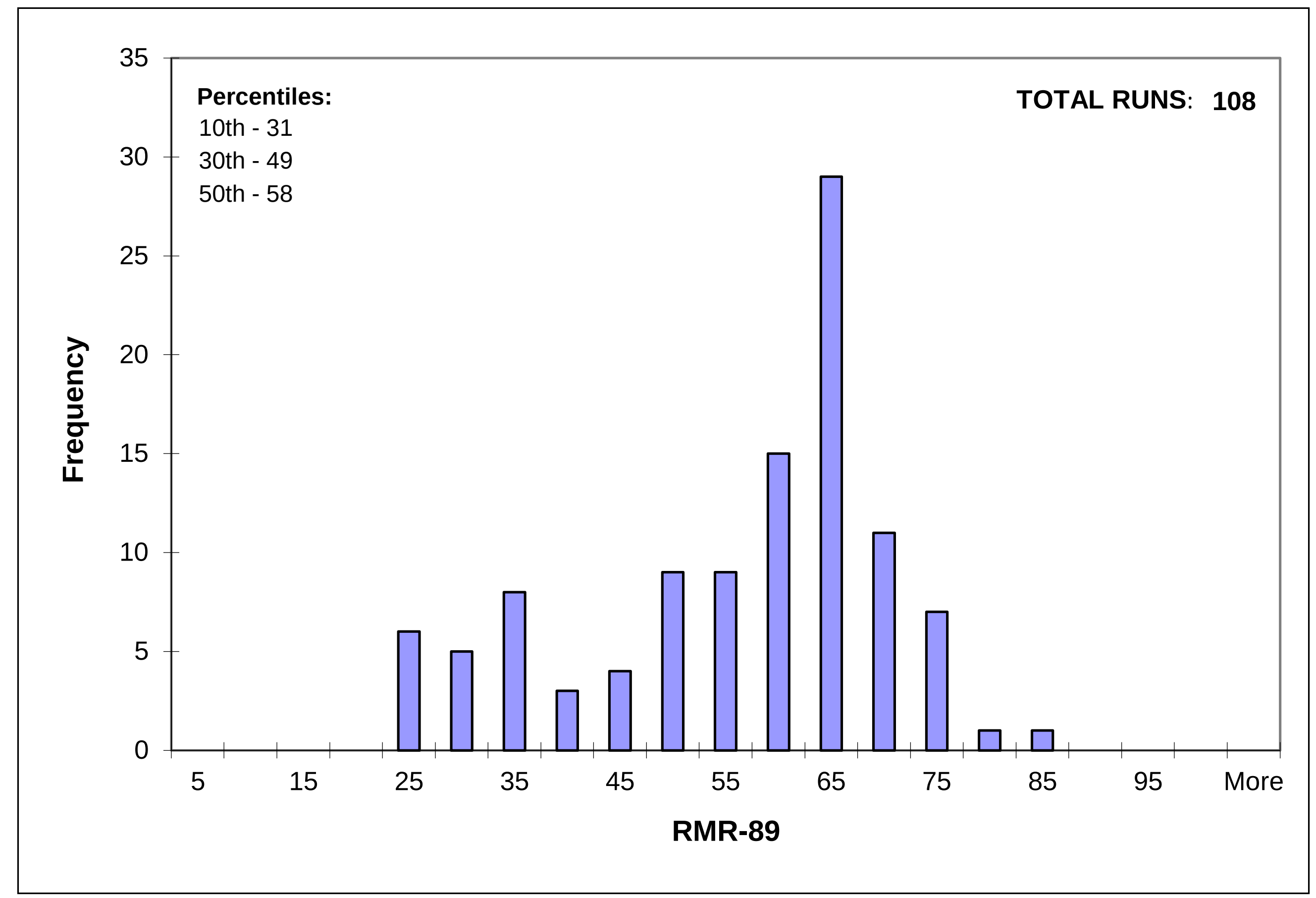












NOTES:
1. BINS INCLUDE PREVIOUS RANGE (I.E., BIN 60 INCLUDES VALUES FROM 55-60).
2. RQD, RMR89, JOINT SPACING, AND UCS ARE RUN BASED PARAMETERS WHILE JOINT CONDITION RATING AND PARAMETERS ARE BASED ON INDIVIDUAL DISCONTINUITIES WITHIN A LOGGING RUN.
3. MINIMUM RMR VALUE OF EACH RUN DISPLAYED.

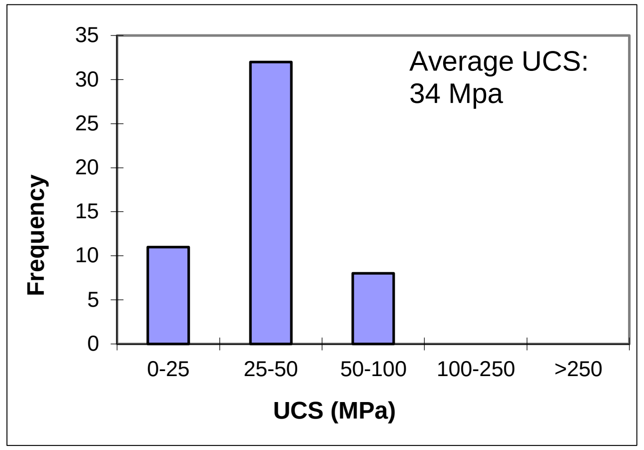
AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION
WHALE TAIL PIT

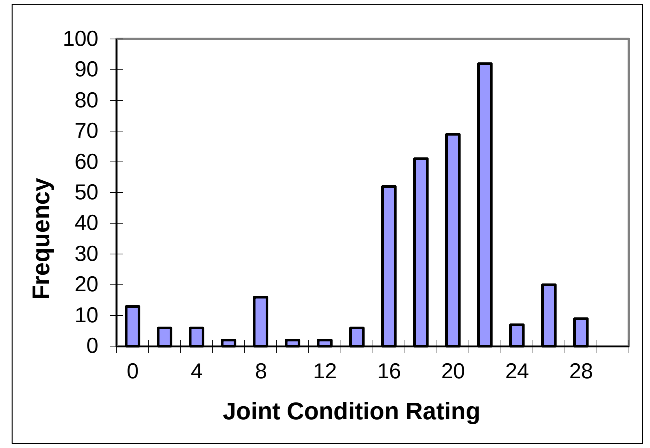
RMR89 PARAMETER HISTOGRAMS FOR ULTRAMFICS - NORTH LIMB (V4A)

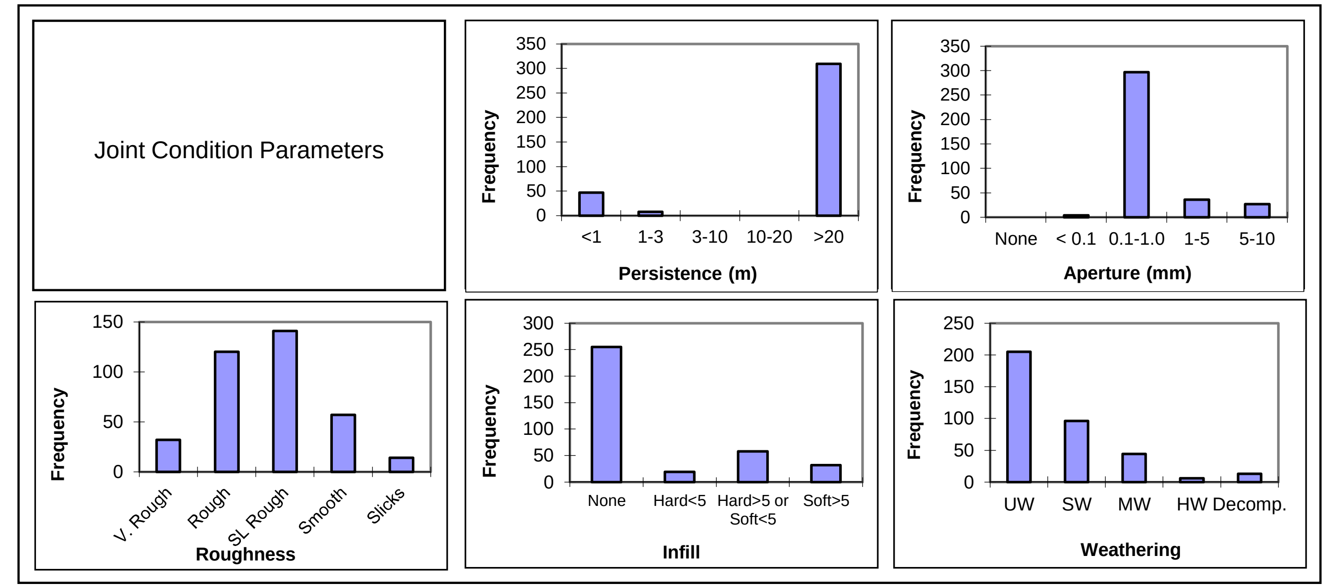
Knight Piésold CONSULTING

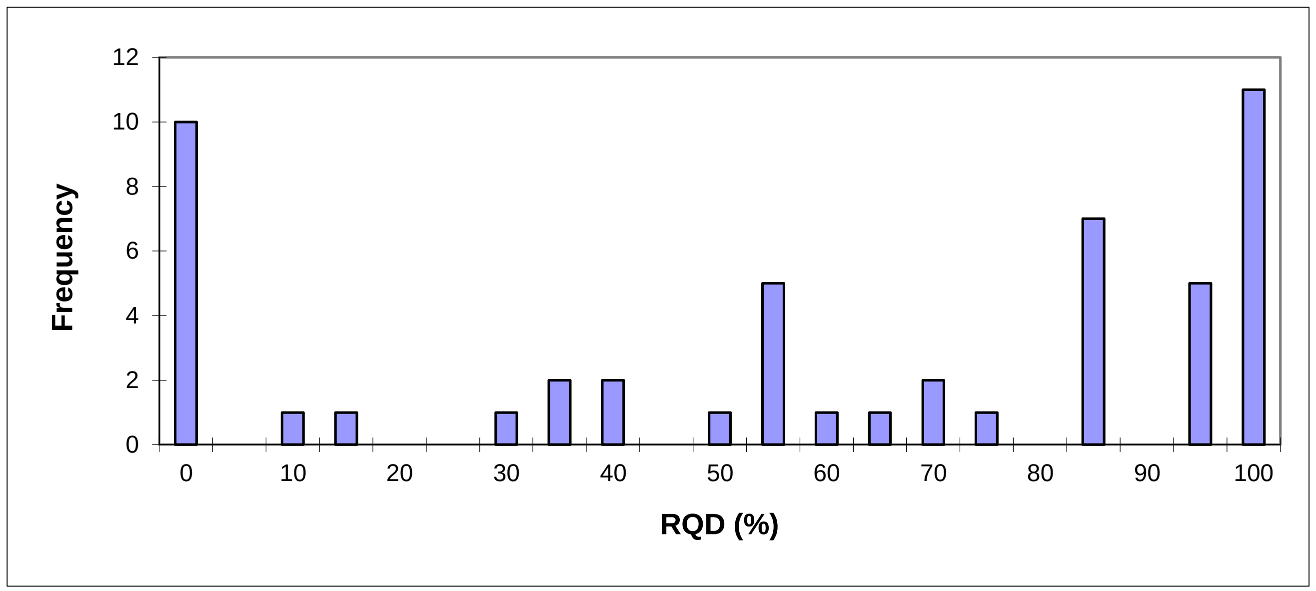
P/A NO.	REF. NO.	
NB101-622/3	2	
FIGURE B1.5		REV 0

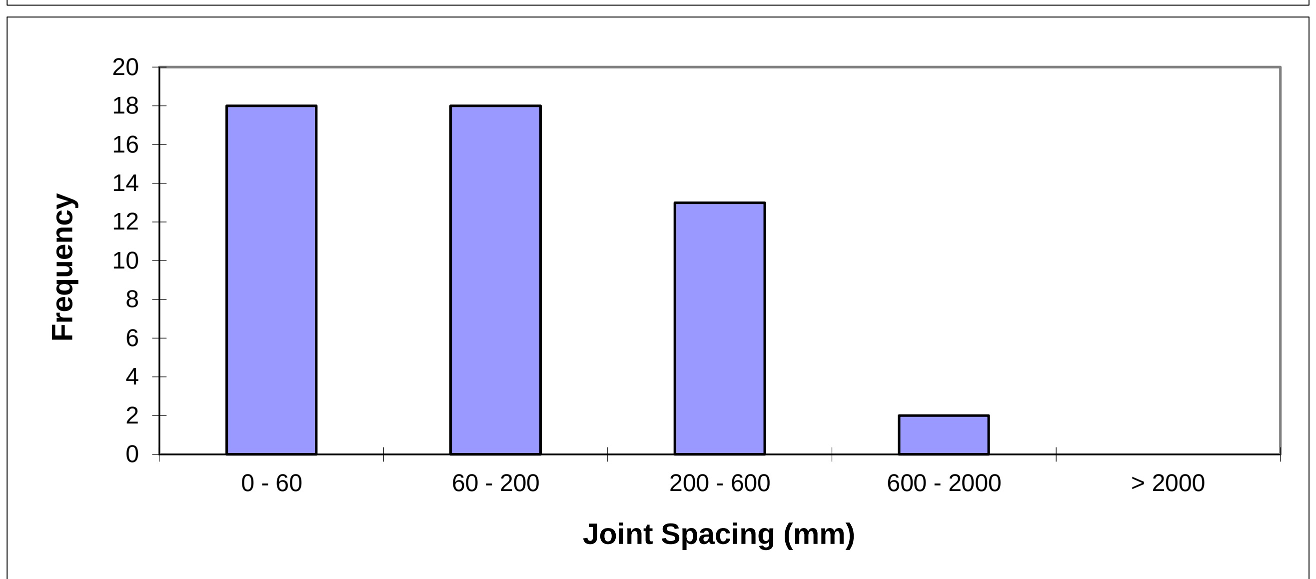
REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	27NOV'15	ISSUED WITH REPORT	MJR	BDP

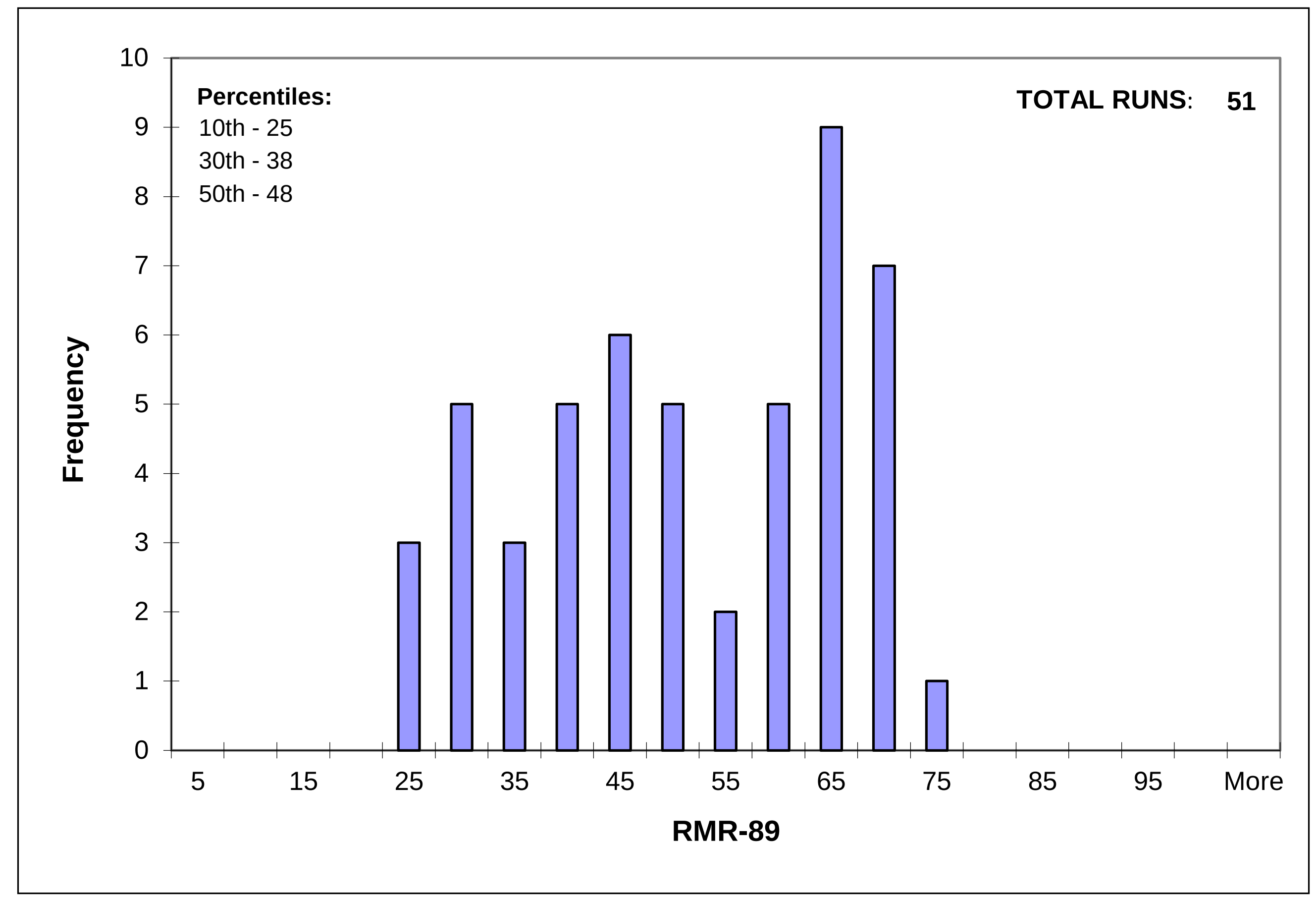












NOTES:
1. BINS INCLUDE PREVIOUS RANGE (I.E., BIN 60 INCLUDES VALUES FROM 55-60).
2. RQD, RMR89, JOINT SPACING, AND UCS ARE RUN BASED PARAMETERS WHILE JOINT CONDITION RATING AND PARAMETERS ARE BASED ON INDIVIDUAL DISCONTINUITIES WITHIN A LOGGING RUN.
3. MINIMUM RMR VALUE OF EACH RUN DISPLAYED.

AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION
WHALE TAIL PIT

RMR89 PARAMETER HISTOGRAMS FOR ULTRAMAFICS - SOUTH LIMB (V3-V4 & V4Bio)

Knight Piésold CONSULTING

P/A NO. NB101-622/3 | REF. NO. 2

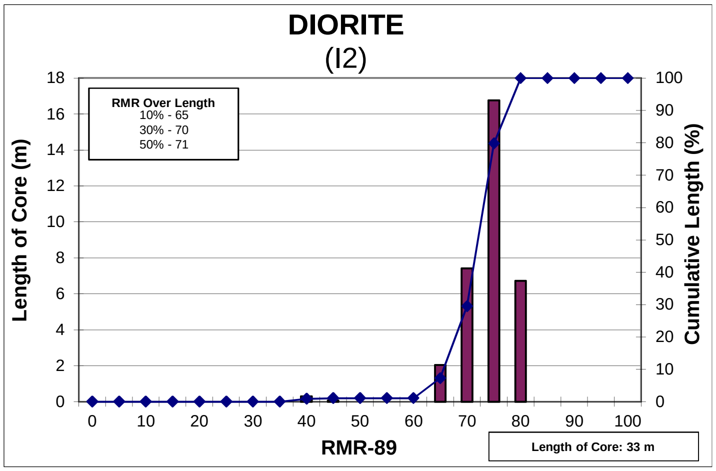
FIGURE B1.6 REV 0

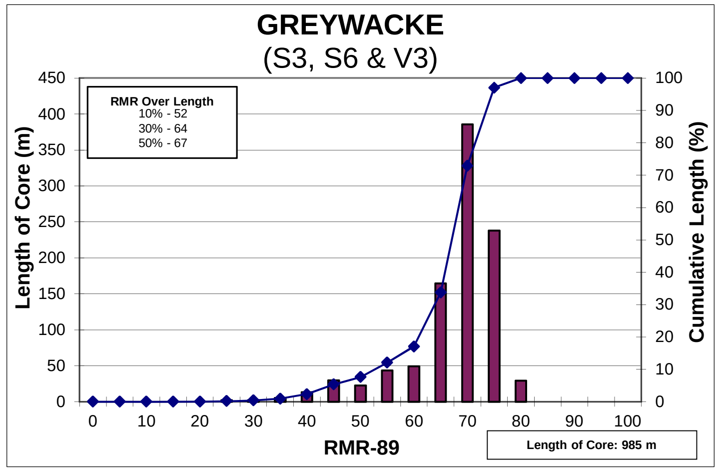
0	27NOV'15	ISSUED WITH REPORT	MJR	BDP
REV	DATE	DESCRIPTION	PREP'D	RVW'D

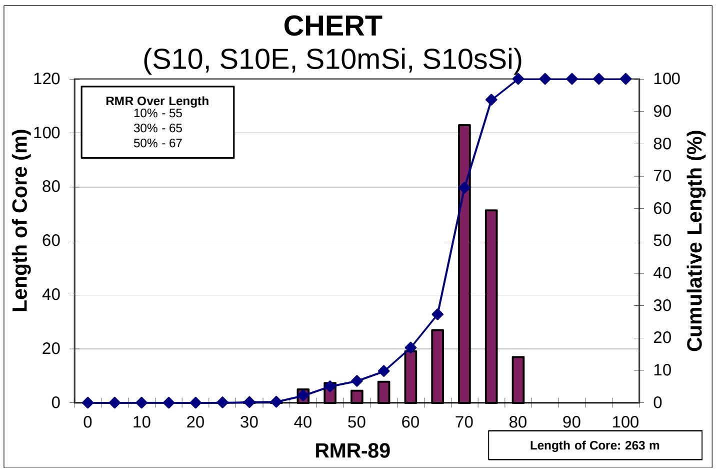
APPENDIX B2

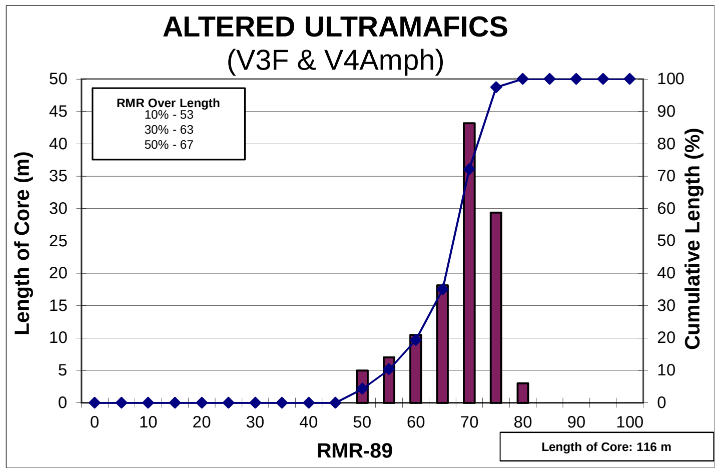
RMR HISTOGRAMS BY LENGTH BY ROCK TYPE

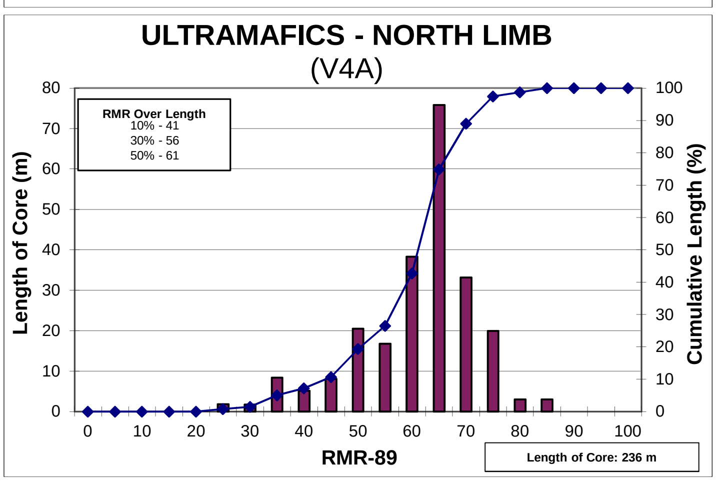
(Page B2-1)

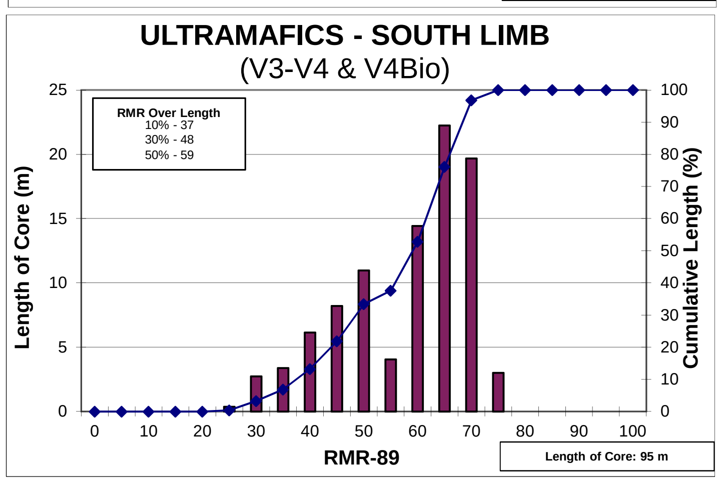












NOTES:
1. THE PRESENTED RMR_{89} DATA HAVE BEEN WEIGHTED BY LENGTH TO ACCOUNT FOR THE VARIATION IN THE LENGTH OF LOGGING RUNS.
2. RMR DESIGN VALUE BASED ON 30% OF TOTAL LENGTH OF CORE ROUNDED TO THE NEAREST 5.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	27NOV'15	ISSUED WITH REPORT	ATJ	BDP

AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION

WHALE TAIL PIT

RMR HISTOGRAMS OVER LENGTH BY ROCK TYPE

Knight Piésold CONSULTING

P/A NO.	REF. NO.
NB101-622/3	2

FIGURE B2.1 REV 0

Knight Piésold CONSULTING

APPENDIX C

INTRODUCTION TO HOEK-BROWN CRITERION

(Pages C-1 to C-2)

APPENDIX C

1 – INTRODUCTION TO THE HOEK-BROWN FAILURE CRITERION

1.1 GENERAL

The achievable overall slope angle for a large open pit is often limited by the possibility for deep-seated circular failure through the rock mass. The likelihood of this type of failure depends on the strength of the rock mass. The strength of the rock mass is most commonly estimated through the application of the Hoek-Brown failure criterion (Hoek, et. al., 2002). In this case, the strength of a rock mass is a function of the intact strength, the characteristics of the discontinuities that bound the intact blocks and the amount of disturbance the rock mass has been subjected to through a combination of excavation and stress change. The Hoek-Brown failure criterion can be written as:

$$\sigma_1^{'} = \sigma_3^{'} + \sigma_{ci}\left(m_b \frac{\sigma_3^{'}}{\sigma_{ci}} + s\right)^a \qquad (1)$$

Where:

$\sigma_1^{'}$ and $\sigma_3^{'}$ are the maximum and minimum stresses, respectively

m_b, s, and a are rock mass constants

σ_{ci} is the unconfined compressive strength of the intact rock

Each of the required input parameters are described in the following sections.

1.2 INPUT VALUES

The Hoek-Brown constant, m_b, is for the rock mass and is a reduced value of the Hoek-Brown constant, m_i, for the intact rock. The reduction is based on the Geological Strength Index, GSI, of the rock mass and the disturbance factor, D. This relation is described below:

$$m_b = m_i \exp\left(\frac{GSI - 100}{28 - 14D}\right) \qquad (2)$$

Following Hoek *et. al.* (2002), the Hoek-Brown constant for the intact rock, m_i, has been selected from standard values for the different rock types encountered. The remaining rock mass constants are determined from the following equations:

$$s = \exp\left(\frac{GSI - 100}{9 - 3D}\right) \tag{3}$$

$$a = \frac{1}{2} + \frac{1}{6}\left(e^{-\frac{GSI}{15}} - e^{-\frac{20}{3}}\right) \tag{4}$$

1.3 INTACT ROCK STRENGTH

The strength of the intact rock (σ_{ci}) is represented by Unconfined Compression Strength (UCS) values taken from lab testing results.

1.4 ROCK MASS QUALITY

The Geological Strength Index (GSI) was initially based on the RMR rating system and was introduced by Hoek et al. (1995) to overcome issues with the RMR values for very poor quality rock masses. For better quality rock masses (GSI>25), the value of GSI can be estimated from Bieniawski's RMR_{89} rock mass classification system using the following equation:

$$GSI = RMR_{89} - 5 \tag{5}$$

This relation assumes a groundwater rating set to 15 (dry) and the adjustment for joint orientation is set to 0 (very favourable).

1.5 DISTURBANCE FACTOR

To account for rock mass disturbance associated with heavy production blasting and vertical stress relief, Hoek et. al. (2002) recommends downgrading the utilized rock mass strengths to disturbed values. Experience suggests that a disturbance factor of 0.7 may be achievable with the application of "controlled blasting" practices, while a value of 1.0 is appropriate for conventional "production blasting". Recent KP practice suggests that "controlled production blasting" is expected to be between these extremes and consistent with a disturbance factor of 0.85.

APPENDIX F2

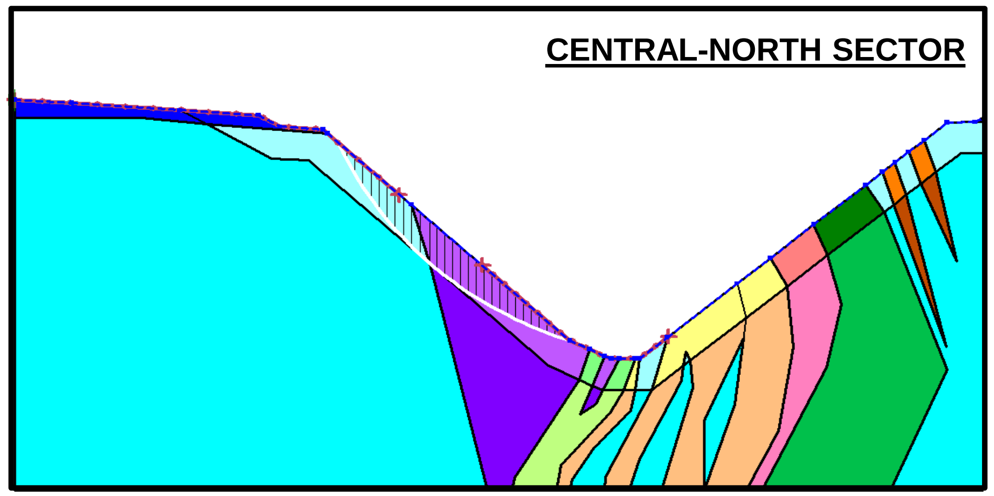
LIMIT-EQUILIBRIUM ANALYSES - OVERALL SLOPE RESULTS SUMMARY

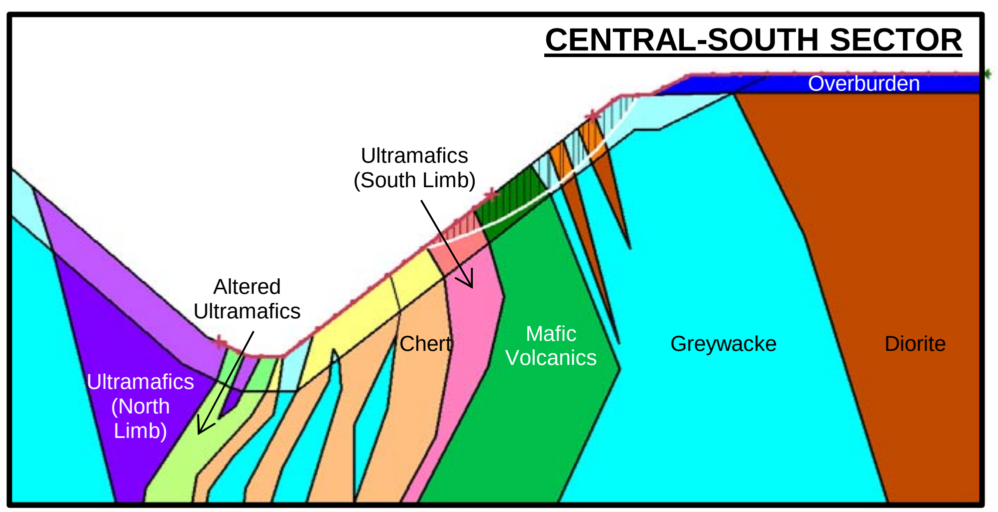
(Page F2-1)

TABLE F2.1

AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION
WHALE TAIL PIT

UPDATED SCOPING LEVEL OPEN PIT SLOPE DESIGN
LIMIT EQUILIBRIUM ANALYSES - OVERALL SLOPE RESULTS SUMMARY





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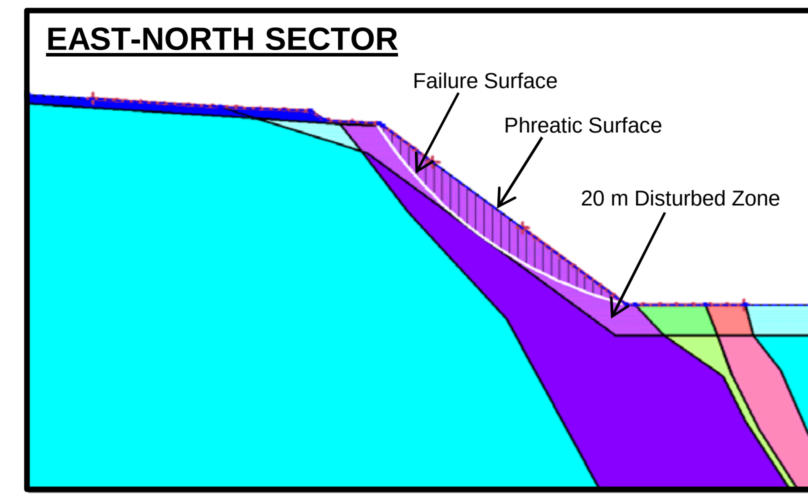
Sector	Model Height [3] (m)	Overall Slope Angle (°)		
		39	44	49
Central-North	160		1.6	
Central-South	165			2.9
East-North	130	1.8		

I:\1\01\00622\03\A\Report\Report 2 Rev 1 Updated Scoping Study\Appendices\F - L-E Analyses\[F2 - OSA LE Results.xlsx]OS FoS Matrix - Static



NOTES:
1. MODELS WERE CONSTRUCTED USING SLOPE/W (GEO-SLOPE, 2012) BASED ON THE PIT DESIGN PROVIDED BY AEM (SEP. 30, 2015) AND THE GEOLOGICAL MODELS PROVIDED BY AEM (SEP. 29, 2015). MODELS USE A SIMPLIFIED GEOMETRY.
2. SLOPE CONSERVATIVELY ASSUMED TO BE FULLY SATURATED.
3. MODEL HEIGHTS ARE BASED ARE MEASURED FROM THE TOE OF THE SLOPE TO THE TOP OF THE OVERBURDEN. DUE TO THE SIMPLIFIED MODEL GEOMETRY, THE MODEL HEIGHT MAY SLIGHTLY EXCEED THE HEIGHT OF THE ACTUAL PIT WALL.
4. ROCK MASS STRENGTH DERIVED USING HOEK-BROWN FAILURE CRITERION (HOEK, ET. AL., 2002).
5. MODELS INCORPORATE A 20 m BLAST DISTURBANCE ZONE PERPENDICULAR TO THE PIT FACE (D=0.85 FOR ALL DOMAINS EXCEPT THE ULTRAMAFICS WHERE D=0.7 DUE TO LOWER ROCK MASS QUALITY).
6. TARGET FOS IS 1.3.
7. CRITICAL SLIP SURFACE FOR EACH MODEL IS DISPLAYED AND REPORTED. ALL MODELS EXCEEDED THE TARGET FACTOR OF SAFETY OF 1.3.

LEGEND:
- FOS ≥ 1.4
- 1.3 ≤ FOS < 1.4
- 1.2 ≤ FOS < 1.3
- 1.1 ≤ FOS < 1.2
- 1.0 ≤ FOS < 1.1
- FOS < 1.0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
1	11DEC'15	CLARIFICATION OF NOTE 3	ATJ	BDP
0	27NOV'15	ISSUED WITH REPORT NB101-622/3-2	ATJ	BDP

APPENDIX D

KINEMATIC ANALYSES - RESULTS SUMMARY

(Pages D-1 to D-49)

Knight Piésold CONSULTING

TABLE D.1

AGNICO EAGLE MINES LTD. MEADOWBANK DIVISION
WHALE TAIL PIT

UPDATED SCOPING LEVEL OPEN PIT SLOPE DESIGN
SUMMARY OF KINEMATIC ANALYSES

Print Nov/27/15 11:00:03

Structural Domain	Sector	Nominal Bench Face Dip Direction	Kinematic Failure Mode																				Relative Sensitivity to Friction Angle	Dominant Failure Mode	Maximum Achievable BFA	Suggested Bench Geometry			Calculated IRA From Bench Geometry	Comments
			Planar						Toppling						Wedge															
			Joint Set / Structure	Joint Set Significance	Effect Significance	Overall Significance	Max BFA	Max IRA	Joint Set / Structure	Joint Set Significance	Joint Effect Significance	Overall Significance	Max BFA	Max IRA	Joint Sets / Structures	Joint Set Significance: Set 1	Joint Set Significance: Set 2	Joint Set Significance: Overall	Effect Significance	Overall Significance	Max BFA	Max IRA				BFA	Bench Width	Bench Height		
East	East-South	300	-	-	-	-	-	-	JSA	Major	Major	Major	55	No Control	- -	-	-	-	-	-	-	-	None	Toppling	No Limit	75	9.5	21	54	- The achievable bench geometry is not expected to be controlled by structure. - Toppling failure on JSA may locally limit the achievable slope geometry.
									GP-Fault	Major	Moderate	Major	-	-																
	East	240	-	-	-	-	-	-	JSD	Moderate	Minor	Minor	-	-	- -	-	-	-	-	-	-	-	None	None	No Limit	75	9.5	21	54	- The achievable bench geometry is not expected to be controlled by structure.
	East-North	110	JSA	Major	Major	Major	60	No Control	-	-	-	-	-	-	JSA vs. JSD	3	2	Major	Major	Major	55	No Control	Low (Wedge)	Planar & Wedge	60	60	9.5	21	44	- BFA controlled by planar failures involving dominant joint set (JSA). Wedge failures involving JSA and JSD are essentially planar failures with a release feature. - Achievable slope geometry is sensitive to friction angle and the strike of the slope. - Potential for planar or wedge failures involving the RQD5 and RQD7 Faults may locally limit the achievable slope geometry. - RQD5 and RQD7 Faults run sub-parallel and just behind the pit wall in this sector.
			RQD7 Fault	Major	Moderate	Major	-	50							JSD vs. RQD5 Fault	2	3	Major	Major	Major	-	45								
			RQD5 Fault	Major	Moderate	Major	-	50							JSD vs. RQD7 Fault	2	3	Major	Major	Major	-	50								
Central-B	Central-North	155	JSA	Major	Major	Major	55	-	-	-	-	-	-	-	JSA vs. JSD	3	2	Major	Major	Major	50	No Control	Low (Wedge)	Planar & Wedge	55	55	9.5	21	41	- BFA controlled by planar failures involving dominant joint set (JSA). Wedge failures involving JSA and JSD are essentially planar failures with a release feature. - Achievable slope geometry is sensitive to friction angle and the strike of the slope. - RQD4 Fault runs sub-parallel and just behind the pit wall in this sector.
			RQD4 Fault	Major	Major	Major	-	50							JSD vs. RQD4 Fault	2	3	Major	Major	Major	-	50								
Central-A	Central-South	315	JSB	Major	Major	Major	70	55	JSB'	Moderate	Major	Major	No Control	-	JSB vs. JSD	3	2	Major	Major	Major	60	50	High (Planar)	Planar, Toppling & Wedge	70	70	9.5	21	51	- BFA controlled by planar failures involving dominant joint set (JSB). Wedge failures involving JSB and JSD are essentially planar failures with a release feature. - Toppling failure on JSB' may locally limit achievable slope geometry. - Achievable slope geometry is sensitive to friction angle and the strike of the slope.
			JSC	Moderate	Major	Major	No Control	-	GP Fault	Major	Major	Major	-	-																
West	West-North	145	JSA	Major	Major	Major	55	-	JSB	Minor	Major	Moderate	No Control	-	JSA vs. JSD	3	2	Major	Major	Major	45	-	High (Planar) Moderate (Wedge)	Planar & Wedge	55	55	9.5	21	41	- BFA controlled by planar failures involving dominant joint set (JSA). Wedge failures involving JSA and JSD are essentially planar failures with a release feature. - Achievable slope geometry is sensitive to friction angle and the strike of the slope. - Potential for planar or wedge failures involving RQD4 Fault may locally limit the achievable slope geometry. - RQD4 Fault runs sub-parallel and just behind the pit wall in this sector.
			RQD4 Fault	Major	Major	Major	-	50	JSE	Minor	Moderate	Minor	65	-	JSD vs. RQD4 Fault	2	3	Major	Major	Major	-	50								
	West	85	JSA	Major	Minor	Moderate	-	-	JSD	Moderate	Minor	Minor	-	-	JSA vs. JSD	3	2	Major	Minor	Moderate	55	No Control	Low (Wedge)	None	No Limit	75	9.5	21	54	- BFA may be controlled by wedge failures involving dominant joint set. - Achievable slope geometry is sensitive to the strike of the slope.
	West-South	335	JSE	Minor	Major	Moderate	50	50	JSA	Major	Moderate	Major	-	-	JSD vs. JSE	2	1	Minor	Major	Moderate	50	50	High (Toppling)	Toppling	No Limit	75	9.5	21	54	- BFA may be controlled by planar and wedge failures involving dominant joint set. - Toppling failure on JSA may locally limit the achievable slope geometry.
									JSB'	Minor	Major	Moderate	No Control	-																

I:\1\01\00622\03\A\Report\Report 2 Rev 0 Updated Scoping Study\Appendices\D - Kinematic Analyses\[D.1 - High Level Kinematics Analyses - Results Summary (Oct 27, 2015).xlsx]Table - Kinematic Summary

NOTES:
1. ONLY POTENTIAL MAJOR PLANAR OR WEDGE FAILURES INVOLVING A JOINT SET WERE CONSIDERED WHEN EVALUATING THE ACHIEVABLE BENCH GEOMETRY.
2. RESULTS IN RED TEXT INDICATE FAILURE MODES POSSIBLY INFLUENCING BOTH THE IRA AND THE BFA. PLANAR AND WEDGE FAILURE MODES WERE CONSIDERED WHEN EVALUATING THE ACHIEVABLE INTER-RAMP CONFIGURATION.
3. WEDGE FAILURES IN GREEN TEXT IDENTIFY WEDGES THAT ARE ESSENTIALLY A PLANAR FAILURE WITH A STEEPLY DIPPING RELEASE FEATURE (JSD). IN THESE CASES, THE MAXIMUM BFA FOR THAT SECTOR HAS BEEN SELECTED BASED ON THE RESULTS OF THE PLANAR ANALYSES.

Significance Legend

N/A:
MINOR:
MODERATE:
MAJOR:

Overall Set Significance

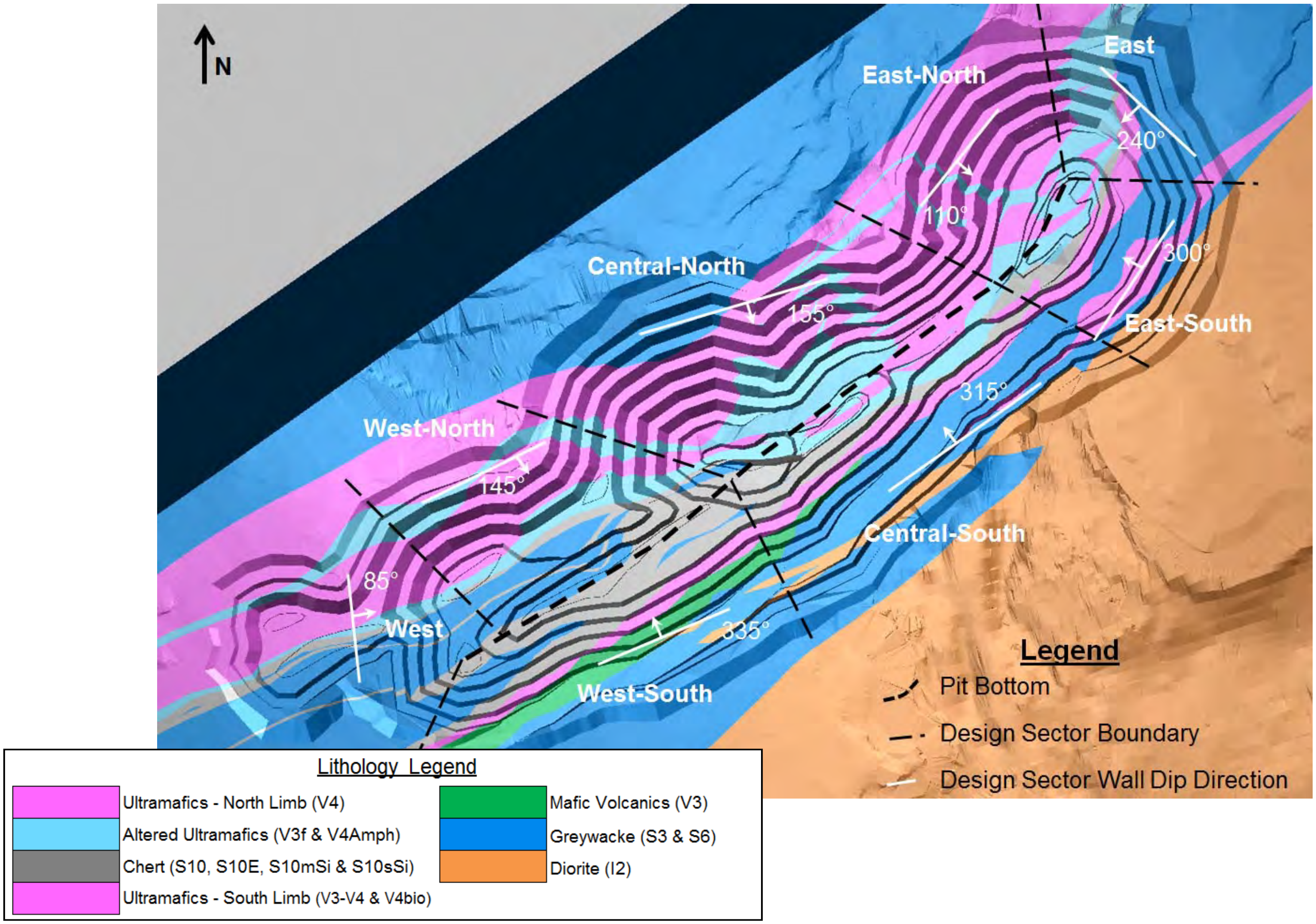
Set 2 Significance	Set 1 Significance: 1	2	3
1	Minor	Minor	Moderate
2	Minor	Moderate	Major
3	Moderate	Major	Major

0	27NOV'15	ISSUED WITH REPORT NB101-622/3-2	ATJ	BDP
REV	DATE	DESCRIPTION	PREP'D	RVW'D

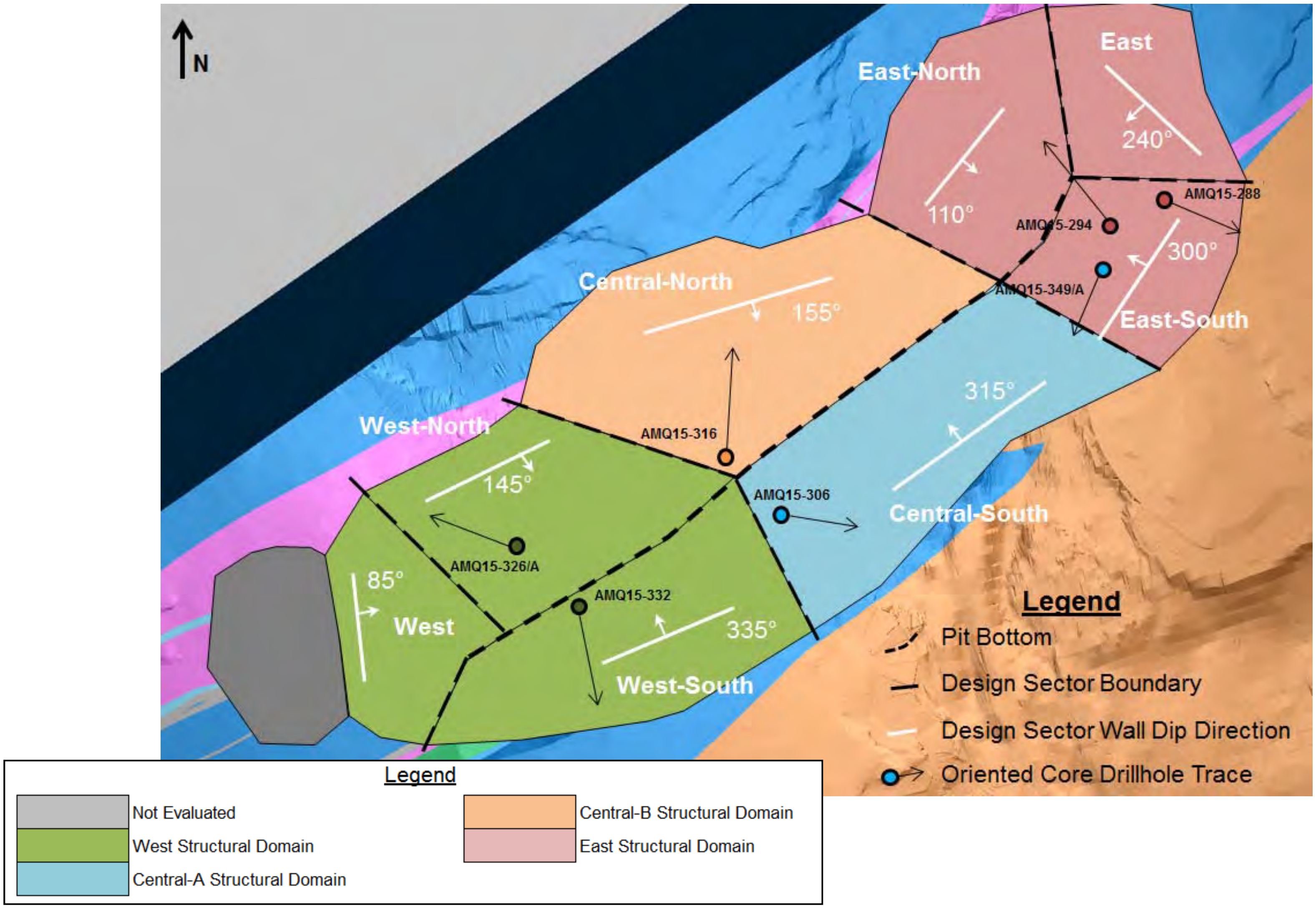
Kinematic Analyses Whale Tail Open Pit

Updated Scoping Level Open Pit Slope Design

Design Sectors
- Showing Pit Wall Lithology



Design Sectors
- Showing Structural Domains



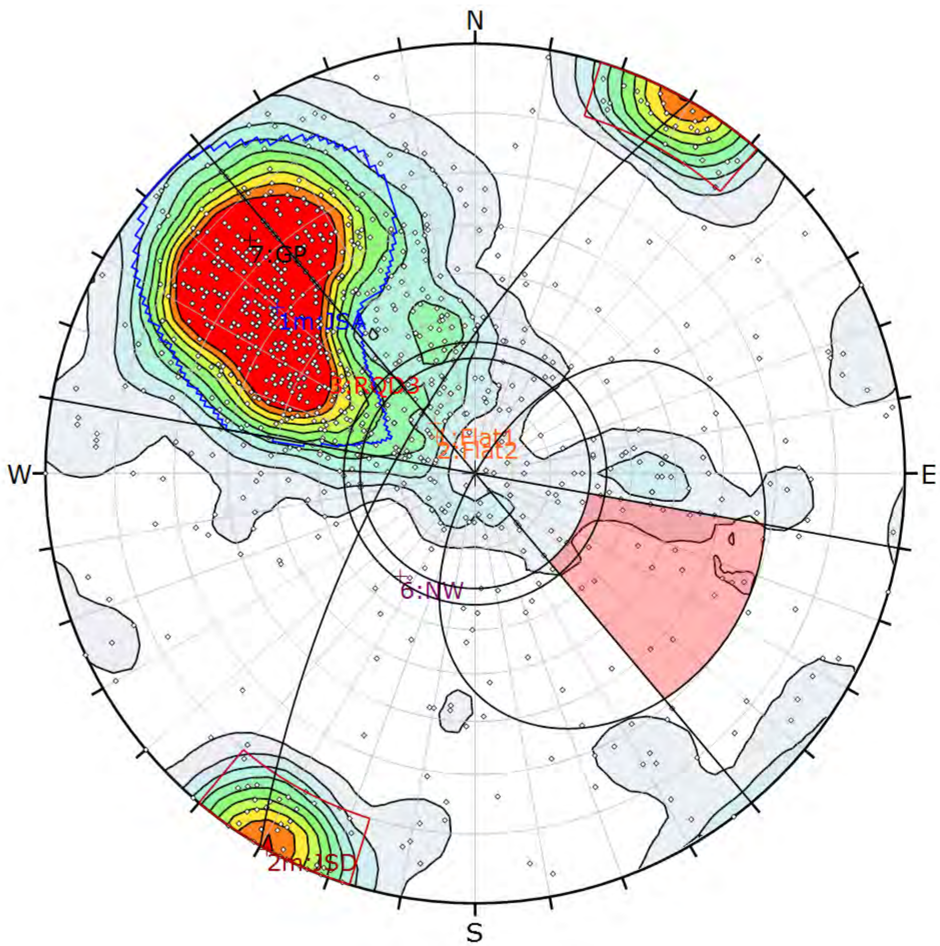
Orientation Data Sets by Design Sector

Design Sector	Approximate Average Pit Wall Dip Direction (°)	Structural Domain	Drillhole Data (Depth Interval)	Large-Scale Structures		
				Fault Name	Dip (°)	Dip Direction (°)
East - South	300	East	- AMQ15-288 (0-150 m) - AMQ15-294 (1-175 m)	GP	74	136
				NW	33	36
				Flat1	17	141
				Flat2	14	134
				RQD3	45	125
East	240			RQD3	45	125
				RQD5	47	138
				GP	74	136
				NW	33	36
East - North	110			RQD5	47	138
				RQD7	51	132
Central - North	155	Central - B	AMQ15-316 (0-EOH)	RQD4	50	145
Central - South	315	Central - A	- AMQ15-306 (0-EOH) - AMQ15-349/349A (0-175 m)	RQD2	45	135
				Flat1	17	141
				Flat2	14	134
				RQD3	45	125
				NW	33	36
				GP	74	136
West - South	335	West	- AMQ15-332 (0-150 m) - AMQ15-326/326A (0 - 100 m)	RQD2	45	135
West	85			RQD1	44	167
West - North	145			RQD4	50	145

Presentation Structure

- Presentation contains the supporting kinematic analysis plots for the three failure modes for each design sector.
- Number convention:
  - 1: Planar analysis
    - 1.1: BFA reduced to meet target cumulative frequency
    - 1.2: Check on potential limits to inter-ramp angle
  - 2: Topping analysis
  - 3.1: Wedge analysis (Foliation vs JSD)
    - 3.1.1: BFA reduced to meet target cumulative frequency
  - 3.2: Wedge analysis (Mean joint set planes and fault planes)

1. East-South: Planar



Symbol	Feature
◇	Pole Vectors

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

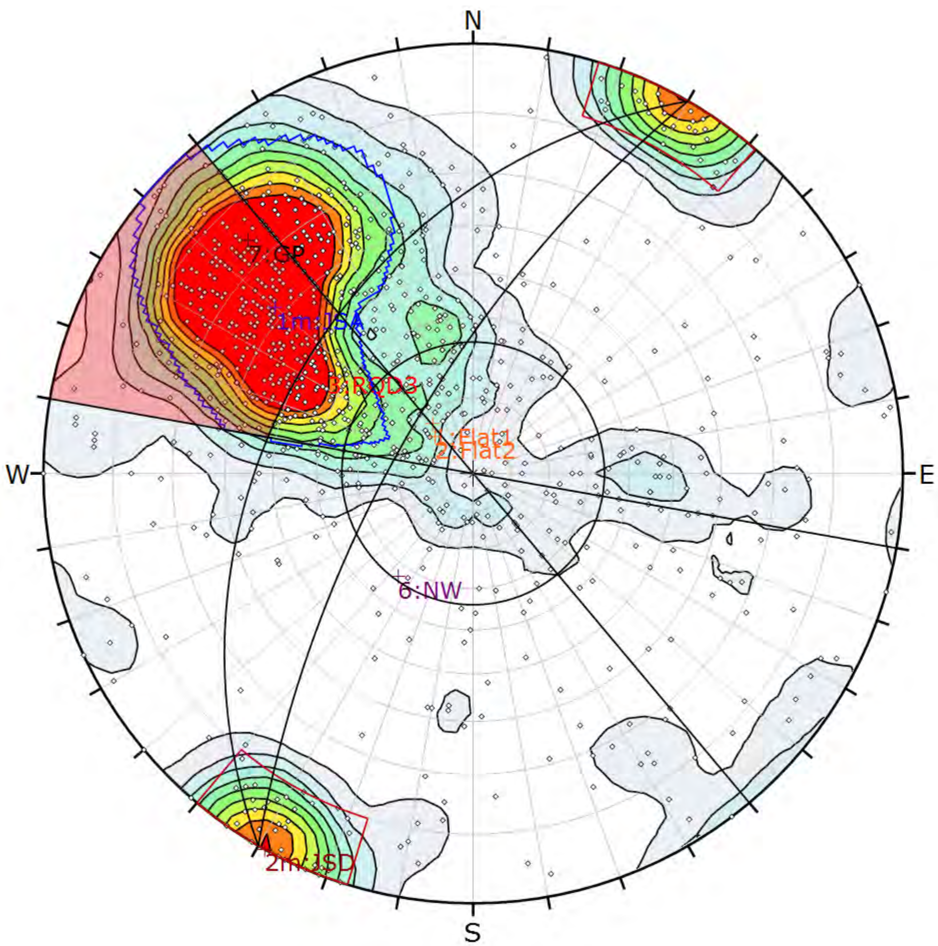
Maximum Density	9.07%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	70
Slope Dip Direction	300
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Planar Sliding (All)	23	1003	2.29%

Plot Mode	Pole Vectors
Vector Count	1003 (1003 Entries)
Hemisphere	Lower
Projection	Equal Angle

2. East-South: Toppling



Symbol	Feature
◇	Pole Vectors

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

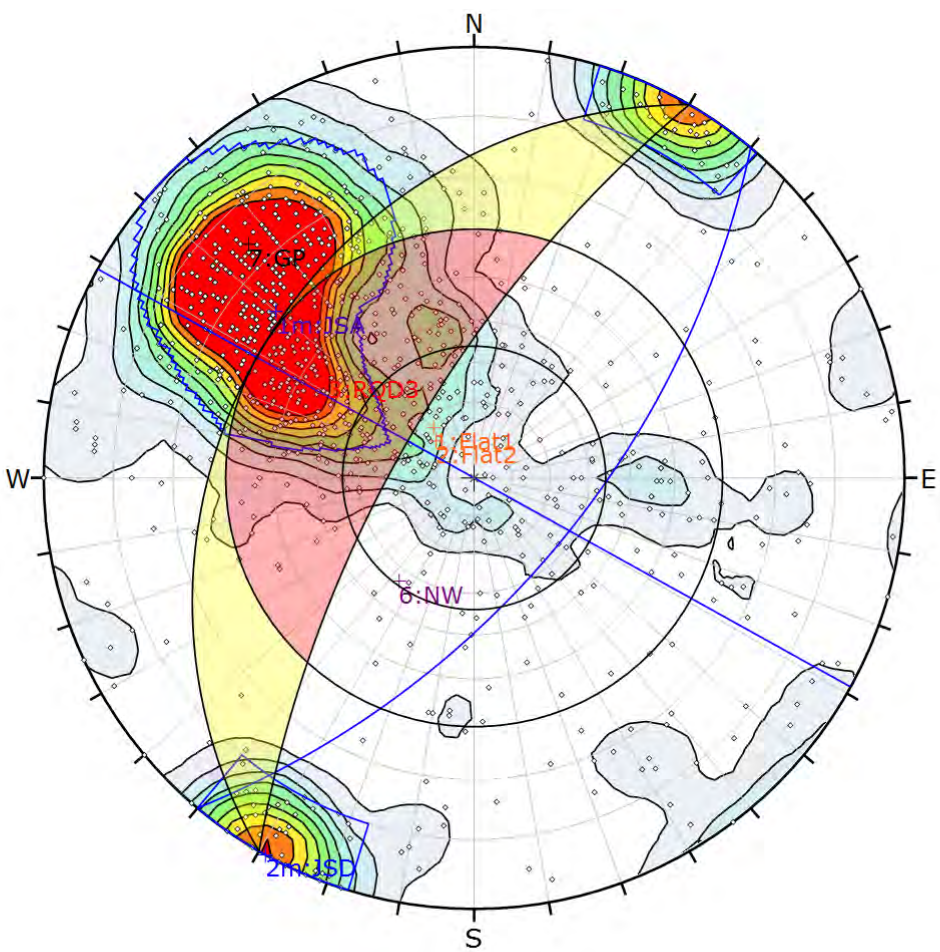
Maximum Density	9.07%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Flexural Toppling
Slope Dip	70
Slope Dip Direction	300
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Flexural Toppling (All)	319	1003	31.80%
Flexural Toppling (Set 1)	306	488	62.70%

Plot Mode	Pole Vectors
Vector Count	1003 (1003 Entries)
Hemisphere	Lower
Projection	Equal Angle

3.1 East-South: Wedge
JSA vs JSD



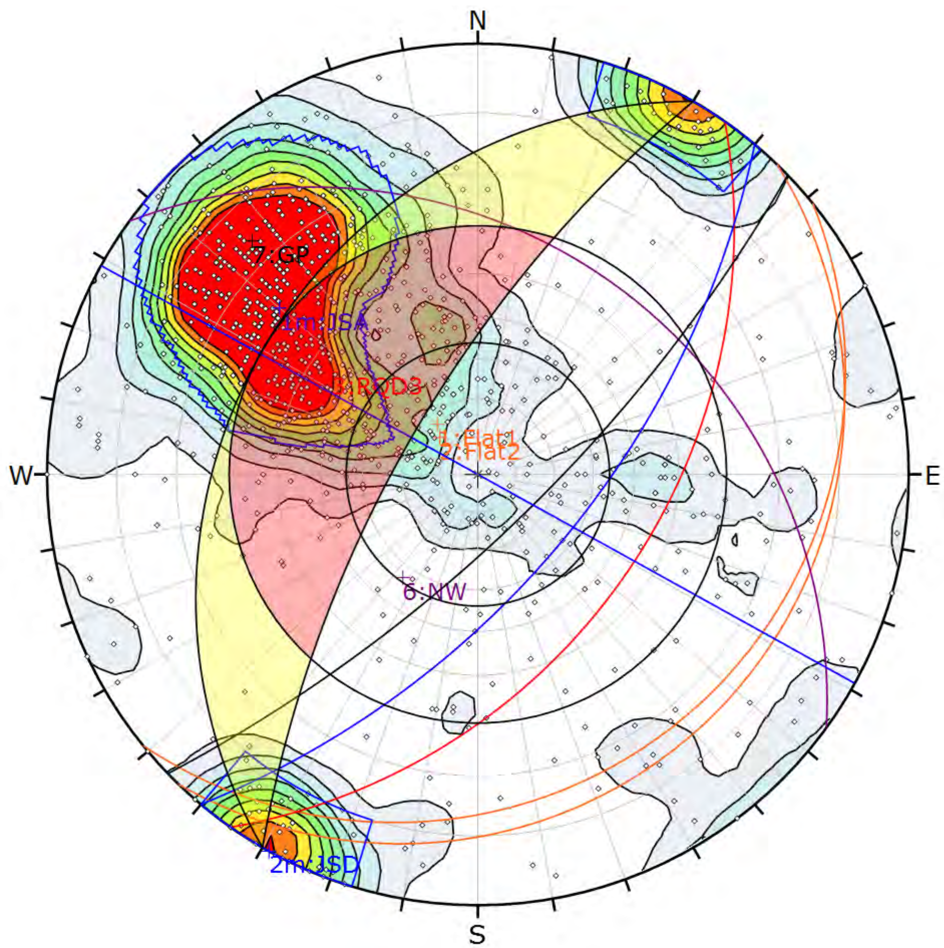
Symbol	Feature
◇	Pole Vectors
◇	Critical Intersection

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <
Maximum Density	9.07%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding		
Slope Dip	70		
Slope Dip Direction	300		
Friction Angle	30°		
	Critical	Total	%
Wedge Sliding	0	36112	0.00%

Plot Mode	Pole Vectors
Vector Count	1003 (1003 Entries)
Intersection Mode	All Set Planes
Intersections Count	36112
Hemisphere	Lower
Projection	Equal Angle

3.2 East-South: Wedge
User and Mean Set Planes



Symbol	Feature
◇	Pole Vectors
■	Critical Intersection

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

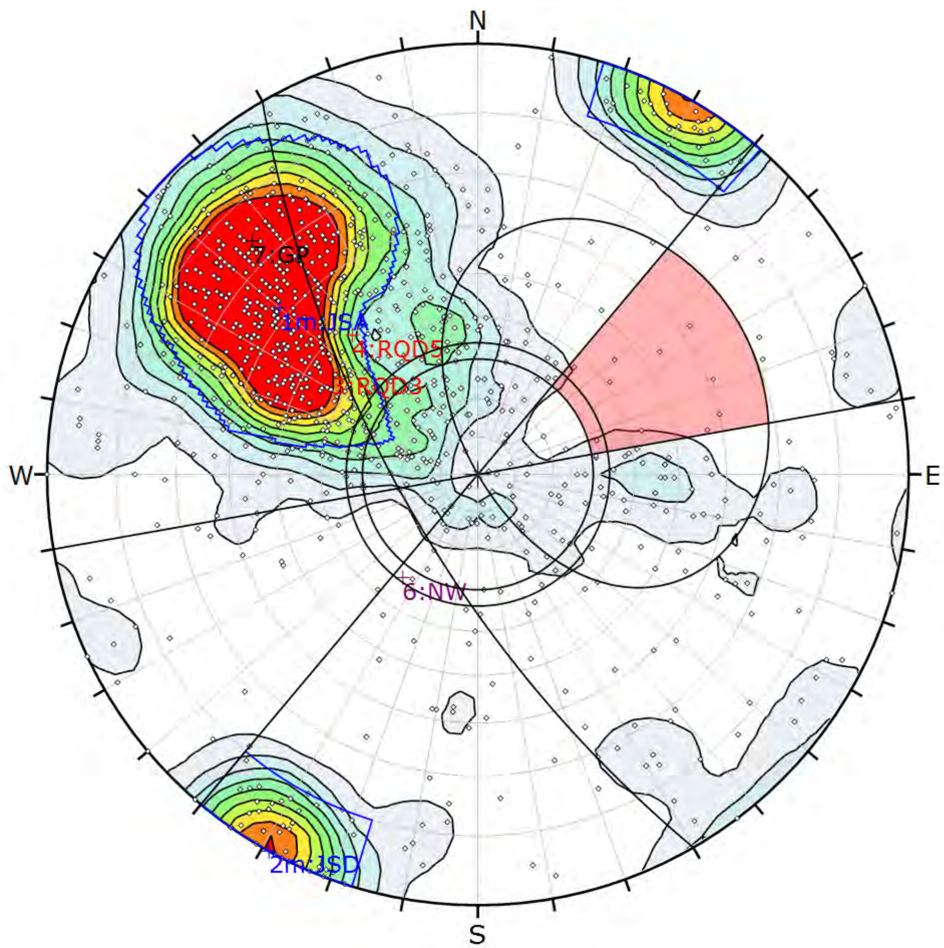
Maximum Density	9.07%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	70
Slope Dip Direction	300
Friction Angle	30°

	Critical	Total	%
Wedge Sliding	0	36112	0.00%

Plot Mode	Pole Vectors
Vector Count	1003 (1003 Entries)
Intersection Mode	All Set Planes
Intersections Count	36112
Hemisphere	Lower
Projection	Equal Angle

1. East: Planar



Symbol	Feature
◇	Pole Vectors

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

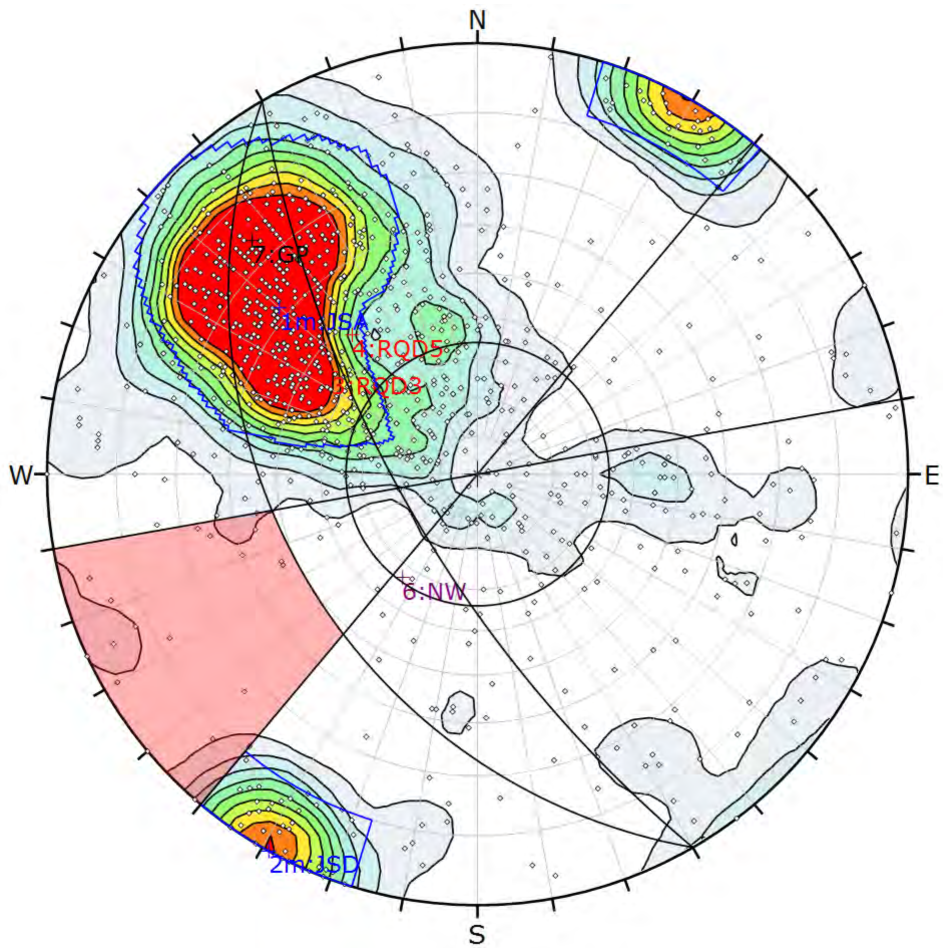
Maximum Density	9.07%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	70
Slope Dip Direction	240
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Planar Sliding (All)	10	1003	1.00%

Plot Mode	Pole Vectors
Vector Count	1003 (1003 Entries)
Hemisphere	Lower
Projection	Equal Angle

2. East: Toppling



Symbol	Feature
◇	Pole Vectors

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

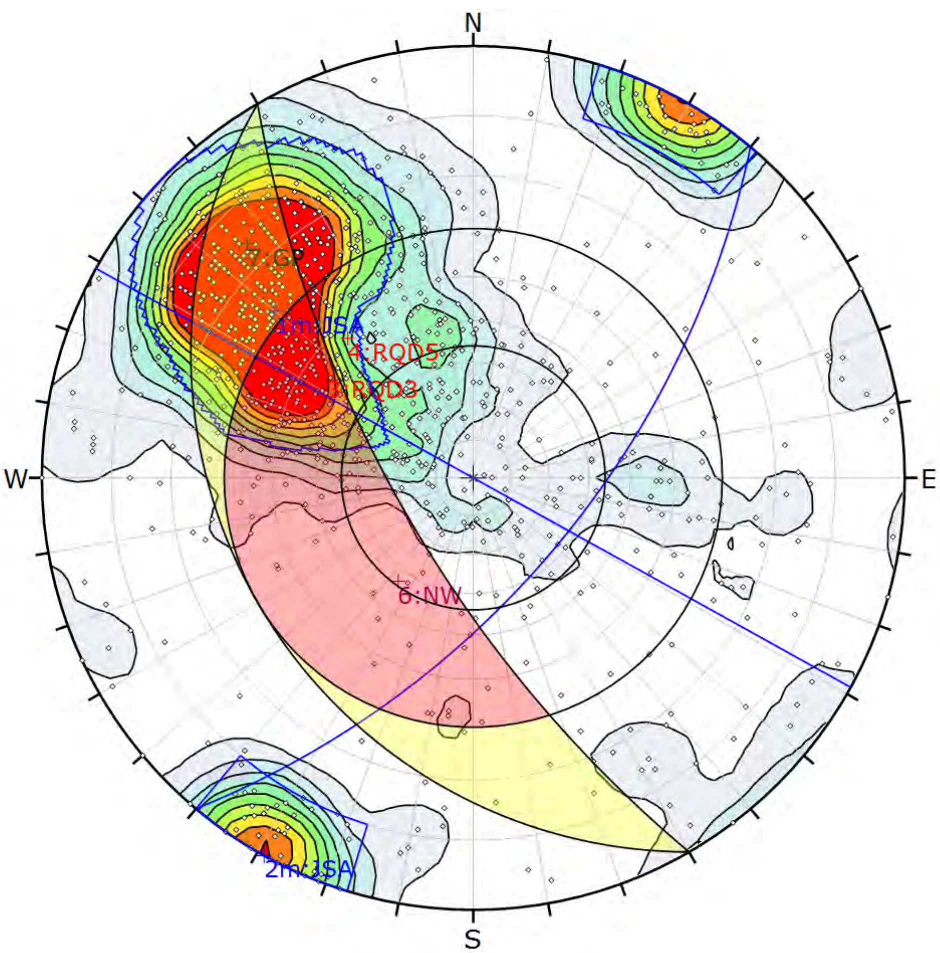
Maximum Density	9.07%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Flexural Toppling
Slope Dip	70
Slope Dip Direction	240
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Flexural Toppling (All)	19	1003	1.89%

Plot Mode	Pole Vectors
Vector Count	1003 (1003 Entries)
Hemisphere	Lower
Projection	Equal Angle

3.1 East: Wedge
JSA vs JSD



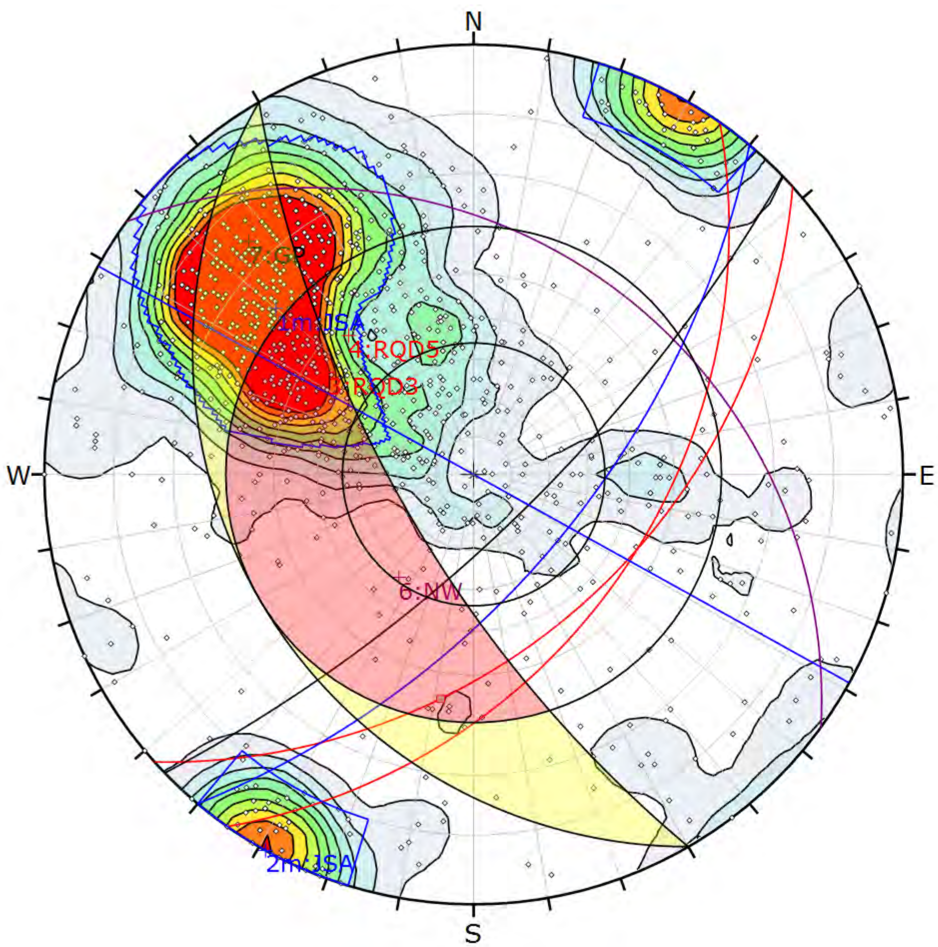
Symbol	Feature
◇	Pole Vectors
▫	Critical Intersection

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <
Maximum Density	9.07%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding		
Slope Dip	70		
Slope Dip Direction	240		
Friction Angle	30°		
	Critical	**Total**	**%**
Wedge Sliding	0	36112	0.00%

Plot Mode	Pole Vectors
Vector Count	1003 (1003 Entries)
Intersection Mode	All Set Planes
Intersections Count	36112
Hemisphere	Lower
Projection	Equal Angle

3.2 East: Wedge
User and Mean Set Planes



Symbol	Feature
◇	Pole Vectors
■	Critical Intersection

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

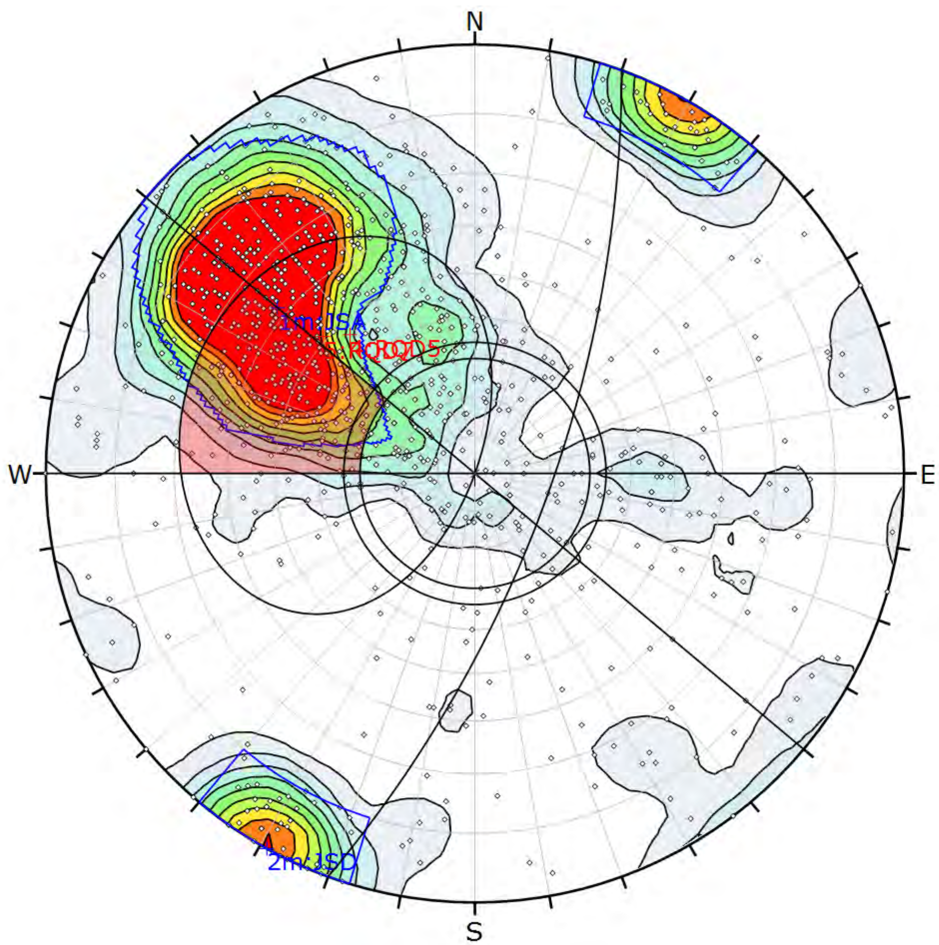
Maximum Density	9.07%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	70
Slope Dip Direction	240
Friction Angle	30°

	Critical	Total	%
Wedge Sliding	1	45	2.22%

Plot Mode	Pole Vectors
Vector Count	1003 (1003 Entries)
Intersection Mode	User and Mean Set Planes
Intersections Count	45
Hemisphere	Lower
Projection	Equal Angle

1. East-North: Planar



Symbol	Feature
⋄	Pole Vectors

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

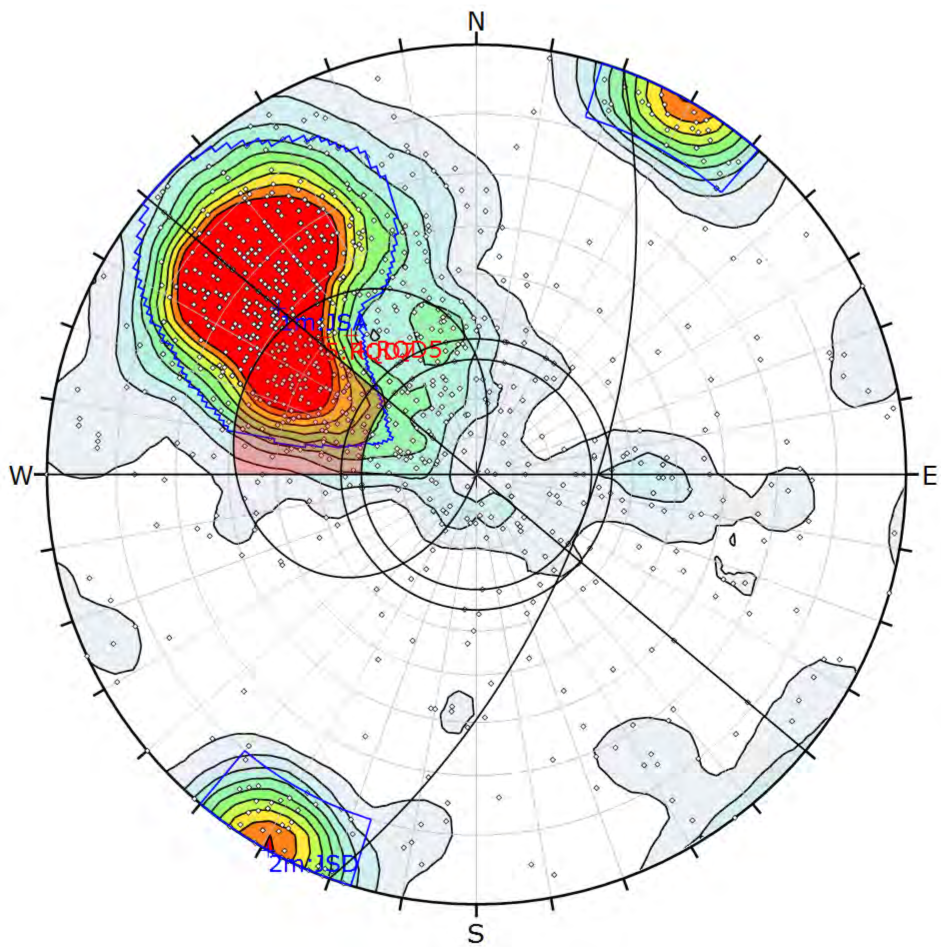
Maximum Density	9.07%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	70
Slope Dip Direction	110
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Planar Sliding (All)	227	1003	22.63%
Planar Sliding (Set 1)	209	488	42.83%

Plot Mode	Pole Vectors
Vector Count	1003 (1003 Entries)
Hemisphere	Lower
Projection	Equal Angle

1.1 East-North: Planar



Symbol	Feature
◇	Pole Vectors

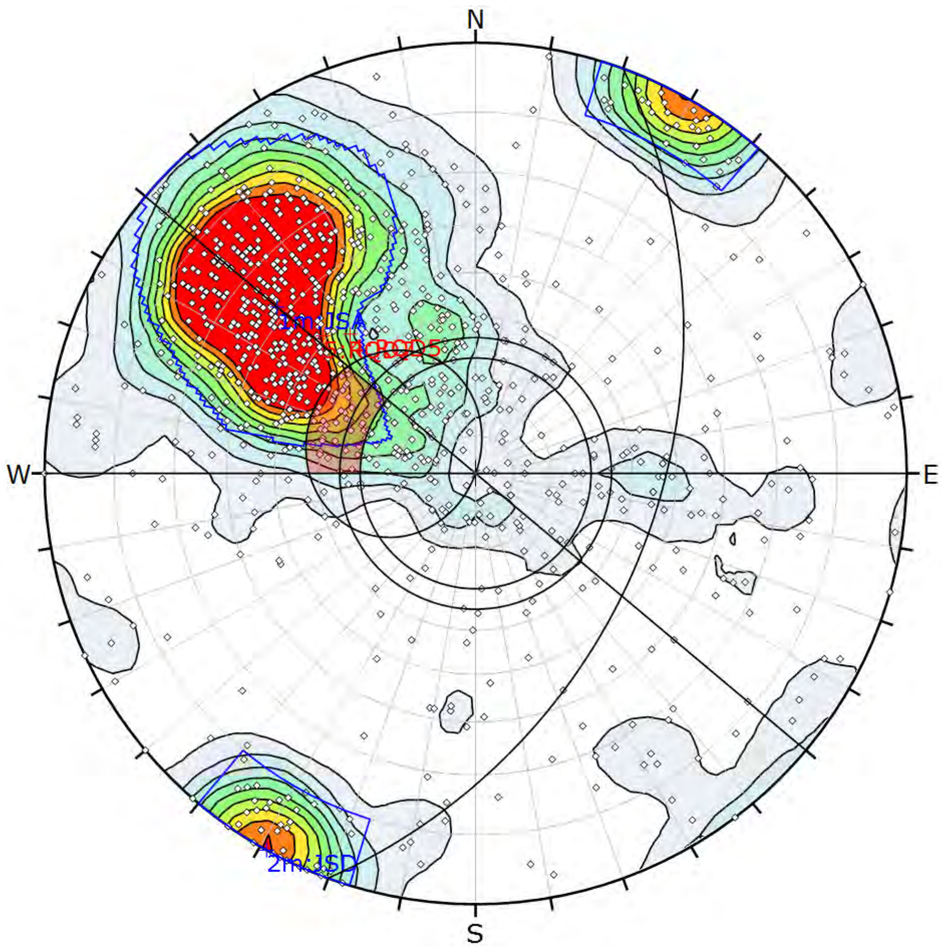
Color	Density Concentrations
	0.00 - 0.50
	0.50 - 1.00
	1.00 - 1.50
	1.50 - 2.00
	2.00 - 2.50
	2.50 - 3.00
	3.00 - 3.50
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

Maximum Density	9.07%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding		
Slope Dip	60		
Slope Dip Direction	110		
Friction Angle	30°		
Lateral Limits	20°		
	Critical	**Total**	**%**
Planar Sliding (All)	153	1003	15.25%
Planar Sliding (Set 1)	138	488	28.28%

Plot Mode	Pole Vectors
Vector Count	1003 (1003 Entries)
Hemisphere	Lower
Projection	Equal Angle

1.2 East-North: Planar Check on IRA



Symbol	Feature
◇	Pole Vectors

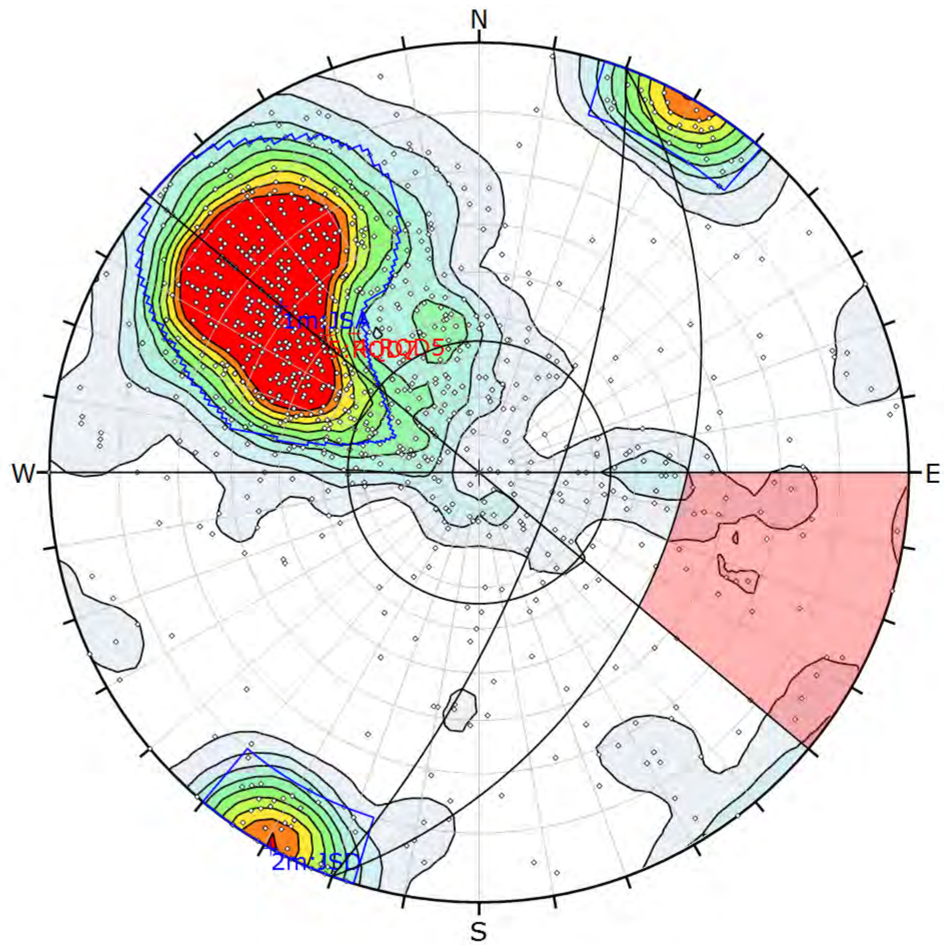
Color	Density Concentrations
	0.00 - 0.50
	0.50 - 1.00
	1.00 - 1.50
	1.50 - 2.00
	2.00 - 2.50
	2.50 - 3.00
	3.00 - 3.50
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

Maximum Density	9.07%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding		
Slope Dip	44		
Slope Dip Direction	110		
Friction Angle	30°		
Lateral Limits	20°		
	Critical	**Total**	**%**
Planar Sliding (All)	50	1003	4.99%
Planar Sliding (Set 1)	41	488	8.40%

Plot Mode	Pole Vectors
Vector Count	1003 (1003 Entries)
Hemisphere	Lower
Projection	Equal Angle

2. East-North: Toppling



Symbol	Feature
◇	Pole Vectors

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

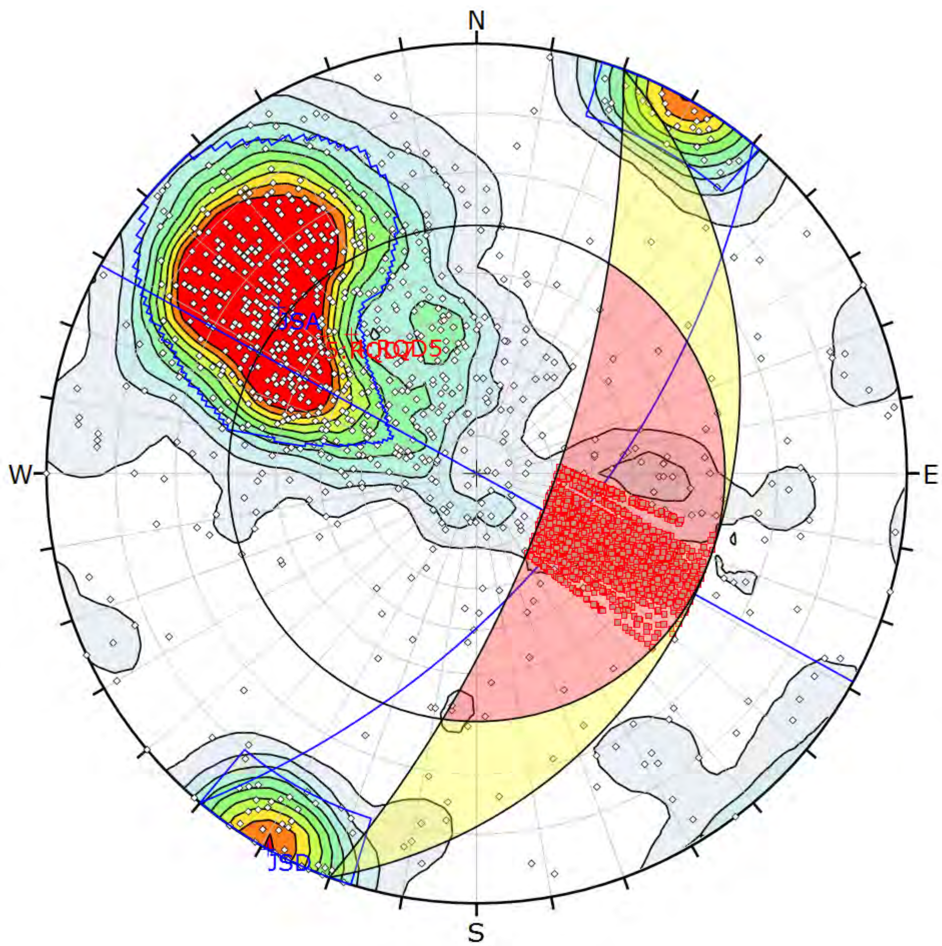
Maximum Density	9.07%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Flexural Toppling
Slope Dip	70
Slope Dip Direction	110
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Flexural Toppling (All)	30	1003	2.99%

Plot Mode	Pole Vectors
Vector Count	1003 (1003 Entries)
Hemisphere	Lower
Projection	Equal Angle

3.1 East-North: Wedge
JSA vs JSD



Symbol	Feature
◇	Pole Vectors
▫	Critical Intersection

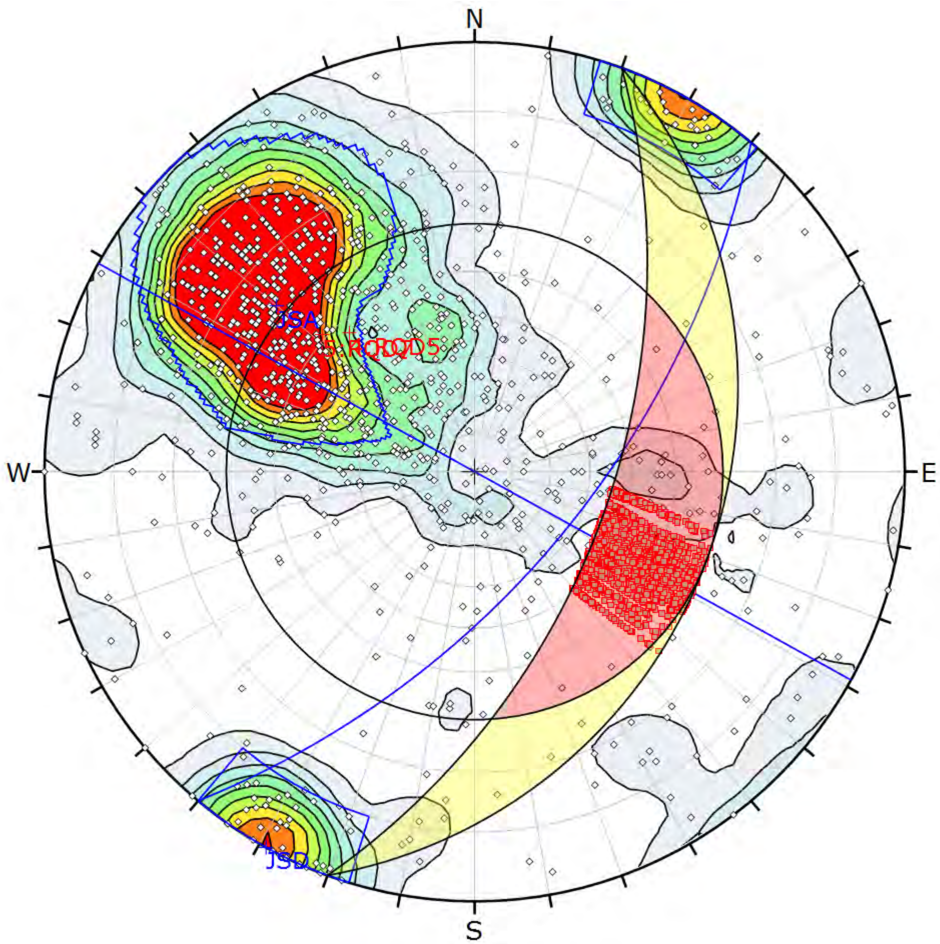
Color	Density Concentrations
	0.00 - 0.50
	0.50 - 1.00
	1.00 - 1.50
	1.50 - 2.00
	2.00 - 2.50
	2.50 - 3.00
	3.00 - 3.50
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

Maximum Density	9.07%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding		
Slope Dip	70		
Slope Dip Direction	110		
Friction Angle	30°		
	Critical	Total	%
Wedge Sliding	24854	36112	68.82%

Plot Mode	Pole Vectors
Vector Count	1003 (1003 Entries)
Intersection Mode	Set 1 vs Set 2 Planes
Intersections Count	36112
Hemisphere	Lower
Projection	Equal Angle

3.1.1 East-North: Wedge
JSA vs JSD



Symbol	Feature
◇	Pole Vectors
▫	Critical Intersection

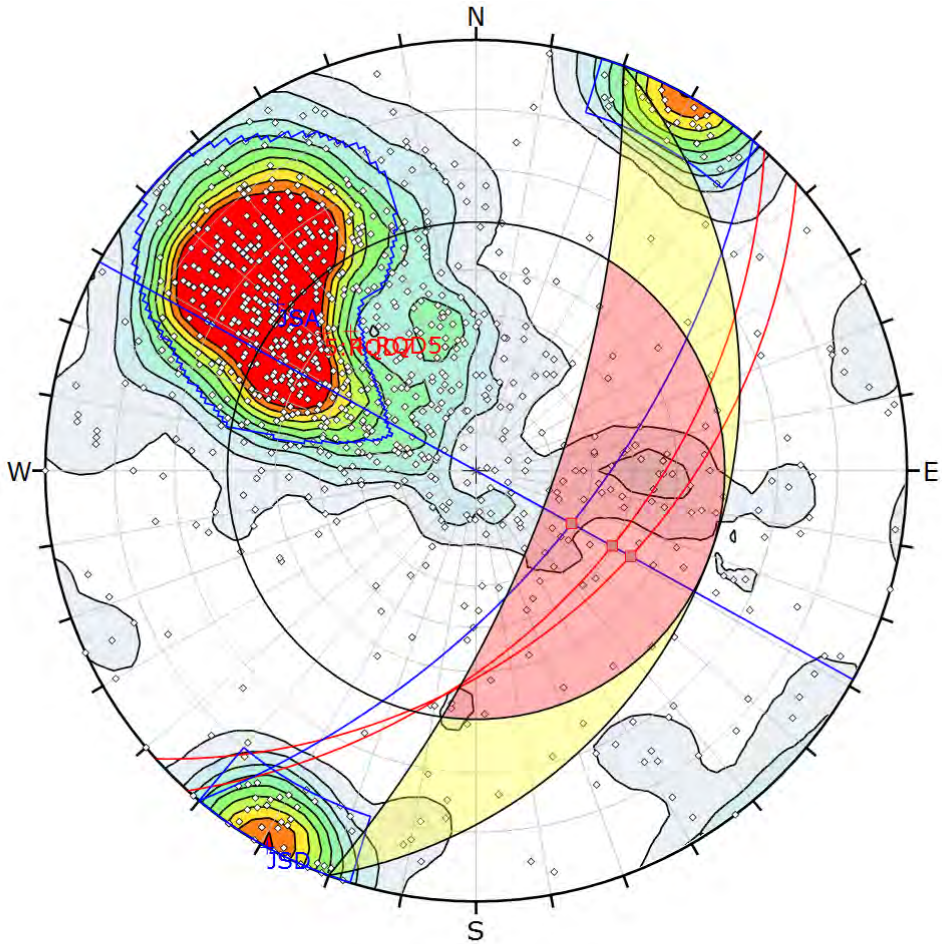
Color	Density Concentrations
	0.00 - 0.50
	0.50 - 1.00
	1.00 - 1.50
	1.50 - 2.00
	2.00 - 2.50
	2.50 - 3.00
	3.00 - 3.50
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

Maximum Density	9.07%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding			
Slope Dip	55			
Slope Dip Direction	110			
Friction Angle	30°			
		Critical	Total	%
	Wedge Sliding	10166	36112	28.15%

Plot Mode	Pole Vectors
Vector Count	1003 (1003 Entries)
Intersection Mode	Set 1 vs Set 2 Planes
Intersections Count	36112
Hemisphere	Lower
Projection	Equal Angle

3.2 East-North: Wedge
User and Mean Set Planes



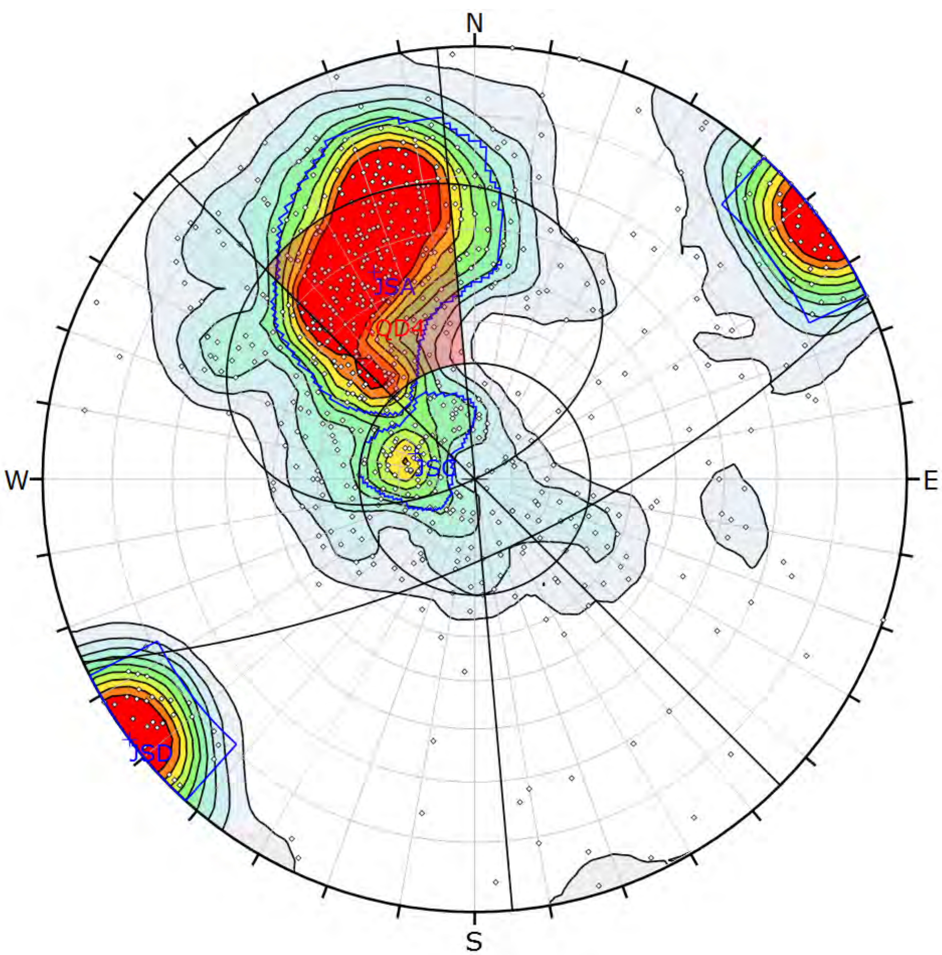
Symbol	Feature
◇	Pole Vectors
■	Critical Intersection

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <
Maximum Density	9.07%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding		
Slope Dip	70		
Slope Dip Direction	110		
Friction Angle	30°		
	Critical	**Total**	**%**
Wedge Sliding	3	6	50.00%

Plot Mode	Pole Vectors
Vector Count	1003 (1003 Entries)
Intersection Mode	User and Mean Set Planes
Intersections Count	6
Hemisphere	Lower
Projection	Equal Angle

1. Central-North: Planar Analyses



Symbol	Feature
◇	Pole Vectors

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

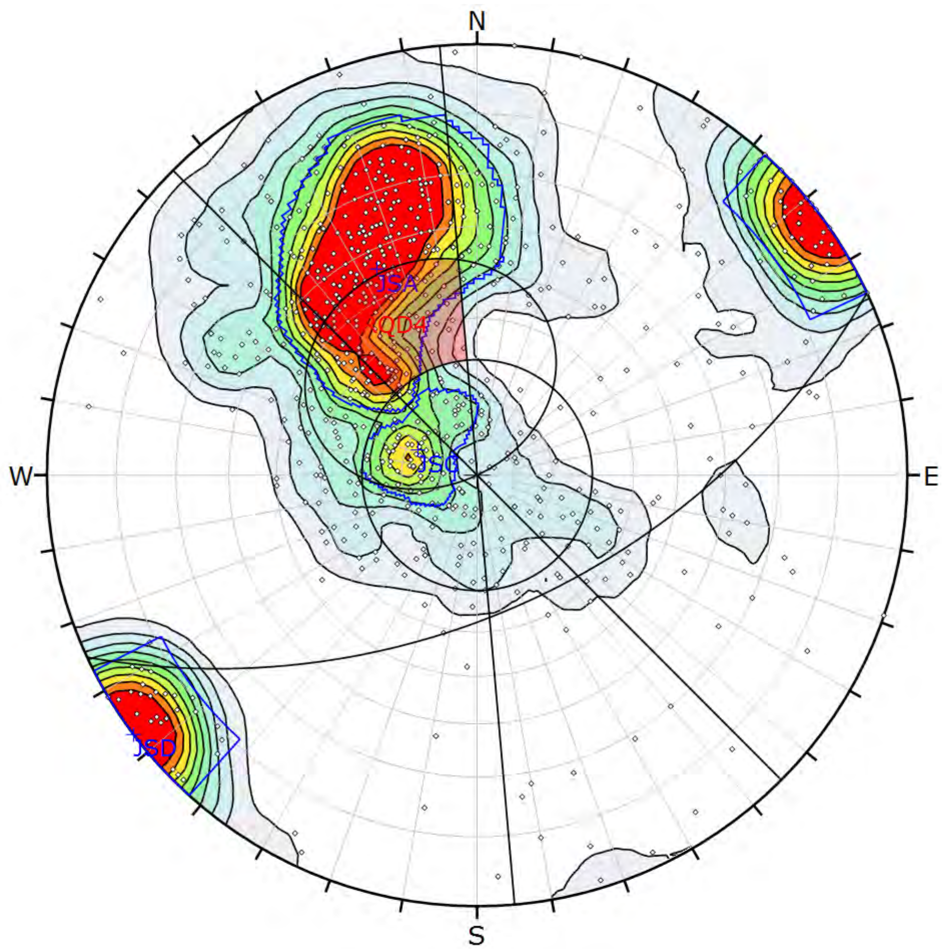
Maximum Density	7.26%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	70
Slope Dip Direction	155
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Planar Sliding (All)	200	740	27.03%
Planar Sliding (Set 1)	194	309	62.78%

Plot Mode	Pole Vectors
Vector Count	740 (740 Entries)
Hemisphere	Lower
Projection	Equal Angle

1.1 Central-North: Planar Analyses



Symbol	Feature
◇	Pole Vectors

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

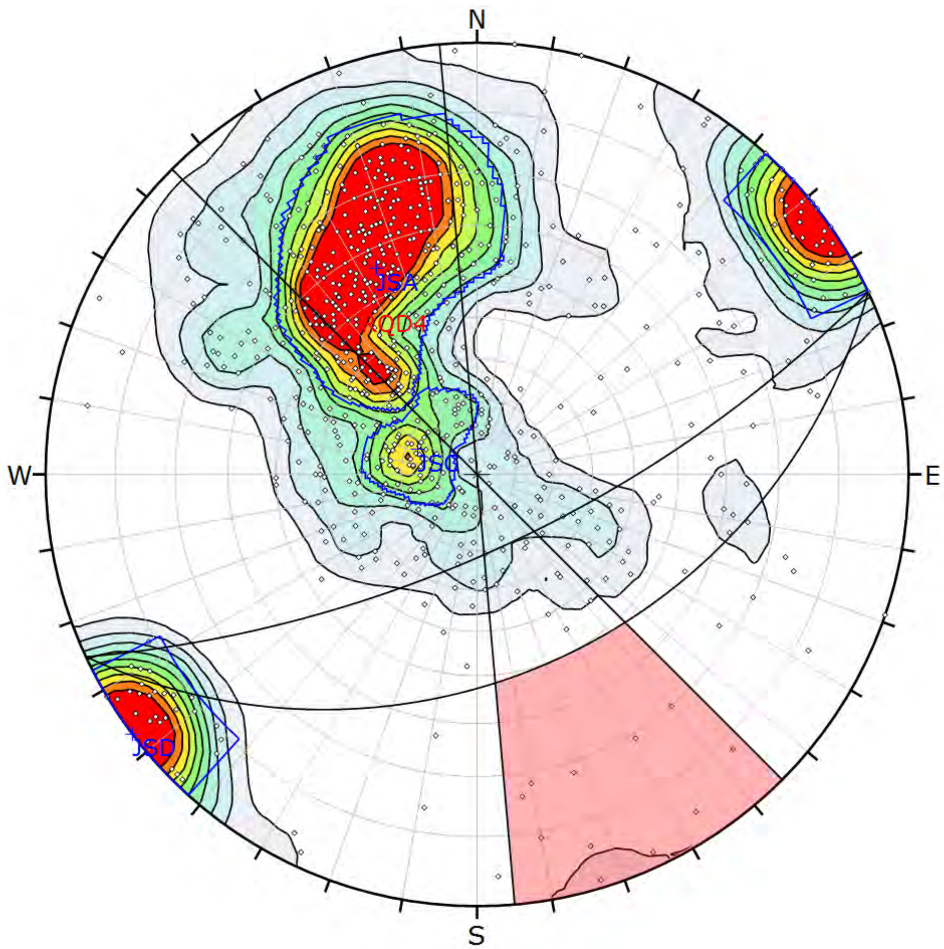
Maximum Density	7.26%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	55
Slope Dip Direction	155
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Planar Sliding (All)	82	740	11.08%
Planar Sliding (Set 1)	76	309	24.60%

Plot Mode	Pole Vectors
Vector Count	740 (740 Entries)
Hemisphere	Lower
Projection	Equal Angle

2. Central-North: Toppling Analyses



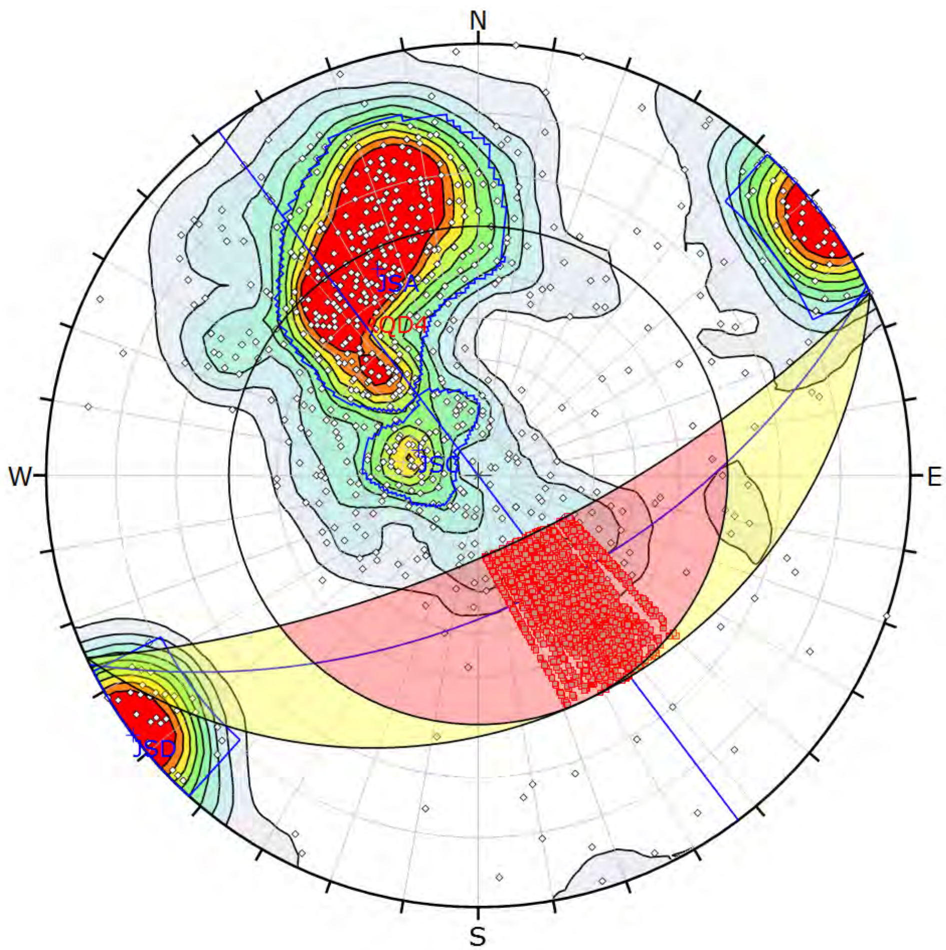
Symbol	Feature
◇	Pole Vectors

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <
Maximum Density	7.26%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Flexural Toppling		
Slope Dip	70		
Slope Dip Direction	155		
Friction Angle	30°		
Lateral Limits	20°		
	Critical	**Total**	**%**
Flexural Toppling (All)	11	740	1.49%

Plot Mode	Pole Vectors
Vector Count	740 (740 Entries)
Hemisphere	Lower
Projection	Equal Angle

3.1 Central-North: Wedge Analyses
JSA vs JSD



Symbol	Feature
◇	Pole Vectors
▫	Critical Intersection

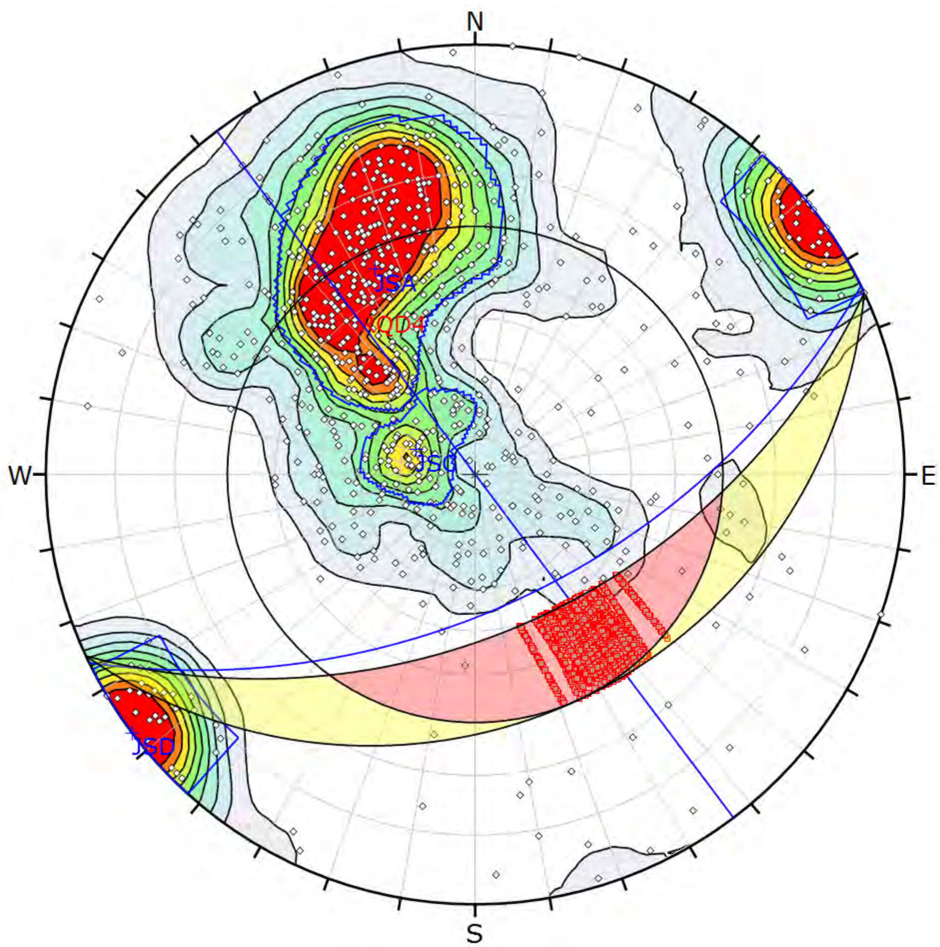
Color	Density Concentrations
	0.00 - 0.50
	0.50 - 1.00
	1.00 - 1.50
	1.50 - 2.00
	2.00 - 2.50
	2.50 - 3.00
	3.00 - 3.50
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

Maximum Density	7.26%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding		
Slope Dip	70		
Slope Dip Direction	155		
Friction Angle	30°		
	Critical	**Total**	**%**
Wedge Sliding	18670	22248	83.92%

Plot Mode	Pole Vectors
Vector Count	740 (740 Entries)
Intersection Mode	Set 1 vs Set 4 Planes
Intersections Count	22248
Hemisphere	Lower
Projection	Equal Angle

3.1.1 Central-North: Wedge Analyses
JSA vs JSD



Symbol	Feature
◇	Pole Vectors
◻	Critical Intersection

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

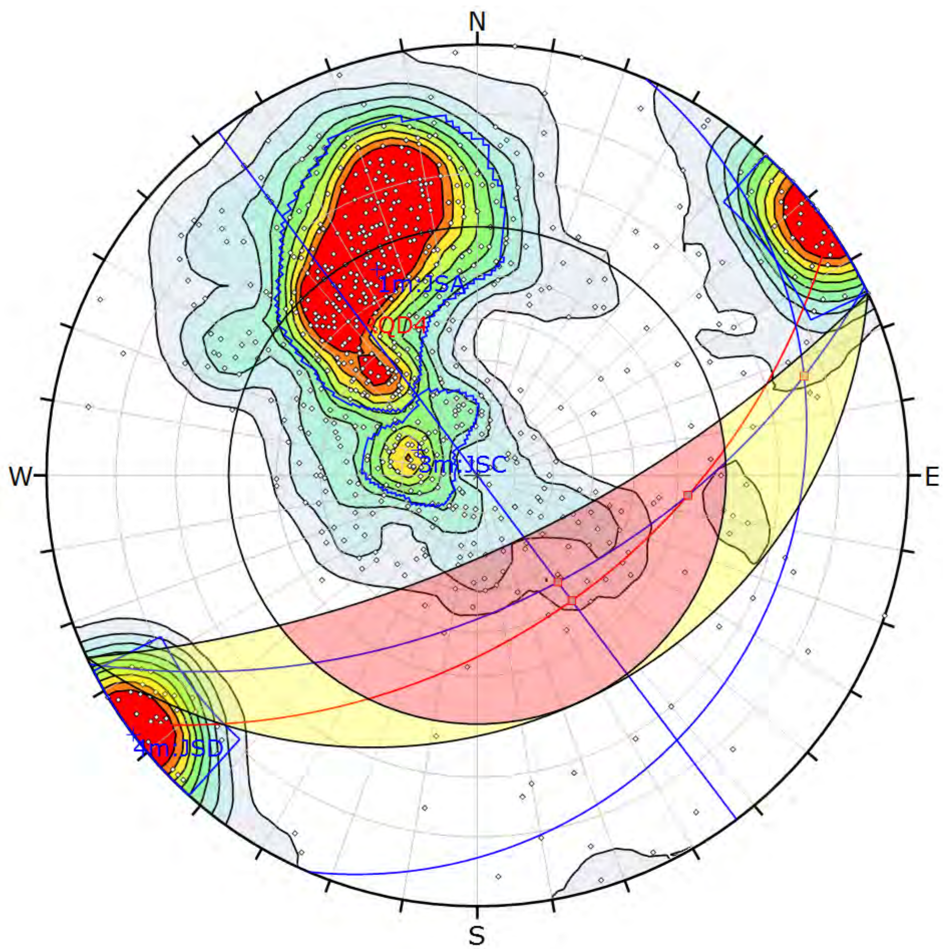
Maximum Density	7.26%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	50
Slope Dip Direction	155
Friction Angle	30°

	Critical	Total	%
Wedge Sliding	5748	22248	25.84%

Plot Mode	Pole Vectors
Vector Count	740 (740 Entries)
Intersection Mode	Set 1 vs Set 4 Planes
Intersections Count	22248
Hemisphere	Lower
Projection	Equal Angle

3.2 Central-North: Wedge Analyses User and Set Mean Planes



Symbol	Feature
◇	Pole Vectors
■	Critical Intersection

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

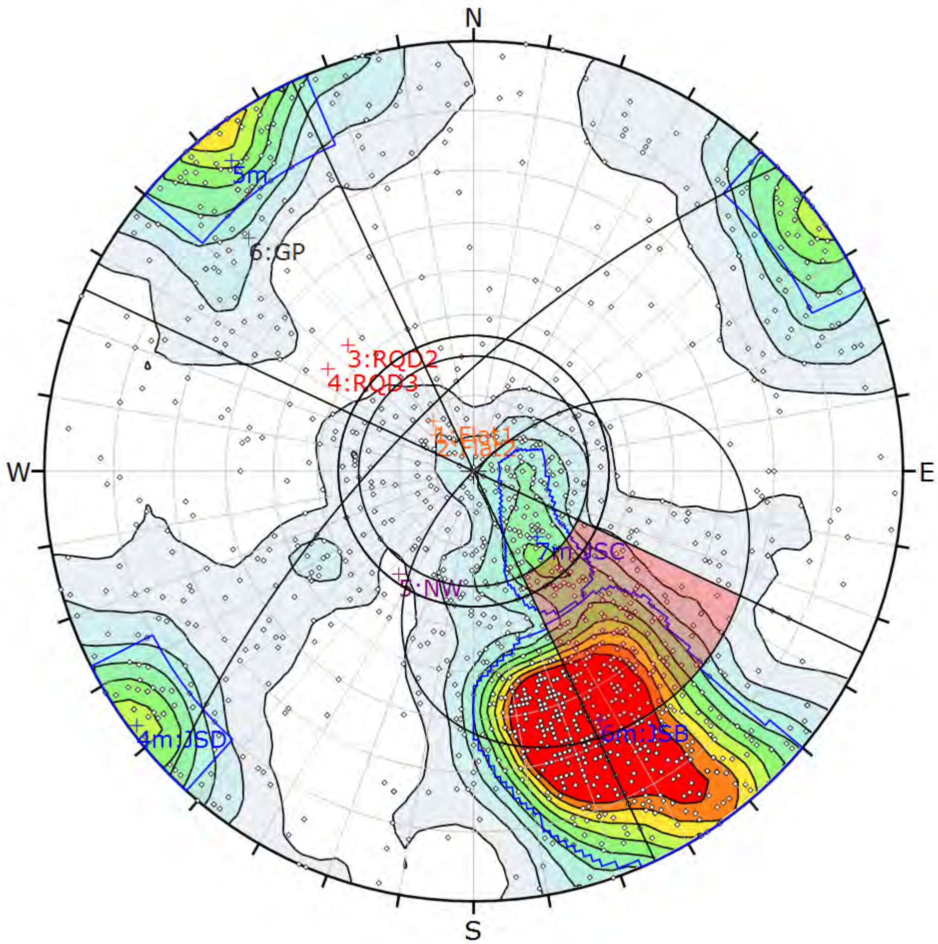
Maximum Density	7.26%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	70
Slope Dip Direction	155
Friction Angle	30°

	Critical	Total	%
Wedge Sliding	4	6	66.67%

Plot Mode	Pole Vectors
Vector Count	740 (740 Entries)
Intersection Mode	User and Mean Set Planes
Intersections Count	6
Hemisphere	Lower
Projection	Equal Angle

1. Central-South: Planar



Symbol	Feature
◇	Pole Vectors

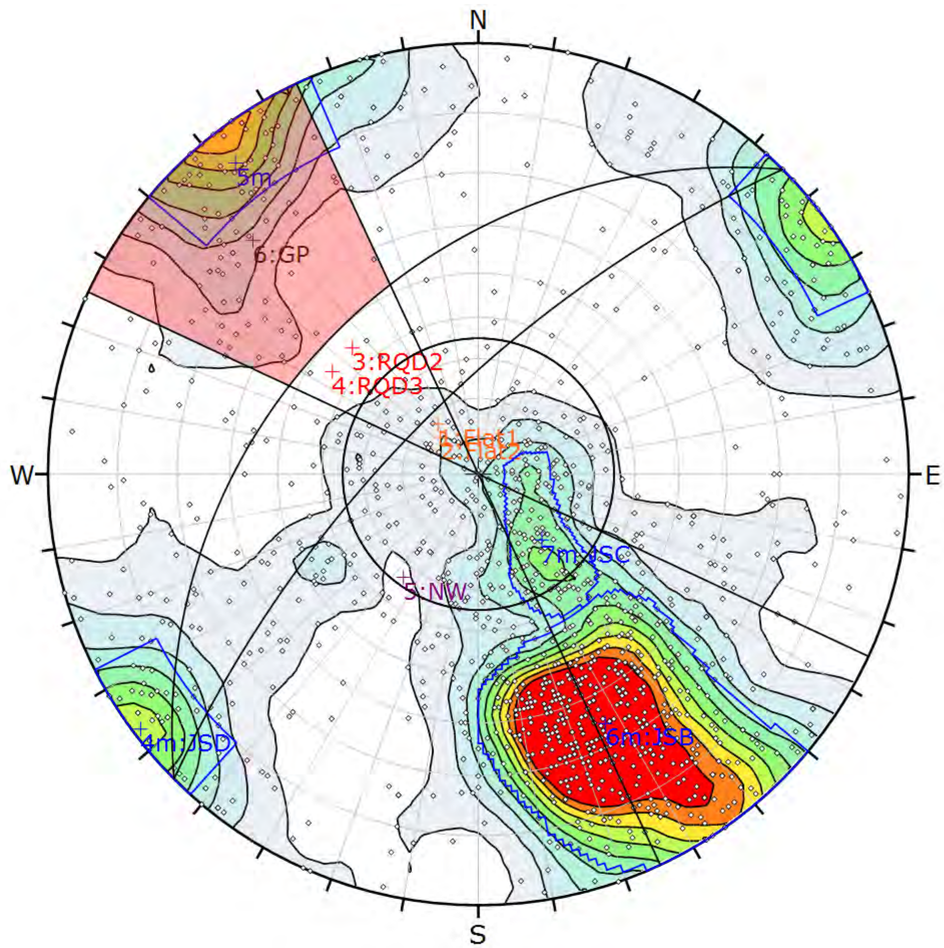
Color	Density Concentrations
	0.00 - 0.50
	0.50 - 1.00
	1.00 - 1.50
	1.50 - 2.00
	2.00 - 2.50
	2.50 - 3.00
	3.00 - 3.50
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

Maximum Density	8.09%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding		
Slope Dip	70		
Slope Dip Direction	315		
Friction Angle	30°		
Lateral Limits	20°		
	Critical	**Total**	**%**
Planar Sliding (All)	209	1341	15.59%
Planar Sliding (Set 6)	151	507	29.78%
Planar Sliding (Set 7)	34	103	33.01%

Plot Mode	Pole Vectors
Vector Count	1341 (1341 Entries)
Hemisphere	Lower
Projection	Equal Angle

2. Central-South: Toppling



Symbol	Feature
◇	Pole Vectors

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

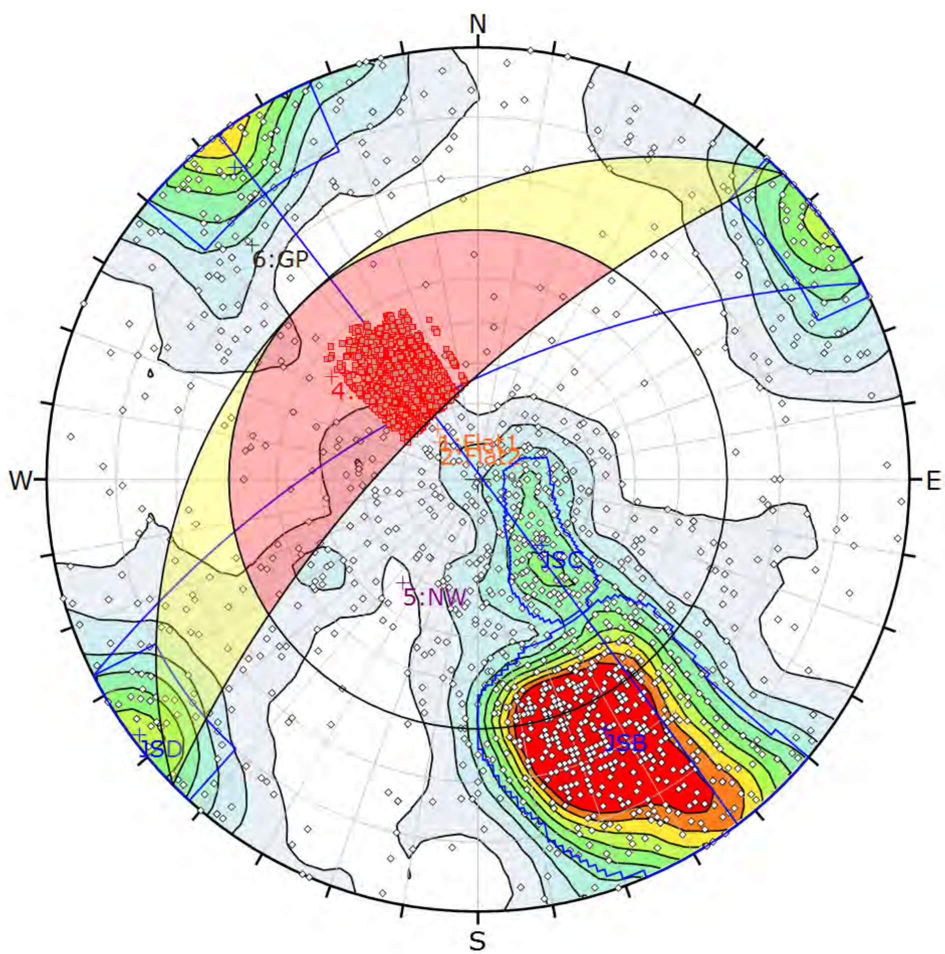
Maximum Density	8.09%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Flexural Toppling
Slope Dip	70
Slope Dip Direction	315
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Flexural Toppling (All)	94	1341	7.01%
Flexural Toppling (Set 5)	48	49	97.96%

Plot Mode	Pole Vectors
Vector Count	1341 (1341 Entries)
Hemisphere	Lower
Projection	Equal Angle

3.1 Central-South: Wedge
JSB vs JSD



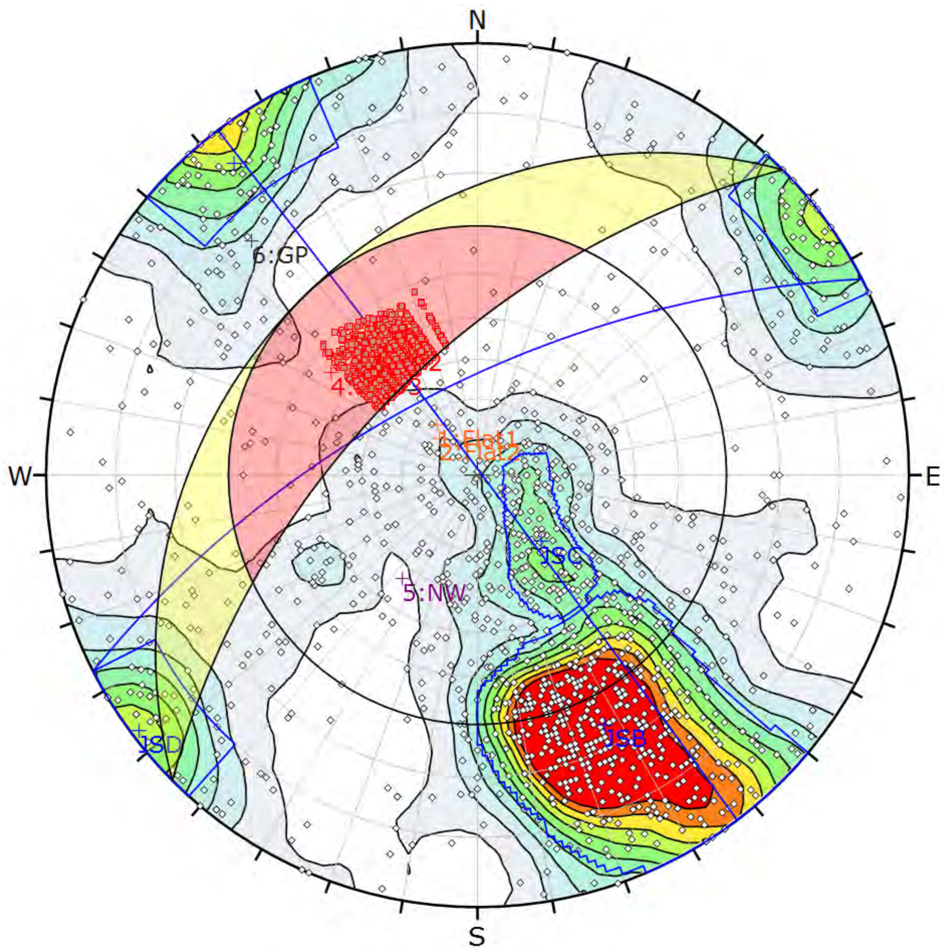
Symbol	Feature
◇	Pole Vectors
▫	Critical Intersection

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <
Maximum Density	8.09%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding		
Slope Dip	70		
Slope Dip Direction	315		
Friction Angle	30°		
	Critical	Total	%
Wedge Sliding	21873	35490	61.63%

Plot Mode	Pole Vectors
Vector Count	1341 (1341 Entries)
Intersection Mode	Set 4 vs Set 6 Planes
Intersections Count	35490
Hemisphere	Lower
Projection	Equal Angle

3.1.1 Central-South: Wedge
JSB vs JSD



Symbol	Feature
◇	Pole Vectors
▫	Critical Intersection

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

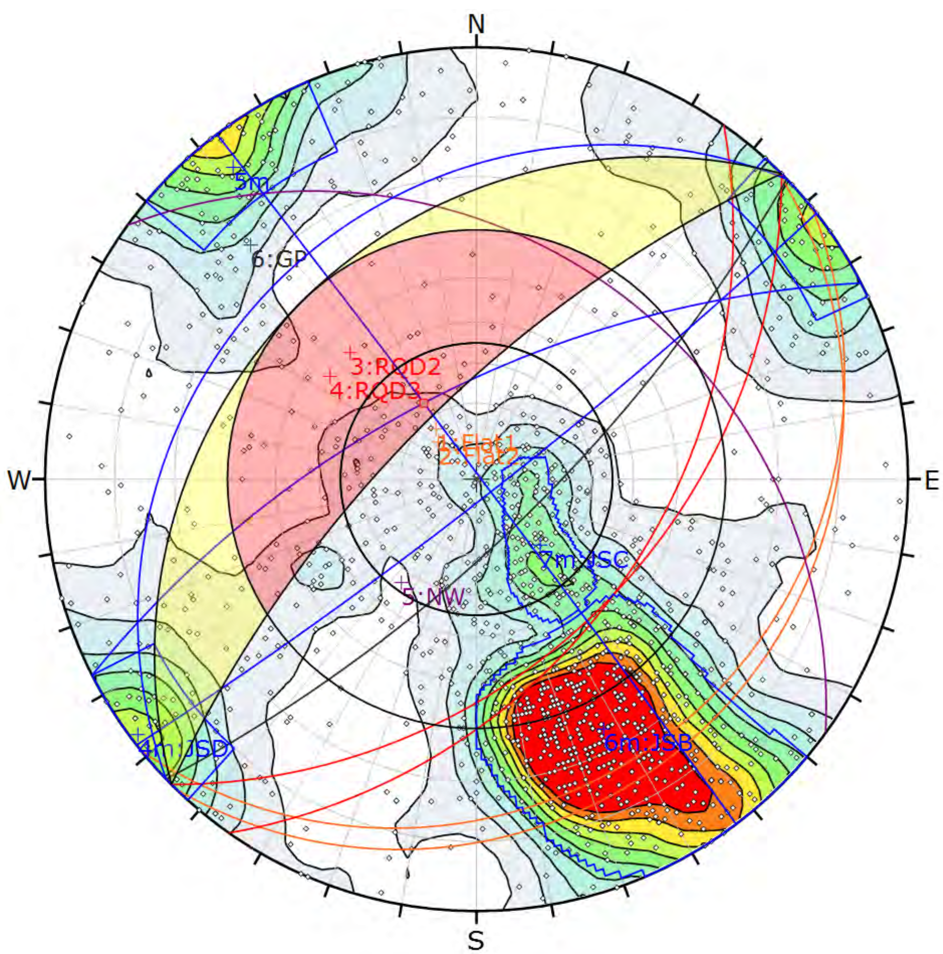
Maximum Density	8.09%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	60
Slope Dip Direction	315
Friction Angle	30°

	Critical	Total	%
Wedge Sliding	11650	35490	32.83%

Plot Mode	Pole Vectors
Vector Count	1341 (1341 Entries)
Intersection Mode	Set 4 vs Set 6 Planes
Intersections Count	35490
Hemisphere	Lower
Projection	Equal Angle

3.2 Central-South: Wedge User and Mean Set Planes



Symbol	Feature
◇	Pole Vectors
■	Critical Intersection

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <

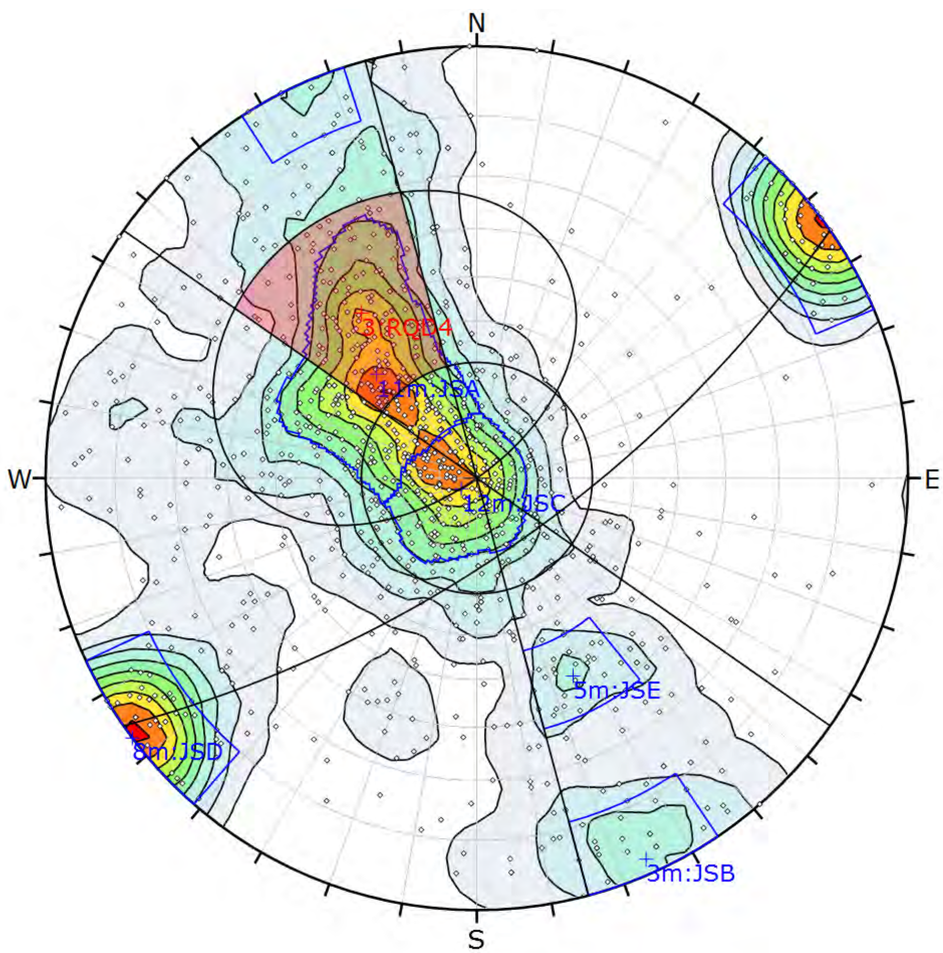
Maximum Density	8.09%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	70
Slope Dip Direction	315
Friction Angle	30°

	Critical	Total	%
Wedge Sliding	1	45	2.22%

Plot Mode	Pole Vectors
Vector Count	1341 (1341 Entries)
Intersection Mode	User and Mean Set Planes
Intersections Count	45
Hemisphere	Lower
Projection	Equal Angle

1. West-North: Planar



Symbol	Feature
◇	Pole Vectors

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
	3.50 - 4.00
	4.00 - 4.50
	4.50 <
Maximum Density	4.63%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	70
Slope Dip Direction	145
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Planar Sliding (All)	168	1033	16.26%
Planar Sliding (Set 11)	141	266	53.01%

Plot Mode	Pole Vectors
Vector Count	1033 (1033 Entries)
Hemisphere	Lower
Projection	Equal Angle